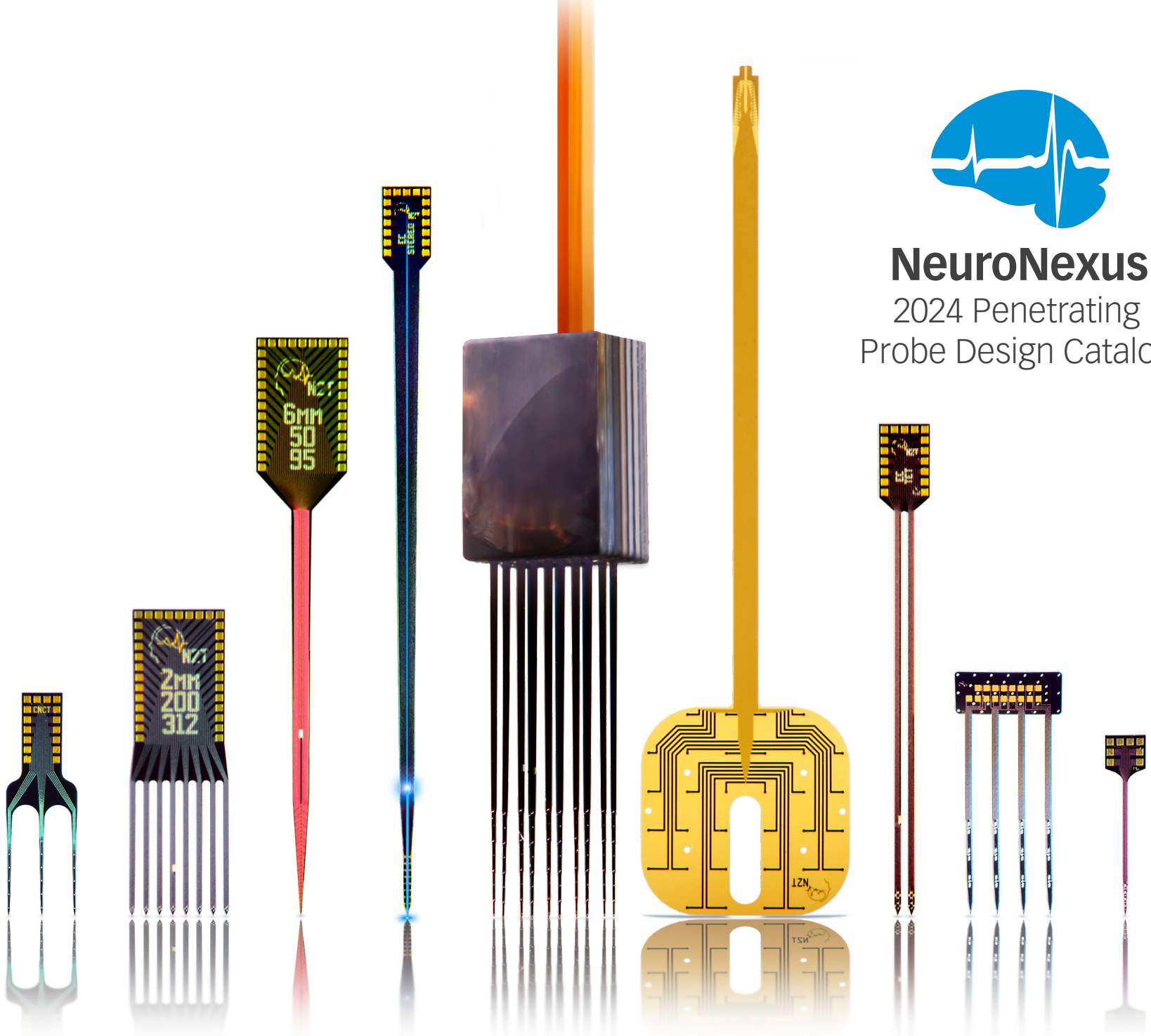




NeuroNexus

2024 Penetrating
Probe Design Catalog



Greetings and welcome to NeuroNexus!

We appreciate your interest in our work. As we celebrate our 20th anniversary this year, we take pride in our journey from a pioneering neurotechnology spin-out of the University of Michigan to becoming leaders in electrophysiology solutions and tools. It all started with the first commercial silicon probes, which literally created the probe market. Today, we offer a comprehensive range of high-quality silicon and polymer probes and grids, powerful instrumentation, and our innovative, highly performant Radiens software platform.

This catalog is not just a display of our products. **It is a celebration of two decades of innovation and dedication to the neuroscience community.** We recognize the complexities and challenges of brain research and are eager to enable your experiments with our advanced tools.

Please take your time to explore our offerings and do not hesitate to get in touch with us directly to discuss how we can support your research needs and ideas. Let's commemorate this milestone by continuing to explore the exciting possibilities ahead. Here's to another 20 years of pioneering and partnership!

Happy browsing!

A handwritten signature in black ink, consisting of a stylized 'D' followed by a 'K'.

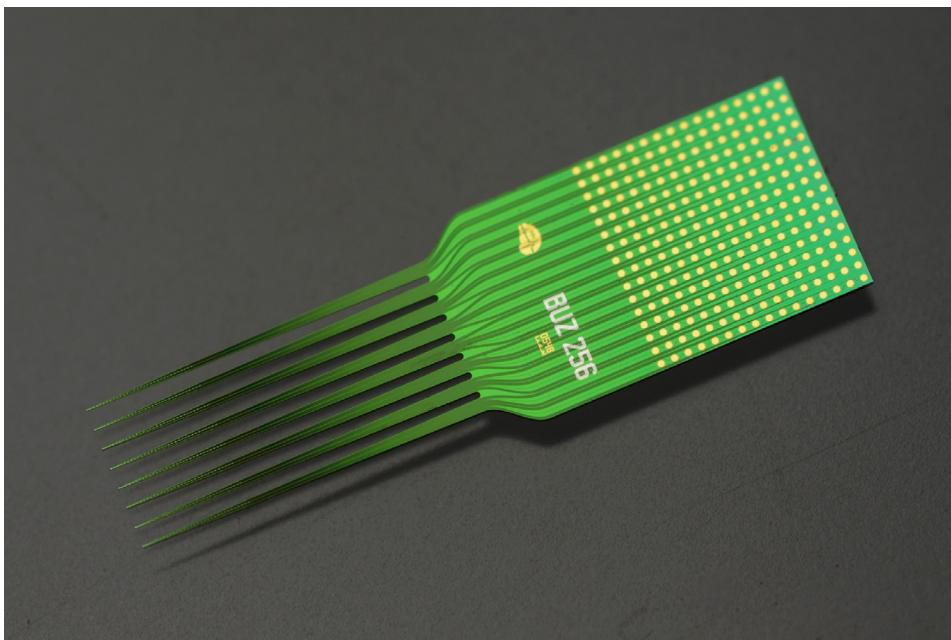
Daryl Kipke, PhD
Founder and President



Penetrating Probes for targets < 10mm

The NeuroNexus Probe

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SPECIFICATIONS

Usage	Single unit, Multiple unit, LFP. Record and stimulate. Acute and chronic.
Electrode Site Material	Iridium (standard), Platinum (custom), Gold (custom)
Electrode Thickness	15 μm or 50 μm (varies by design)
Electrode Length	2 - 10 mm (varies by design)
Channel Count	16, 32, 64, 128, 256 (varies by design)

NeuroNexus **Standard Probes** are fabricated using state-of-the-art silicon MEMS technology. Standard Probes are used in labs worldwide for single unit, multiple unit, and local field potential (LFP) recording and stimulation, in acute and chronic applications.

Consistent Results – NeuroNexus probes are produced with reliable mechanical, geometric, and electrical characteristics. This means fewer variables for you to manage.

A Toolbox of Designs – We offer a huge variety of electrode array designs for different applications, brain structures, and animal models. Combined with our vast packaging options, you are sure to find a probe suited to your needs – and if not, we can design a probe that will.

Acute and Chronic – Standard Probes can be used successfully in both acute and chronic applications.

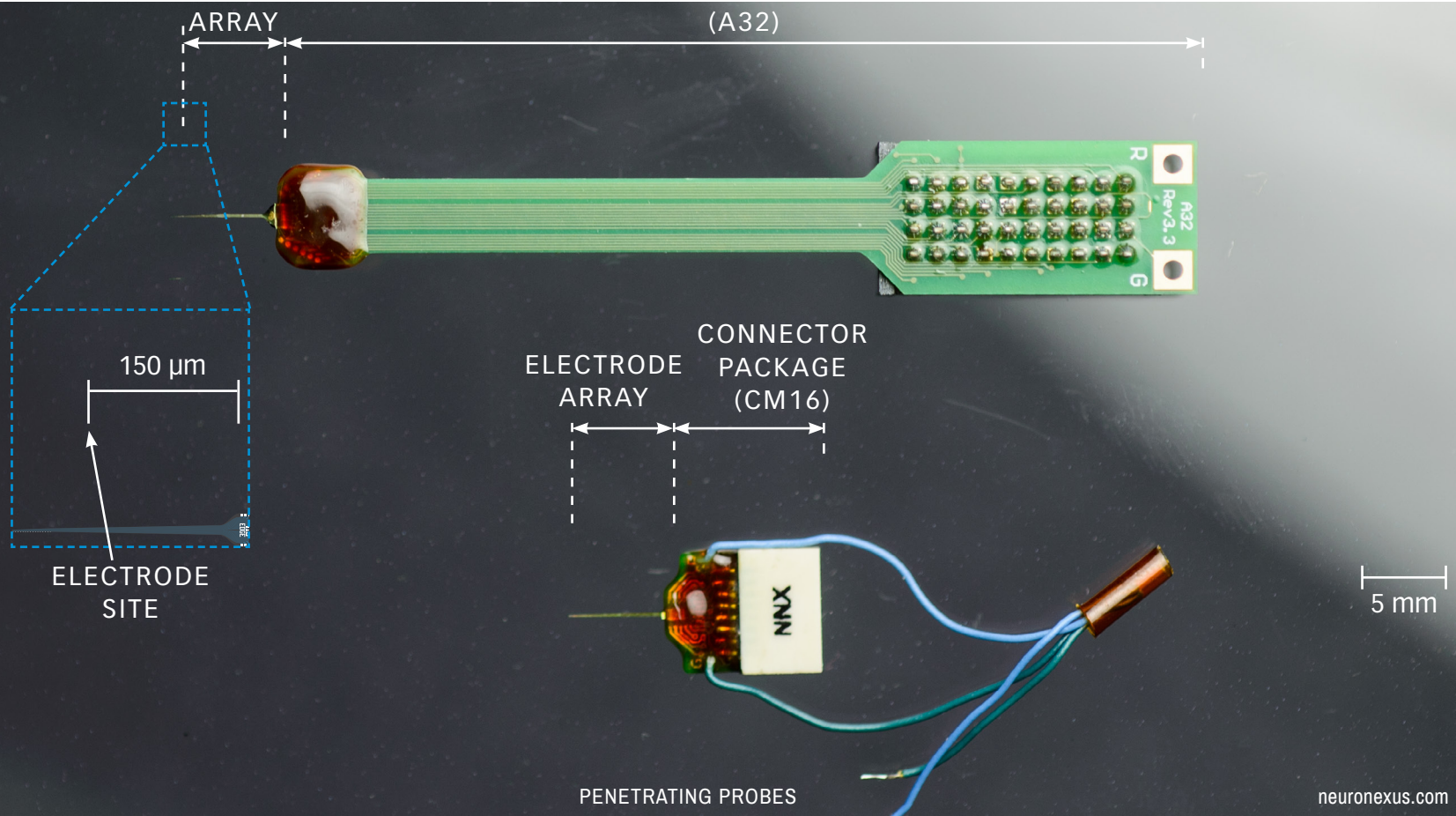
Connect to Any System – Each microelectrode array is matched with a connector package to connect to a headstage. NeuroNexus collaborates with system manufacturers to ensure our probes connect seamlessly.

Neural Probes: In Detail

NeuroNexus products are at the forefront of neural interface technology. Our meticulously crafted neural probes can be broken down into two parts: the **electrode array** and the **connector package**.

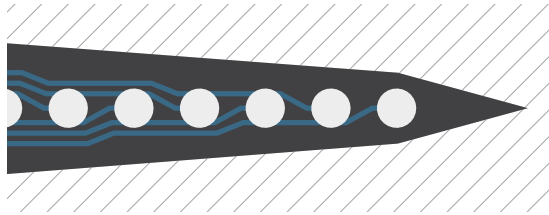
The **electrode array** interfaces with neural tissue by recording brain activity or delivering stimuli through precisely placed electrode sites. NeuroNexus probes are suitable for implanting into cortex or deep structures, as well as for interfacing with the brain or nerve surface.

The **connector package** provides the interface between the electrode array and the external instrumentation. Each package includes a specific **connector** type. The same electrode array can be paired with different connector packages, giving you a high degree of flexibility in configuring the best neural probe to suit your experimental requirements.

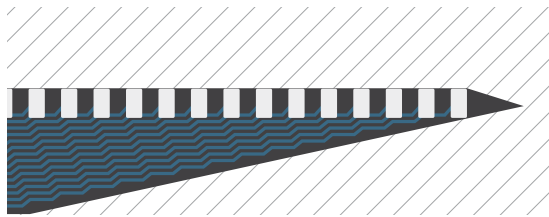


STANDARD ARRAY SITE LAYOUTS

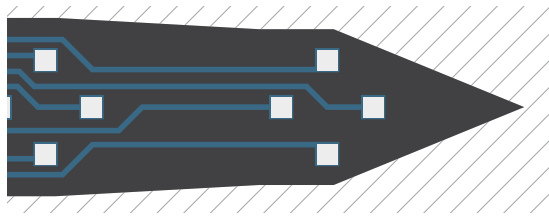
Below are examples of the different types of electrode array tips you can find in our **Electrode Array Design** section.



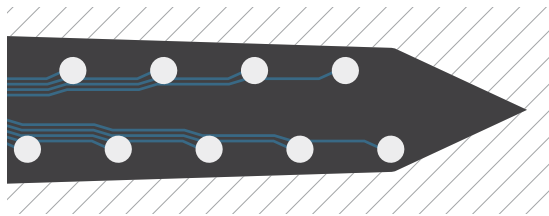
Linear electrode arrays are the foundation for multi-channel recordings. The laminar design allows for a longer area of coverage than a single tip site, and either facilitates or replaces the need for passage-type experiments. Linear electrode arrays fit the widest range of applications.



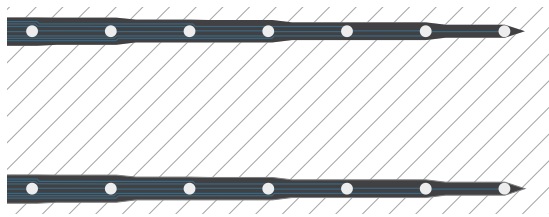
Edge sites are similar to the Linear layout, but electrode sites are strategically positioned at the edge of the substrate.



A **Tetrode** is an arrangement of four electrode sites placed close together, allowing for high-quality cell discrimination in recordings.



Polytrode electrode site layouts come in two variations: Poly2 (two columns of sites, shown left), or Poly3 (three columns of sites). They have a mix of linear and tetrode benefits, with sites close enough together to allow a degree of multiple representation across different sites, while sampling a larger space.



Multi-shank electrode arrays provide a two-dimensional representation of the brain. By controlling shank and site spacing, a more detailed understanding can be obtained of a larger space in the brain. Some multi-shank designs incorporate tetrode and polytrode site arrangements.

"Since NeuroNexus began fabricating probes with high reliability and reasonable costs, we virtually stopped using wire electrodes and monitor electrical activity with silicon probes. It is a one-way process: once one begins to record with silicon probes, he/she never goes back to wires."

- Dr. György Buzsáki, New York University

CUSTOM DESIGN

In certain research scenarios, a unique probe design may be required.

To help researchers achieve their goals, NeuroNexus offers a custom probe design service that provides unique access to a virtually unlimited design space. Almost any feature of a probe can be tailored to suit your application - and all it takes to get started is a sketch.

Each custom probe includes:

- Consultation with our engineering team to validate feasibility of your proposed design
- Translation of your design into a CAD layout
- Formal design review with our technical team
- State-of-the-art microfabrication of your design
- Packaging and testing of the fabricated probes

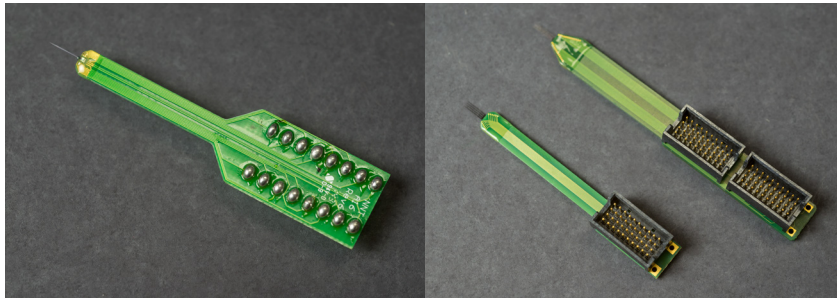
CONNECTOR PACKAGE AND HEADSTAGE INTERFACE

Standard probes can interface with almost any commercially available headstage via the **connector package**, which consists of a specialized circuit board and your choice of connector.

To configure a probe, you must select an appropriate electrode array for your experiment, and combine it with a package that matches your headstage/data acquisition system.

At the first level of classification, packages can be classified as acute or chronic, though it is best to consider your existing data acquisition systems and experiment/animal model type. Other options include optogenetics, fluid delivery, and MR compatibility. Below is a list of our most commonly requested connector packages.

ACUTE



LEFT: A16 Package

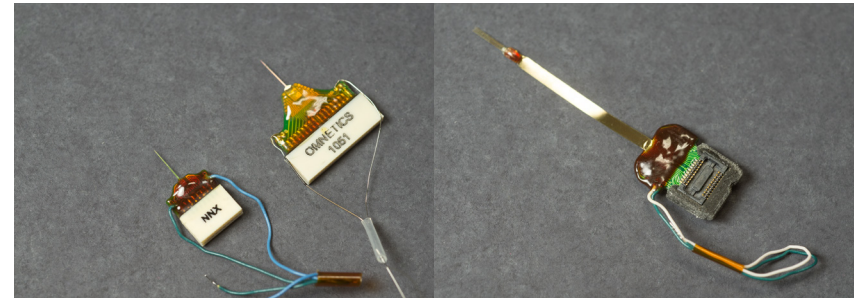
RIGHT: A32 (left) and A64 (right) Packages

The A-Series package is suitable for acute experiments. The package is easy to handle and can be used with standard stereotactic frames.

Available acute packages:

- A16 / A32 / A64 / AC128
- OA16LP / OA32LP / OA64LP / OA32LP_V2 / OA64LP_V2
- Q4
- MRA16

CHRONIC



LEFT: CM16LP (left) and CM32 (right) Packages

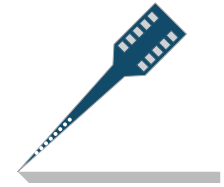
RIGHT: HZ32 Package

Multiple packages can be specified for chronic experiments. The CM-Series is small and lightweight, permitting chronic implantation in mice. The H-Series packages include a robust, flexible cable, enabling microdrive use or floating implants. The Z-Series utilizes TDT's patented Zif Clip™ technology.

Available chronic packages:

- AV64 / AV128 / AV256 / AV164 / AV128 / AVH64 / AVH128 / AVH256 / AVIH64 / AVIH128
- CM16LP / CM32 / SEACM64
- CQ4 / HQ4 / EIB / OCQ4LP
- H16 / HC16 / HZ16 / H32 / HC32 / HZ32 / H64LP / HC64 / HZ64 / HC128
- MR_CM16 / MR_H16 / MR_CM32 / MR_H32 / MR_HC32 / MR_H64 / MR_HC64
- OCM16LP / OCM32LP / OZ16LP / OZ32LP / OH64LP
- X3-16 / X3-H16 / X3-32 / X3-H32 / X3-64 / X3-H64 / X6-128 / X6-128L / X6-H128
- Z16 / Z32 / Z64

How to Configure a NeuroNexus Probe



A complete NeuroNexus neural probe assembly consists of two parts: an electrode array, and a package. Both must be configured.

Step 1:

Browse the catalog to find an electrode array that meets your needs. The Electrode arrays are grouped first by **type** (A, E, V, etc.), then by **channel count**, and finally by **length**.

Step 2:

Determine the connector on your headstage, and find a package that will connect to it.

EXAMPLE 1:

A user specifies an A1x32-6mm-50-177 electrode array. The lab uses a Plexon HST/16V-G20 headstage, which has an 18-pin Omnetics Nano strip connector. The user can specify either a CM16LP or an H16 package, both of which have 18-pin Omnetics Nano strip connectors. The user desires connector standoff from the implant site, so the H16 package is selected. Because the A1x32-6mm-50-177 electrode comes in two thicknesses, that must be specified as well.

This is the resulting part number for this probe:

A1x32-6mm-50-177-H16-50

Electrode Array

Package Thickness

EXAMPLE 2:

A user wants to combine optical stimulation with neuronal recording using an A4x4-3mm-100-125-703 electrode array. The lab uses a TDT recording system with a 16 channel Zif Clip™ headstage. Because the user wants to specify an optoelectrode, the OZ16 package is selected. Because the electrode array has multiple shanks, the user must co-ordinate fiber placement with the sales co-ordinator. Because the A4x4-3mm-100-125-703 electrode only comes in one thickness, that value can be omitted from the part number.

This is the resulting part number for this probe:

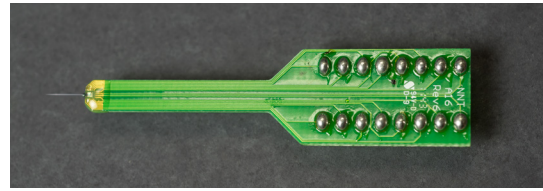
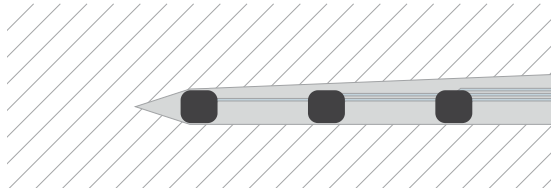
A4x4-3mm-125-703-OZ16

Electrode Array

Package

EXAMPLE CONFIGURATIONS

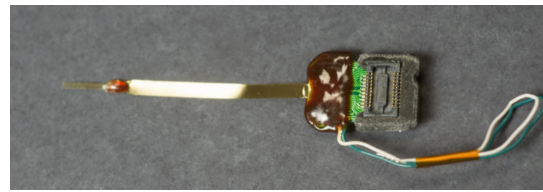
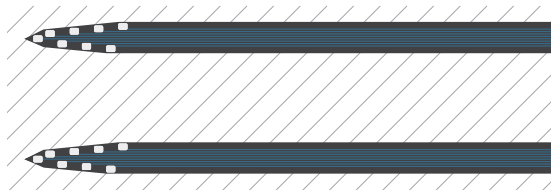
A1x16-5mm-25-177-A16



This example shows an A1x16-5mm-25-177 linear electrode array configured with an A16 connector package. The electrode is 5mm long, and electrode site coverage spans 375 μm .

The A16 package utilizes Dual Inline Pin connections. Because of its size, this connector package is best suited for acute applications.

Buzsaki64-H64LP



This example shows a Buzsaki64 electrode array configured with a H64LP connector package. The Buzsaki64 electrode array has a unique "octrode" electrode site layout which spans 140 μm vertically and 1400 μm horizontally.

The H64LP connector package utilizes two 32-channel Omnetics Nano connectors and includes a 30mm flex cable for connector standoff.



**NEURONEXUS
CAN HELP**

If you are not sure what electrode array or package you need for your experiment, please contact us for assistance.

NeuroNexus staff have decades of combined experience in neuroscience and neural engineering. Additionally, we may be able to direct you to other researchers in hundreds of labs all over the world who have found success using NeuroNexus products.

To contact us, please email support@neuronexus.com, or call +1.734.913.8858.

Our office hours are 8am - 5pm (Eastern Time Zone), Monday - Friday.

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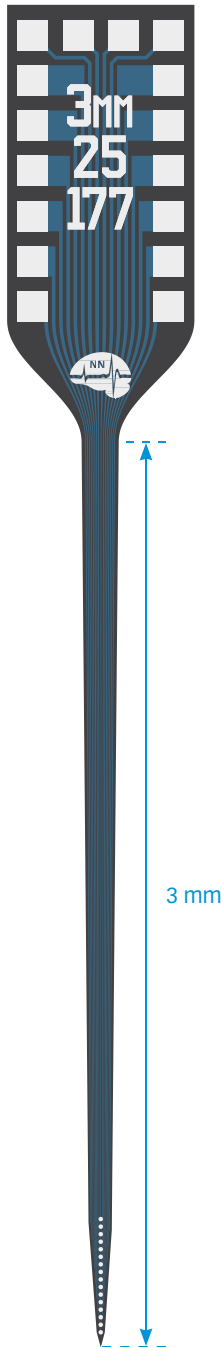
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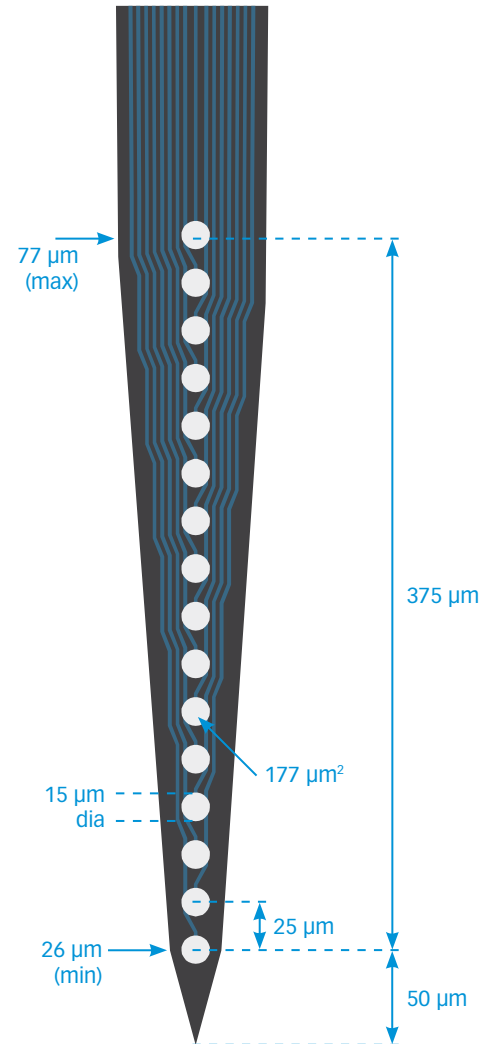
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A1x16-3mm-25-177



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

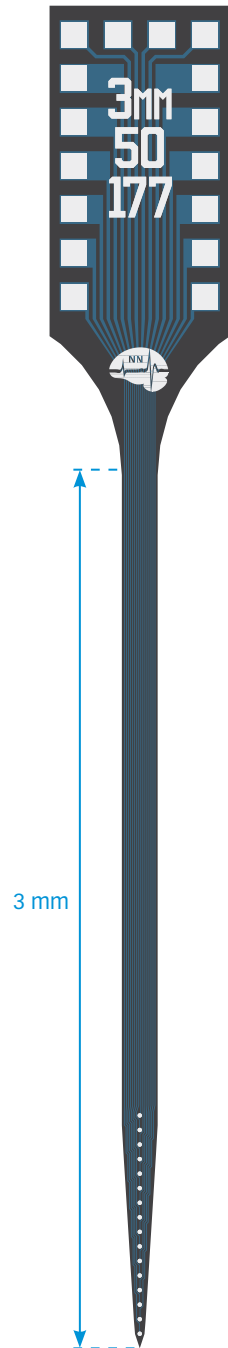
X-SERIES
X3_16
X3_H16

Thickness

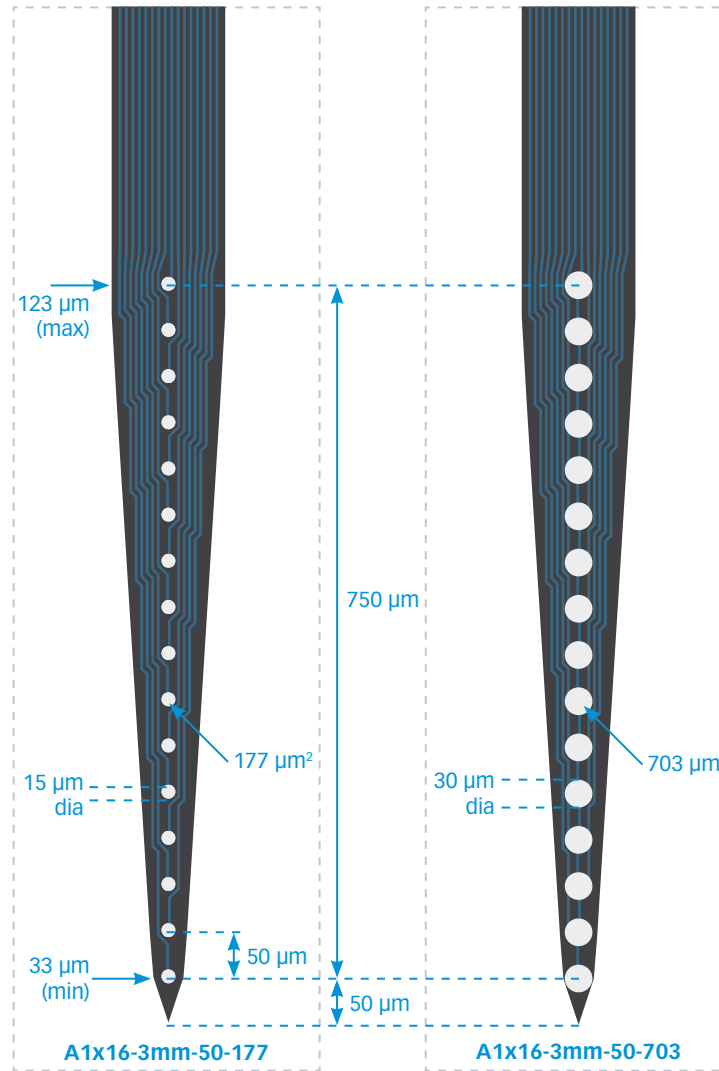
15 μm
50 μm

A1x16-3mm-50-177

A1x16-3mm-50-703



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

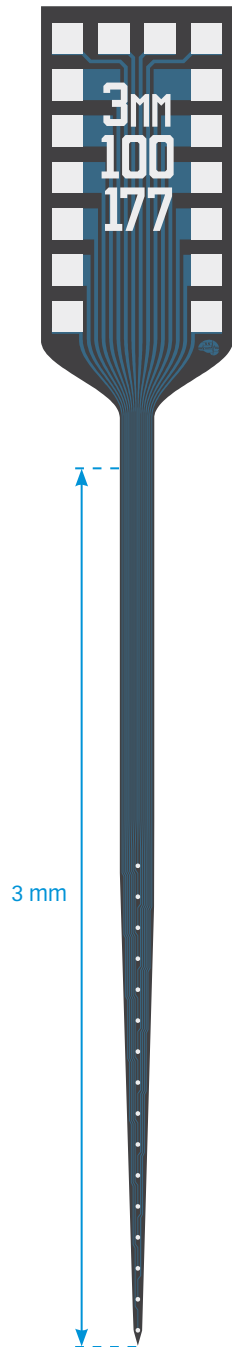
X-SERIES
X3_16
X3_H16

Thickness

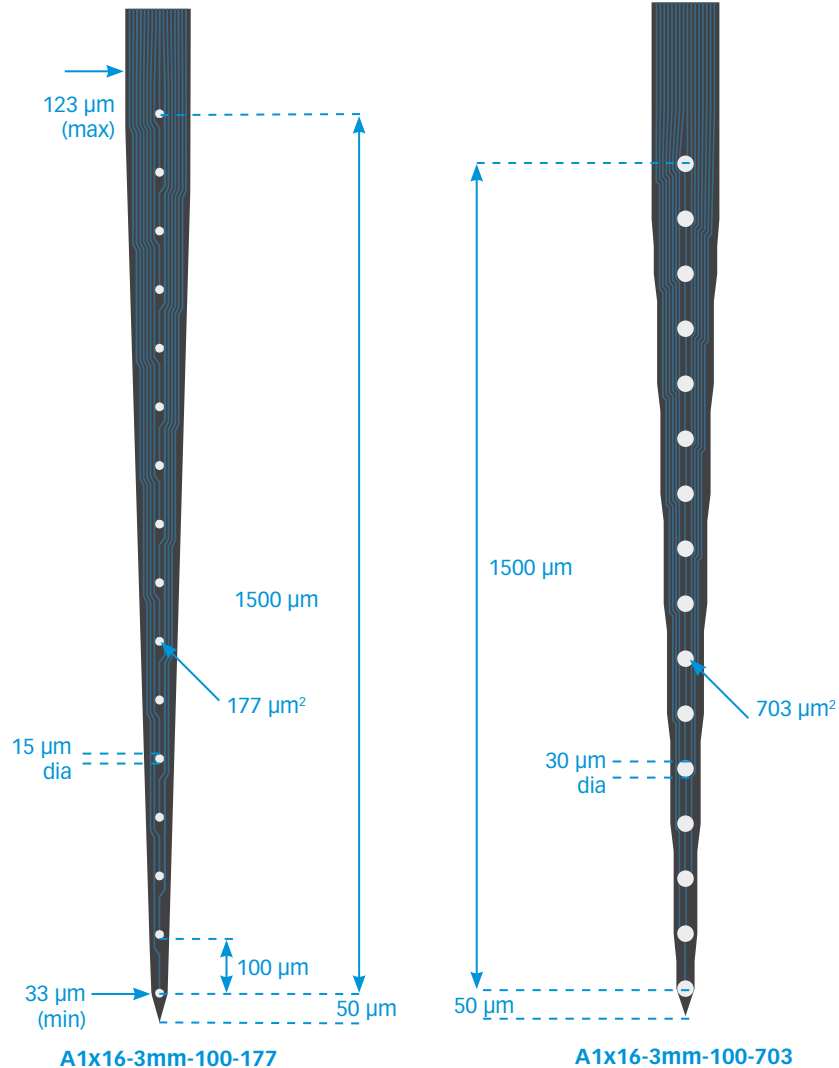
15 µm
50 µm

A1x16-3mm-100-177

A1x16-3mm-100-703



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

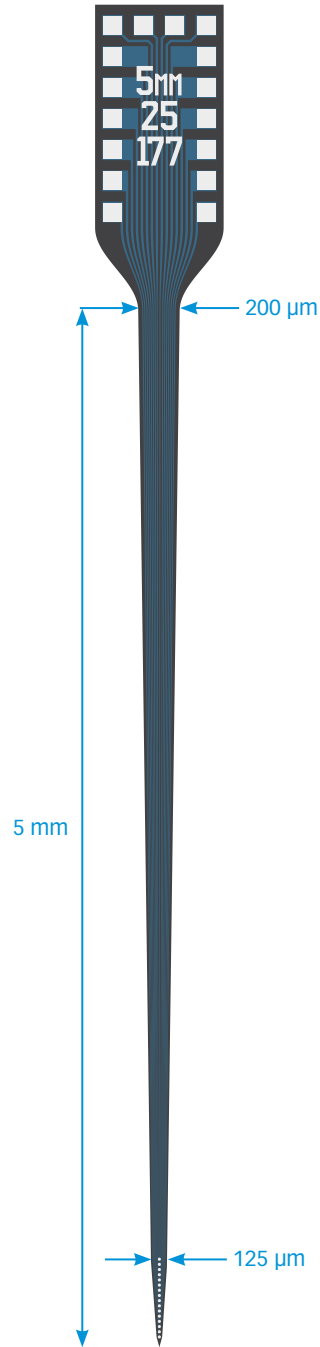
MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

X-SERIES
X3_16
X3_H16

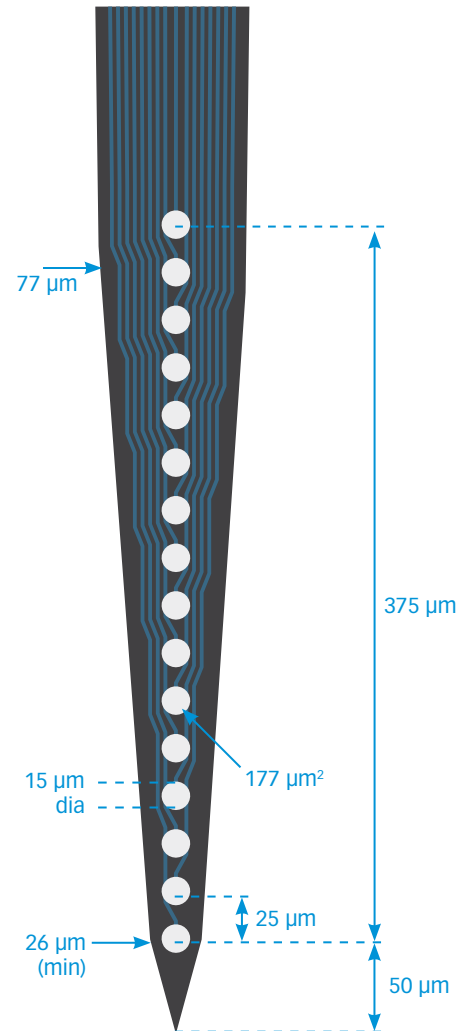
Thickness

15 µm
50 µm

A1x16-5mm-25-177



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

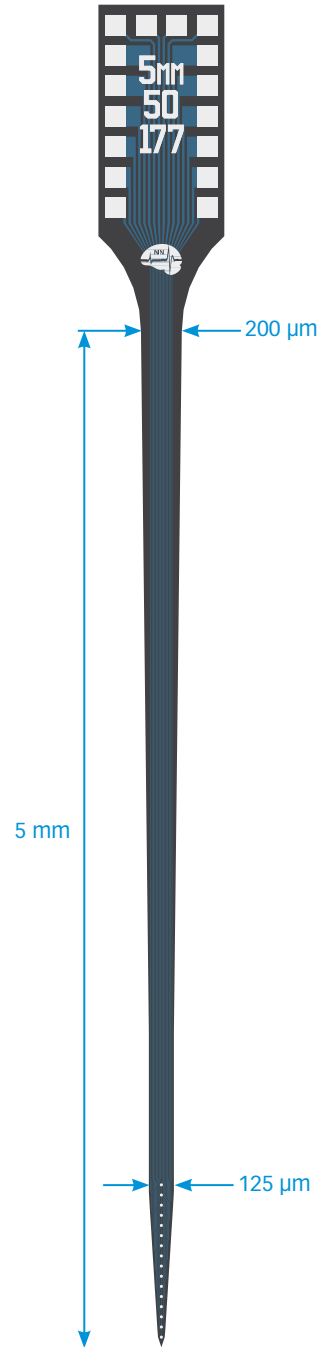
X-SERIES
X3_16
X3_H16

Thickness

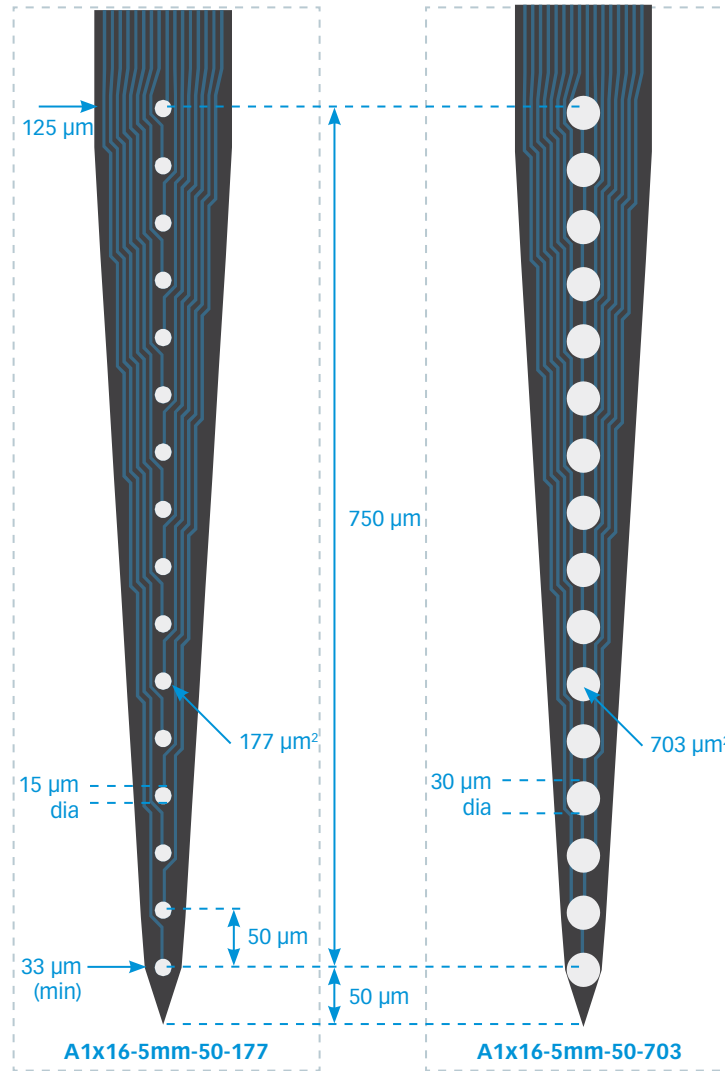
15 µm
50 µm

A1x16-5mm-50-177

A1x16-5mm-50-703



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

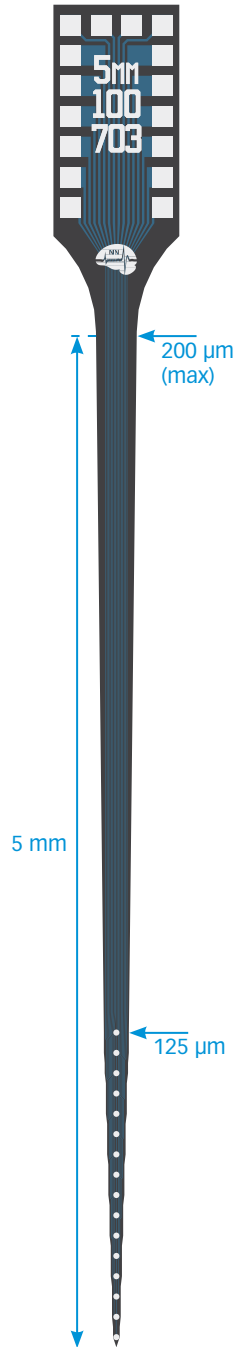
X-SERIES
X3_16
X3_H16

Thickness

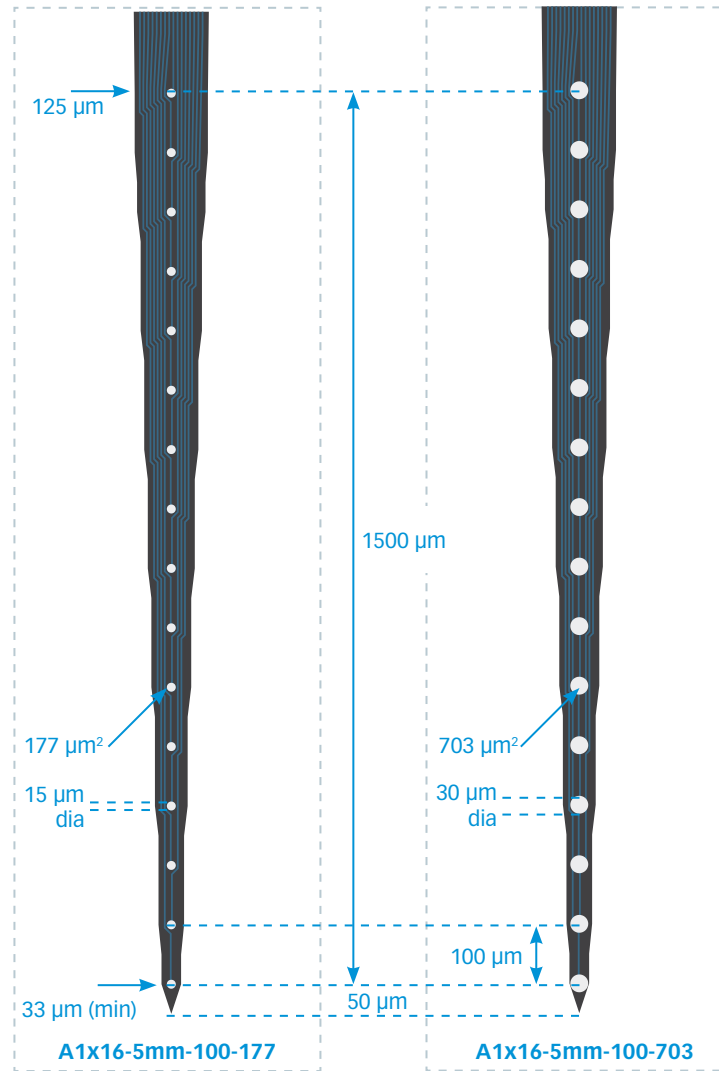
15 μm
50 μm

A1x16-5mm-100-177

A1x16-5mm-100-703



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

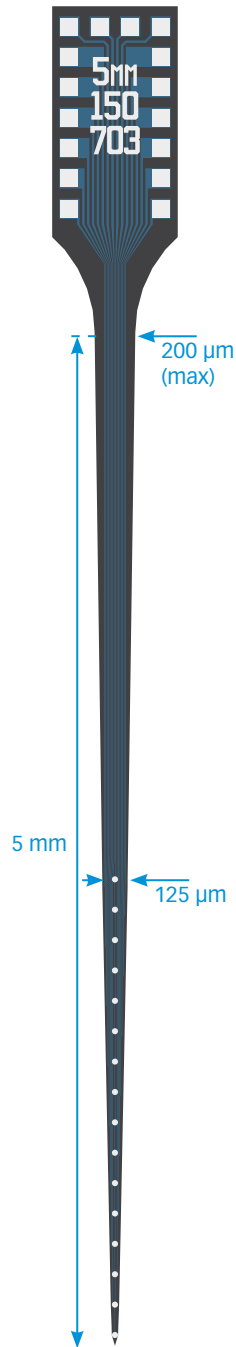
X-SERIES
X3_16
X3_H16

Thickness

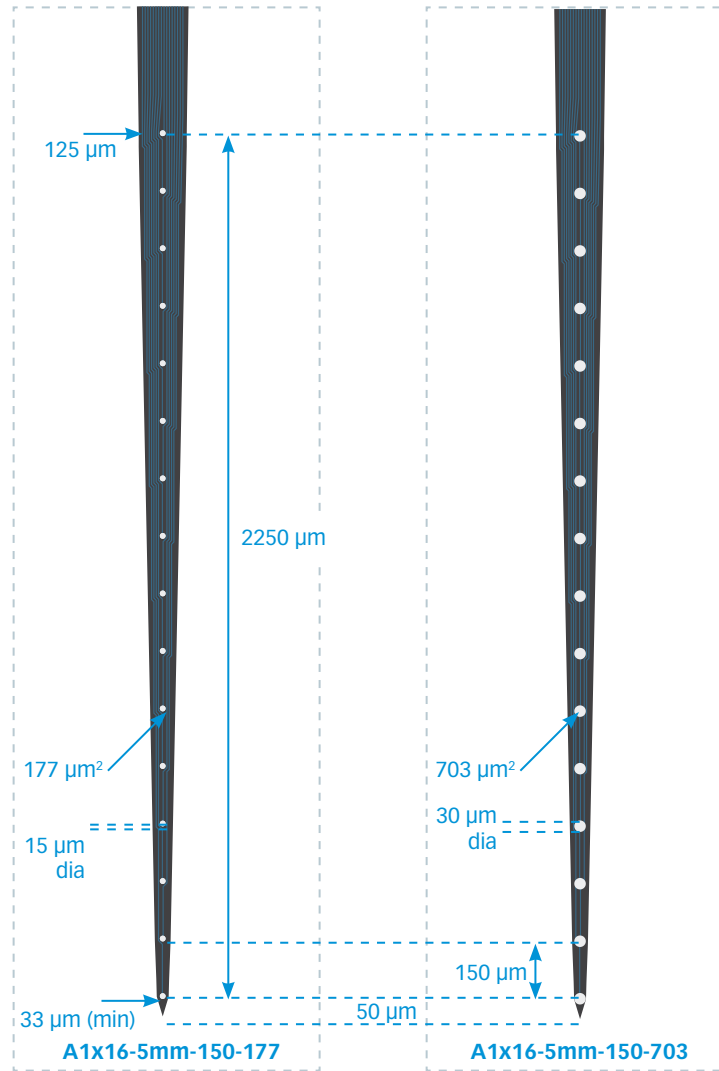
15 µm
50 µm

A1x16-5mm-150-177

A1x16-5mm-150-703



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

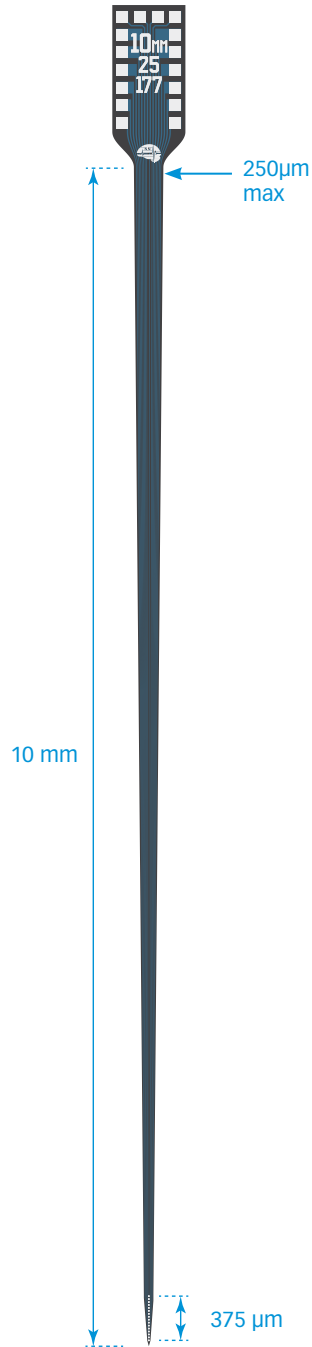
MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

X-SERIES
X3_16
X3_H16

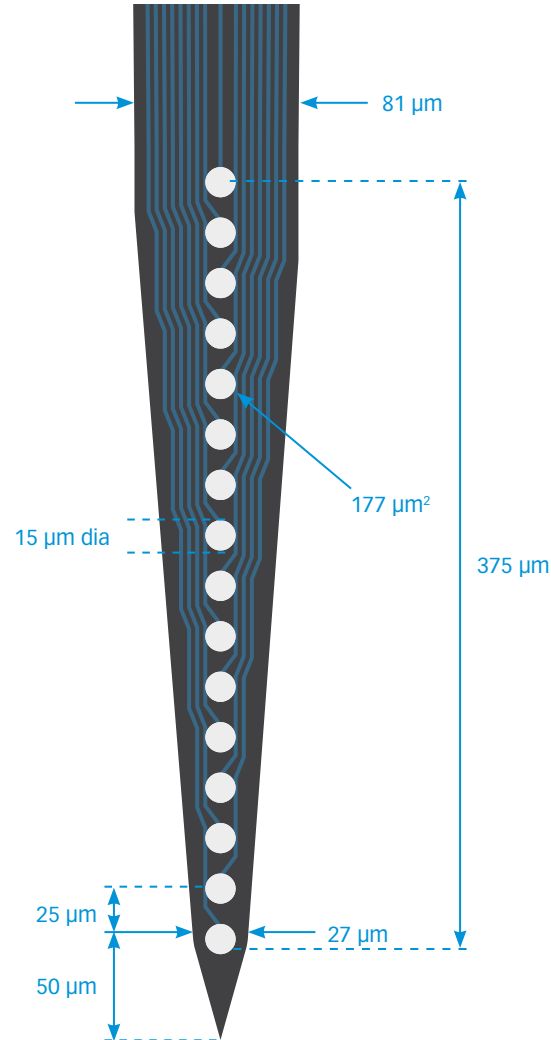
Thickness

15 μm
50 μm

A1x16-10mm-25-177



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

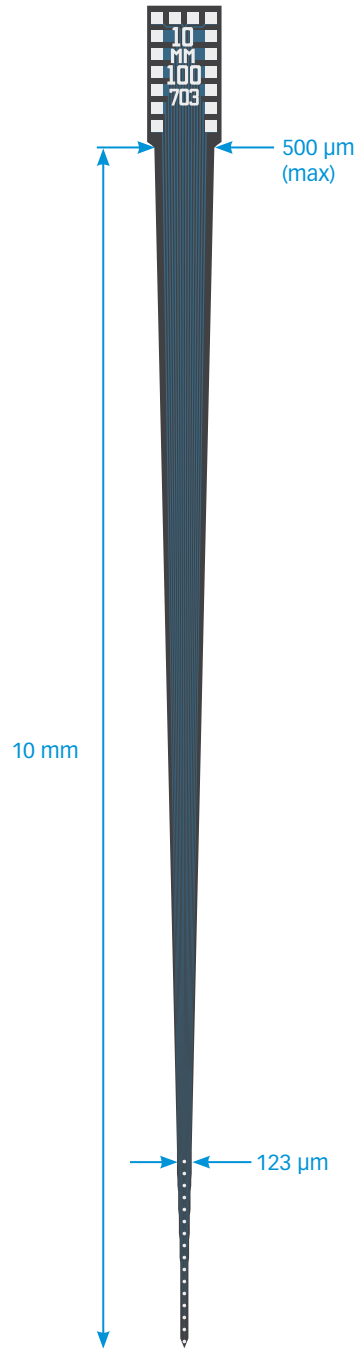
X-SERIES
X3_16
X3_H16

Thickness

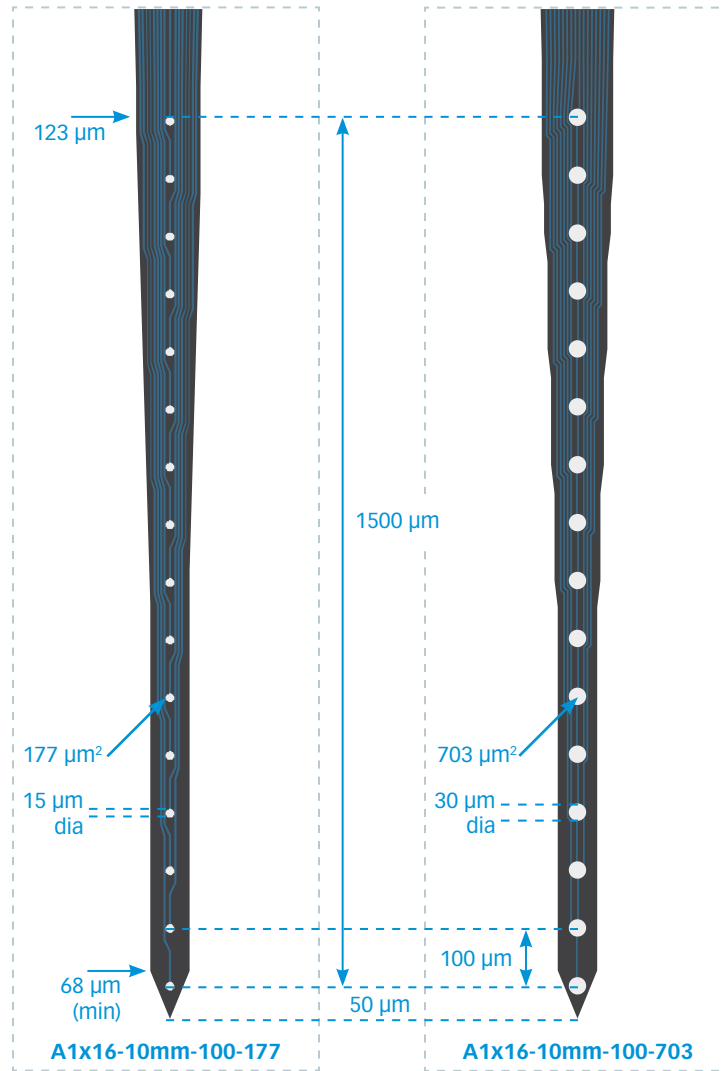
50 μm

A1x16-10mm-100-177

A1x16-10mm-100-703



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

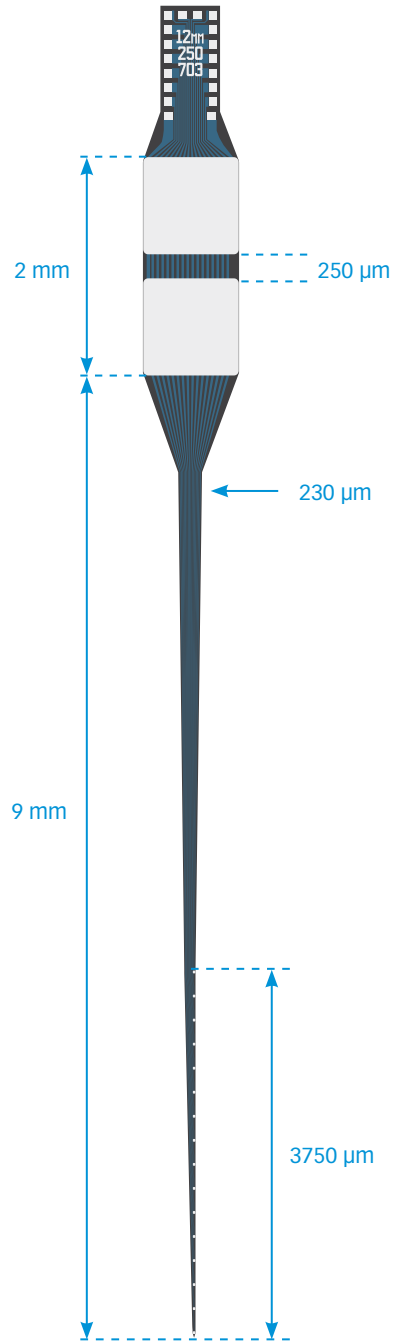
MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

X-SERIES
X3_16
X3_H16

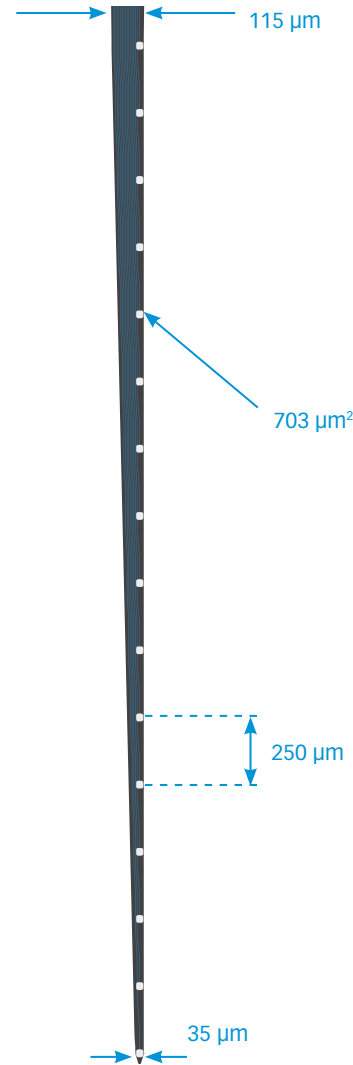
Thickness

15 µm
50 µm

A1x16-12mm-250-ref-gnd-703



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

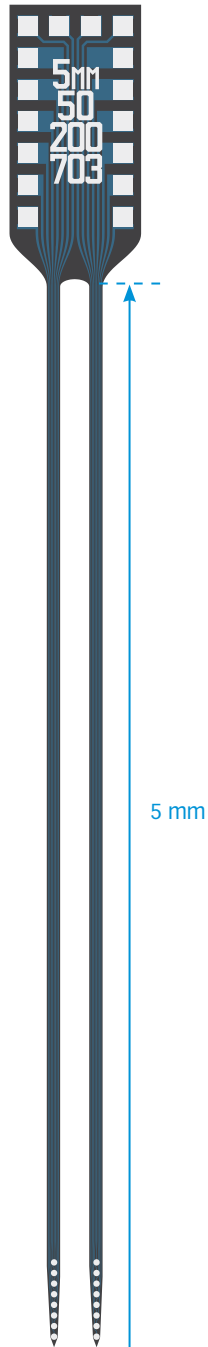
MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

X-SERIES
X3_16
X3_H16

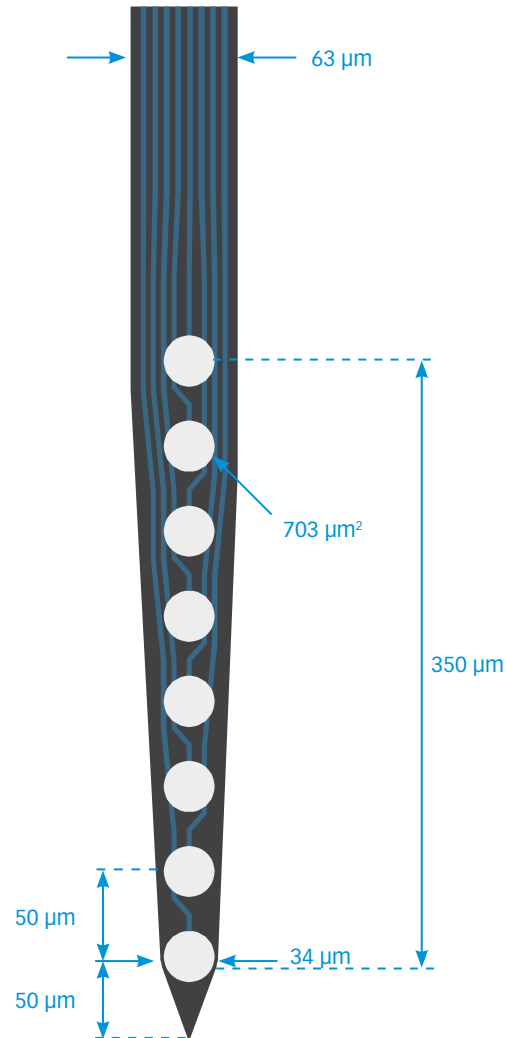
Thickness

50 μm

A2x8-5mm-50-200-703



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

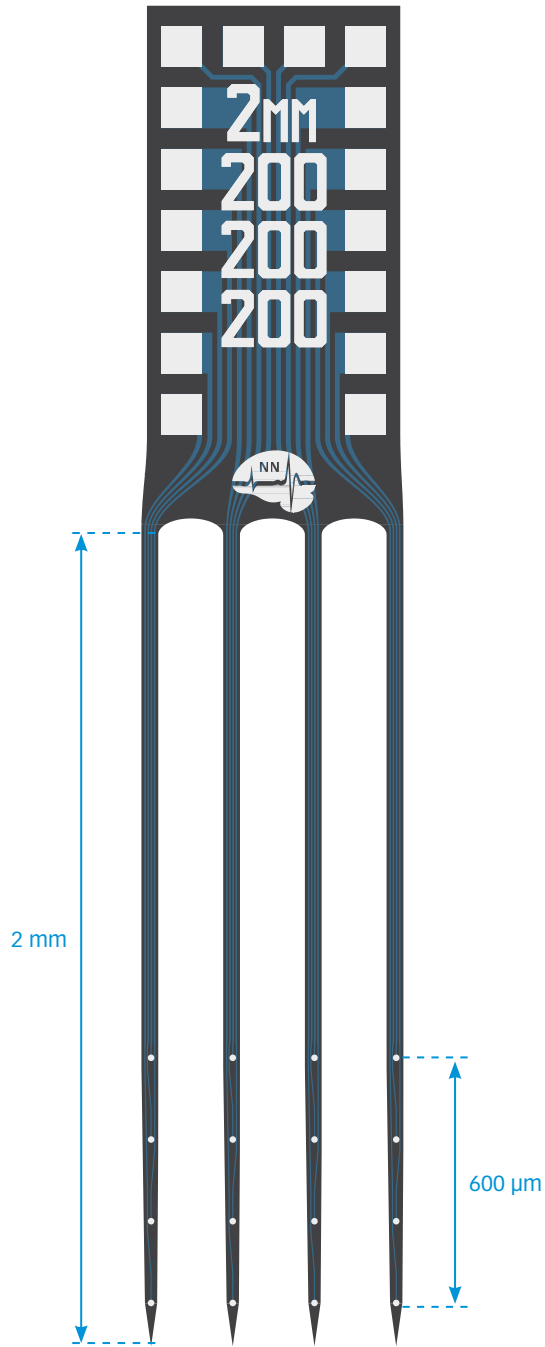
MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

X-SERIES
X3_16
X3_H16

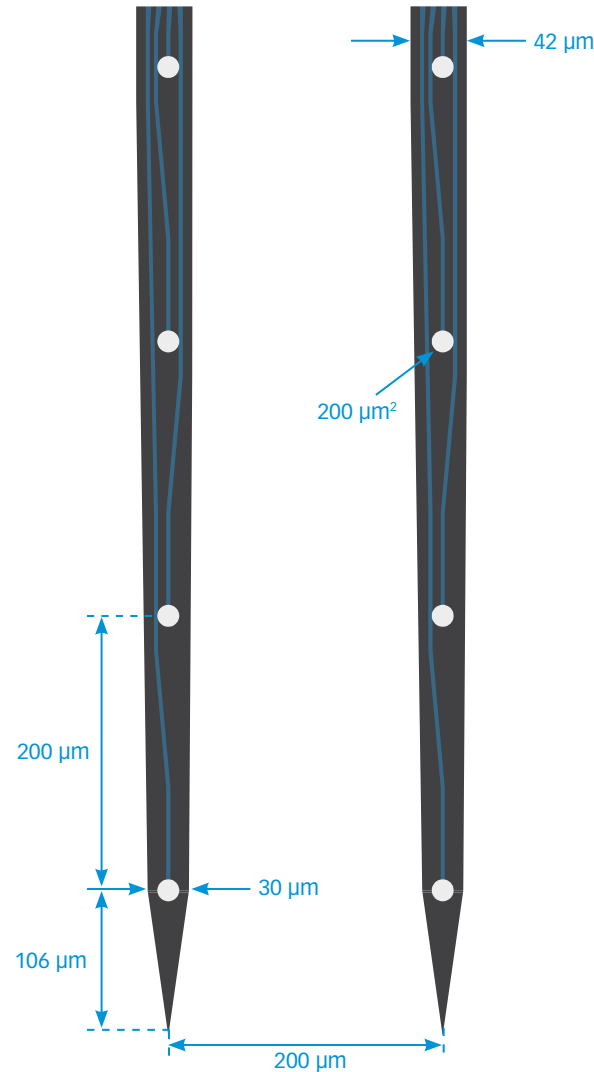
Thickness

15 μm

A4x4-2mm-200-200-200



TIP DETAIL



Available packages

ACUTE

A16

CHRONIC

CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS

OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE

MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

X-SERIES

X3_16
X3_H16

Thickness

15 μm

A4x4-3mm-50-125-177

A4x4-3mm-50-125-703

Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

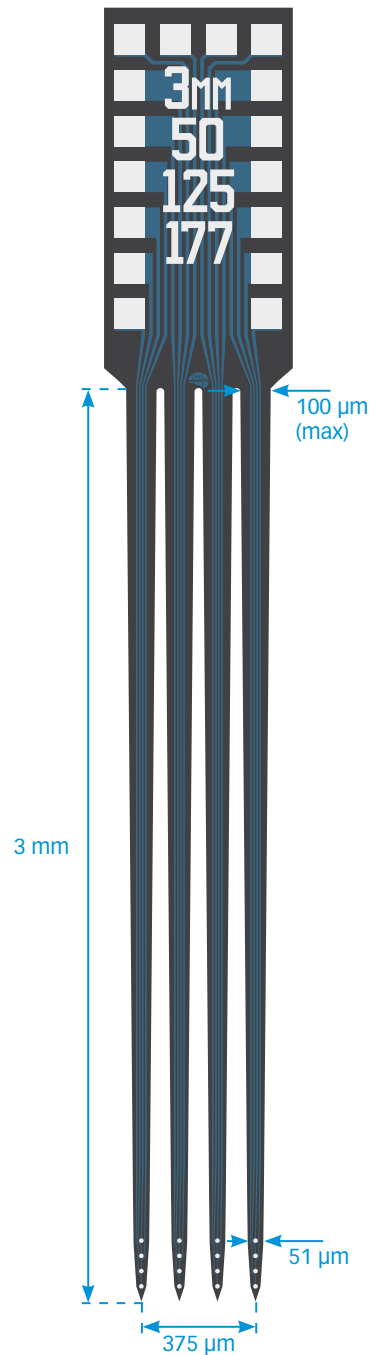
OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

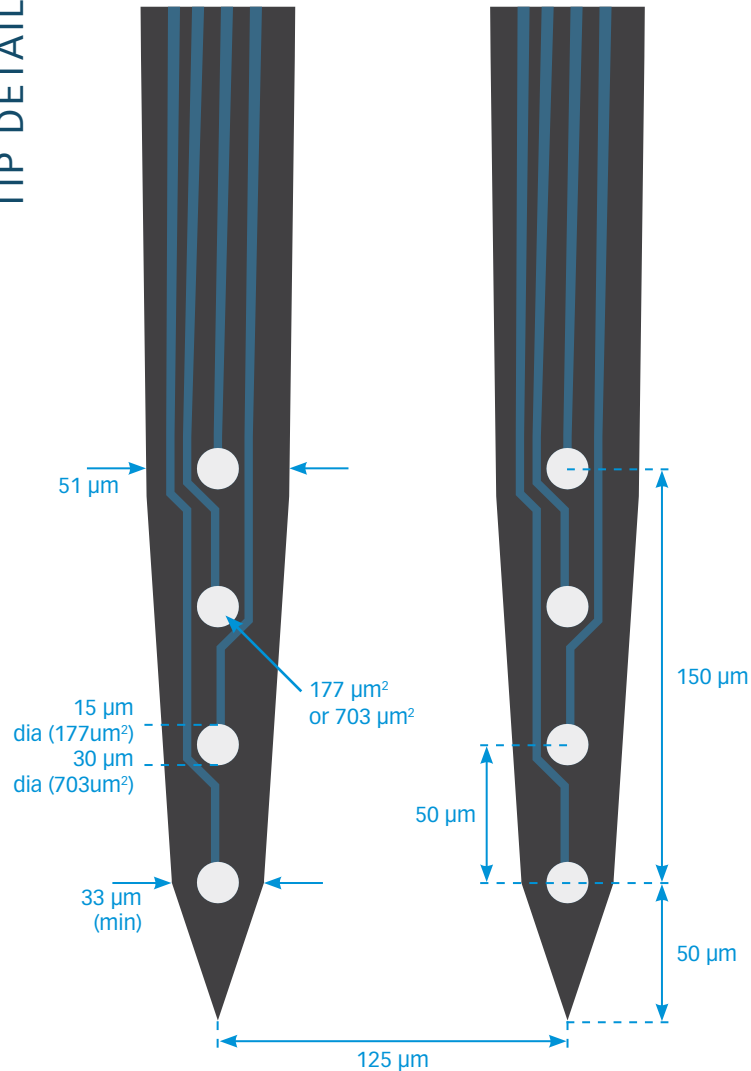
X-SERIES
X3_16
X3_H16

Thickness

15 μm

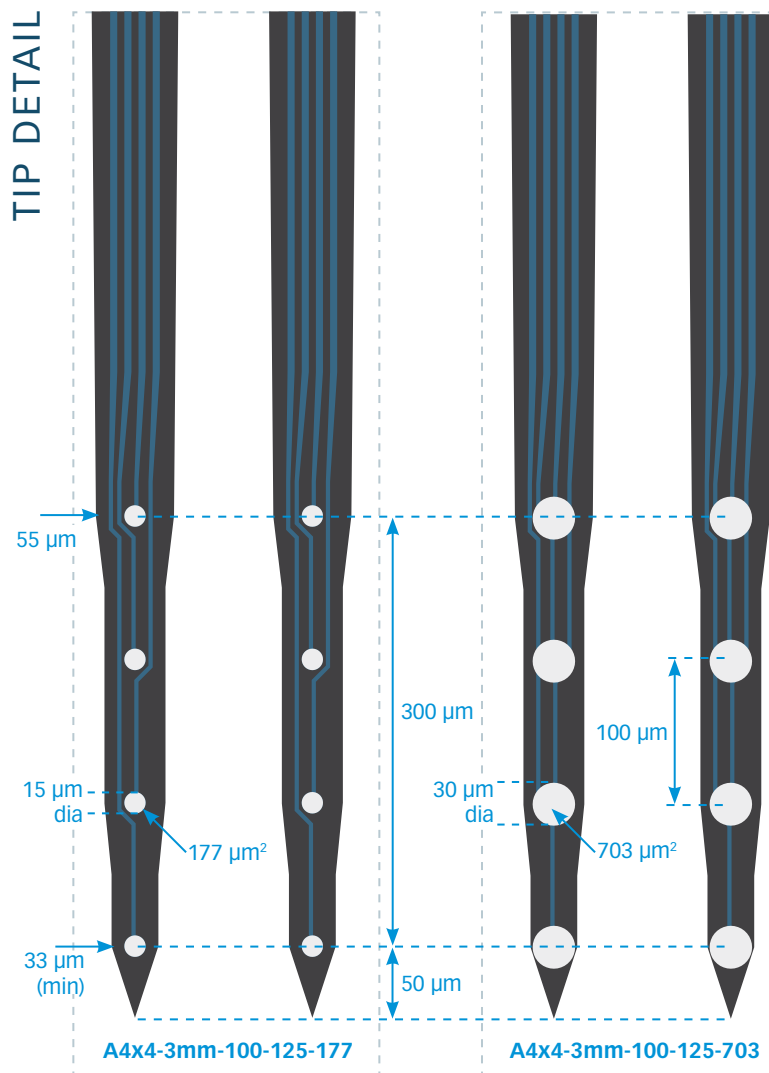
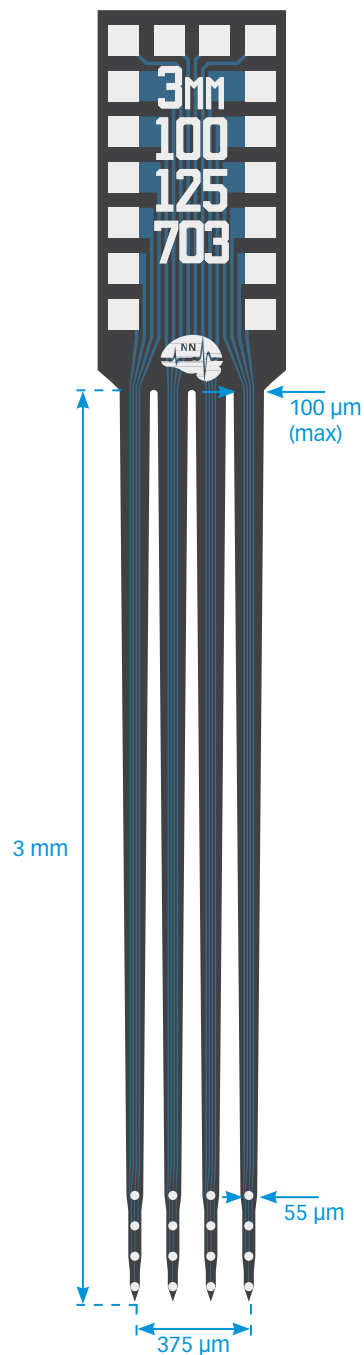


TIP DETAIL



A4x4-3mm-100-125-177

A4x4-3mm-100-125-703



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

X-SERIES
X3_16
X3_H16

Thickness

15 µm
50 µm

A4x4-3mm-200-200-177

Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

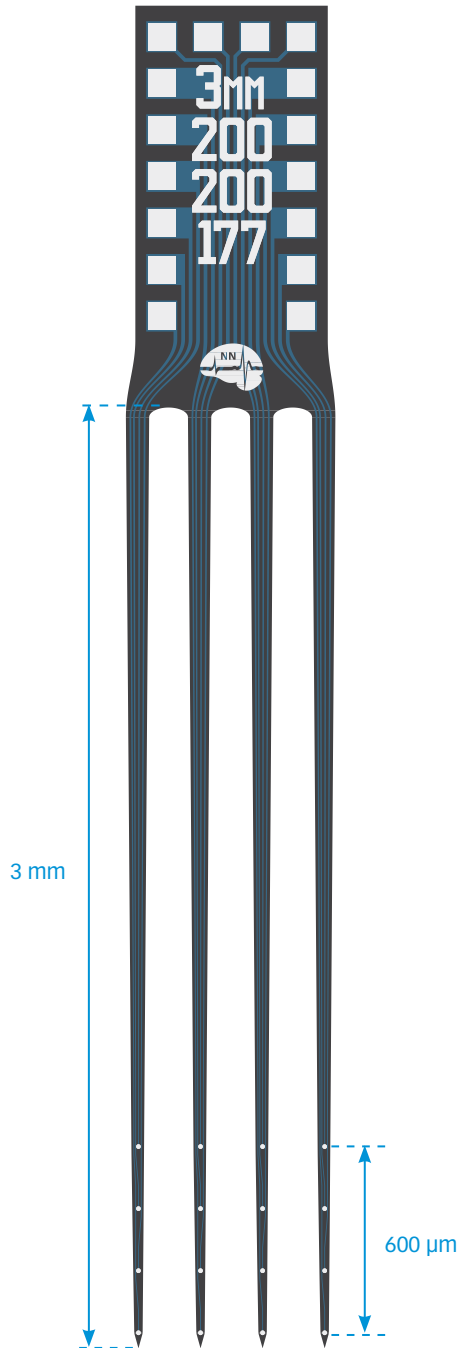
OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

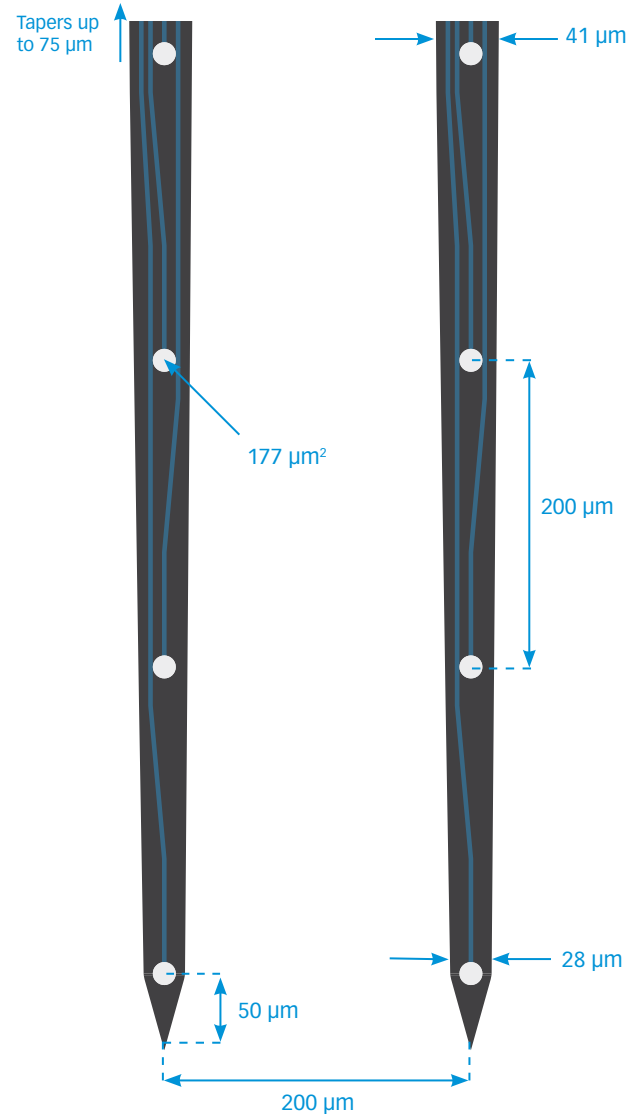
X-SERIES
X3_16
X3_H16

Thickness

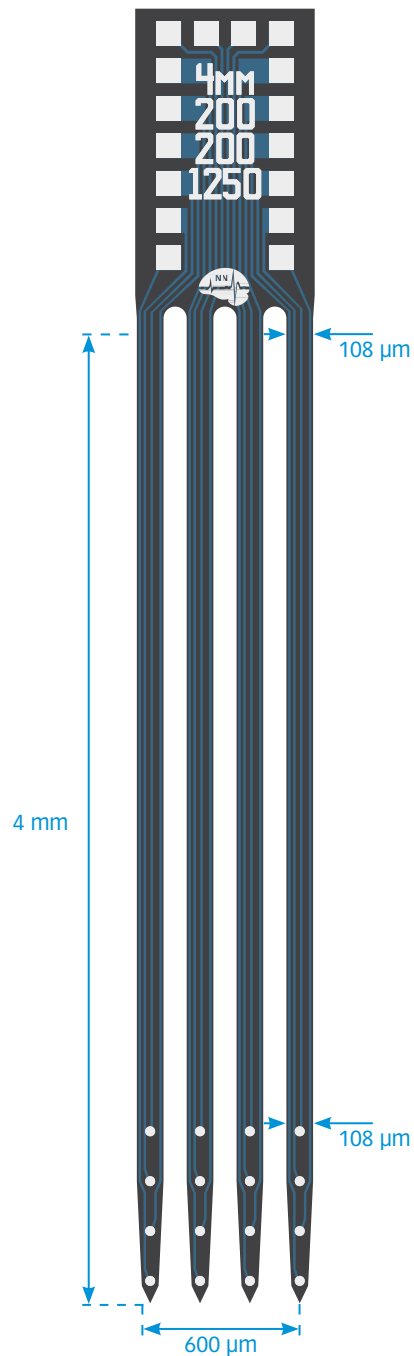
15 μ m



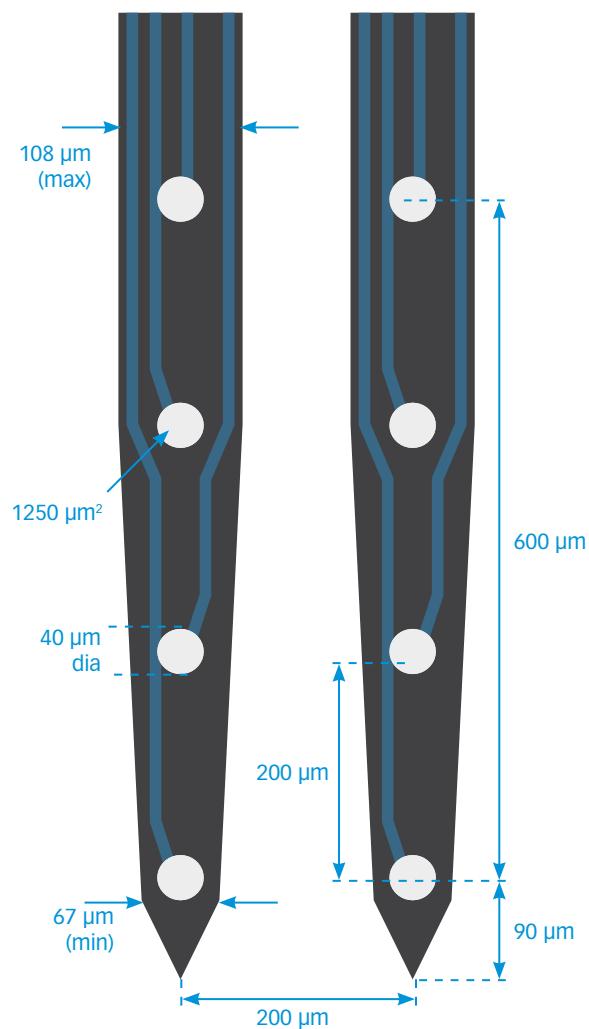
TIP DETAIL



A4x4-4mm-200-200-1250



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

X-SERIES
X3_16
X3_H16

Thickness

15 μm
50 μm

A4x4-5mm-100-125-703

Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

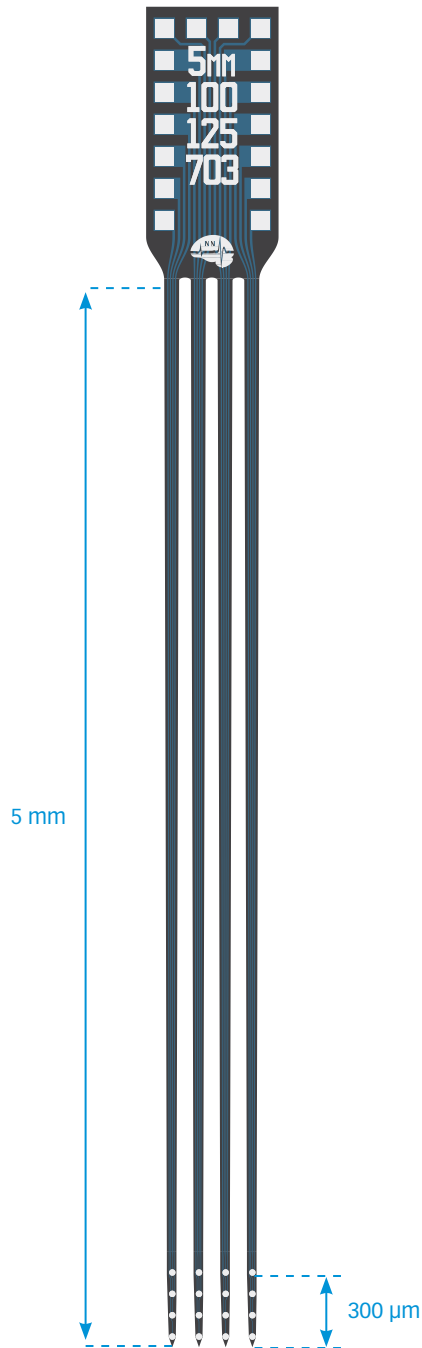
OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

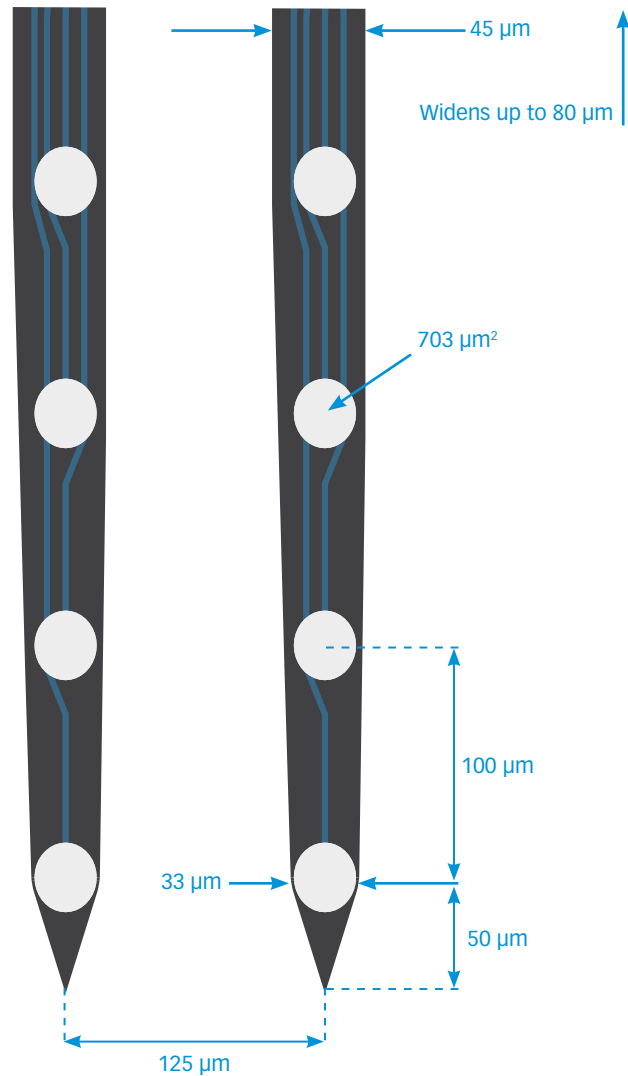
X-SERIES
X3_16
X3_H16

Thickness

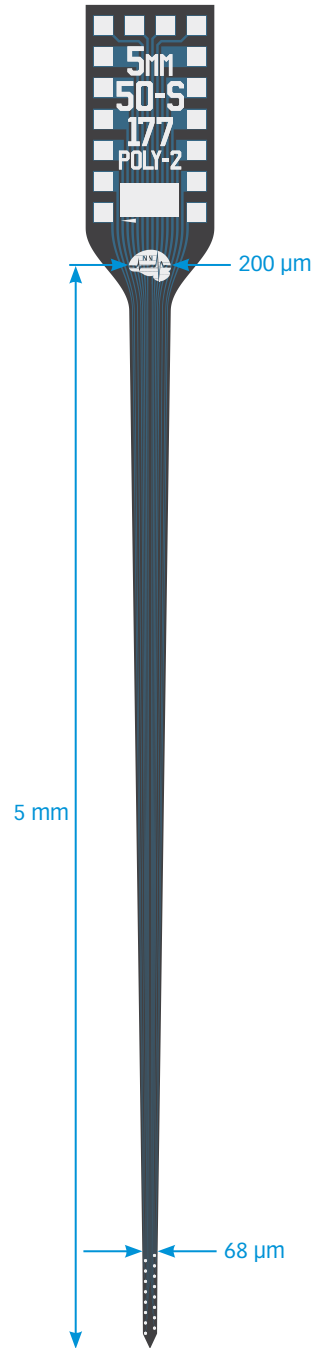
15 μ m



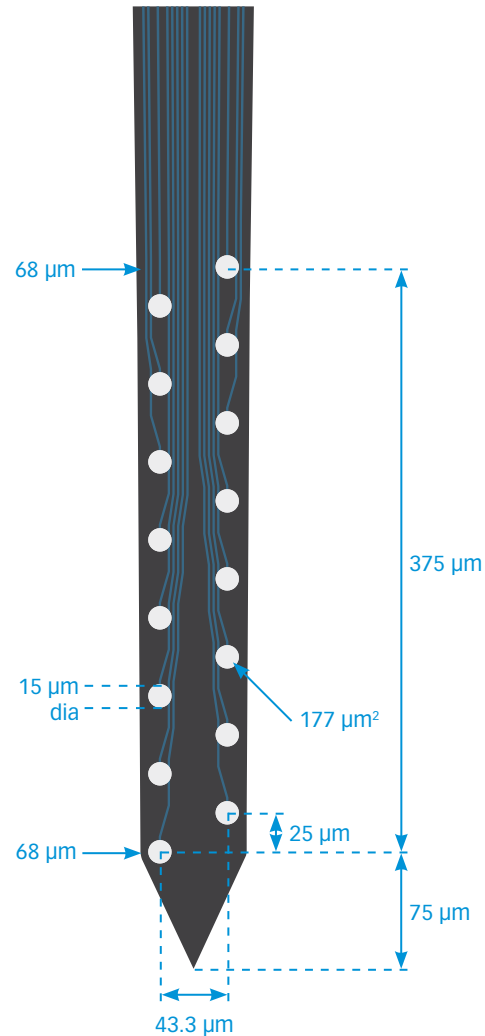
TIP DETAIL



A1x16-Poly2-5mm-50s-177



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

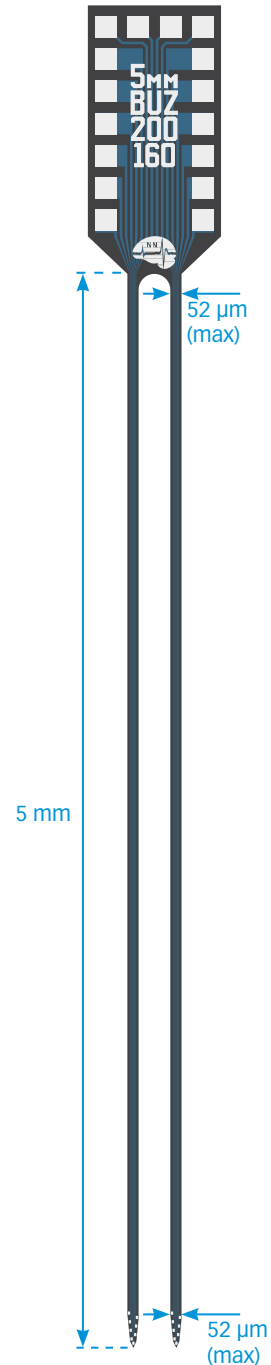
MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

X-SERIES
X3_16
X3_H16

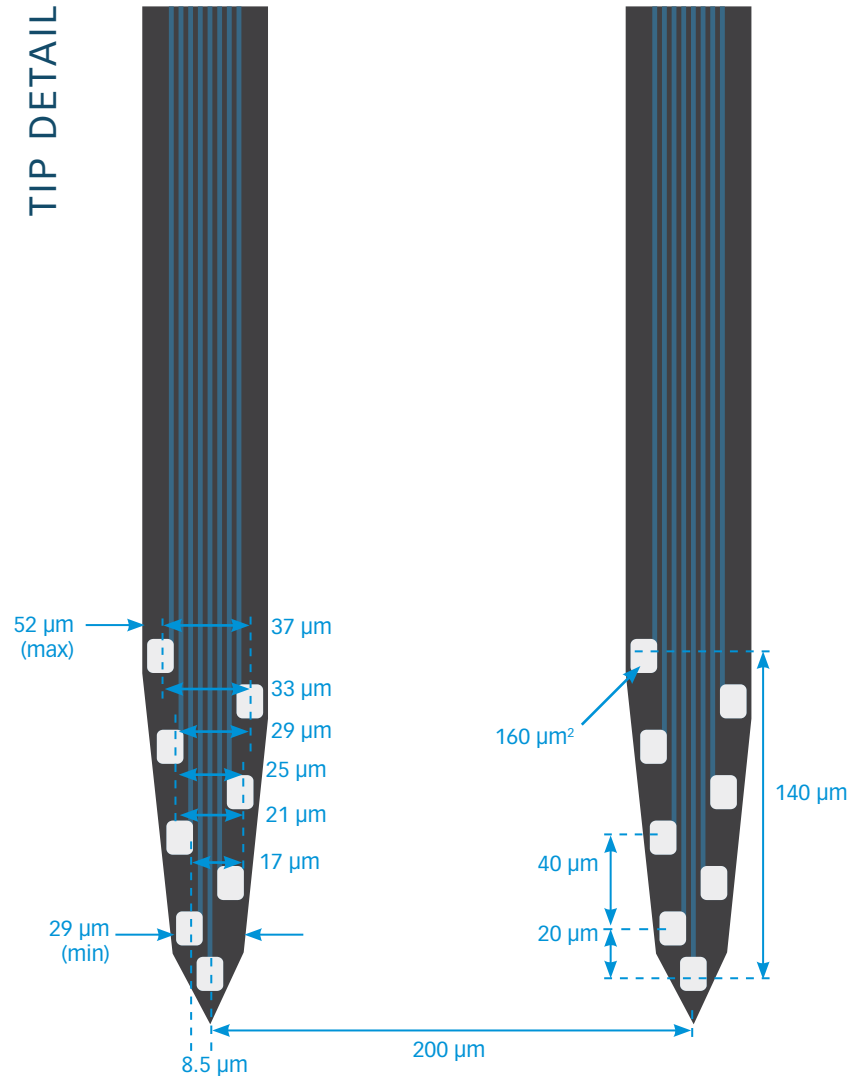
Thickness

15 μm
50 μm

Buzsaki16



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

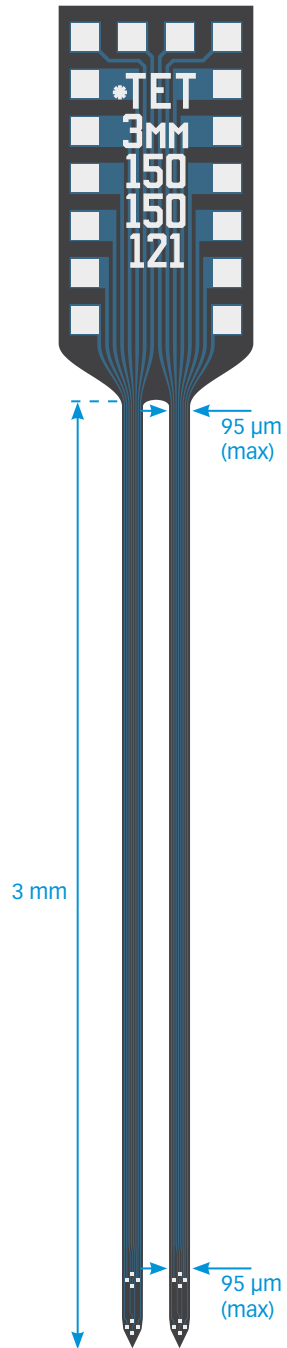
MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

X-SERIES
X3_16
X3_H16

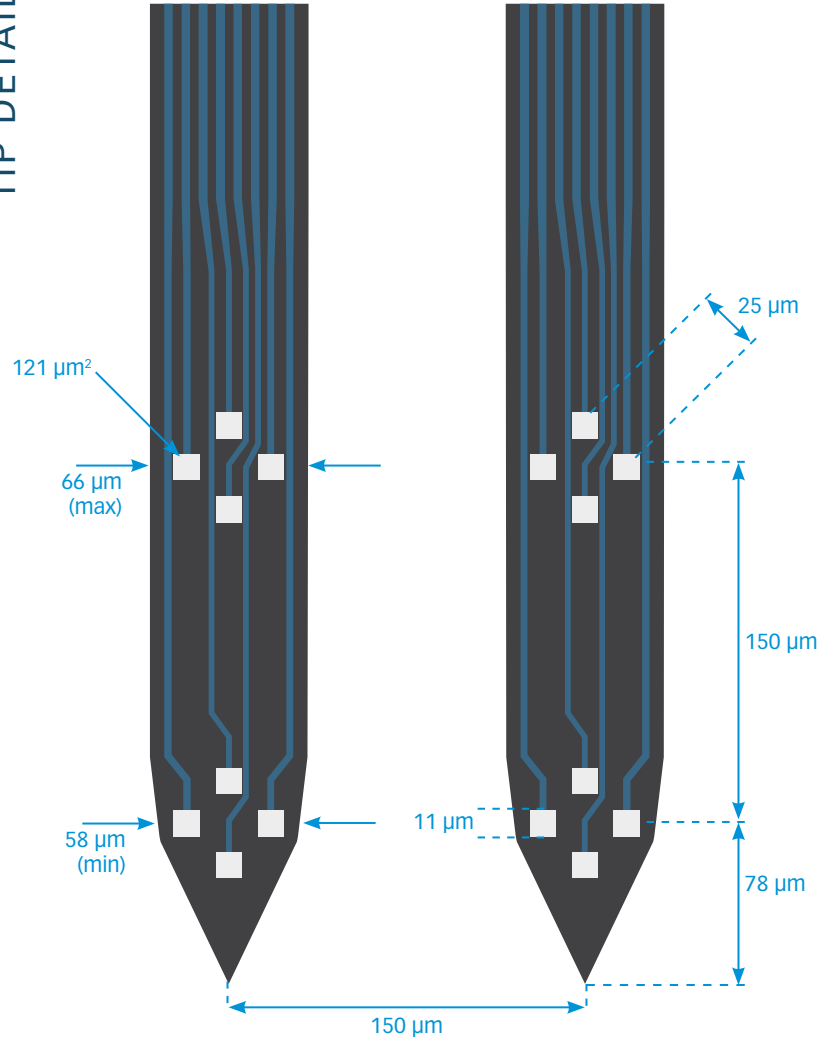
Thickness

15 µm

A2x2-tet-3mm-150-150-121



TIP DETAIL



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

X-SERIES
X3_16
X3_H16

Thickness

15 µm
50 µm

A4x1-tet-3mm-150-121

Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
HC16_21mm
HZ16_21mm
Z16

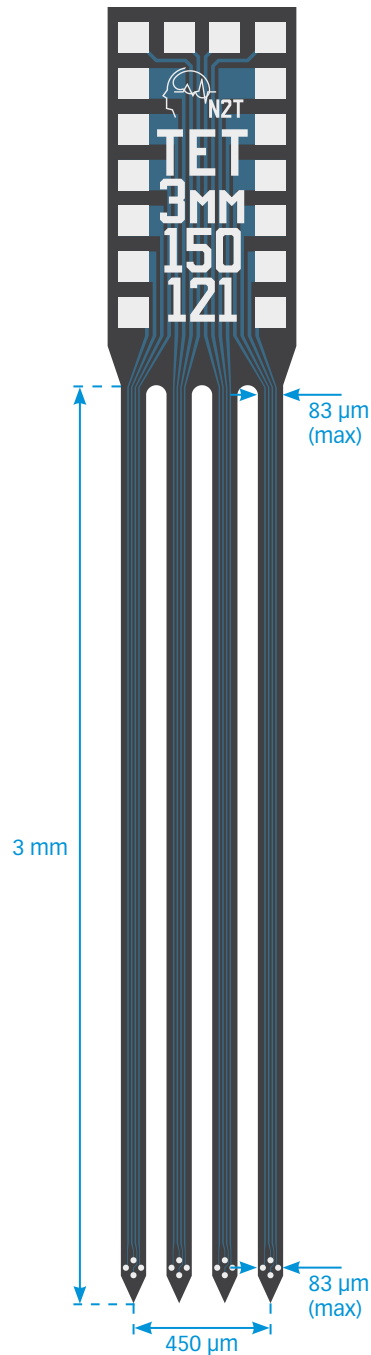
OPTOGENETICS
OA16LP
OCM16LP
OH16LP (required for oDrive)
OZ16LP

MR-COMPATIBLE
MRA16
MR_CM16
MR_H16_21mm
MR_HC16_21mm

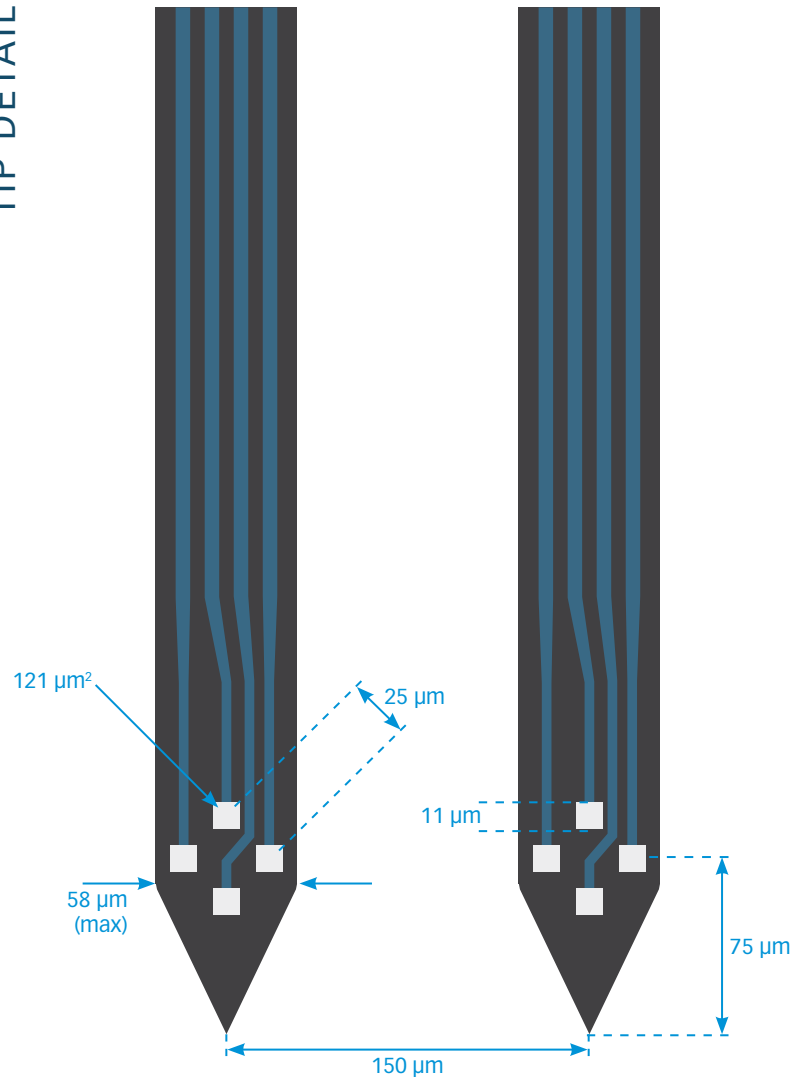
X-SERIES
X3_16
X3_H16

Thickness

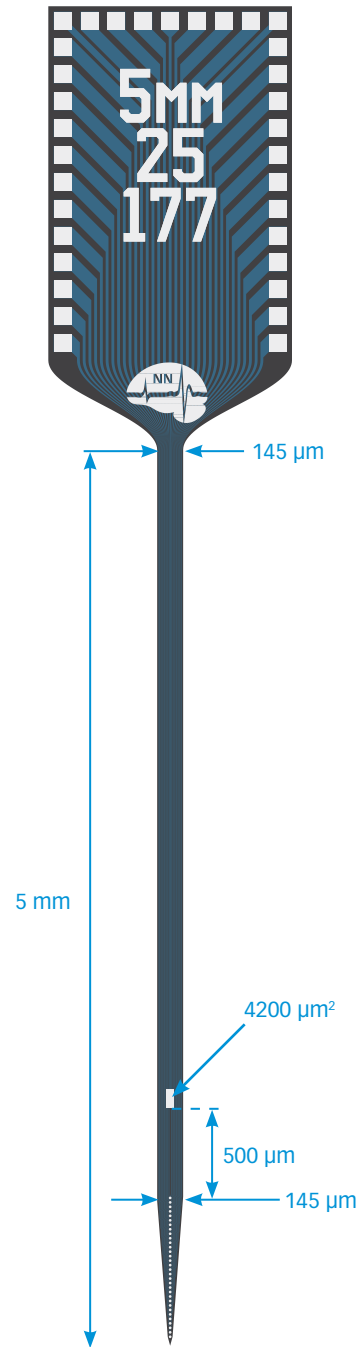
15 μ m
50 μ m



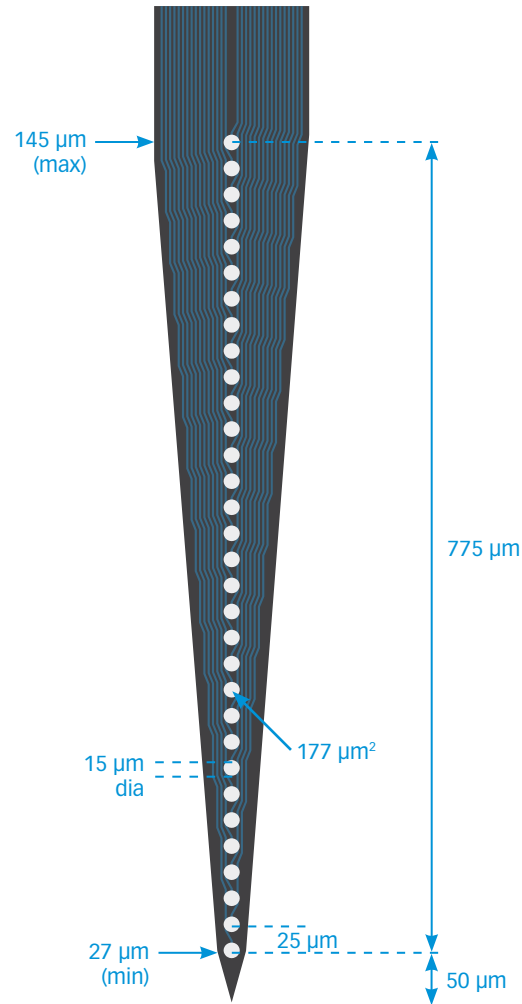
TIP DETAIL



A1x32-5mm-25-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

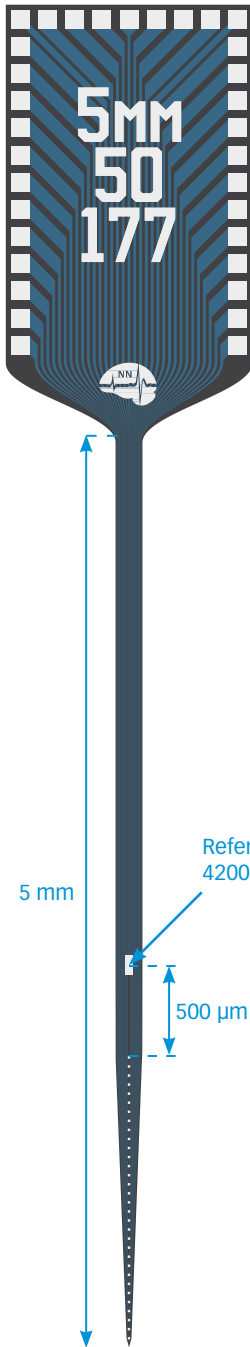
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

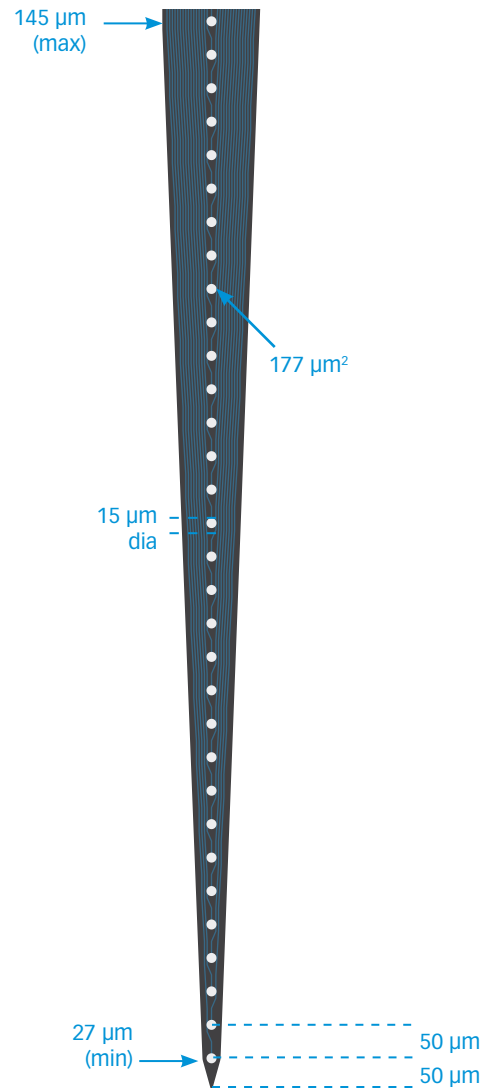
Thickness

15 μ m
50 μ m

A1x32-5mm-50-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

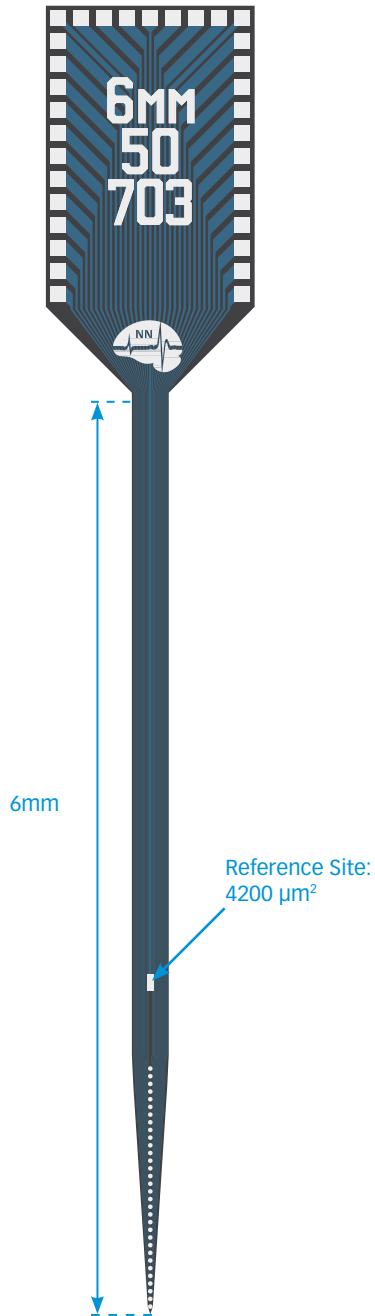
X-SERIES
X3_32
X3_H32

Thickness

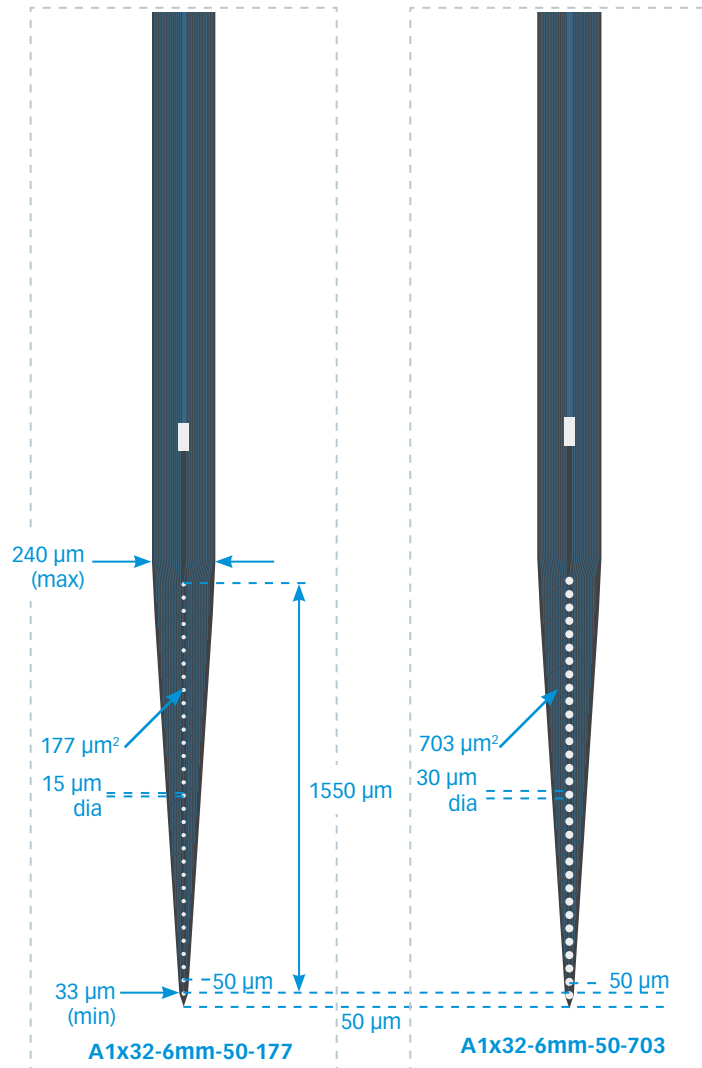
15 μm
50 μm

A1x32-6mm-50-703

A1x32-6mm-50-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

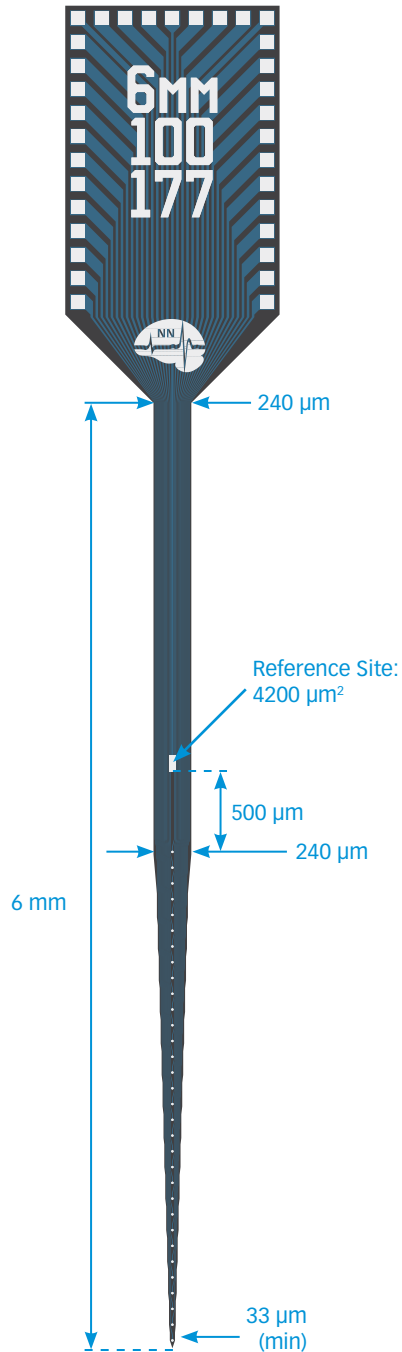
X-SERIES
X3_32
X3_H32

Thickness

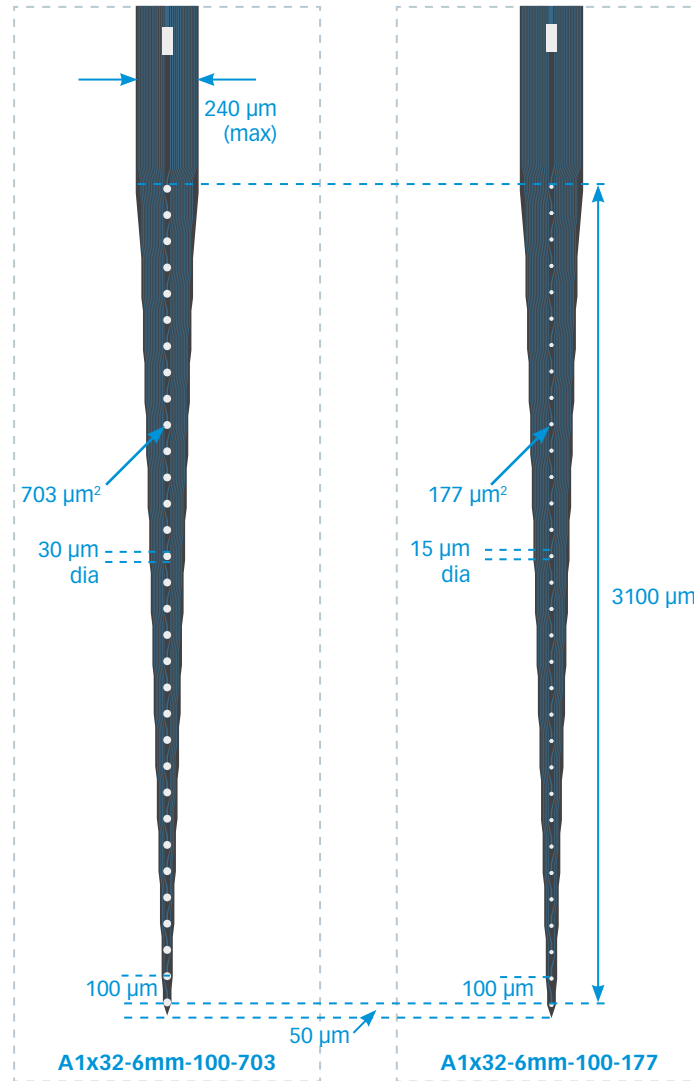
15 μm
50 μm

A1x32-6mm-100-703

A1x32-6mm-100-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

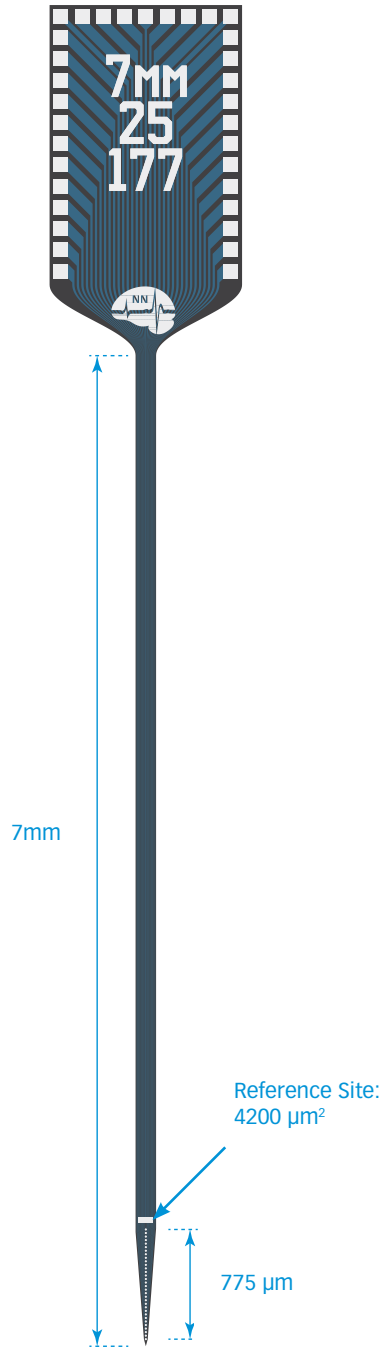
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

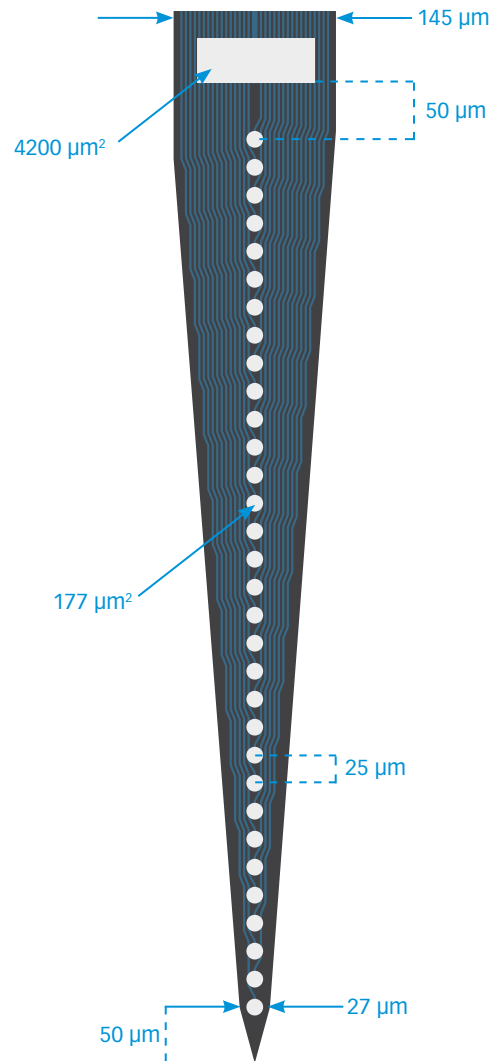
Thickness

15 μ m
50 μ m

1x32-edge-7mm-25-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

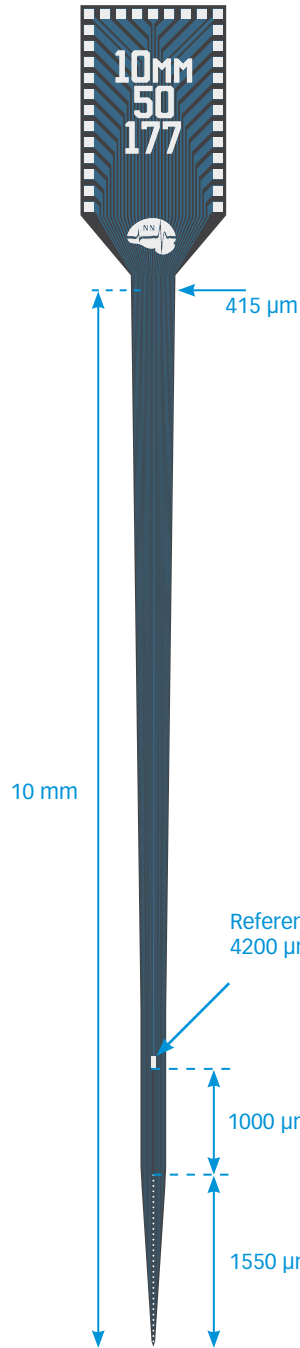
X-SERIES
X3_32
X3_H32

Thickness

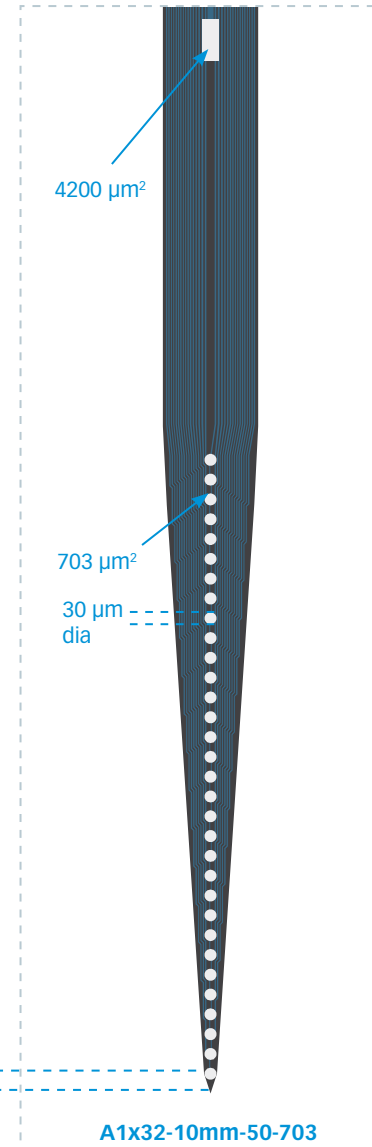
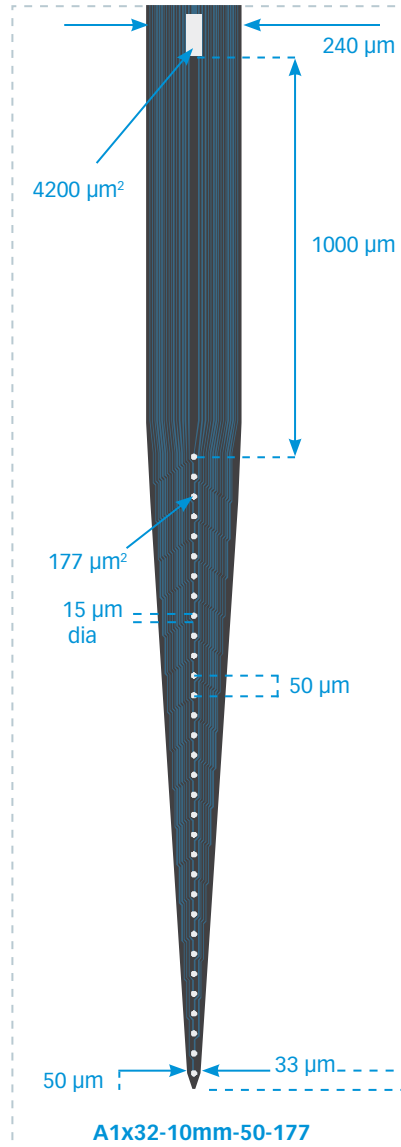
50 μm

A1x32-10mm-50-177

A1x32-10mm-50-703



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

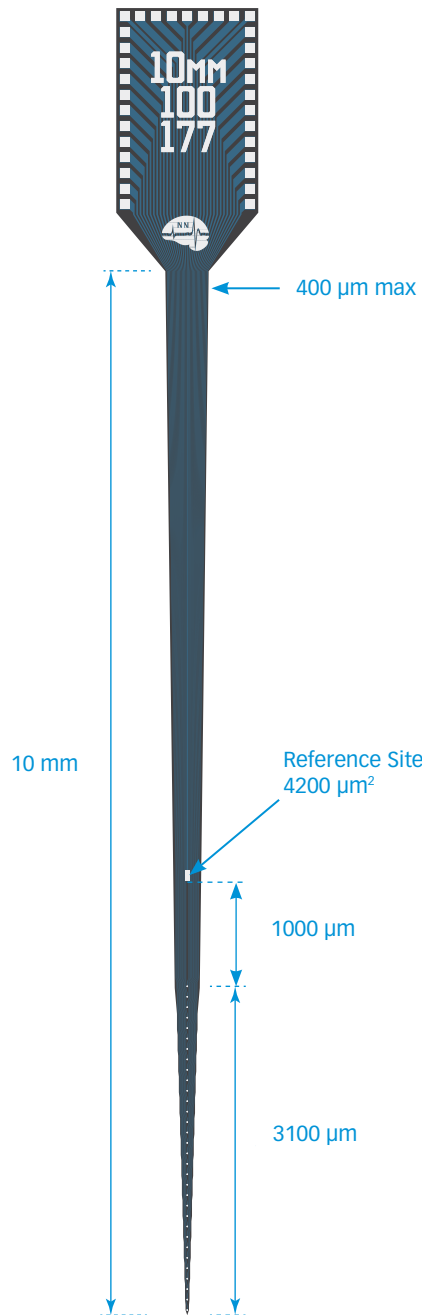
X-SERIES
X3_32
X3_H32

Thickness

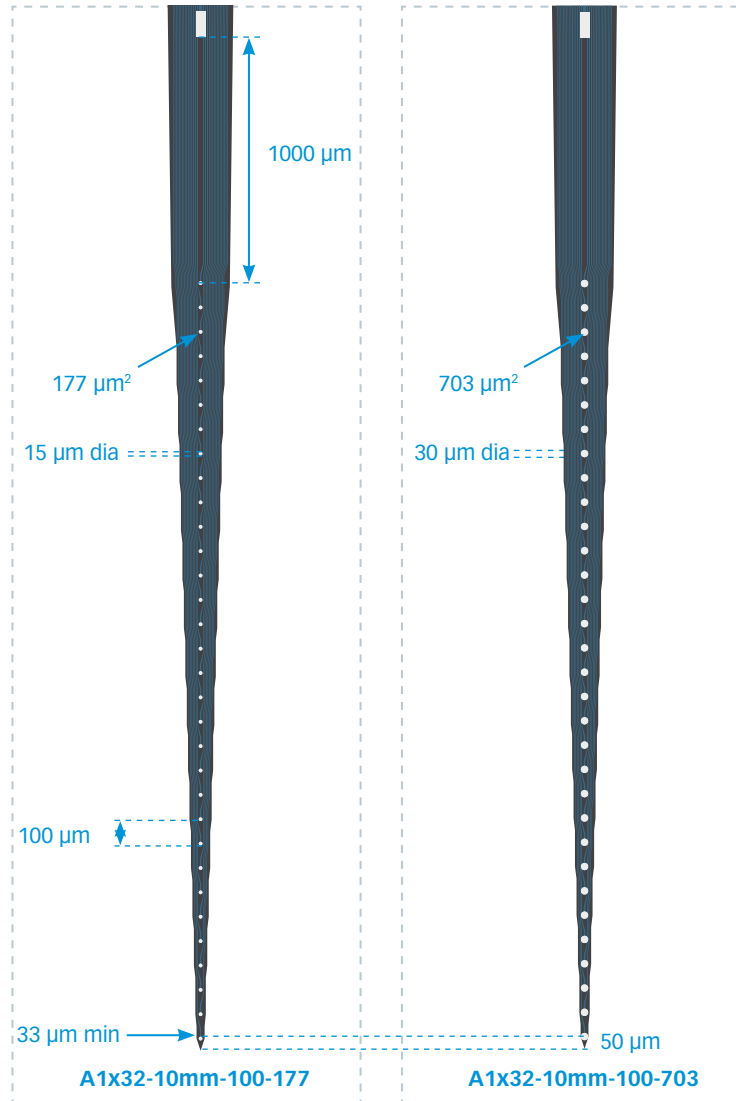
15 μm
50 μm

A1x32-10mm-100-177

A1x32-10mm-100-703



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

Thickness

50 μm

A2x16-10mm-50-500-703

A2x16-10mm-50-500-177

Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

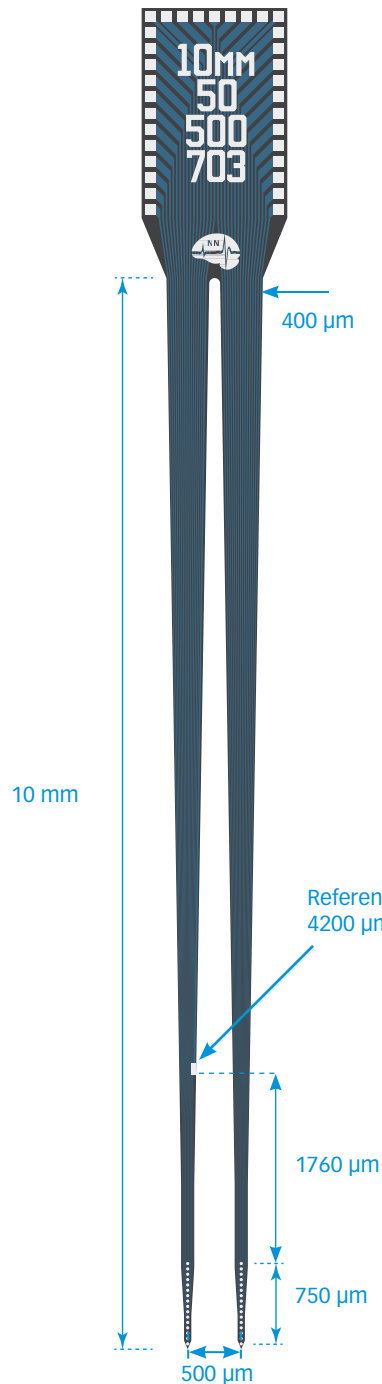
OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

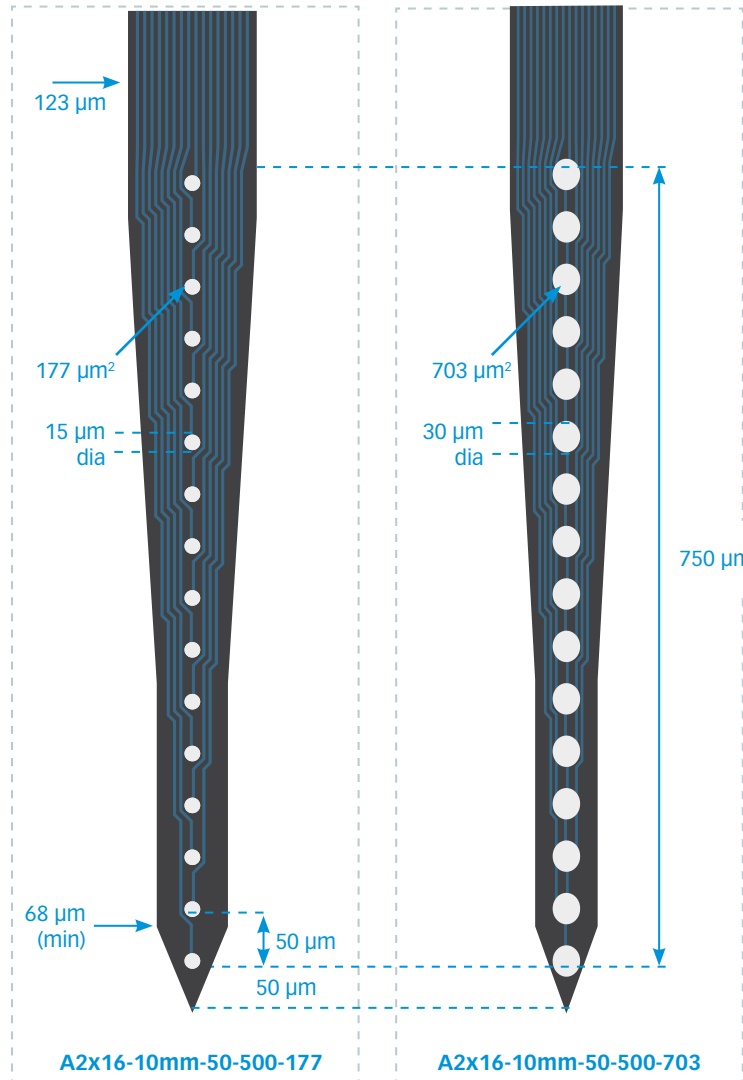
X-SERIES
X3_32
X3_H32

Thickness

15 μ m
50 μ m

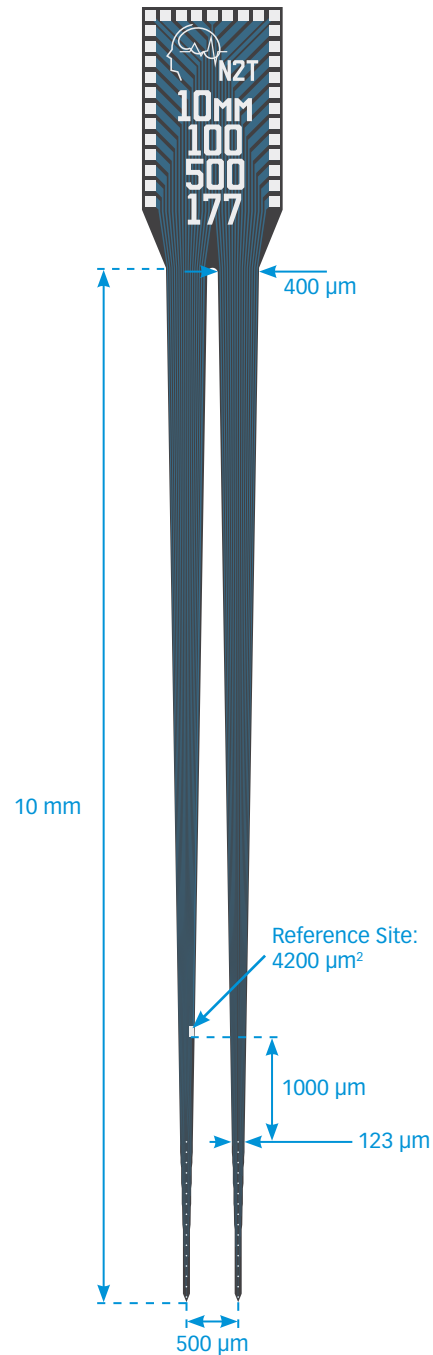


TIP DETAIL

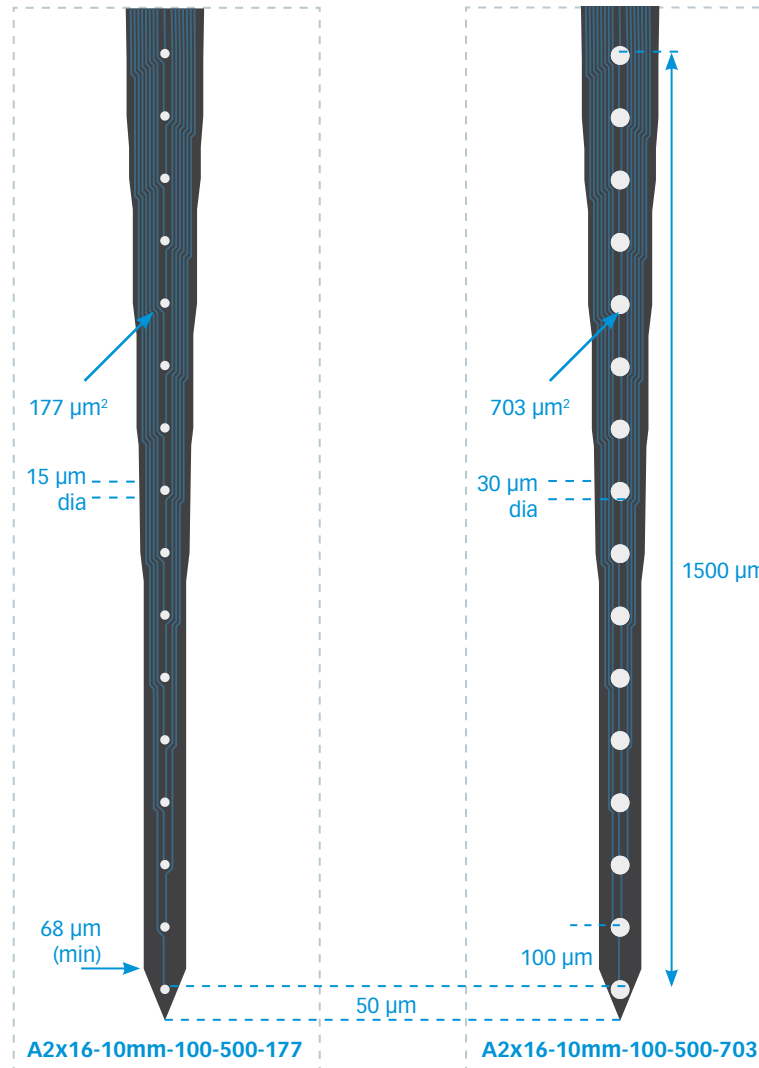


A2x16-10mm-100-500-177

A2x16-10mm-100-500-703



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

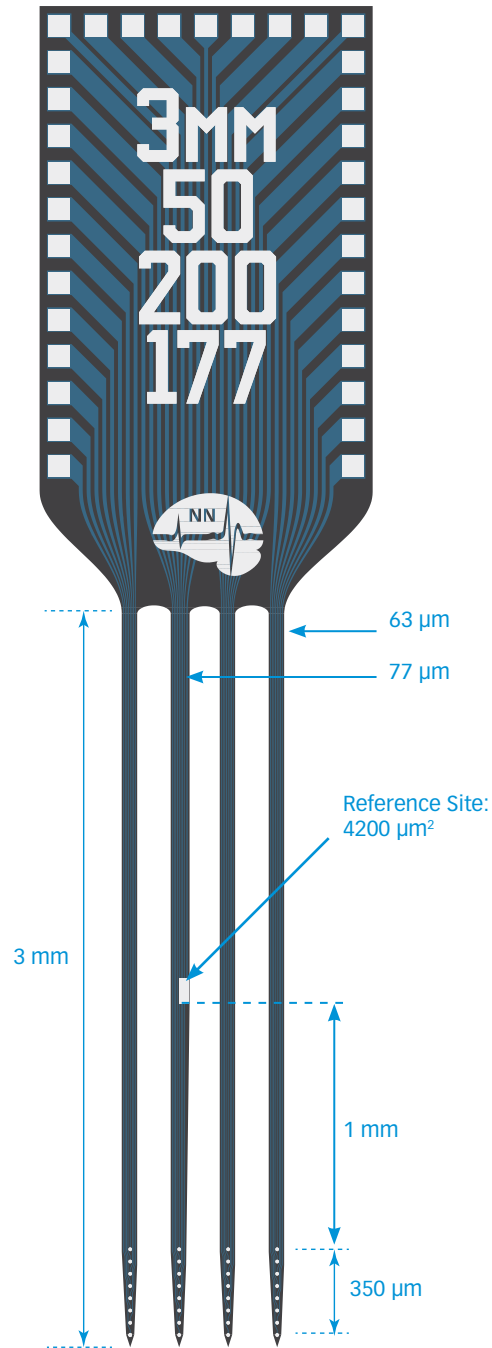
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

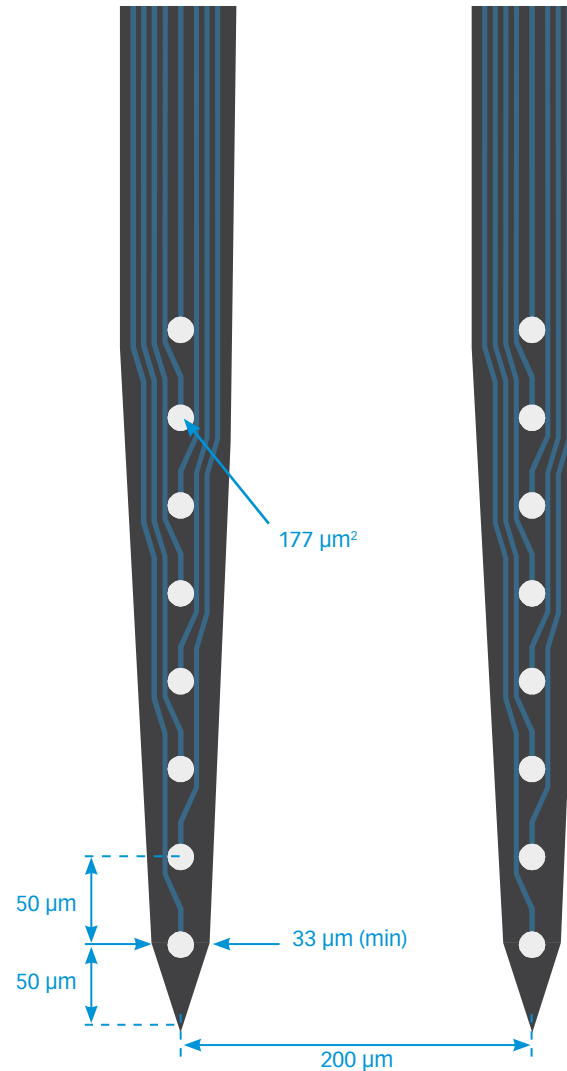
Thickness

15 μm
50 μm

A4x8-3mm-50-200-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

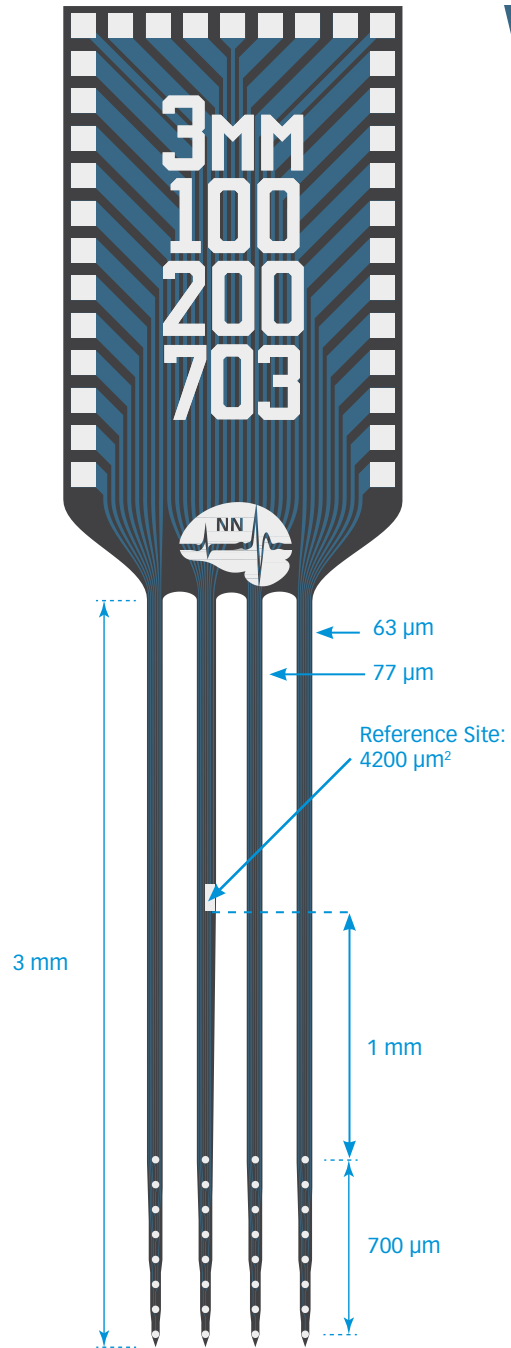
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

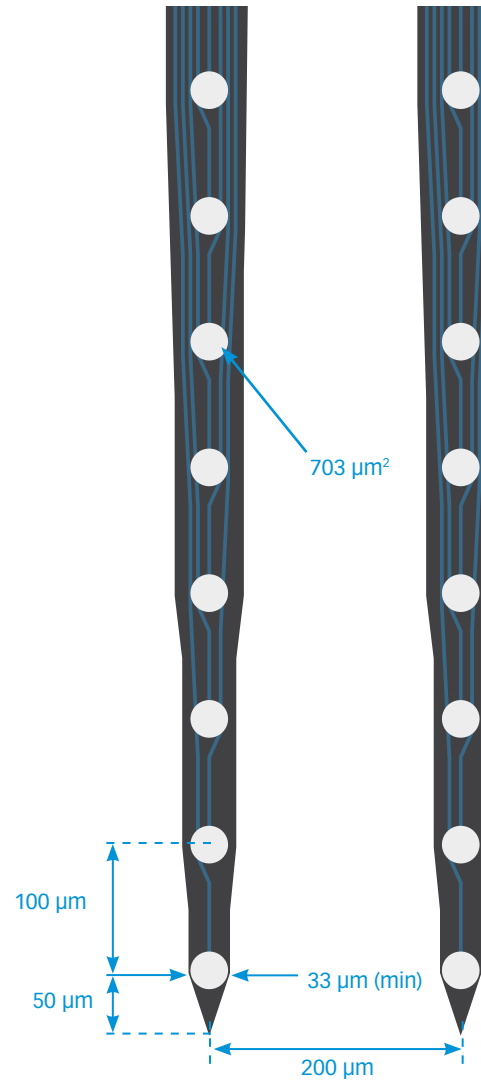
Thickness

15 μm

A4x8-3mm-100-200-703



TIP DETAIL



Available packages

ACUTE

A32

CHRONIC

CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS

OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE

MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES

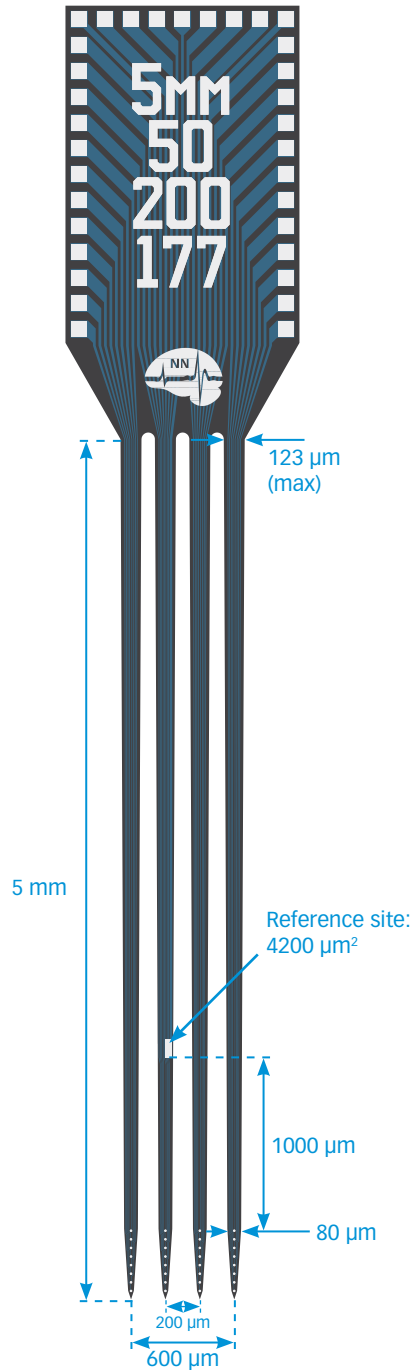
X3_32
X3_H32

Thickness

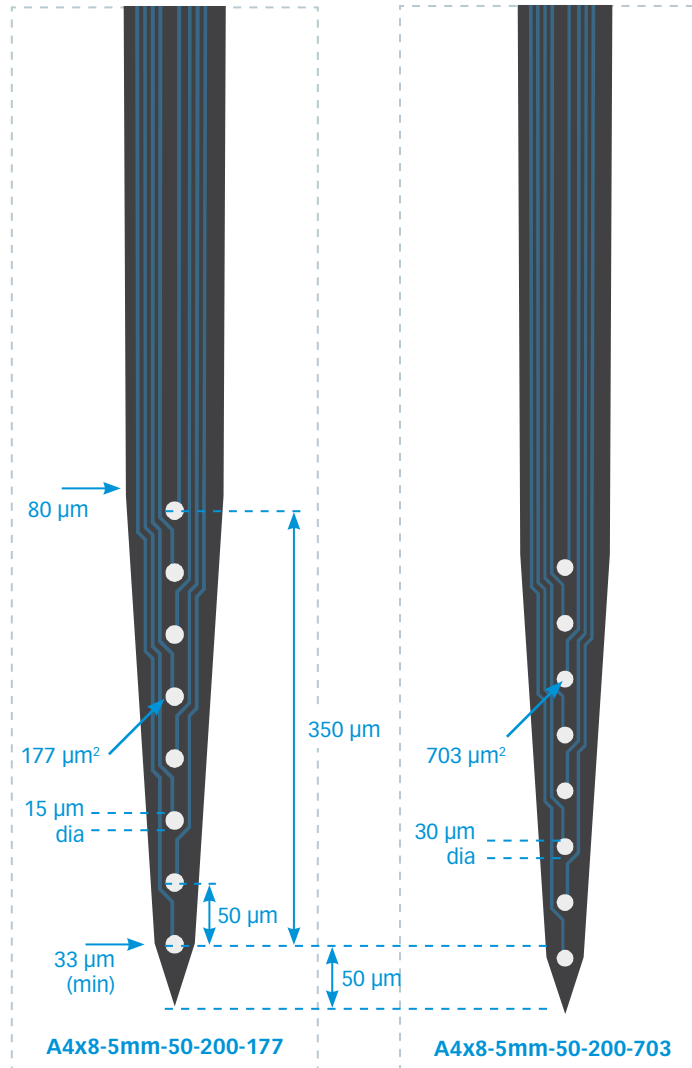
50 μm

A4x8-5mm-50-200-177

A4x8-5mm-50-200-703



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

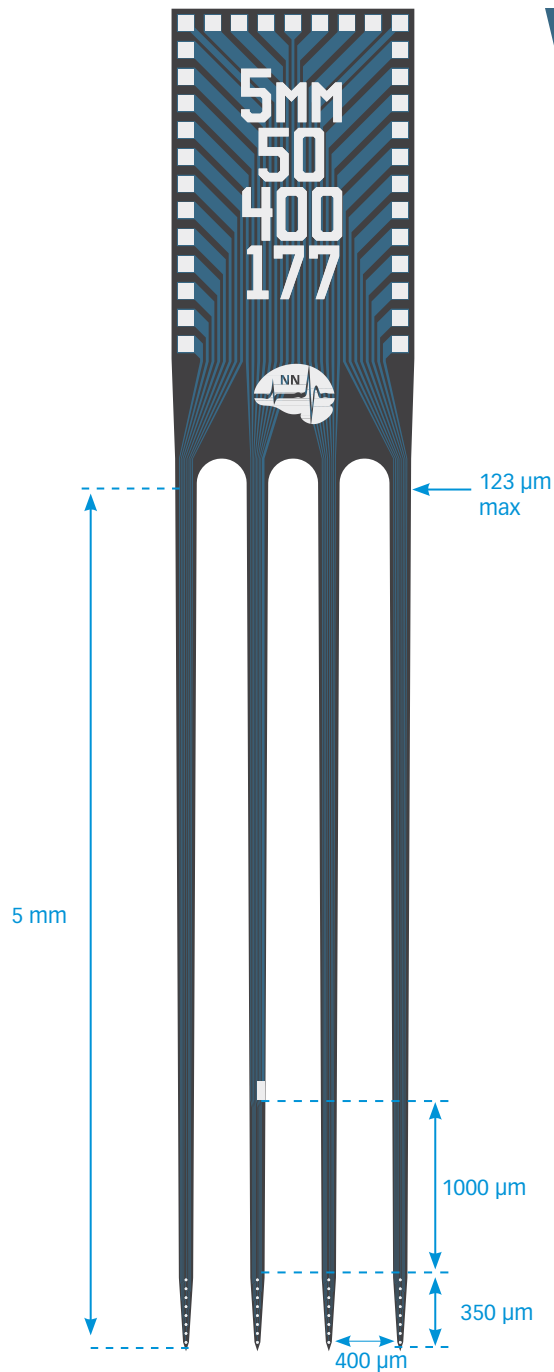
X-SERIES
X3_32
X3_H32

Thickness

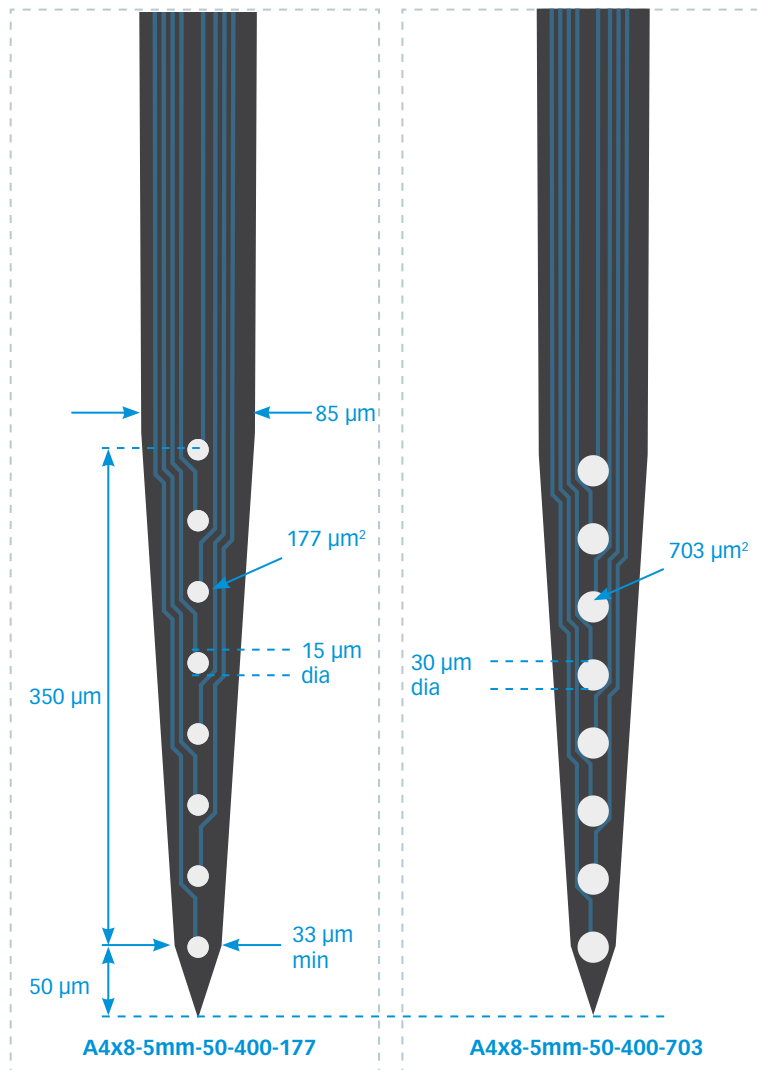
15 μm

A4x8-5mm-50-400-177

A4x8-5mm-50-400-703



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

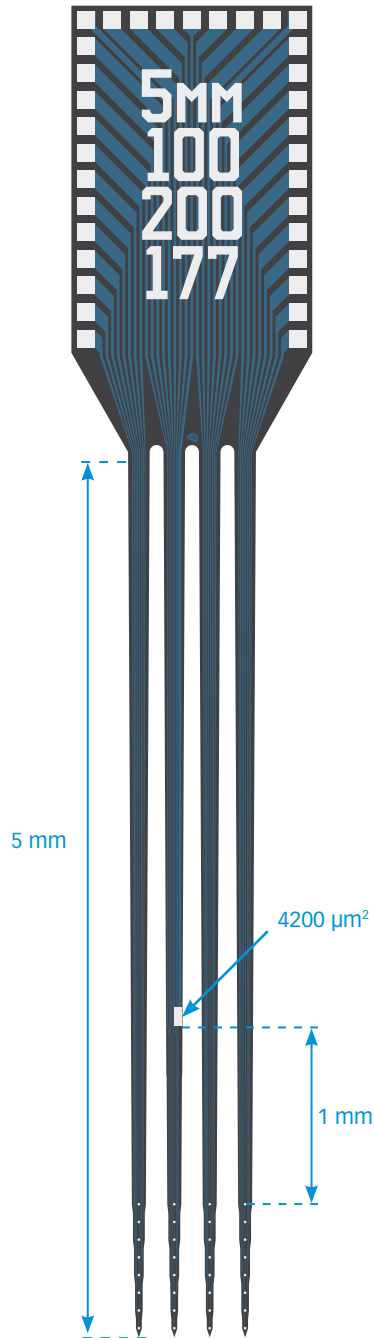
X-SERIES
X3_32
X3_H32

Thickness

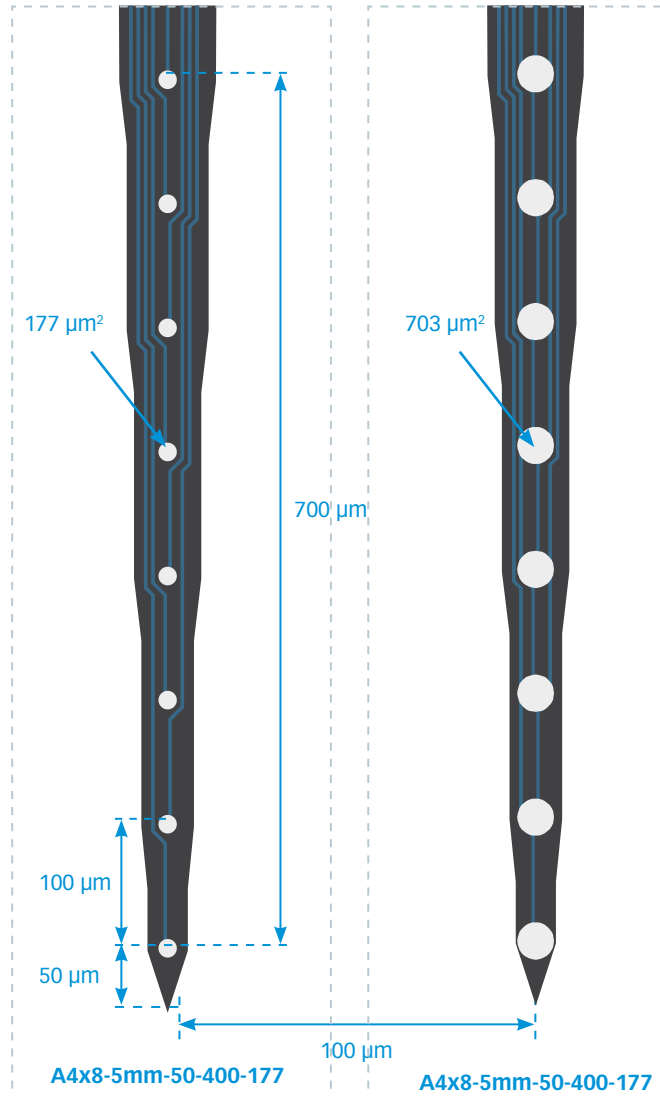
15 μ m

A4x8-5mm-100-200-177

A4x8-5mm-100-200-703



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

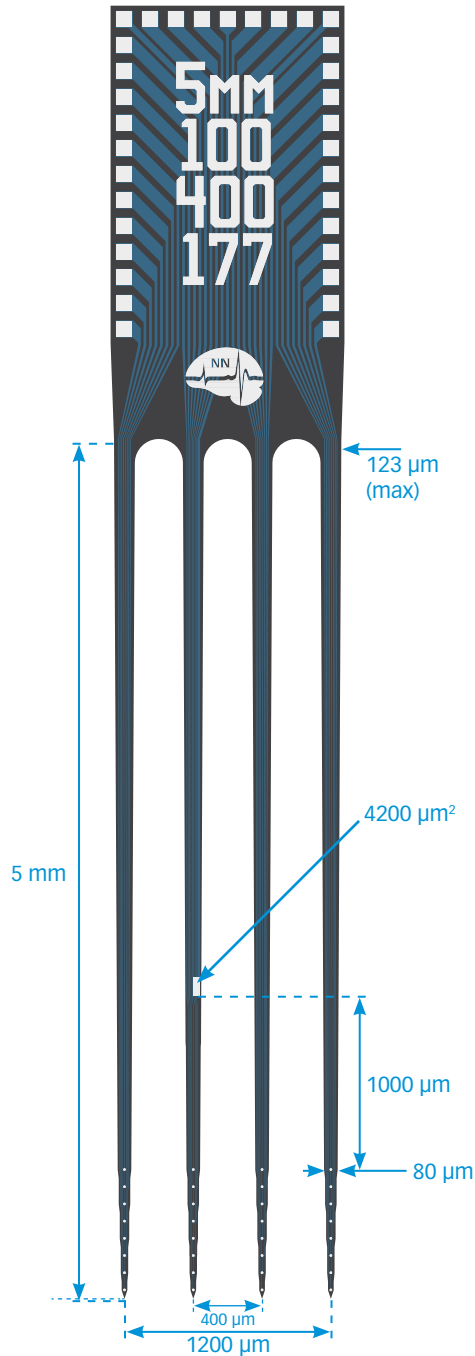
X-SERIES
X3_32
X3_H32

Thickness

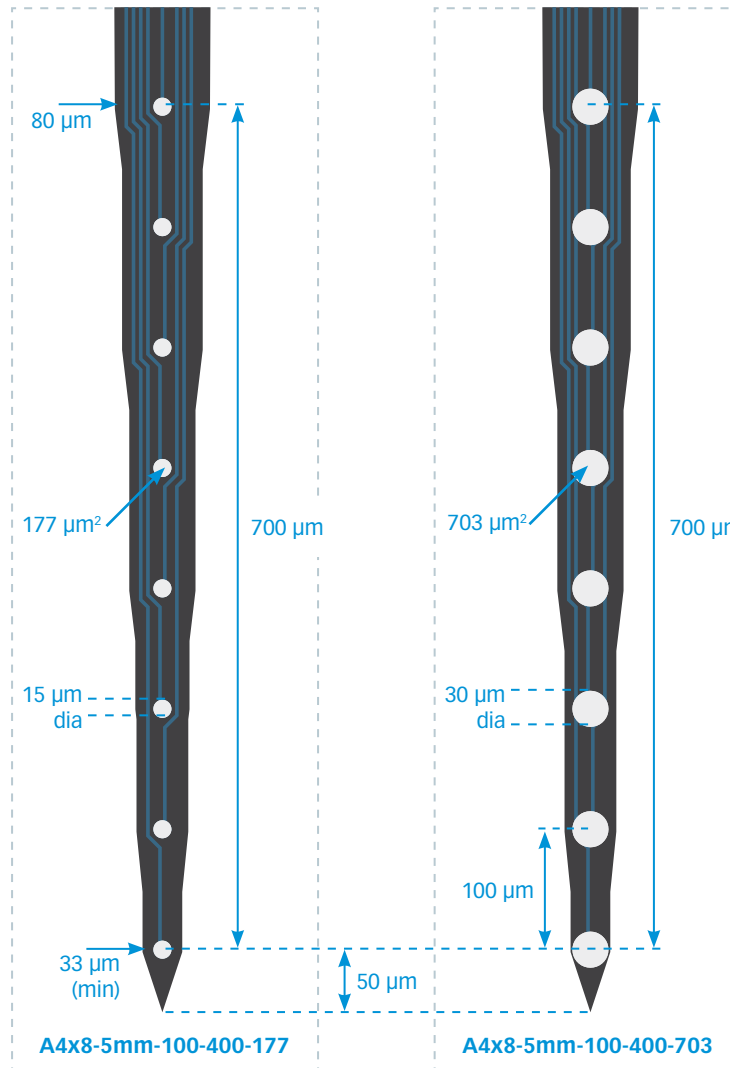
15 μm
50 μm

A4x8-5mm-100-400-177

A4x8-5mm-100-400-703



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

Thickness

15 μm
50 μm

A4x8-5mm-200-200-177

A4x8-5mm-200-200-703

Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

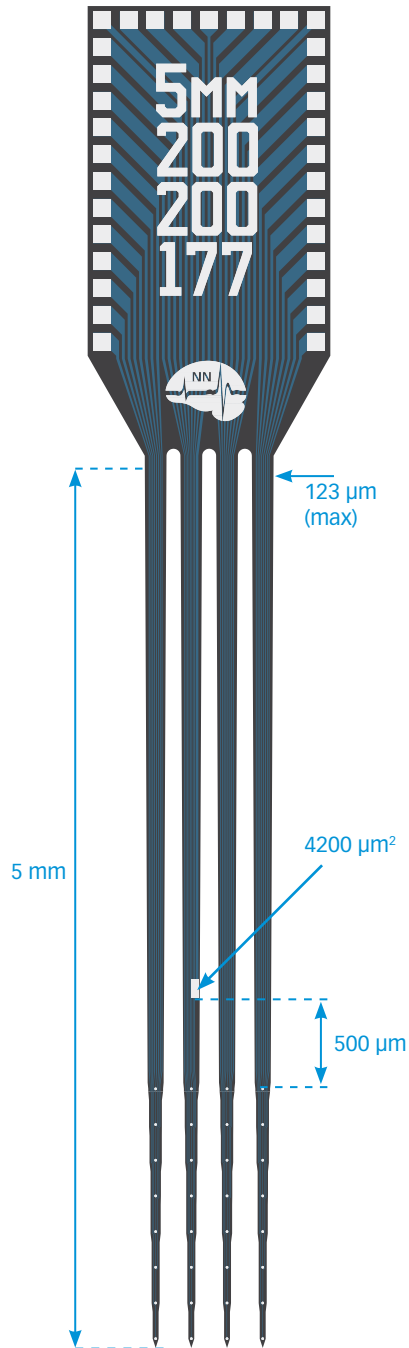
OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

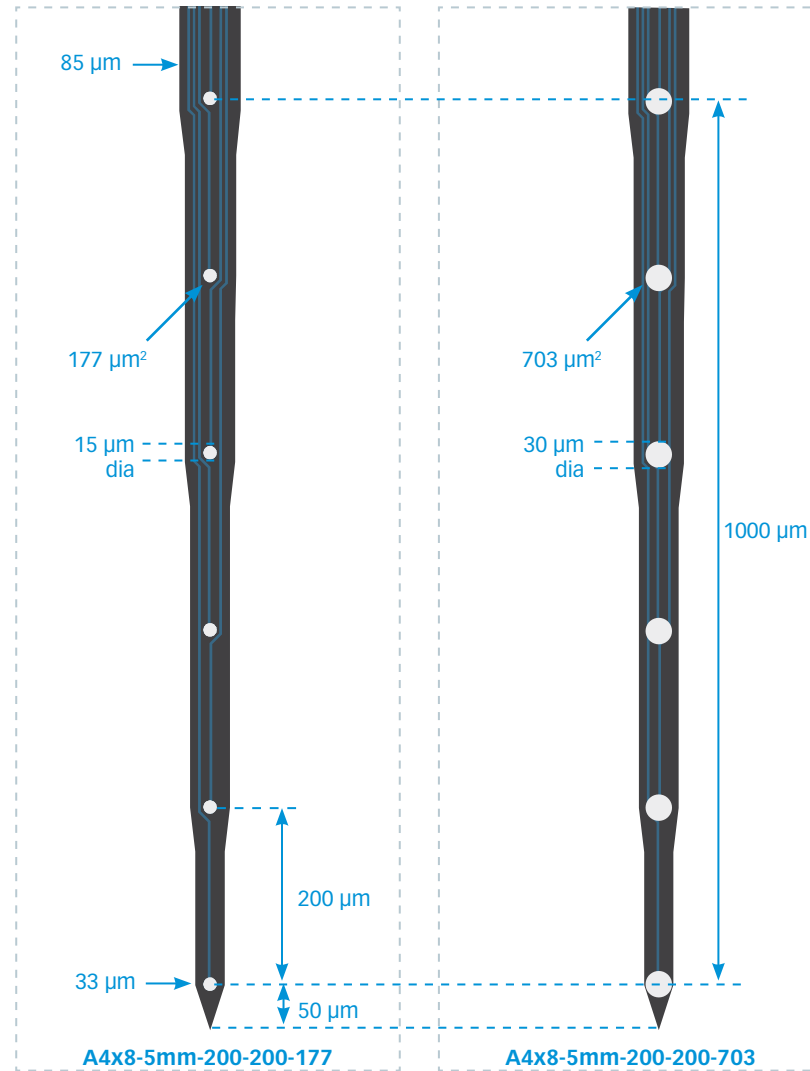
X-SERIES
X3_32
X3_H32

Thickness

15 μ m

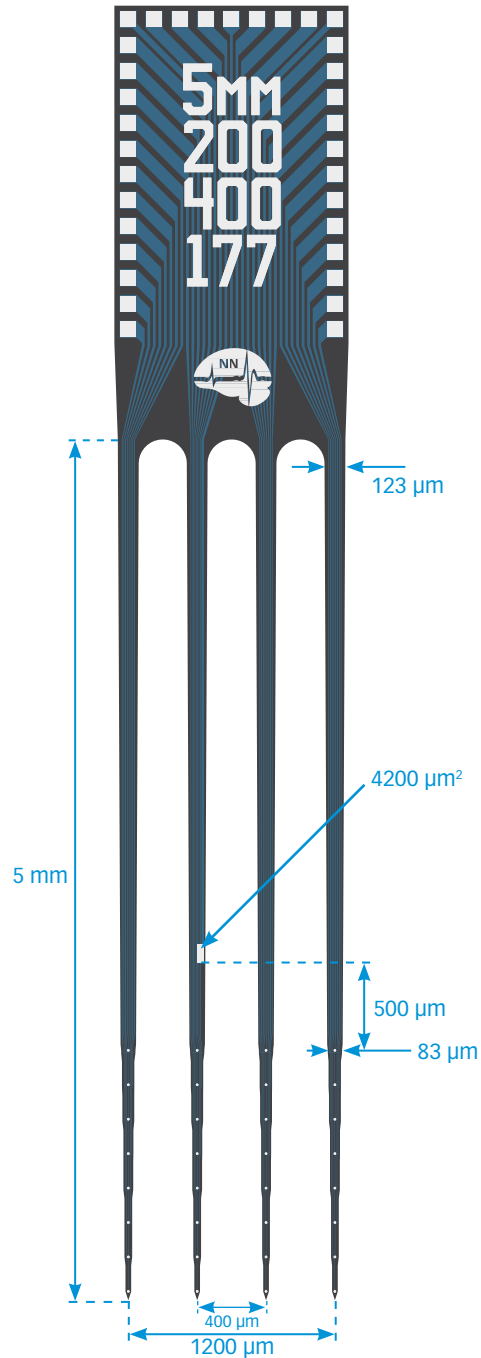


TIP DETAIL

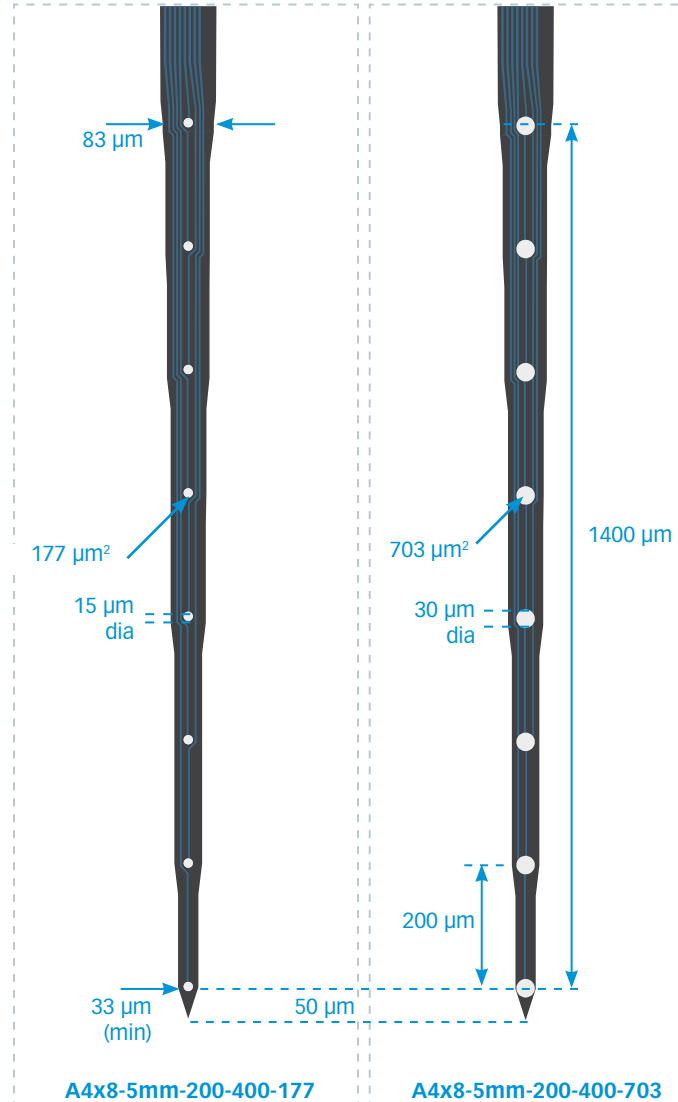


A4x8-5mm-200-400-177

A4x8-5mm-200-400-703



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

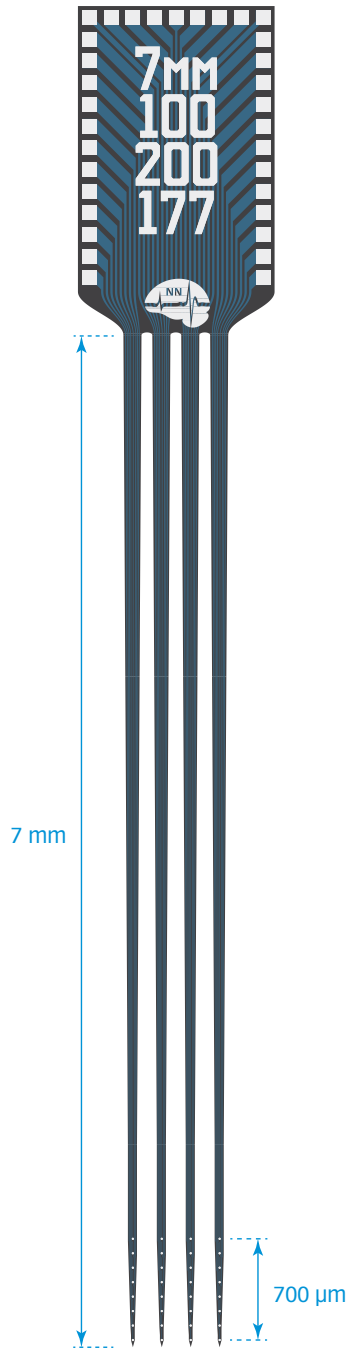
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

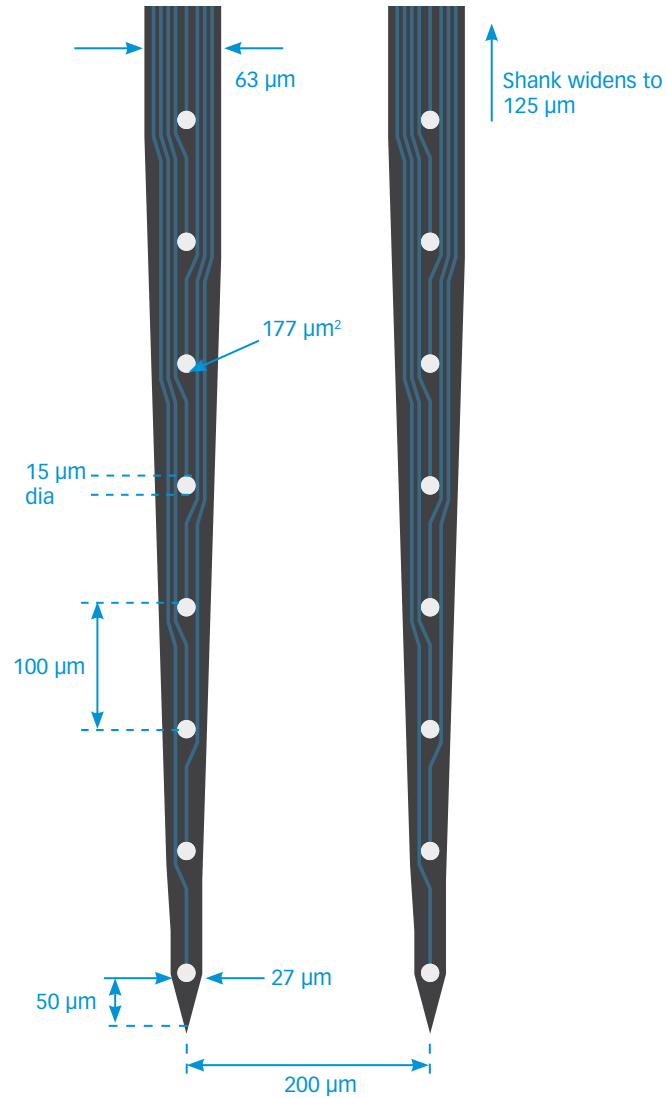
Thickness

15 μm

A4x8-7mm-100-200-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

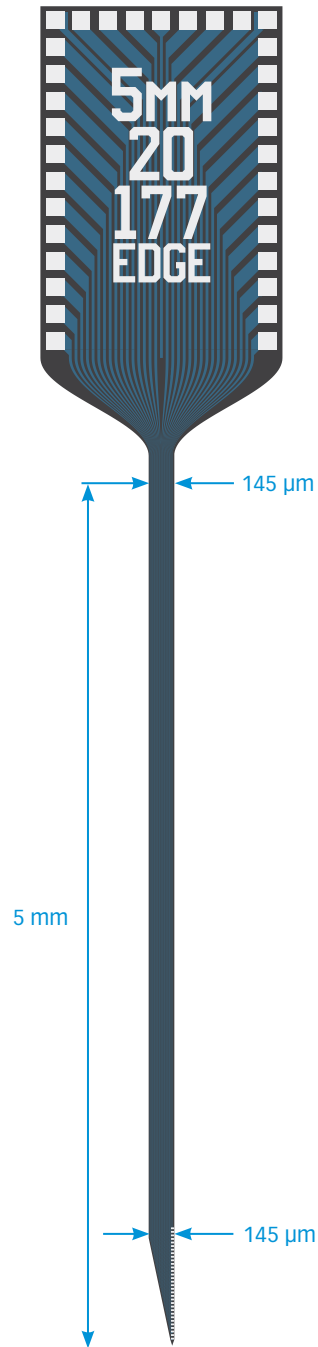
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

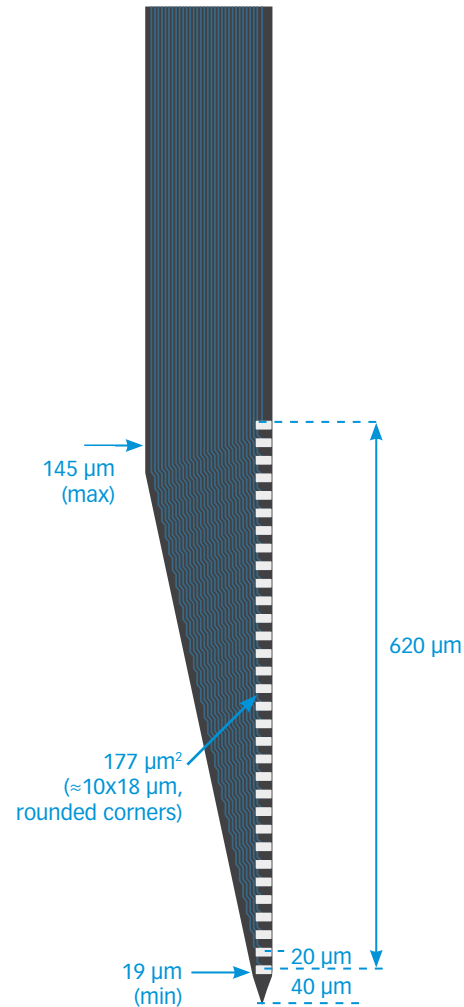
Thickness

50 µm

A1x32-Edge-5mm-20-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

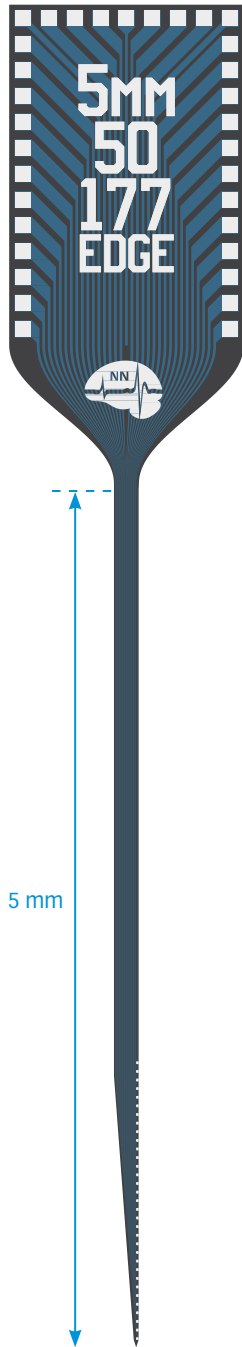
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

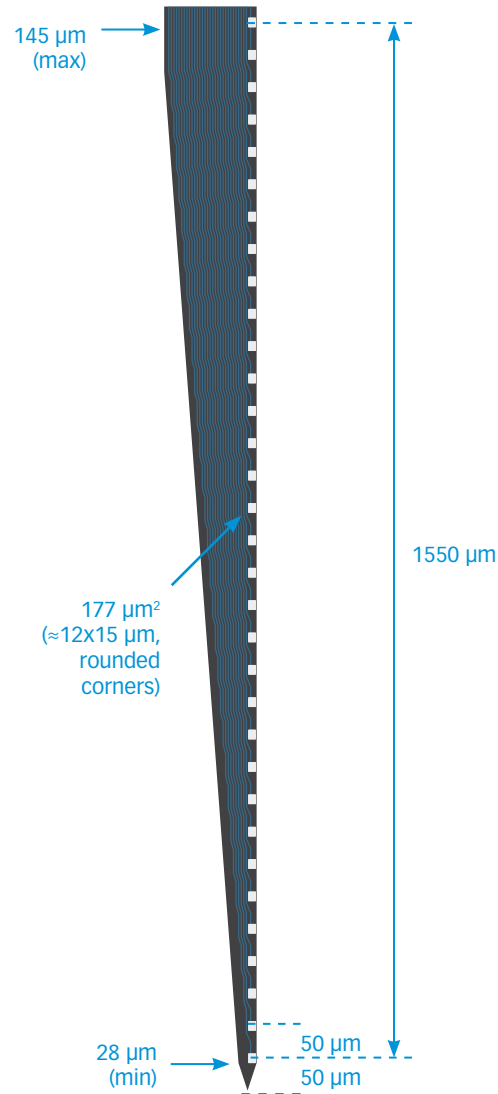
Thickness

15 µm
50 µm

A1x32-Edge-5mm-50-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

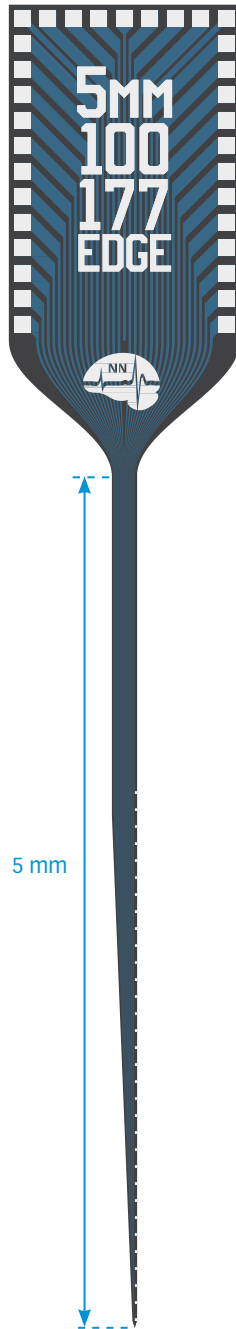
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

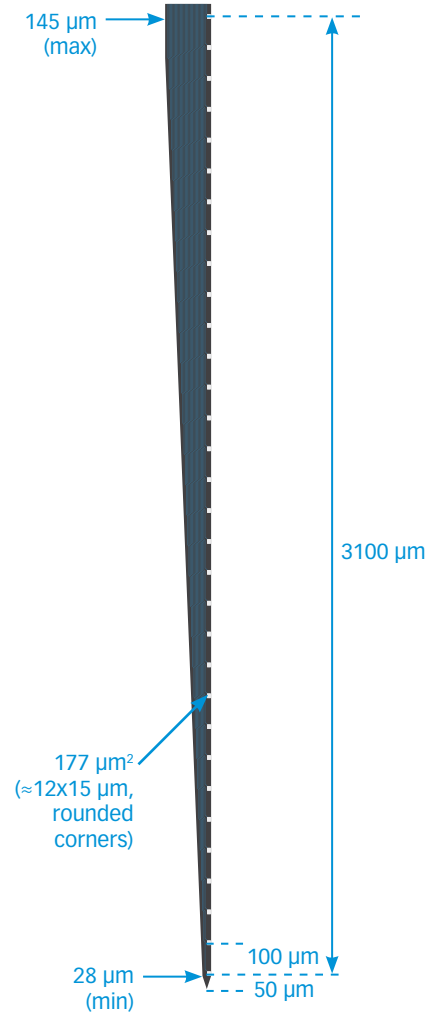
Thickness

15 μm

A1x32-Edge-5mm-100-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

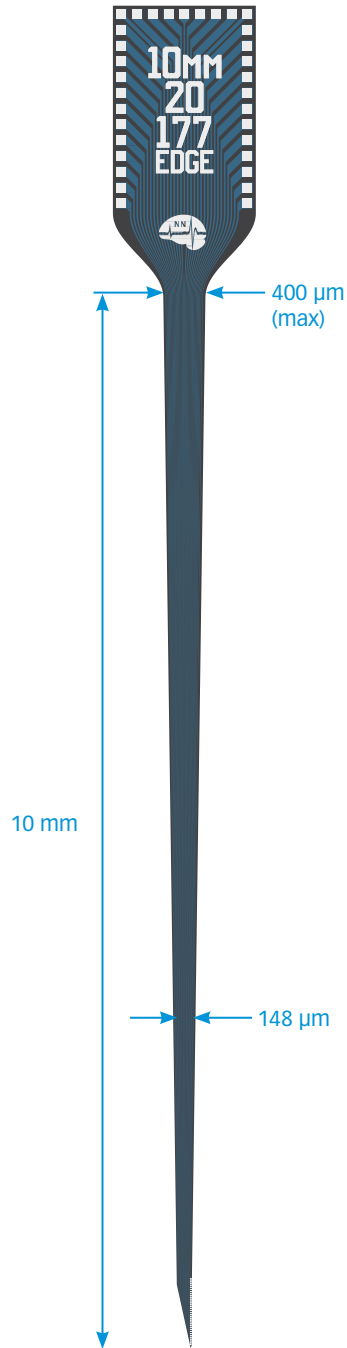
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

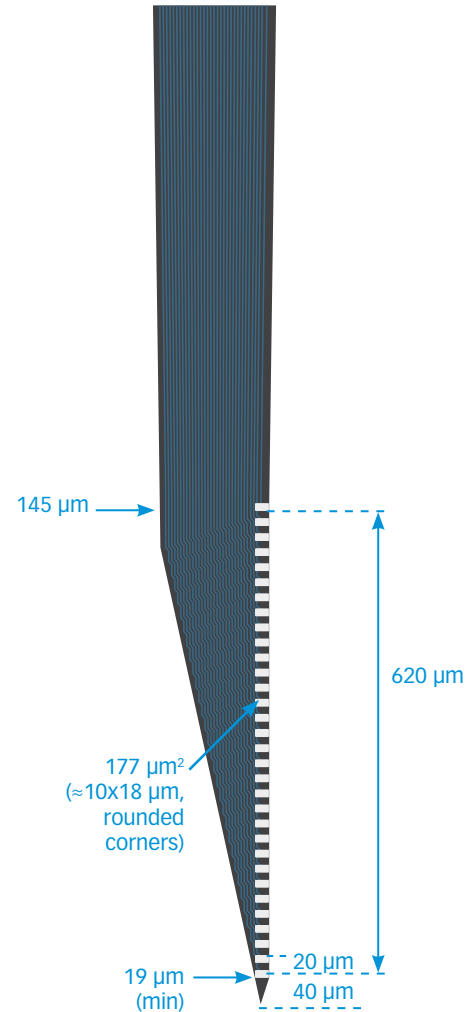
Thickness

15 µm

A1X32-Edge-10mm-20-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

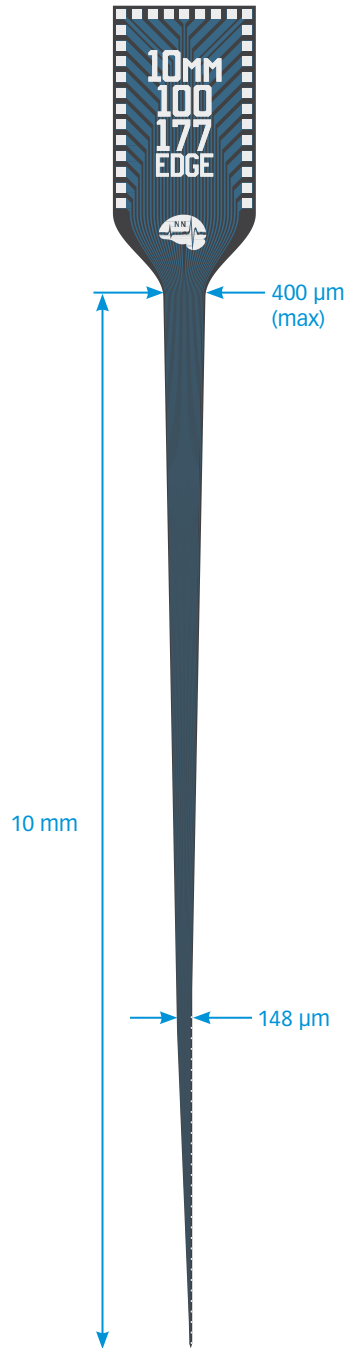
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

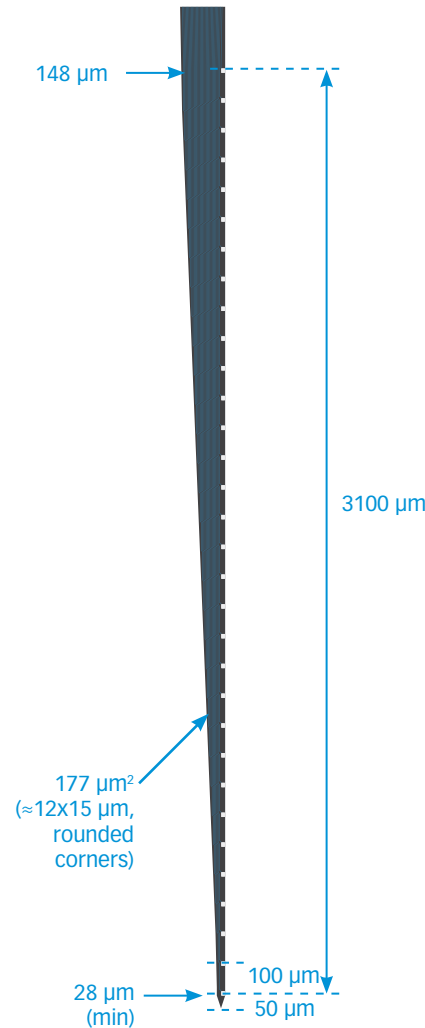
Thickness

50 μm

A1x32-Edge-10mm-100-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

Thickness

50 μm

A1x32-Poly2-3mm-50s-177

Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

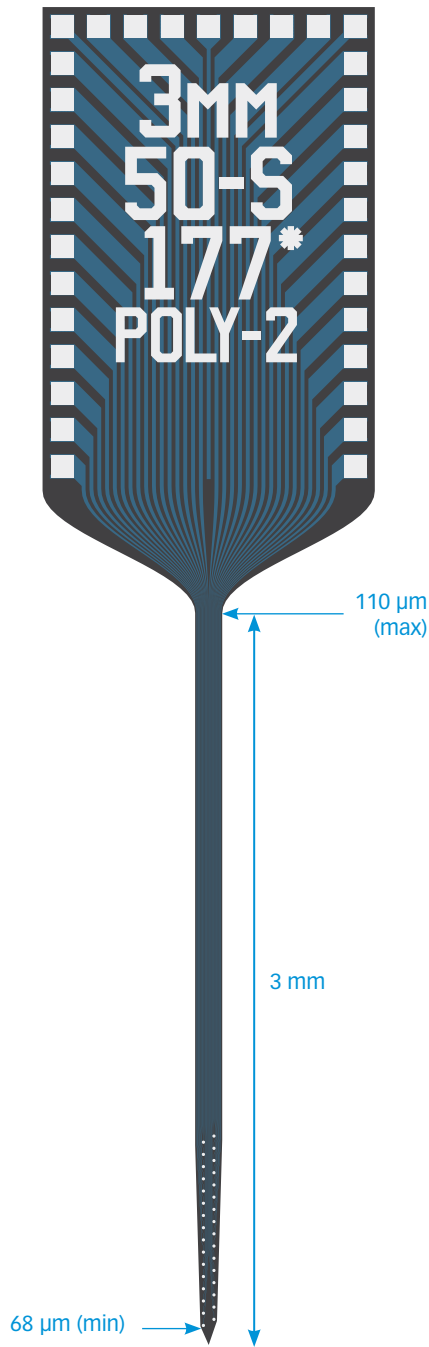
OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

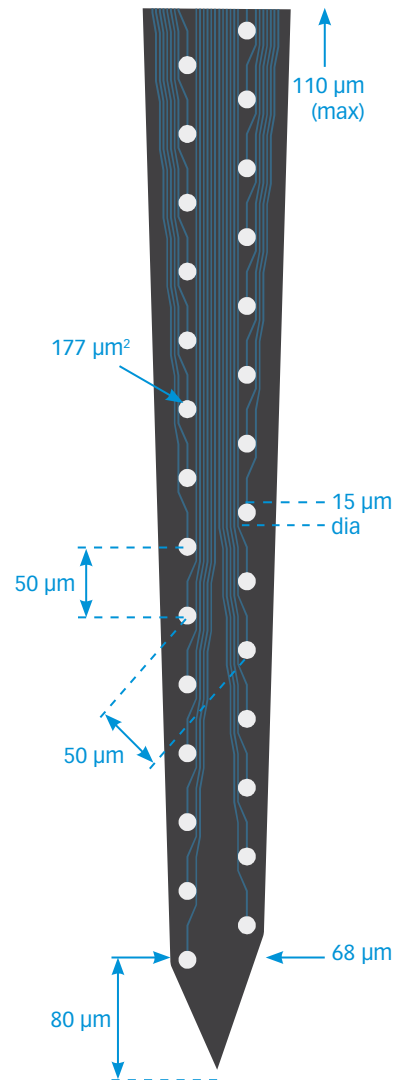
X-SERIES
X3_32
X3_H32

Thickness

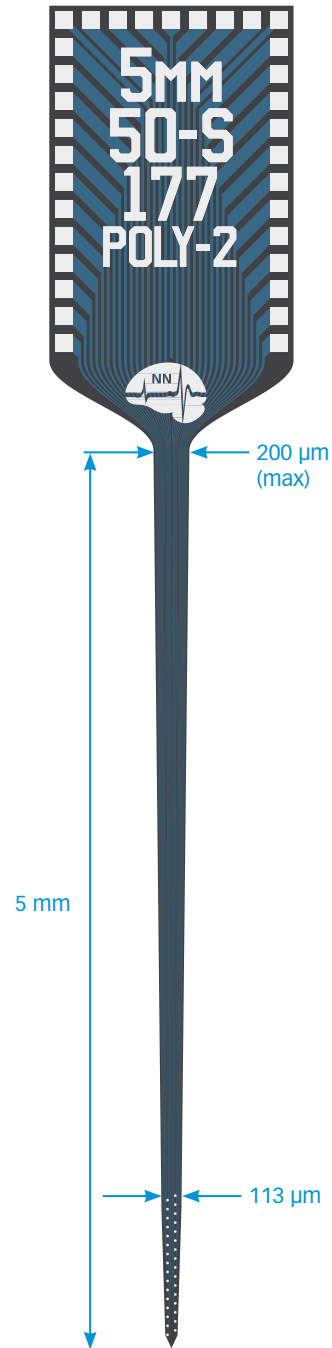
15 μm



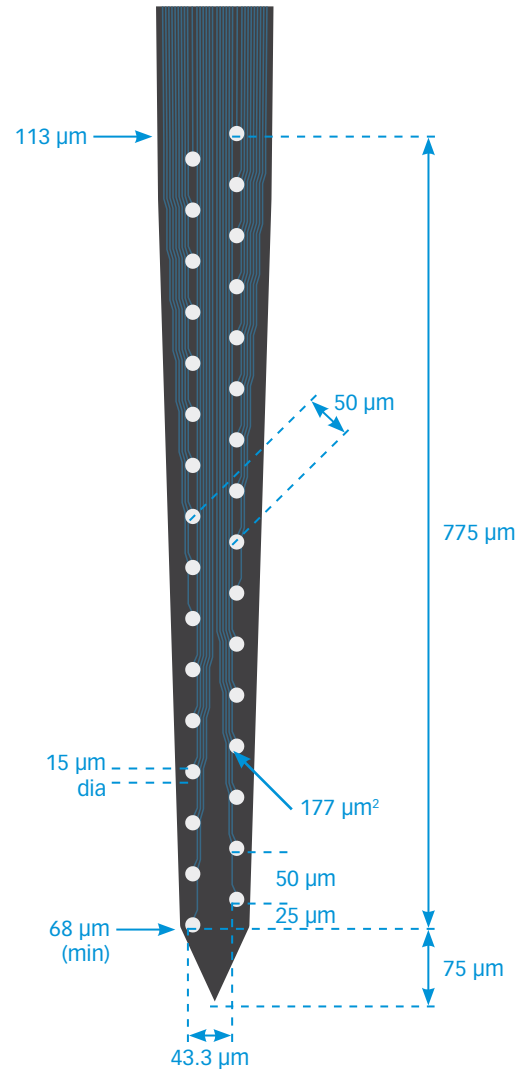
TIP DETAIL



A1x32-Poly2-5mm-50s-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

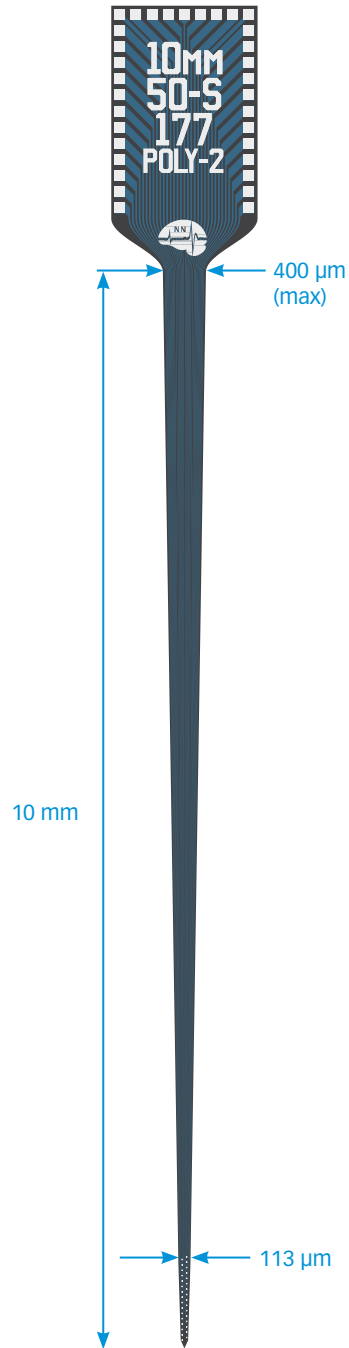
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

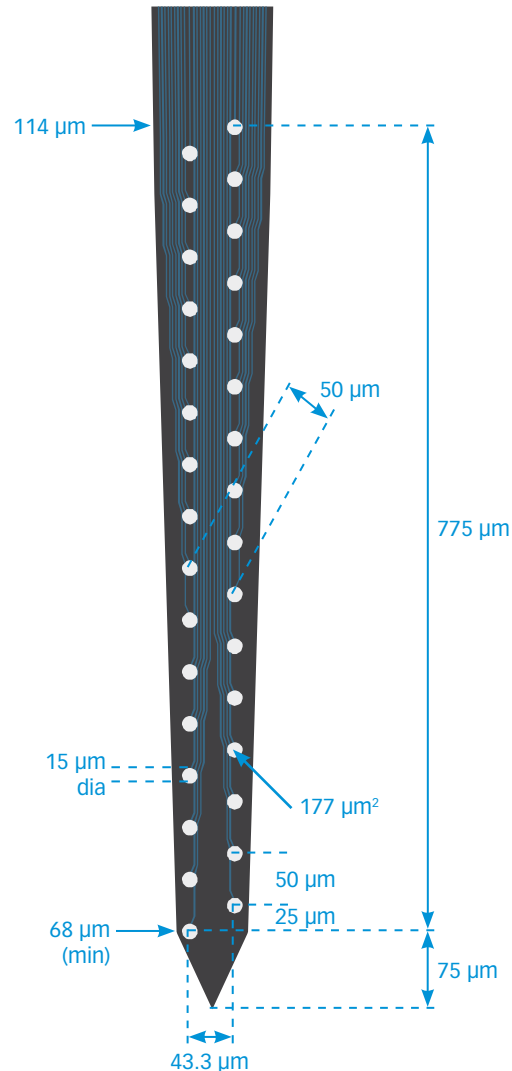
Thickness

15 µm
50 µm

A1x32-Poly2-10mm-50s-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

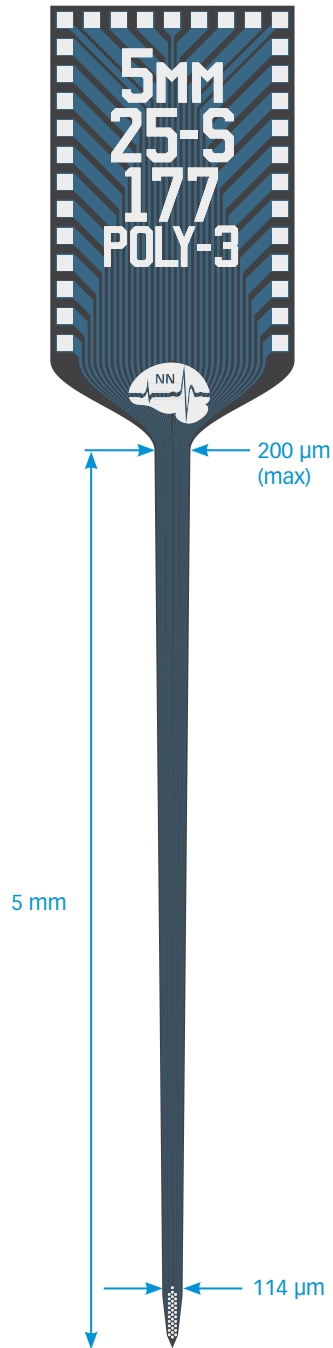
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

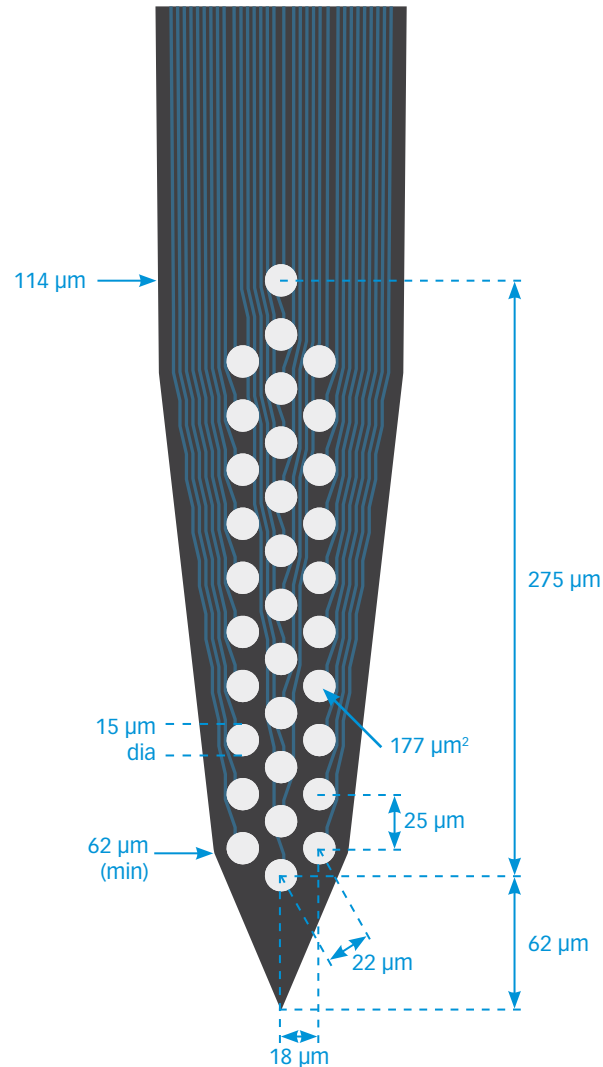
Thickness

50 μm

A1x32-Poly3-5mm-25s-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

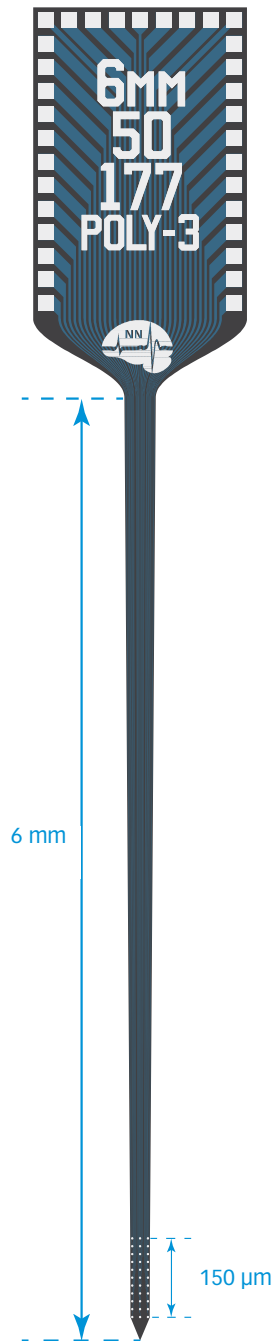
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

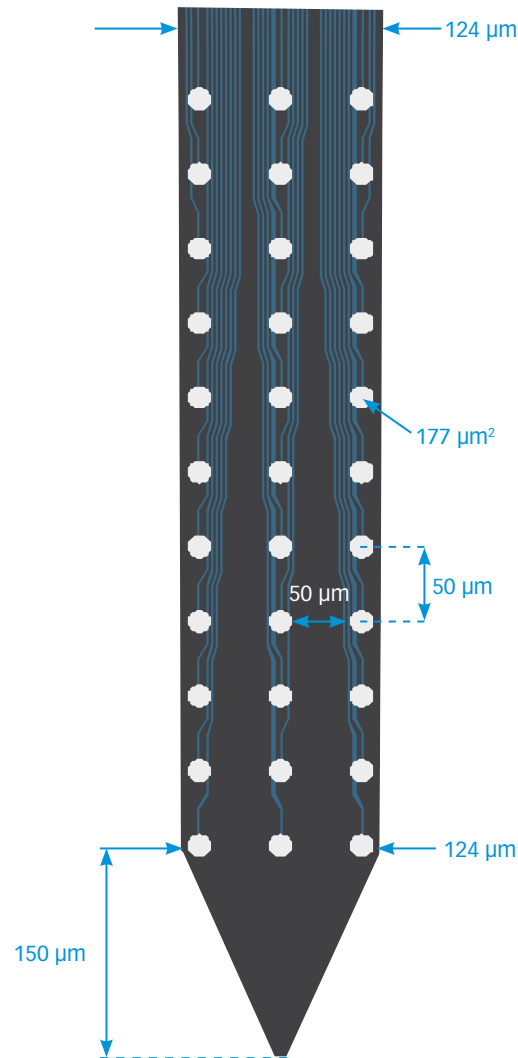
Thickness

15 μm
50 μm

A1x32-Poly3-6mm-50-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

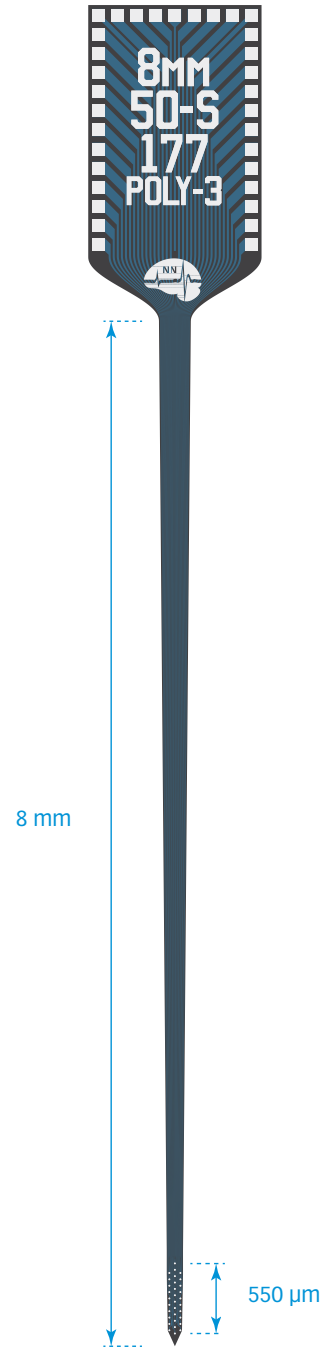
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

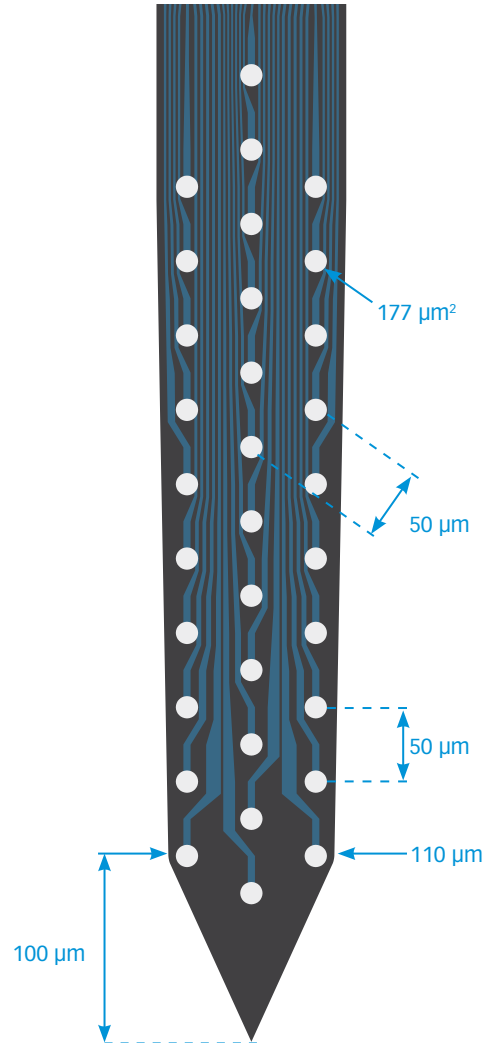
Thickness

15 µm
50 µm

A1x32-Poly3-8mm-50s-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

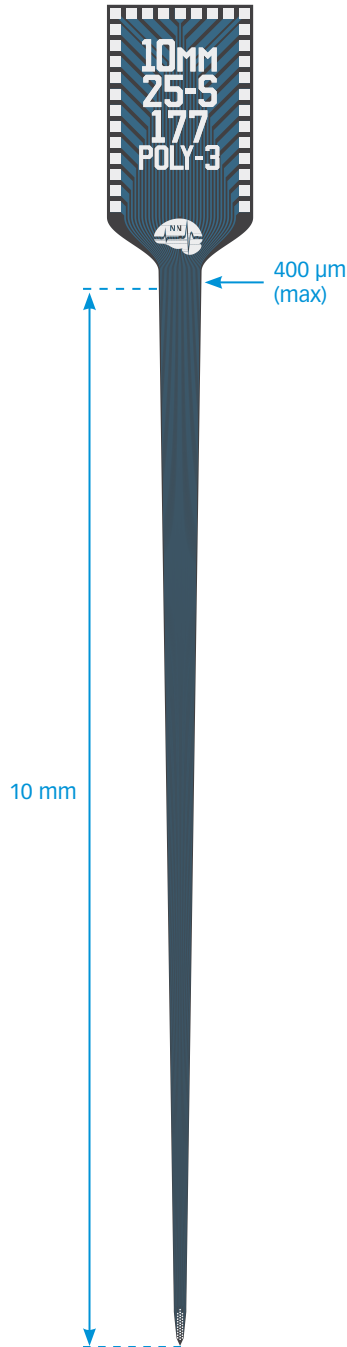
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

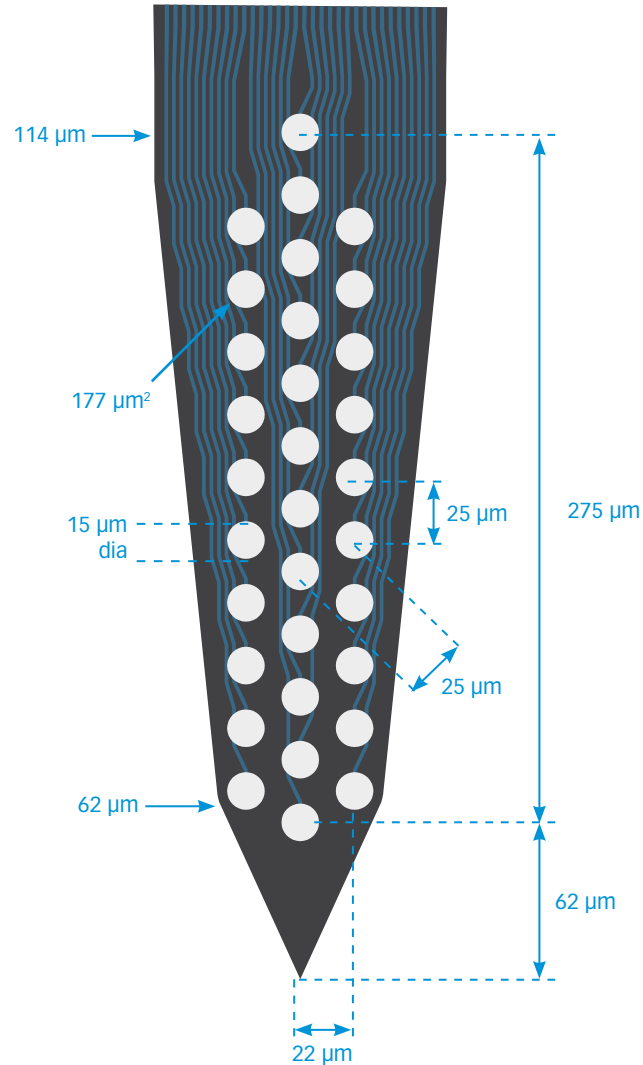
Thickness

50 μ m

A1x32-Poly3-10mm-25s-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

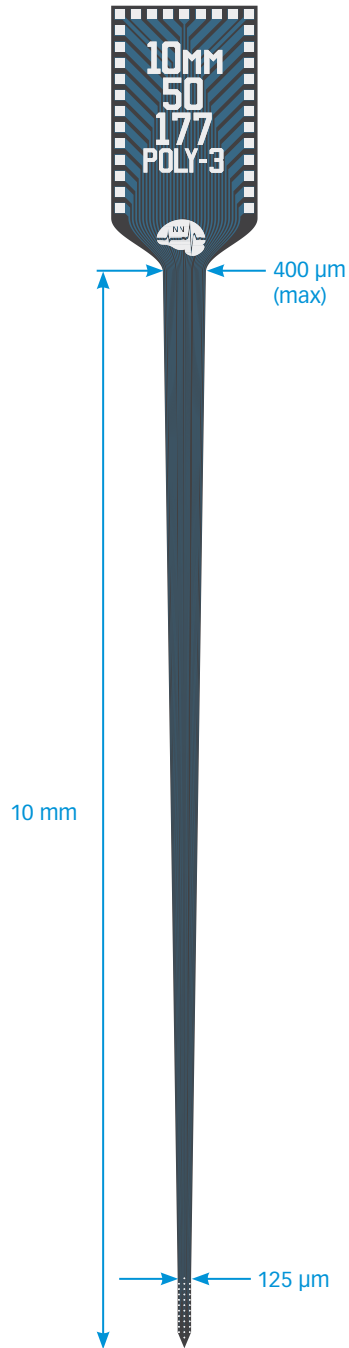
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3-32
X3-H32

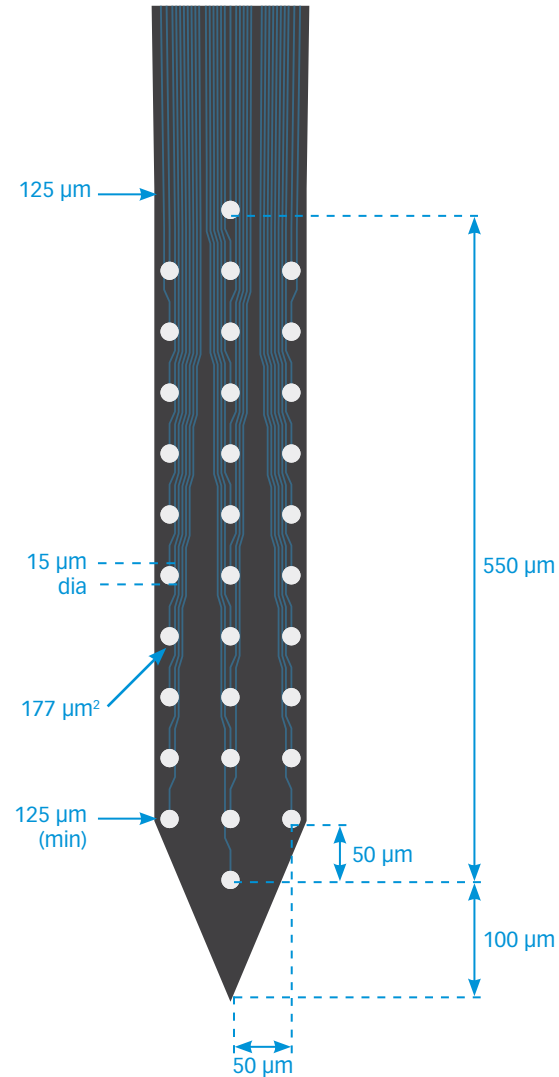
Thickness

15 μm
50 μm

A1x32-Poly3-10mm-50-177



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

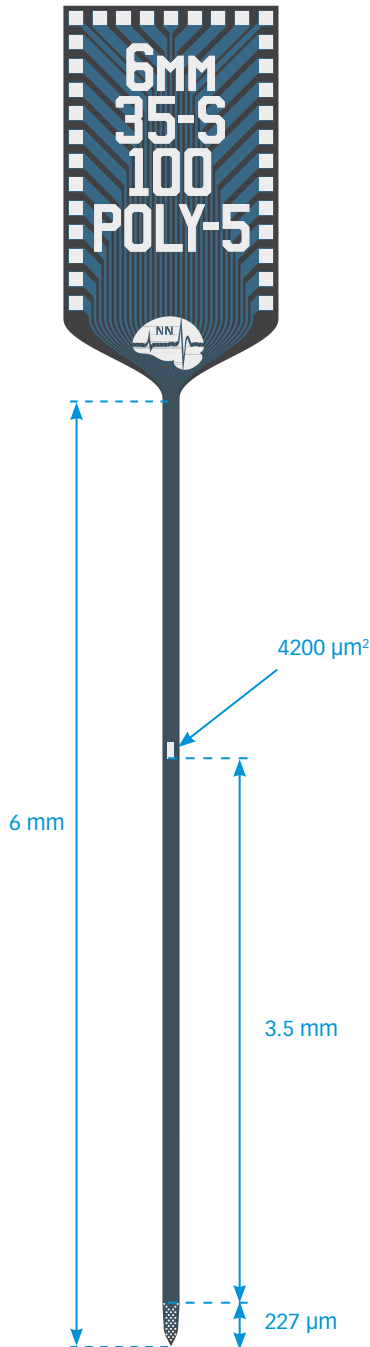
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

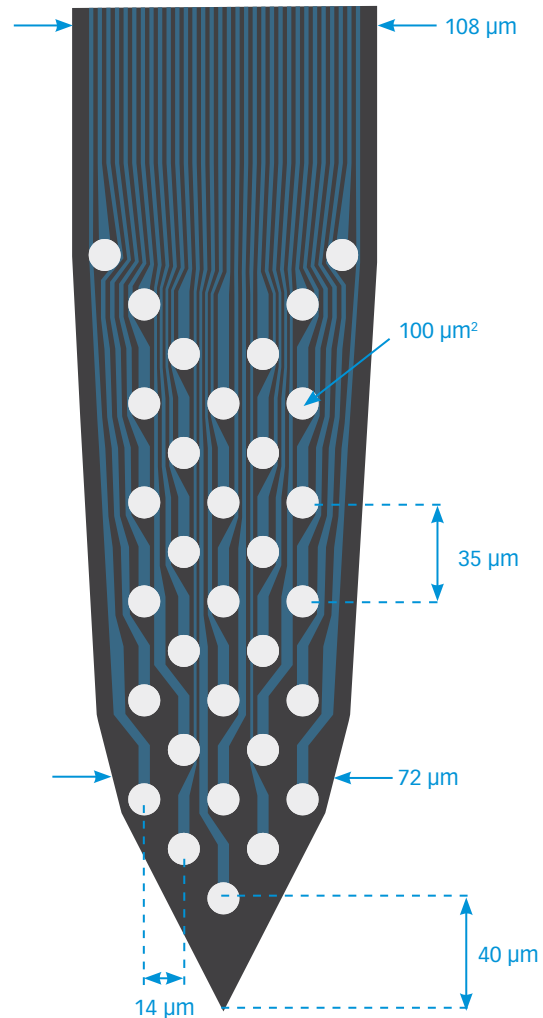
Thickness

15 μm
50 μm

A1x32-Poly5-6mm-35s-100



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

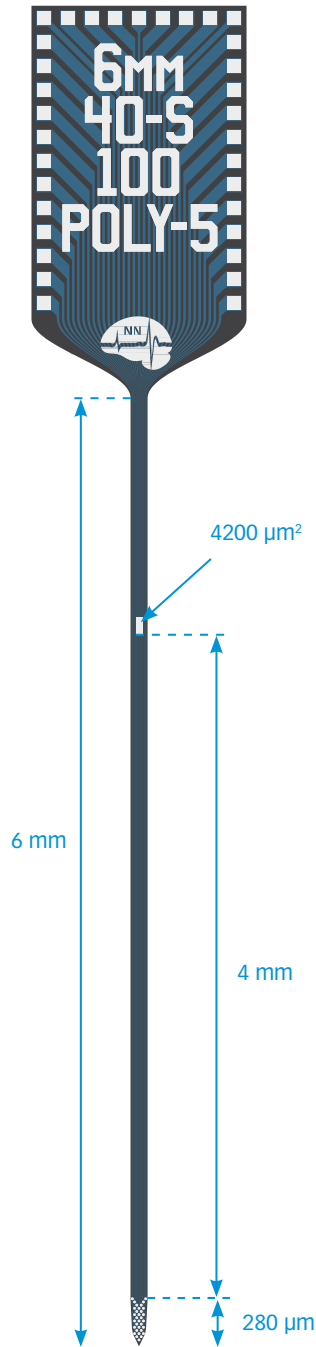
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

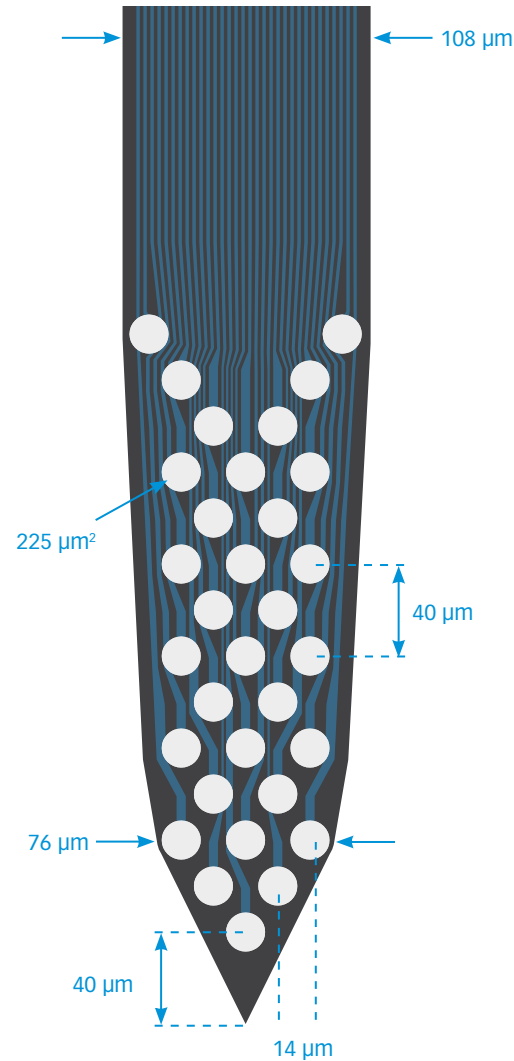
Thickness

15 μm

A1x32-Poly5-6mm-40s-225



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

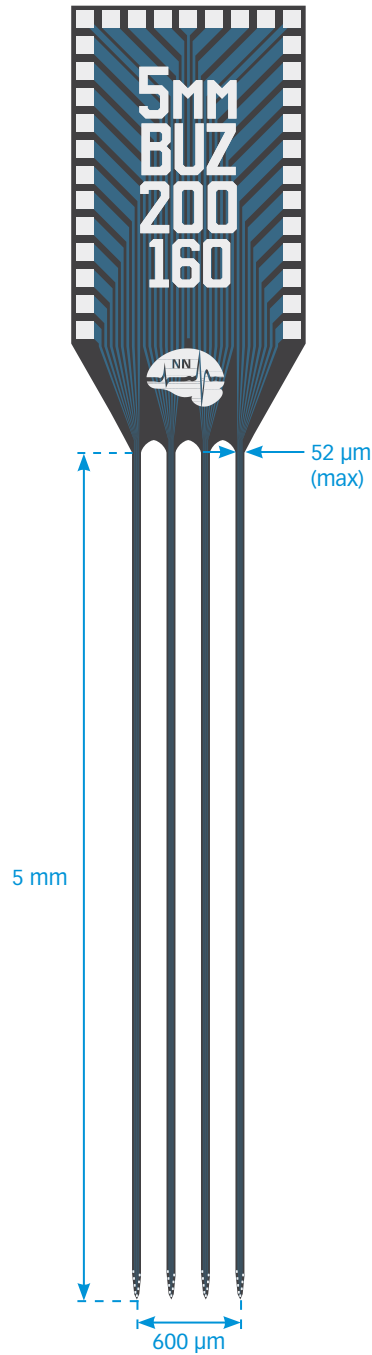
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

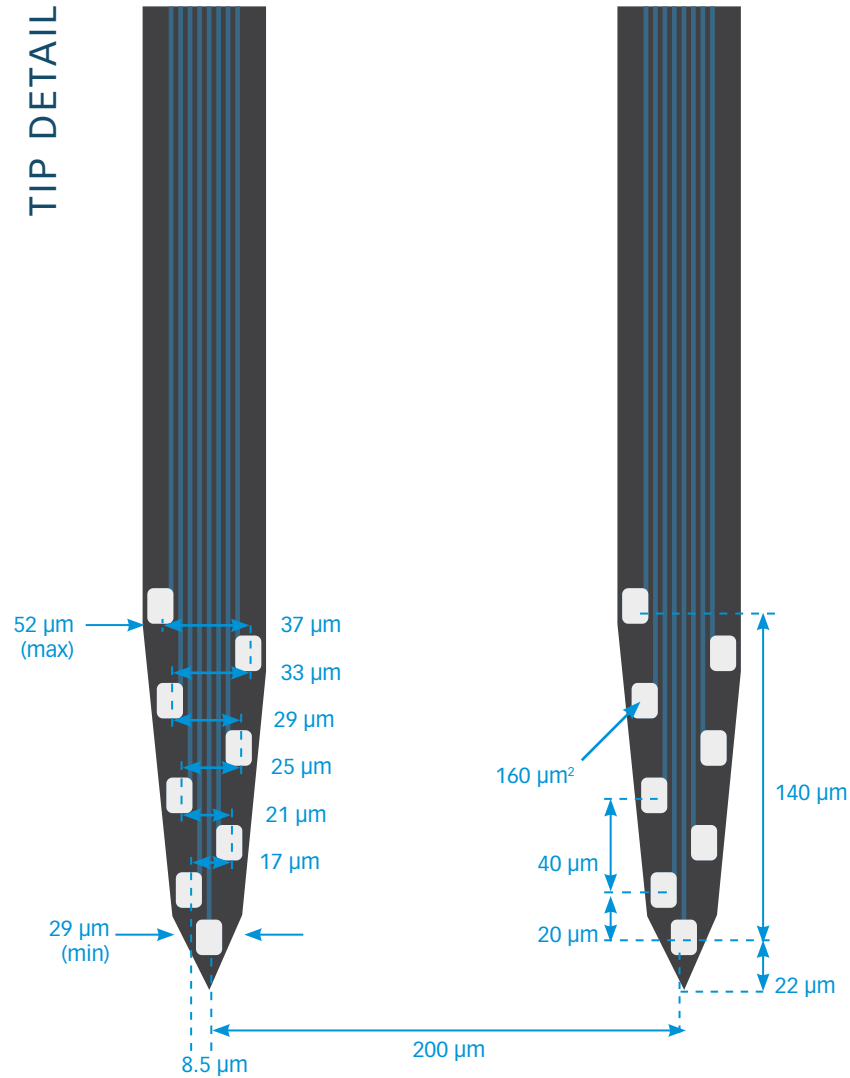
Thickness

15 μm

Buzsaki32



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

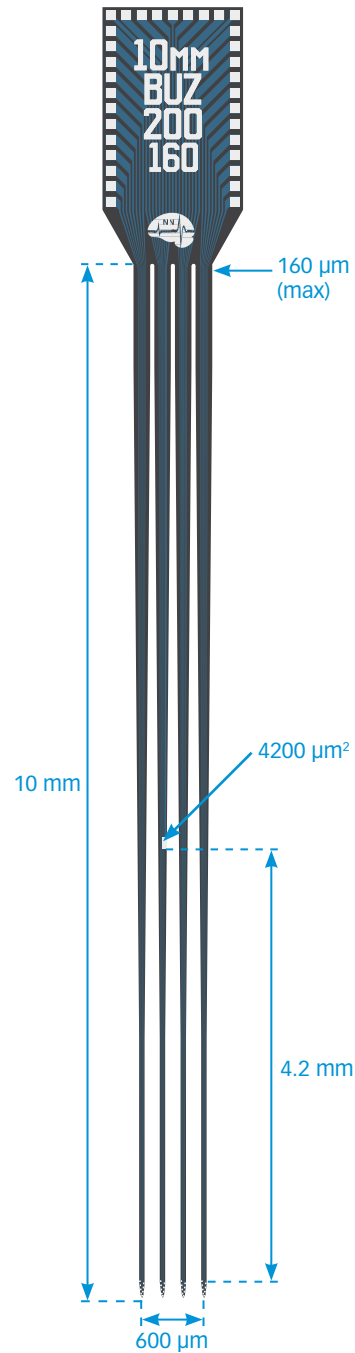
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

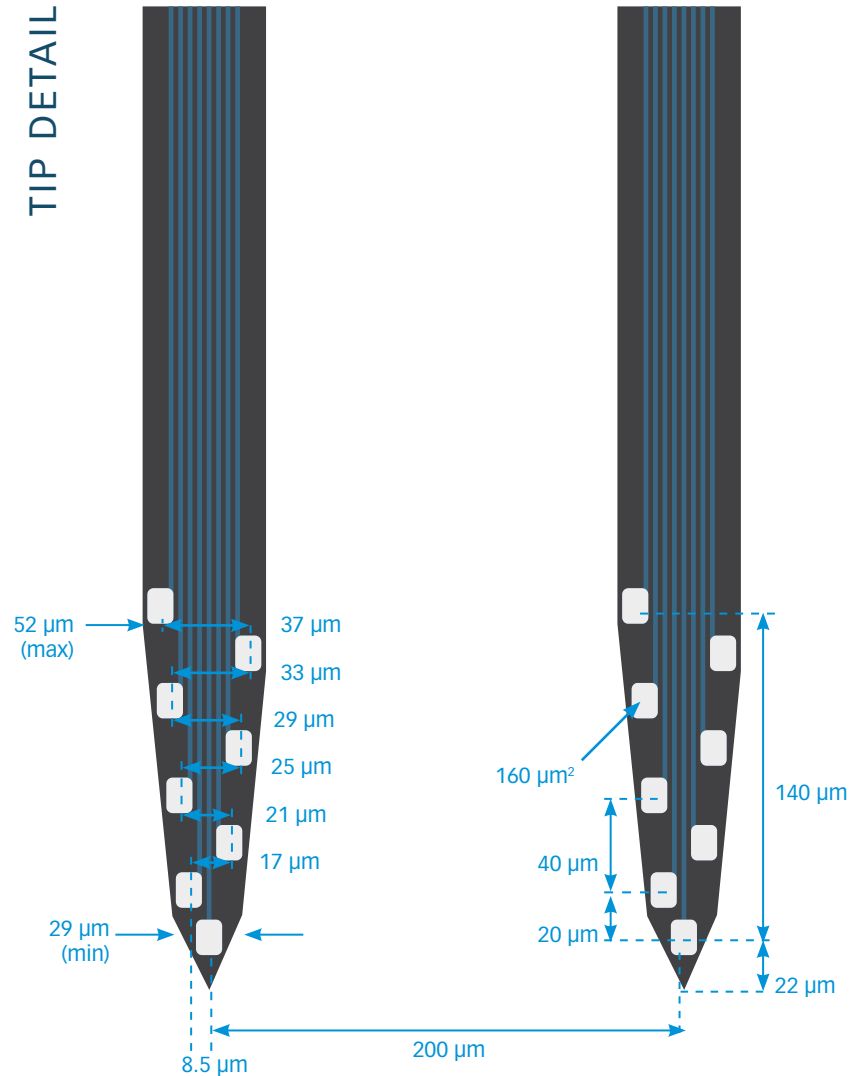
Thickness

15 µm

Buzsaki32L



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

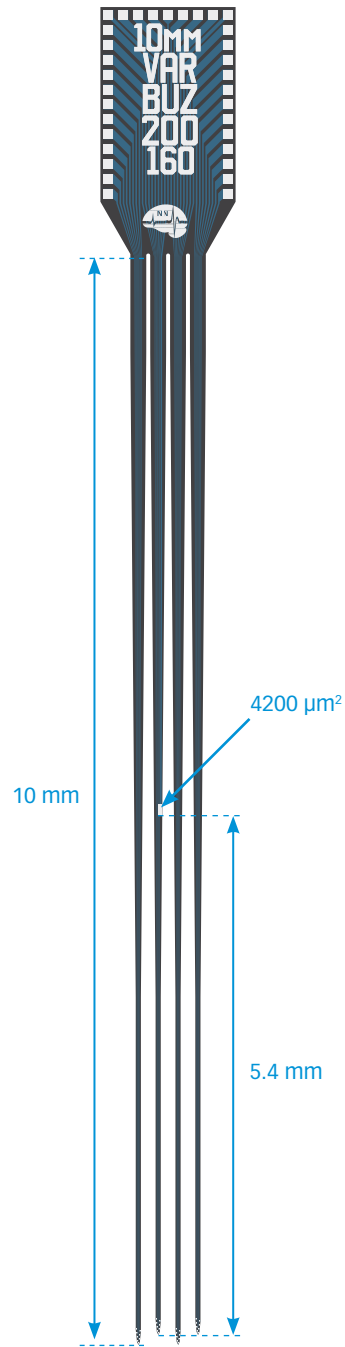
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

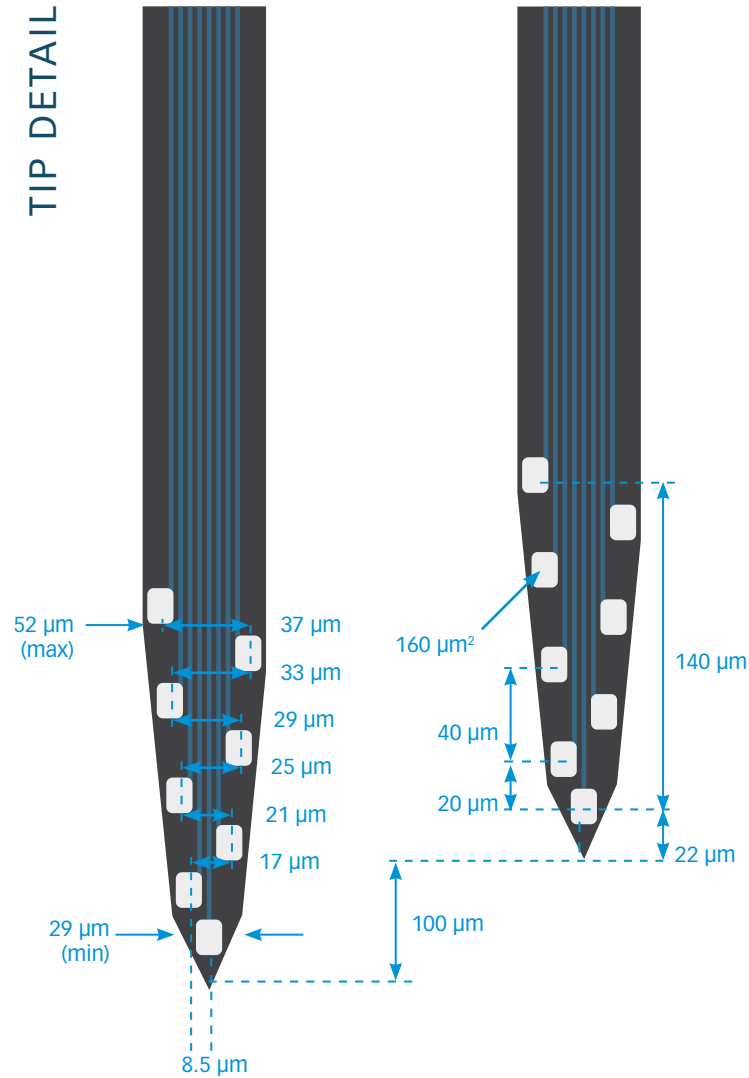
Thickness

15 μm
50 μm

Buzsaki32L-var



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

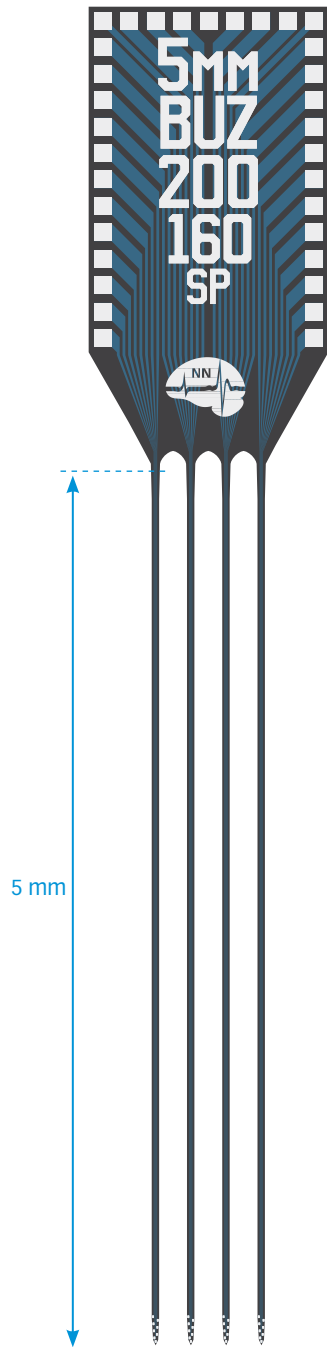
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

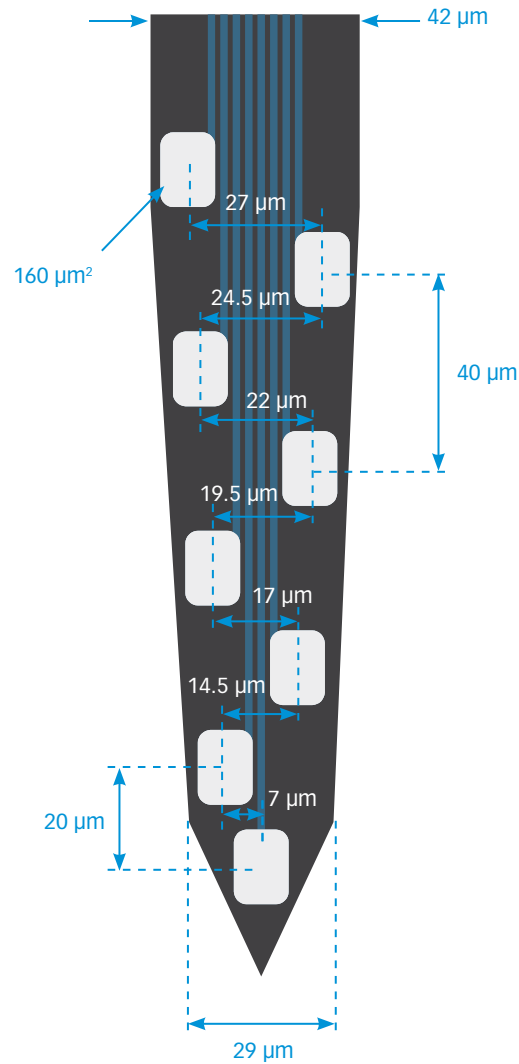
Thickness

15 μm
50 μm

Buzsaki32sp



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

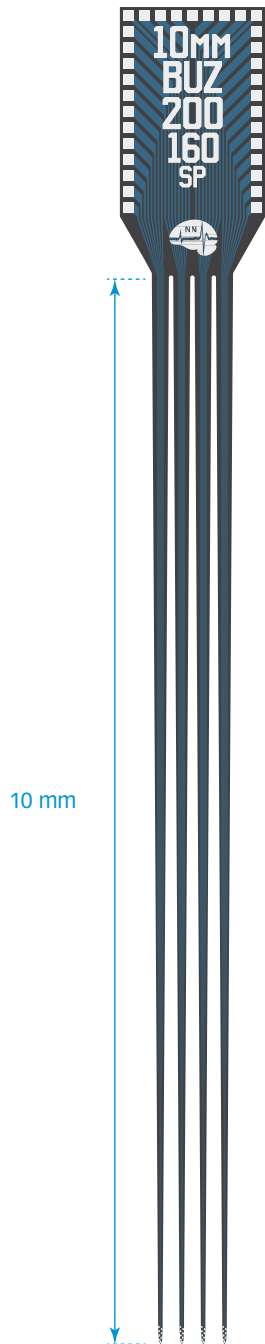
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

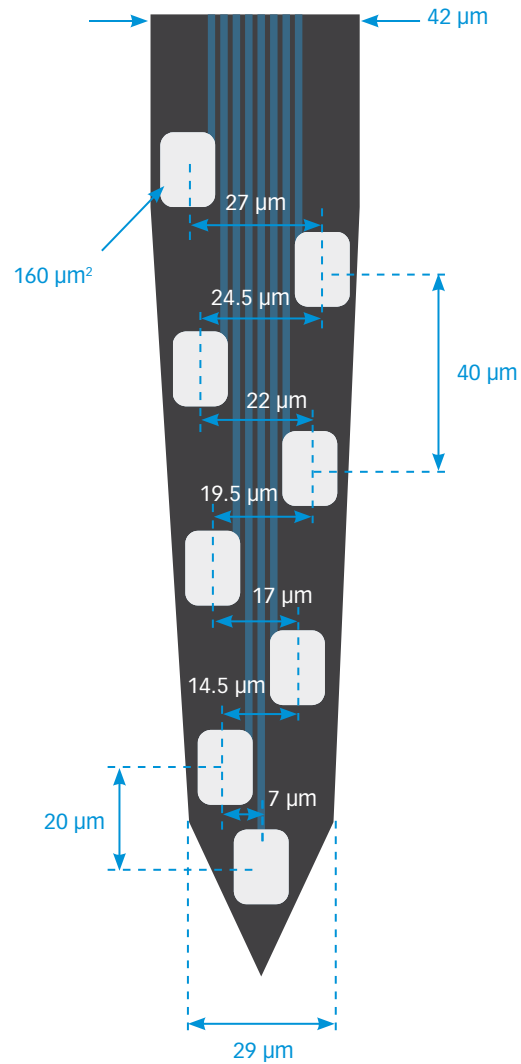
Thickness

15 μm

Buzsaki32spL



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

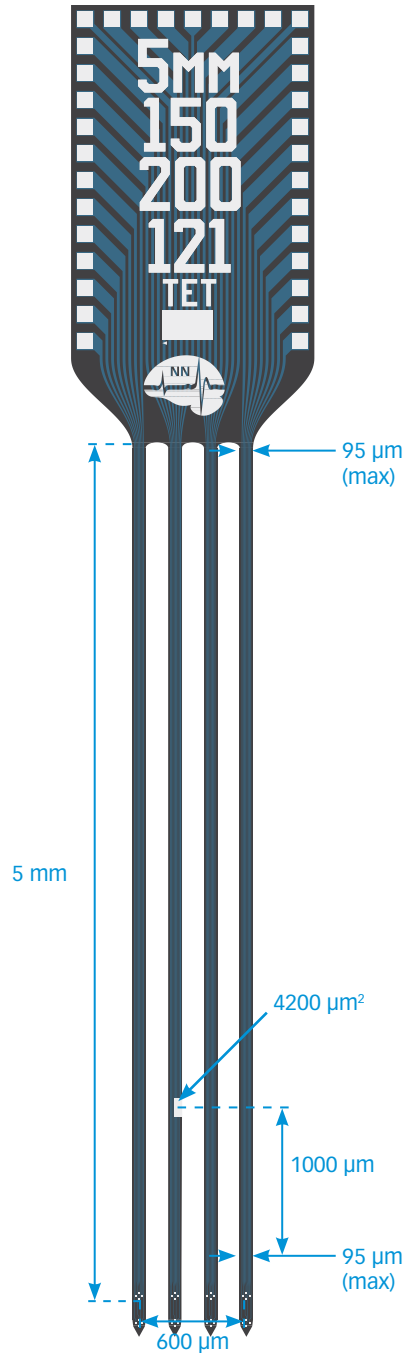
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

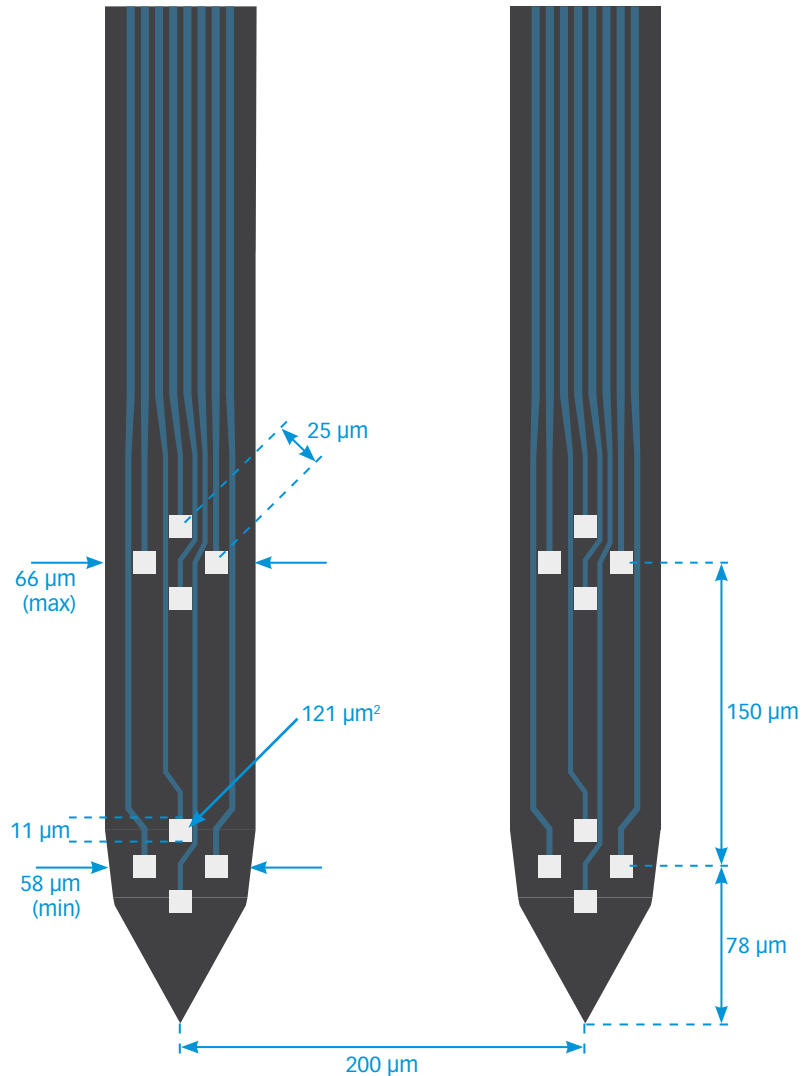
Thickness

15 μm
50 μm

A4x2-tet-5mm-150-200-121



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

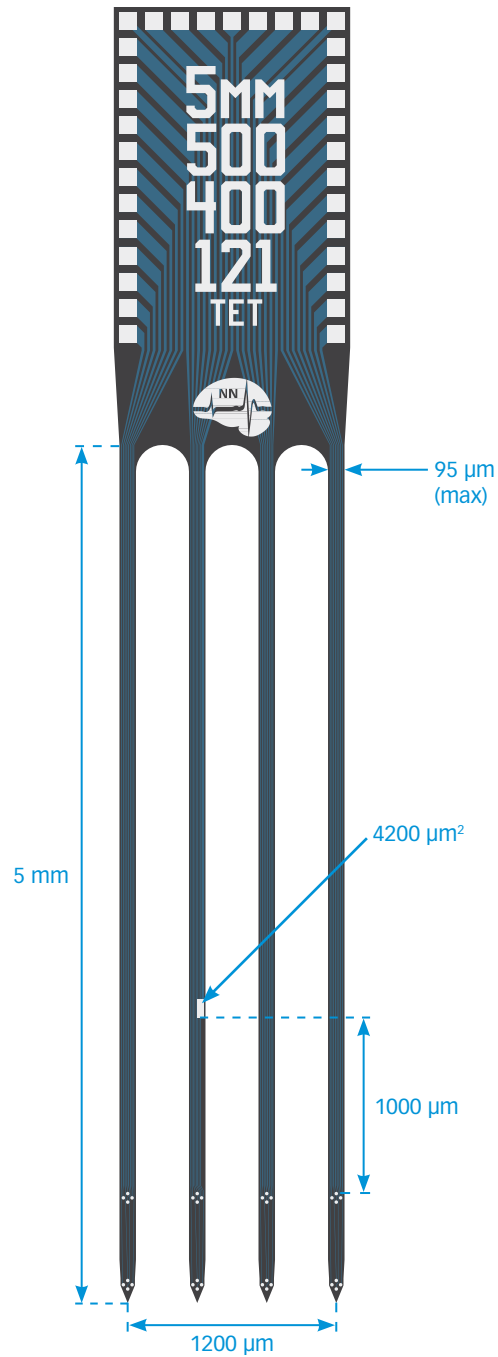
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

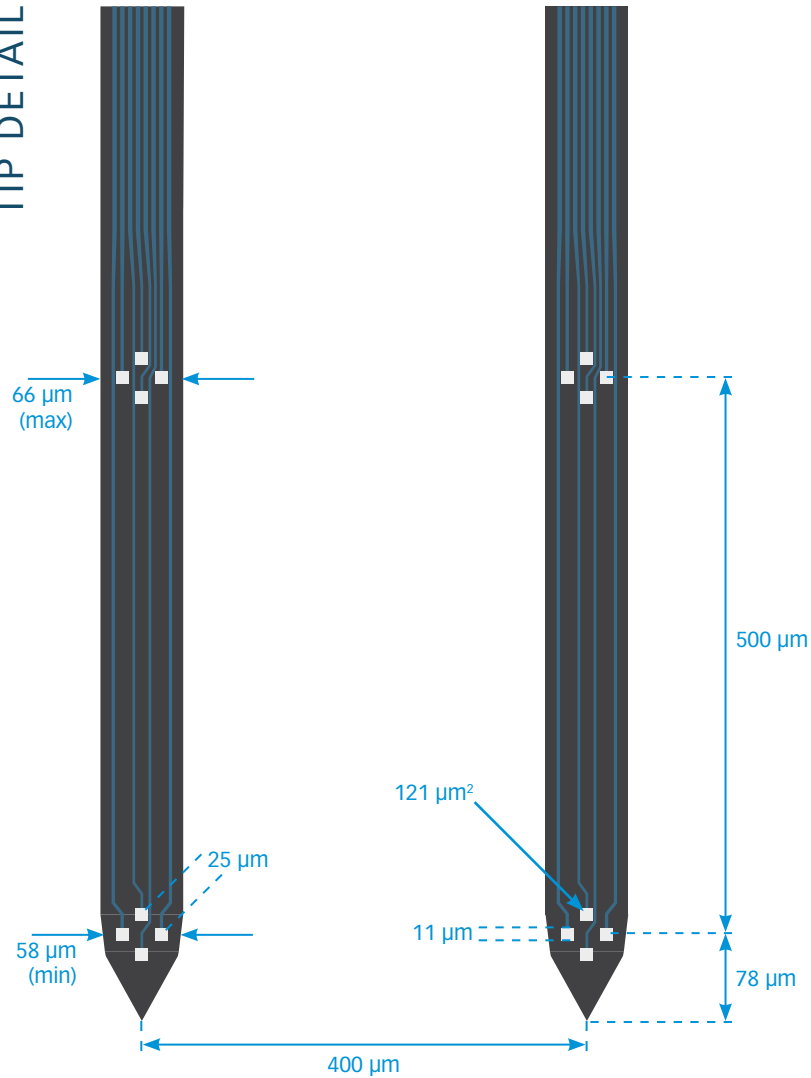
Thickness

15 μm
50 μm

A4x2-tet-5mm-500-400-121



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

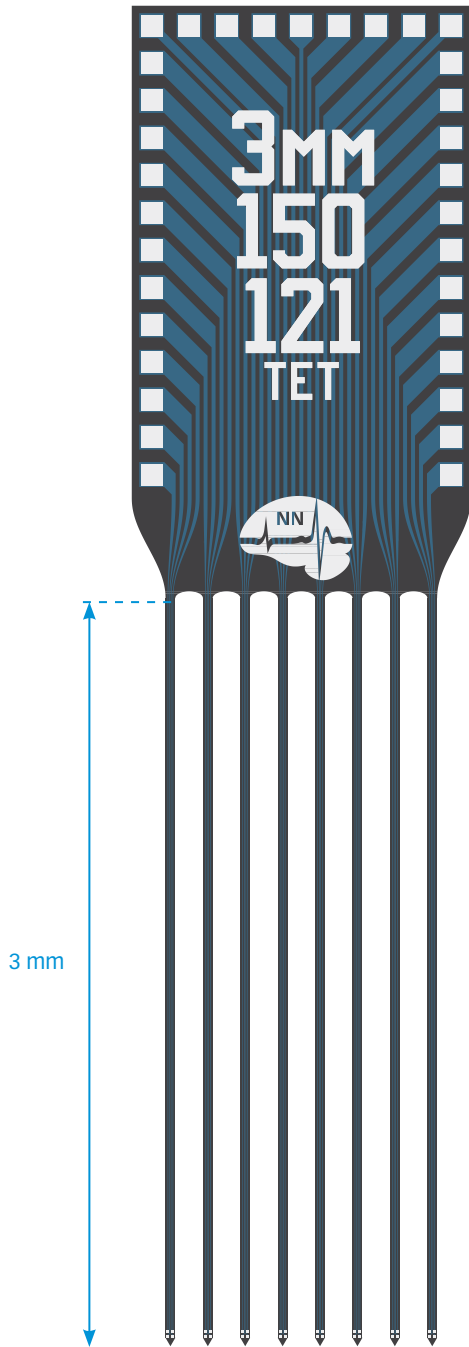
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

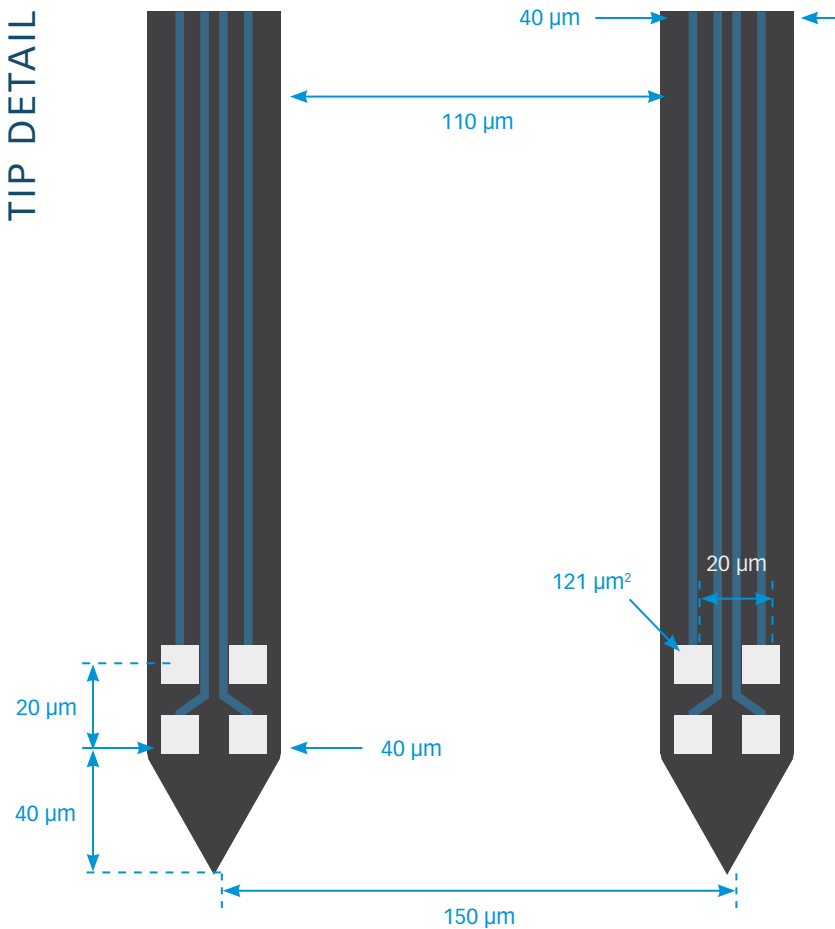
Thickness

15 μm

A8x1-tet-3mm-150-121



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

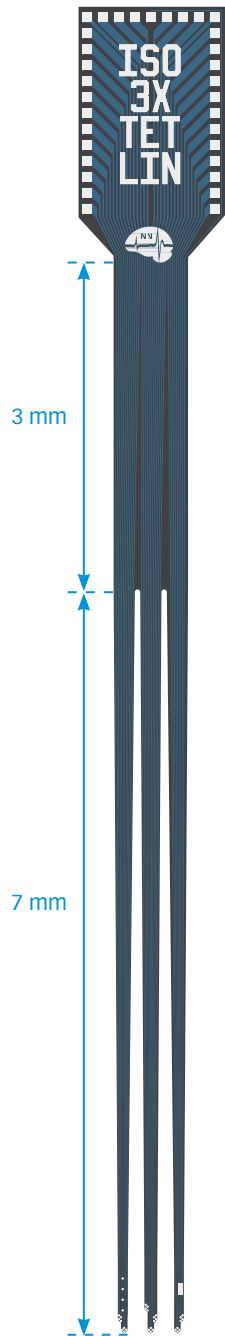
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

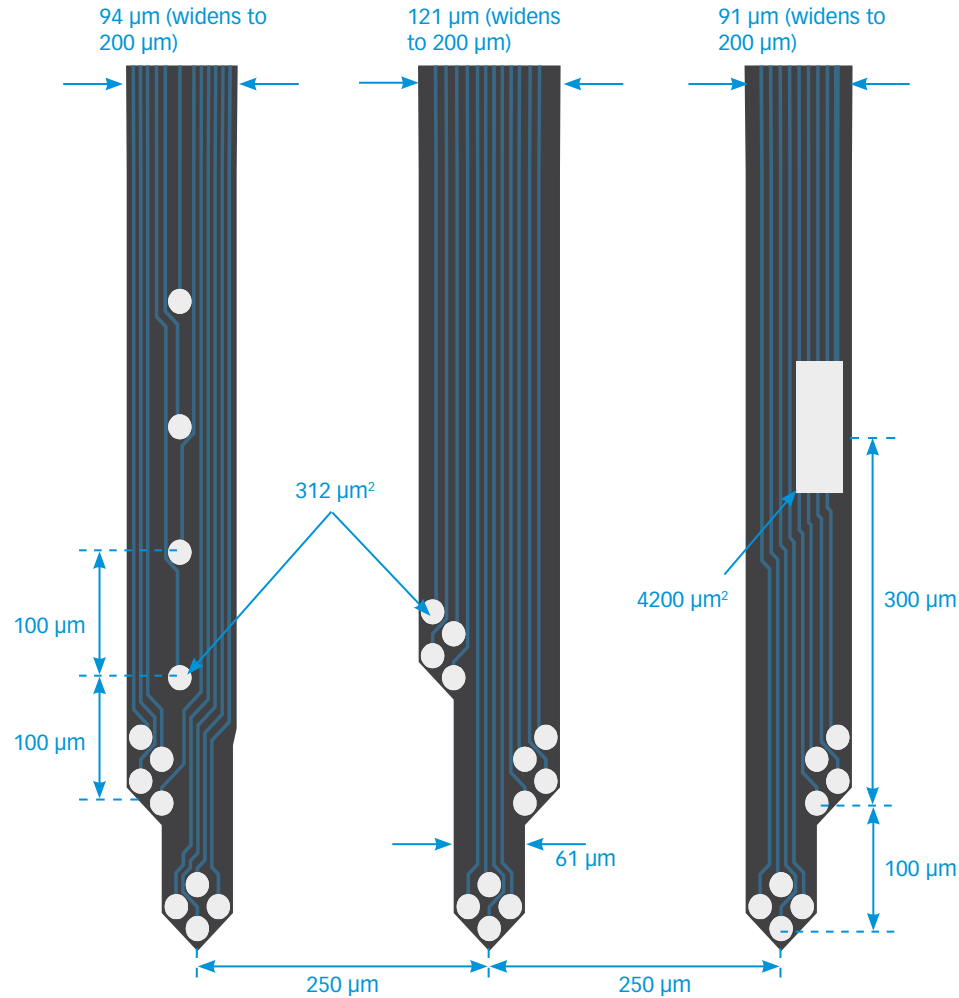
Thickness

15 μ m

ISO32-3x-tet-lin-7mm



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

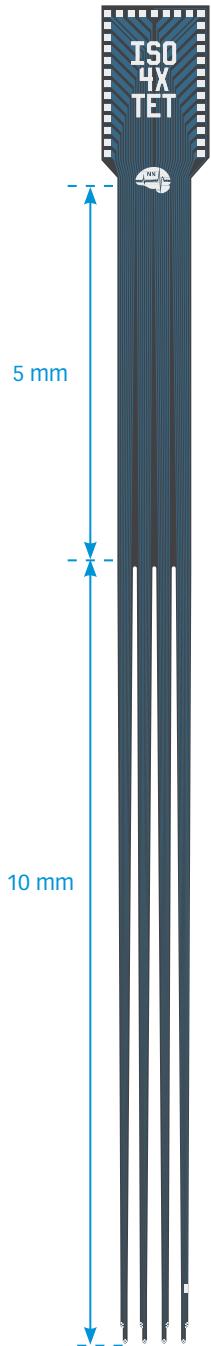
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

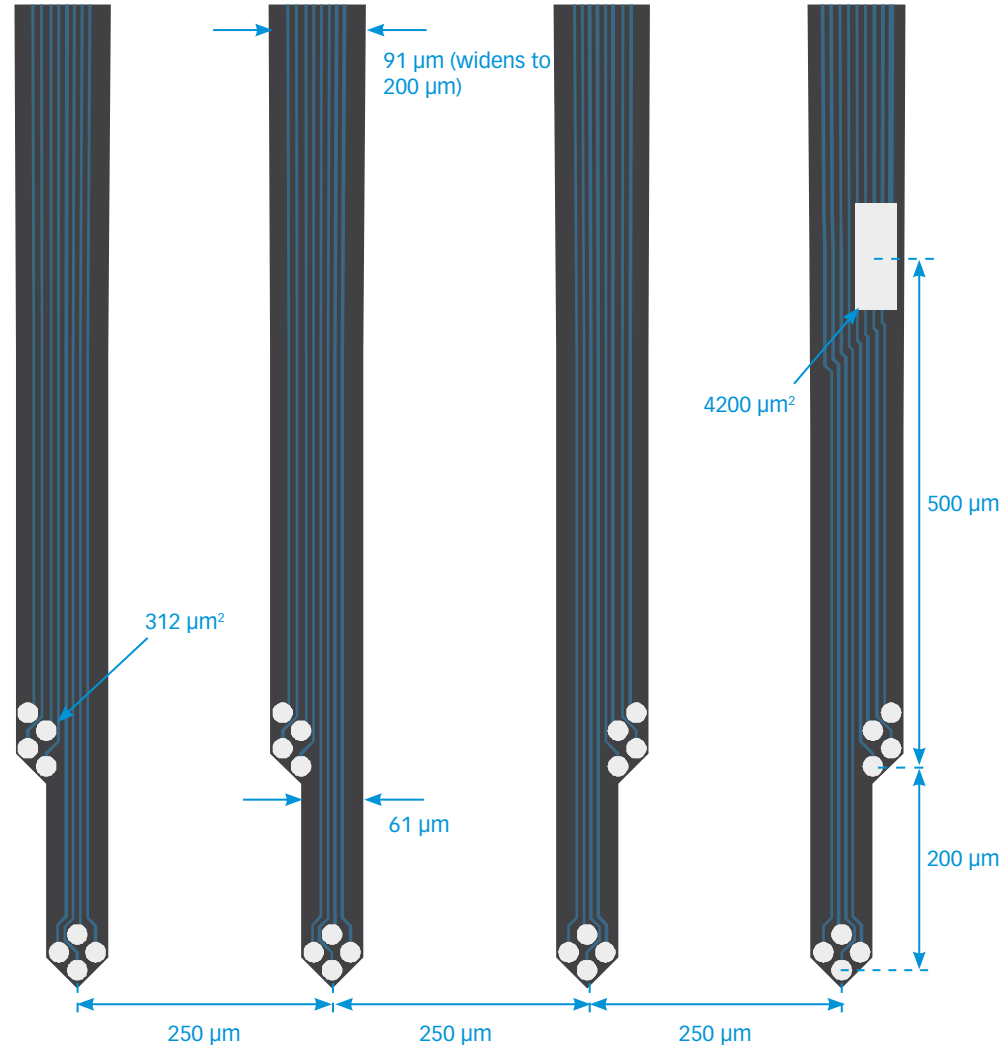
Thickness

50 μm

ISO32-4x-tet-10mm



TIP DETAIL



Available packages

ACUTE
A32

CHRONIC
CM32
H32_21mm
HC32_21mm
HZ32_21mm
Z32

OPTOGENETICS
OA32LP
OA32LP_v2
OCM32LP
OH32LP (oDrive)
OXA32LP (Optogenix)
OZ32LP

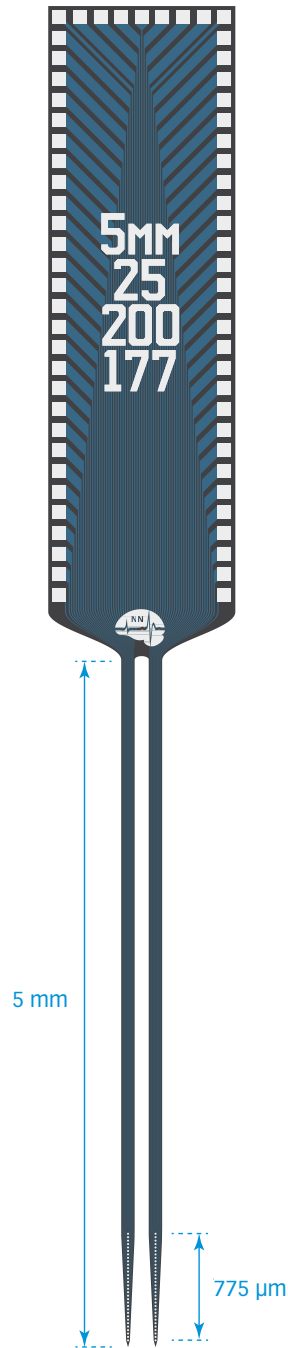
MR-COMPATIBLE
MR_CM32
MR_H32_21mm
MR_HC32_21mm

X-SERIES
X3_32
X3_H32

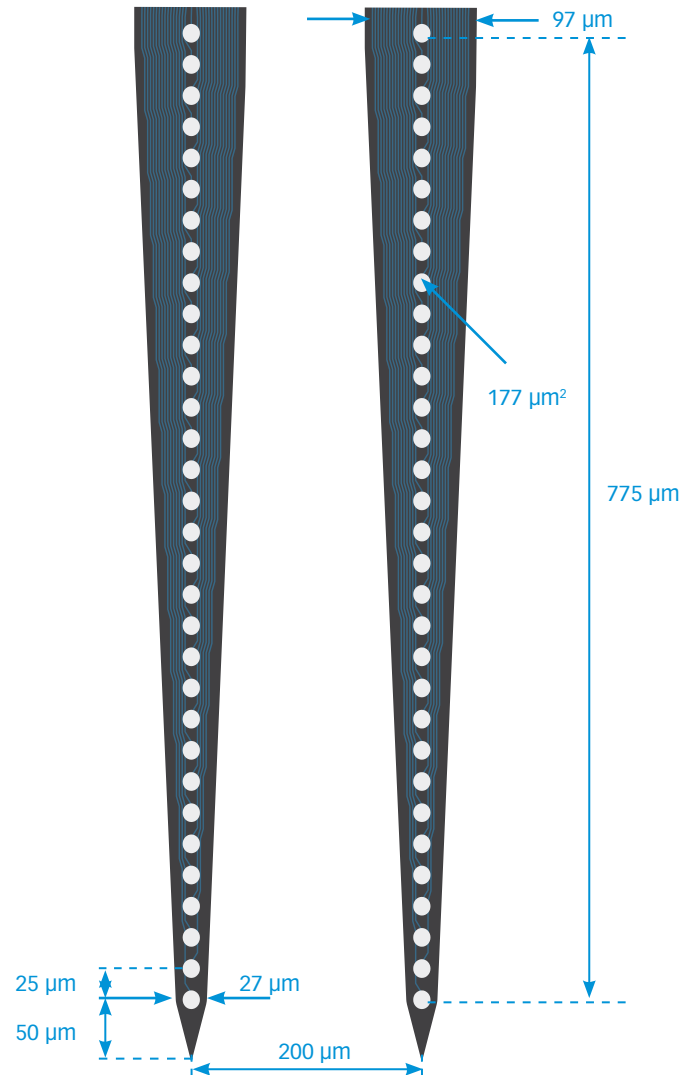
Thickness

50 μm

A2x32-5mm-25-200-177



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

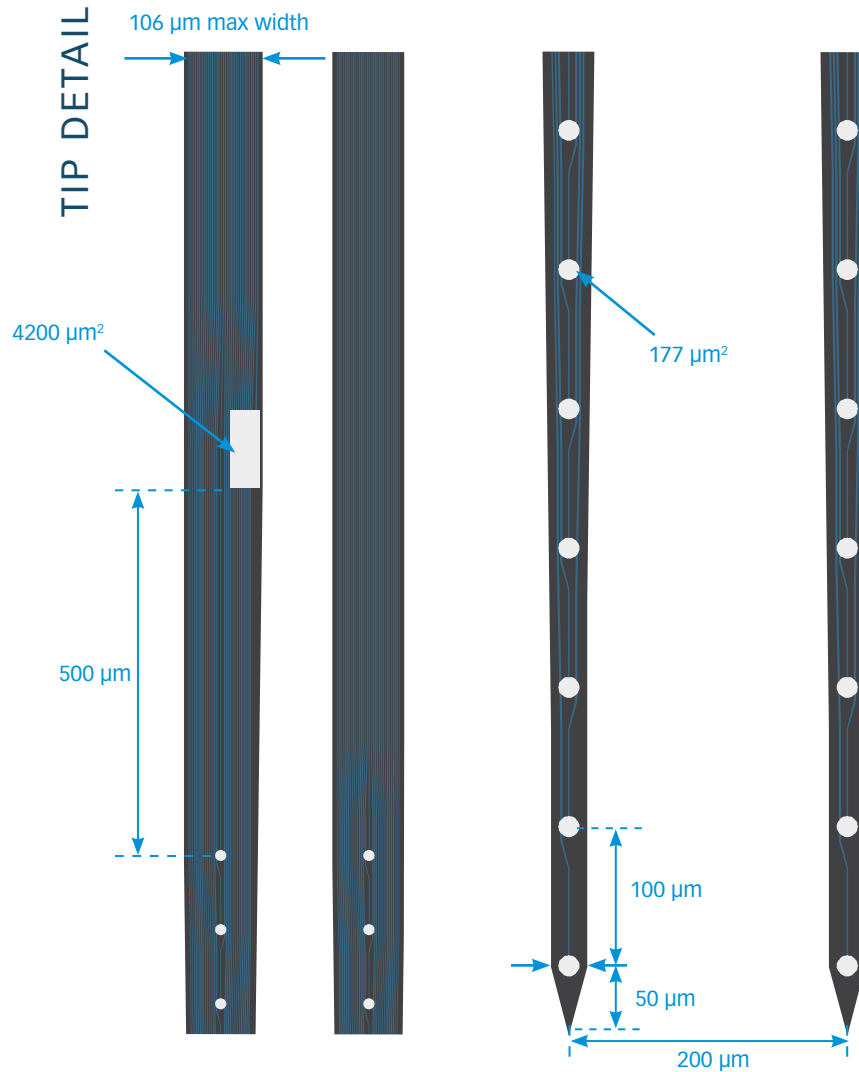
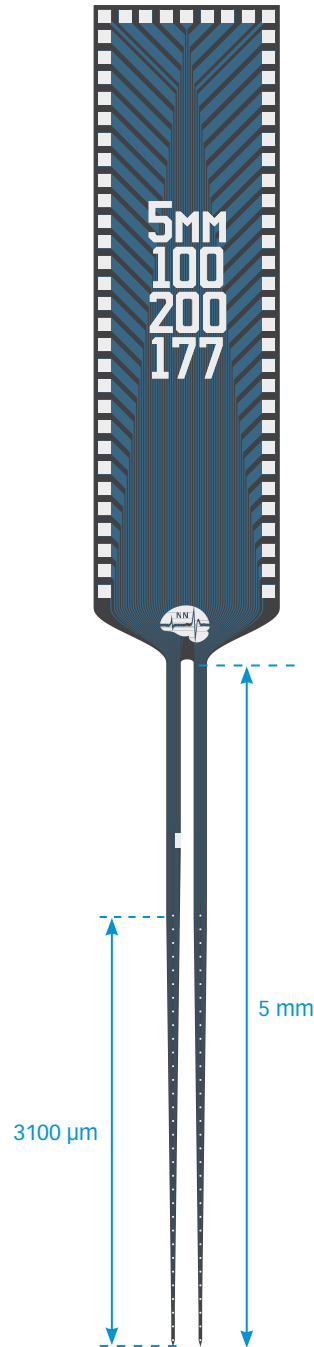
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

Thickness

15 μ m

A2x32-5mm-100-200-177



Available packages

ACUTE

A64

- ### CHRONIC
- H64_30mm
 - H64LP_30mm
 - HC64_30mm
 - HZ64_30mm
 - SEACM64
 - Z64

- ### ACTIVUS
- AV64
 - AVI64
 - AVH64
 - AVIH64

- ### OPTOGENETICS
- OA64LP
 - OA64LP_v2
 - OH64LP (oDrive)
 - OXA64LP (Optogenix)

- ### MR-COMPATIBLE
- MR_H64_30mm
 - MR_HC64_30mm

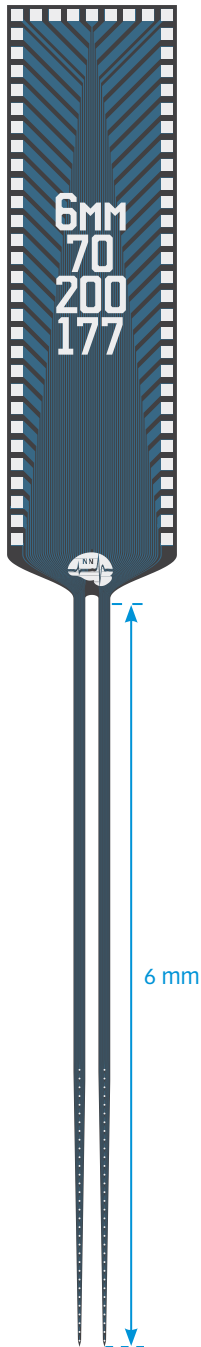
- ### X-SERIES
- X3_64
 - X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

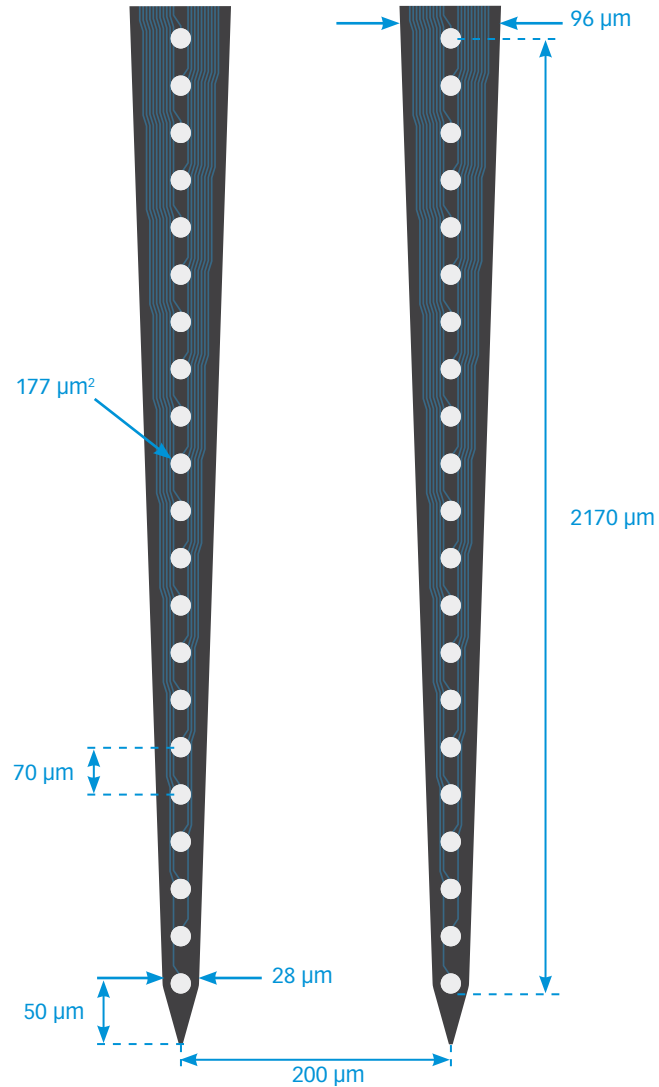
Thickness

15 µm

A2X32-6mm-70-200-177



TIP DETAIL



Available packages

ACUTE

A64

CHRONIC

H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS

AV64
AVI64
AVH64
AVIH64

OPTOGENETICS

OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE

MR_H64_30mm
MR_HC64_30mm

X-SERIES

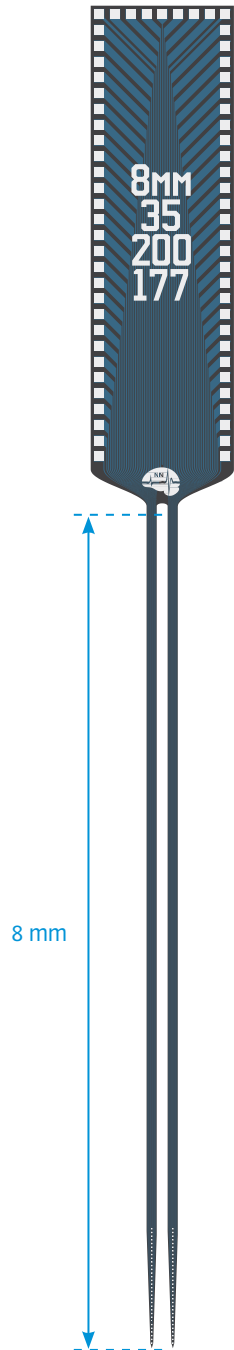
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

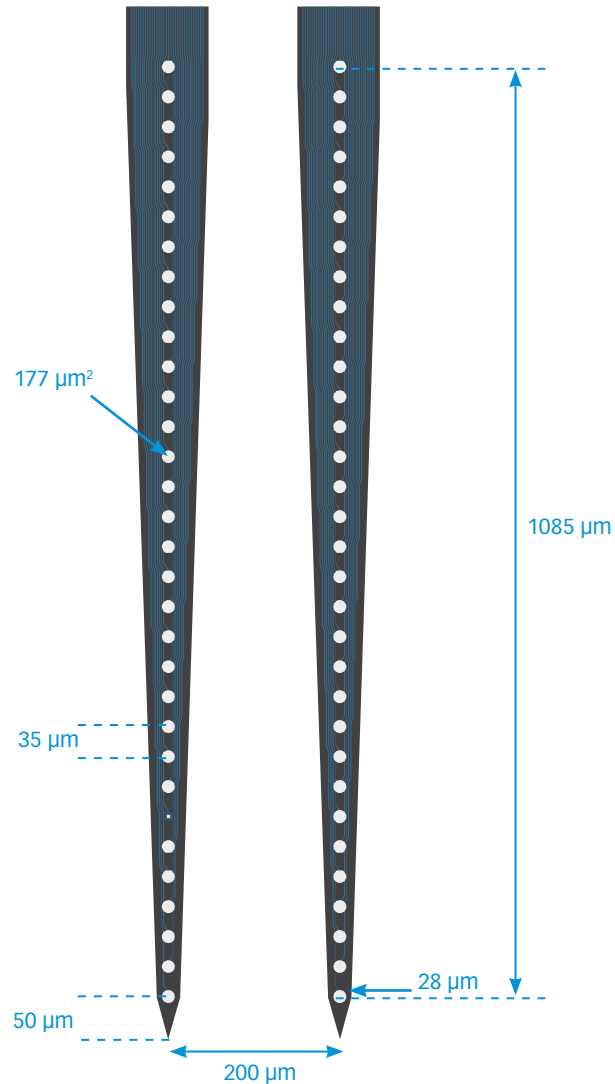
Thickness

50 μm

A2x32-8mm-35-200-177



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

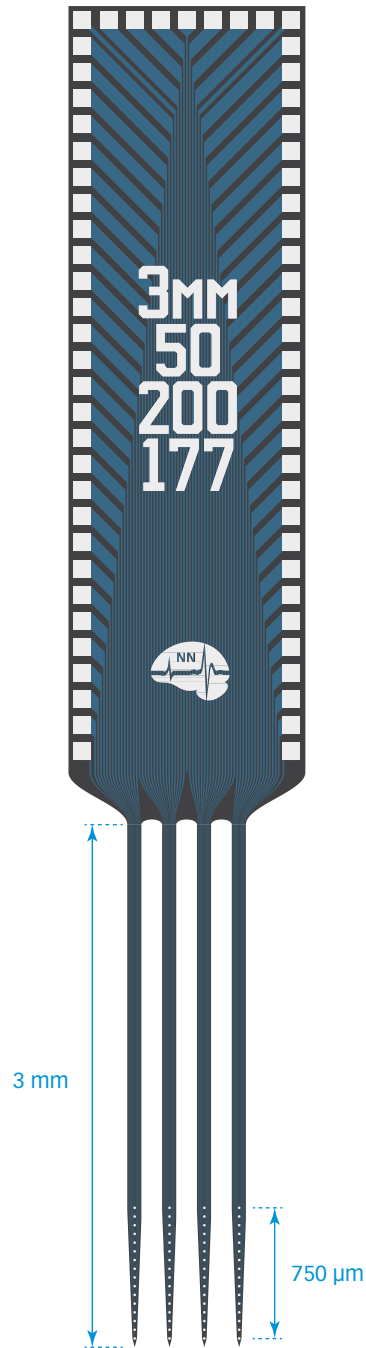
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

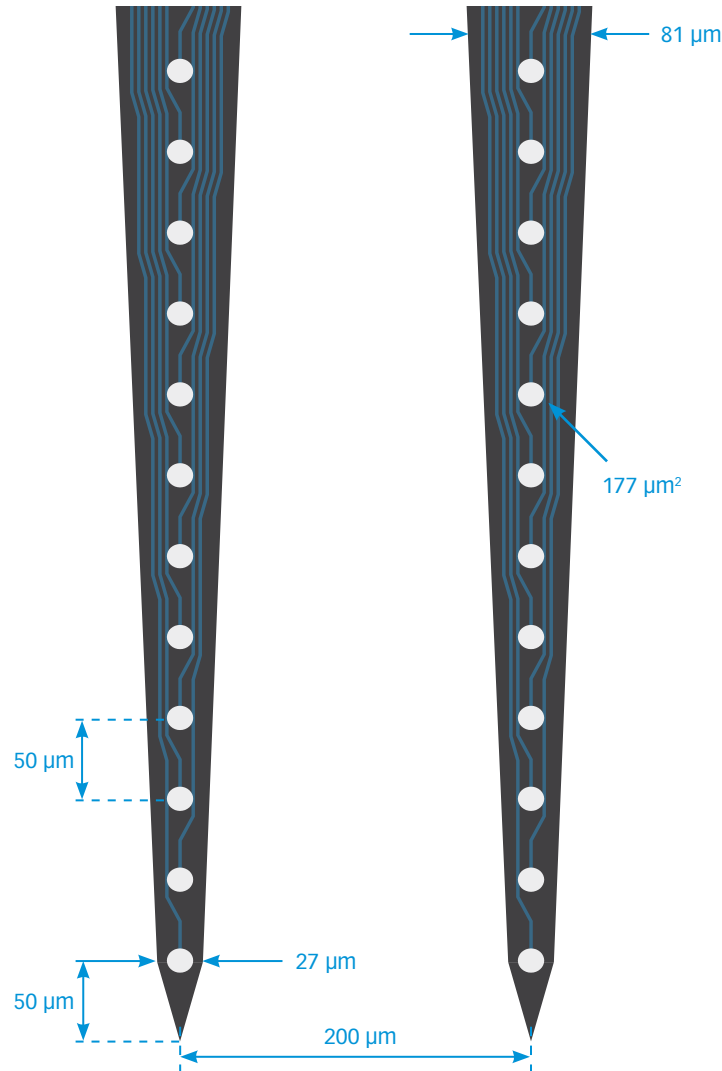
Thickness

50 μm

A4x16-3mm-50-200-177



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

X-SERIES
X3_64
X3_H64

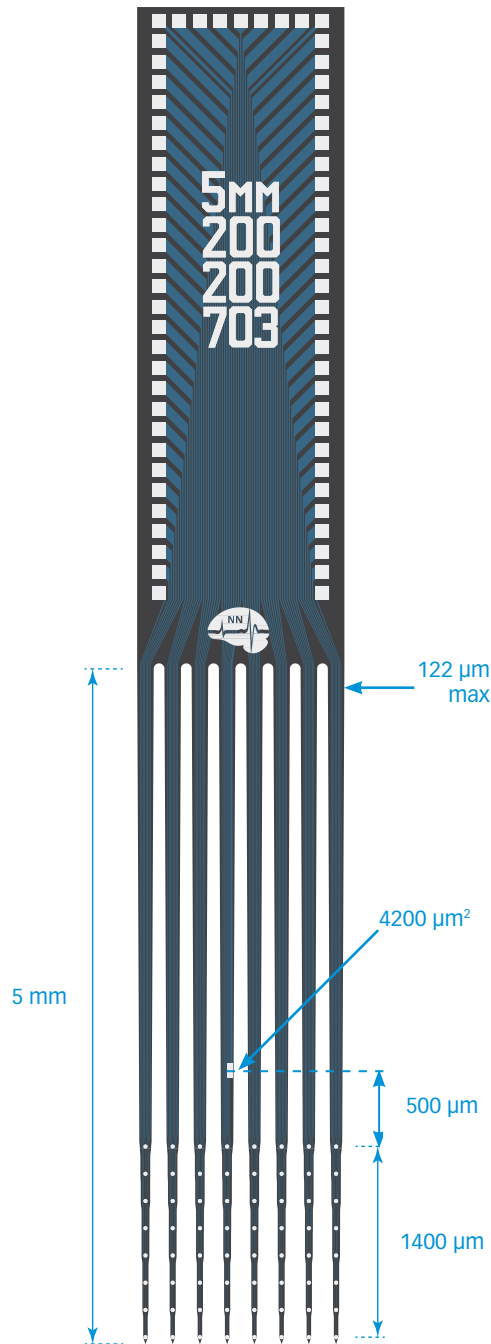
Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

Thickness

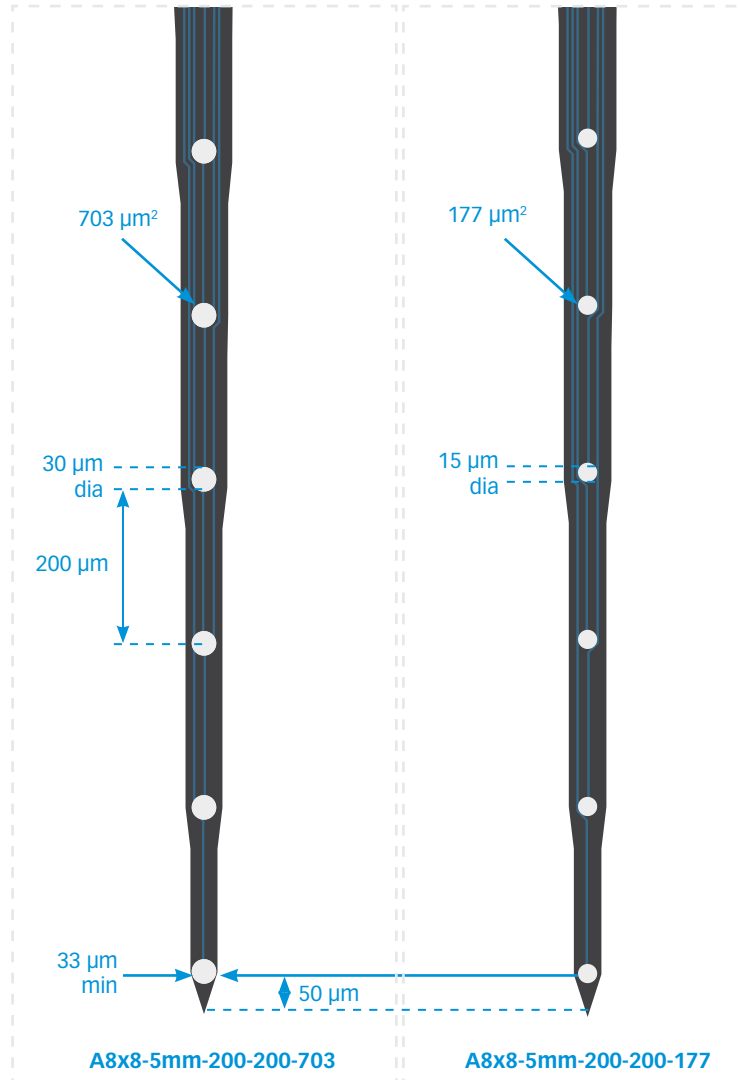
15 μ m

A8x8-5mm-200-200-177

A8x8-5mm-200-200-703



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

Thickness

15 μm
50 μm

A8x8-10mm-200-200-177

A8x8-10mm-200-200-703

Available packages

ACUTE

A64

CHRONIC

H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS

AV64
AVI64
AVH64
AVIH64

OPTOGENETICS

OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE

MR_H64_30mm
MR_HC64_30mm

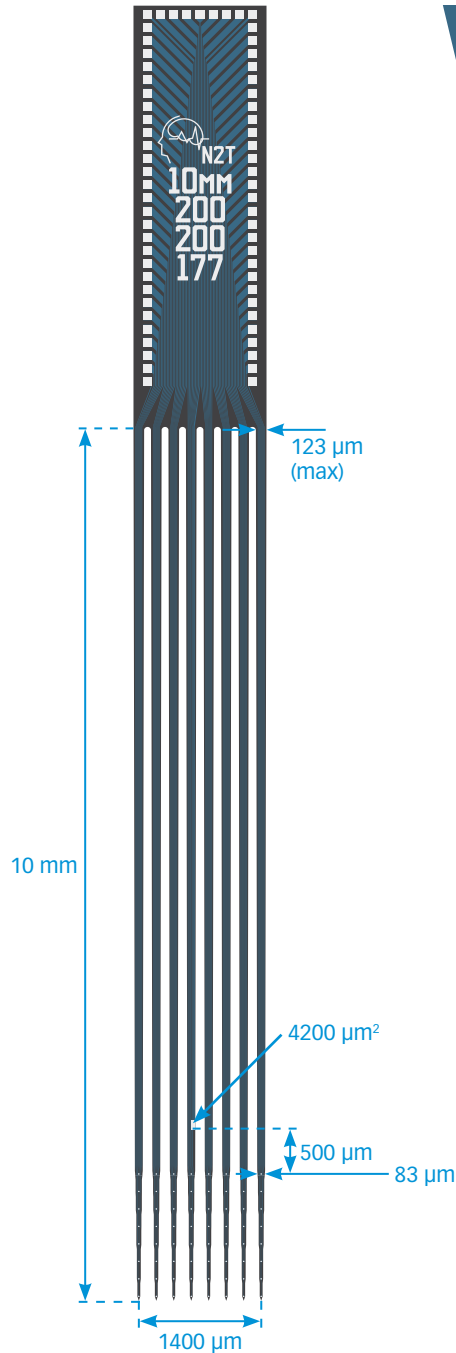
X-SERIES

X3_64
X3_H64

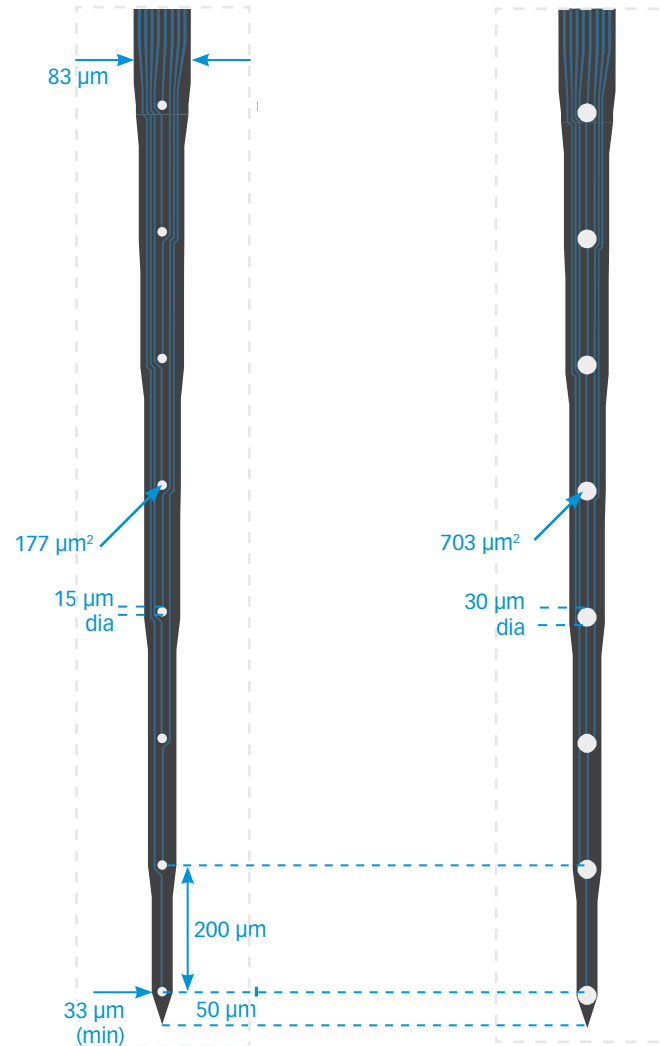
Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

Thickness

50 μ m



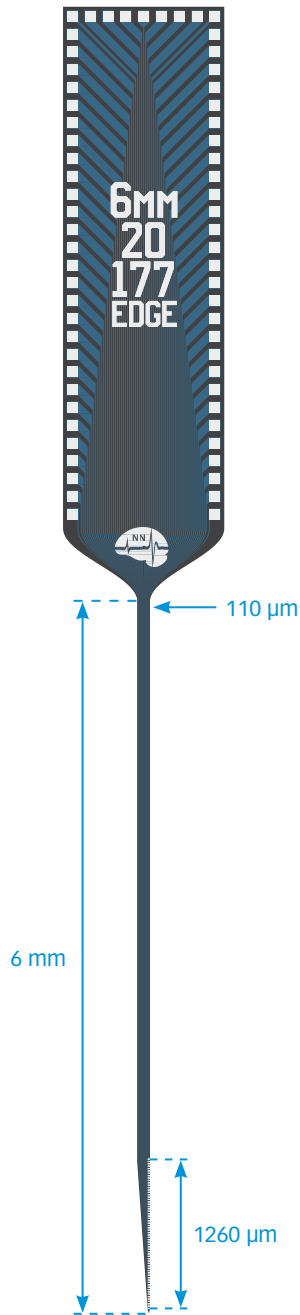
TIP DETAIL



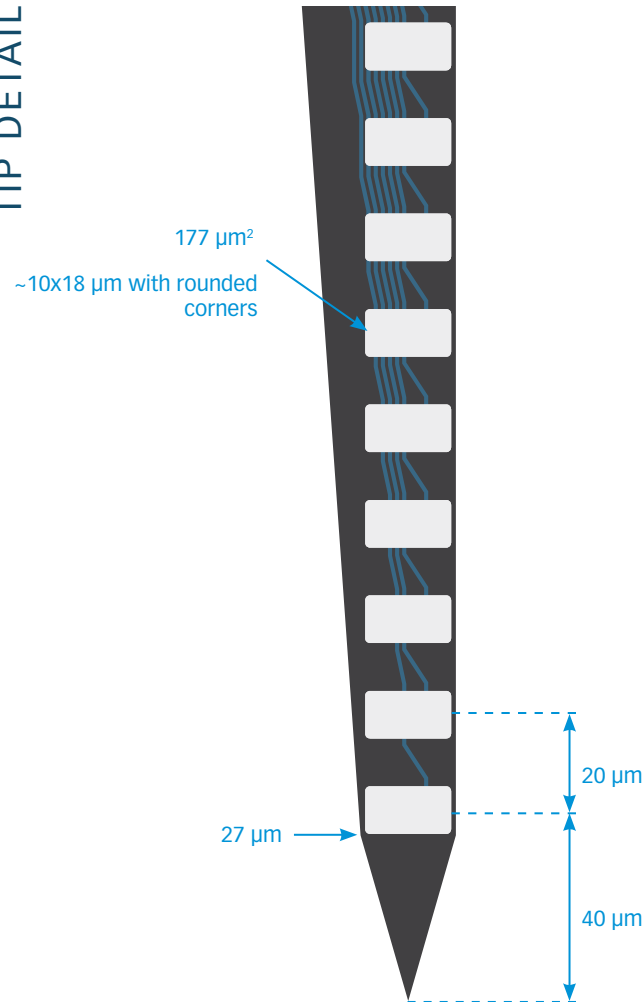
A8x8-10mm-200-200-177

A8x8-10mm-200-200-703

A1x64-Edge-6mm-20-177



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

Thickness

15 μ m

A8x8-Edge-5mm-50-150-177

Available packages

ACUTE

A64

CHRONIC

H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS

AV64
AVI64
AVH64
AVIH64

OPTOGENETICS

OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE

MR_H64_30mm
MR_HC64_30mm

X-SERIES

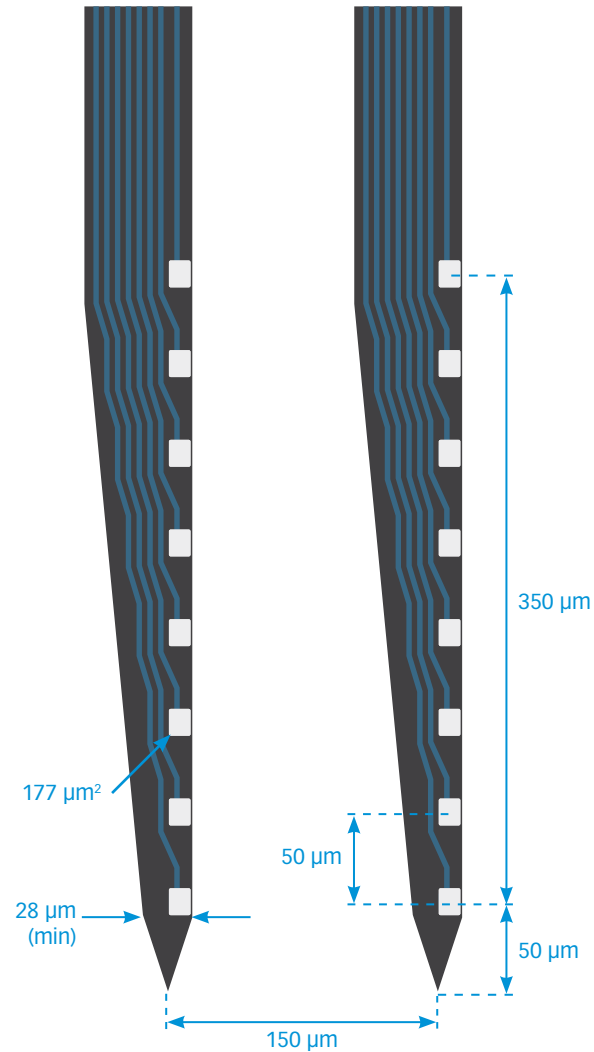
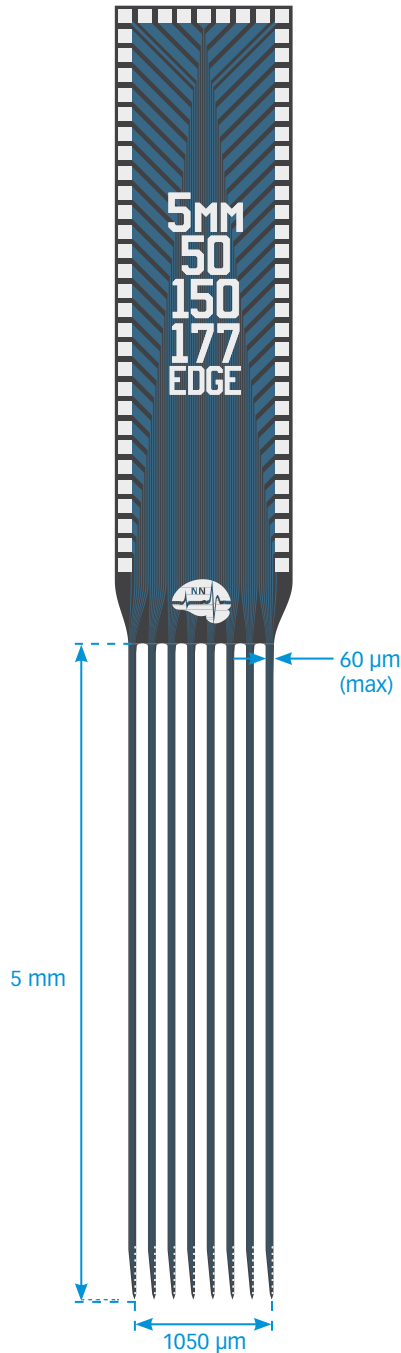
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

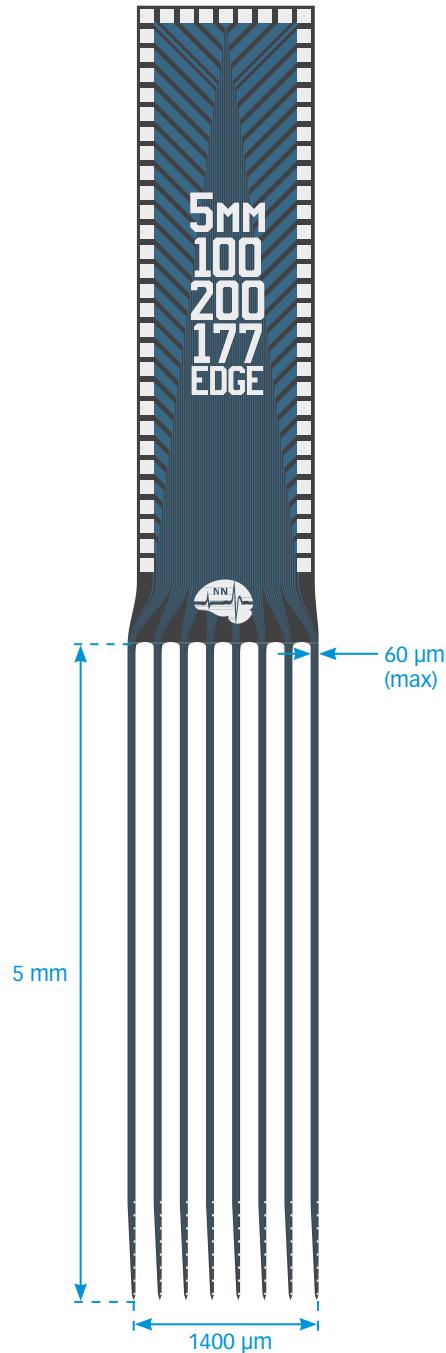
Thickness

15 μ m

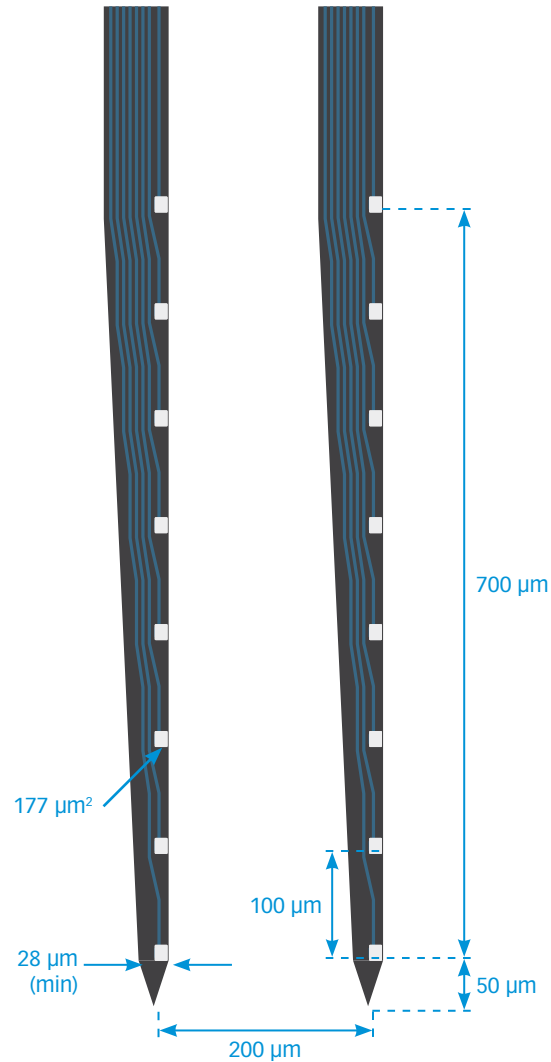
TIP DETAIL



A8X8-Edge-5mm-100-200-177



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

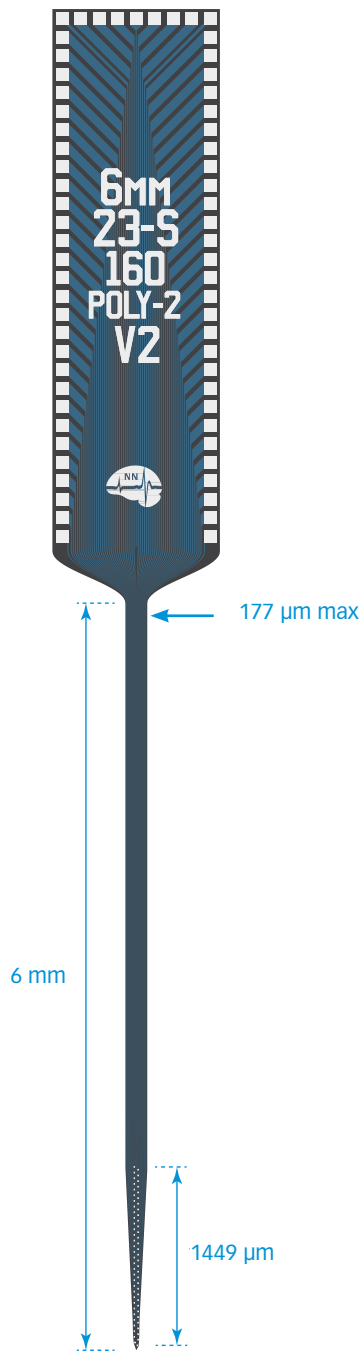
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

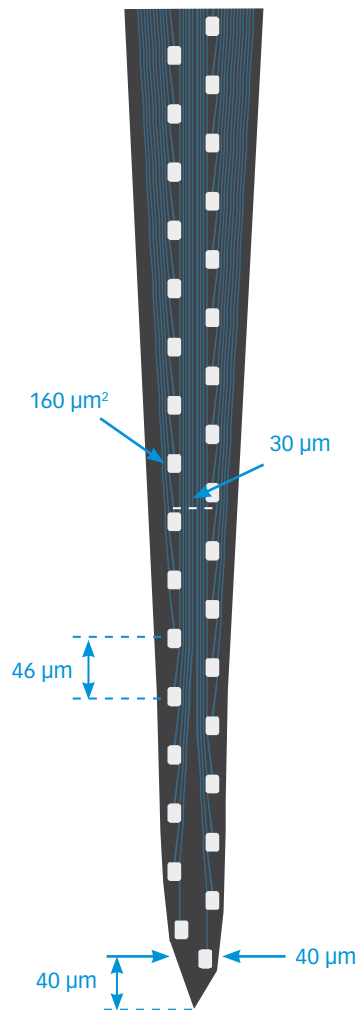
Thickness

15 μm

A1x64-Poly2-6mm-23s-160-V2



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

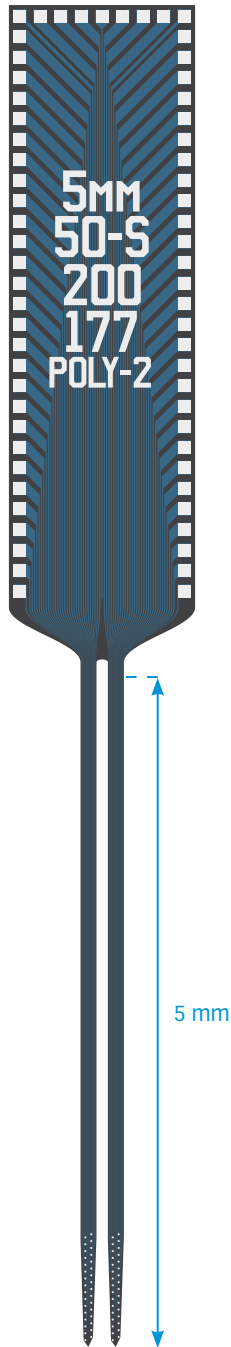
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

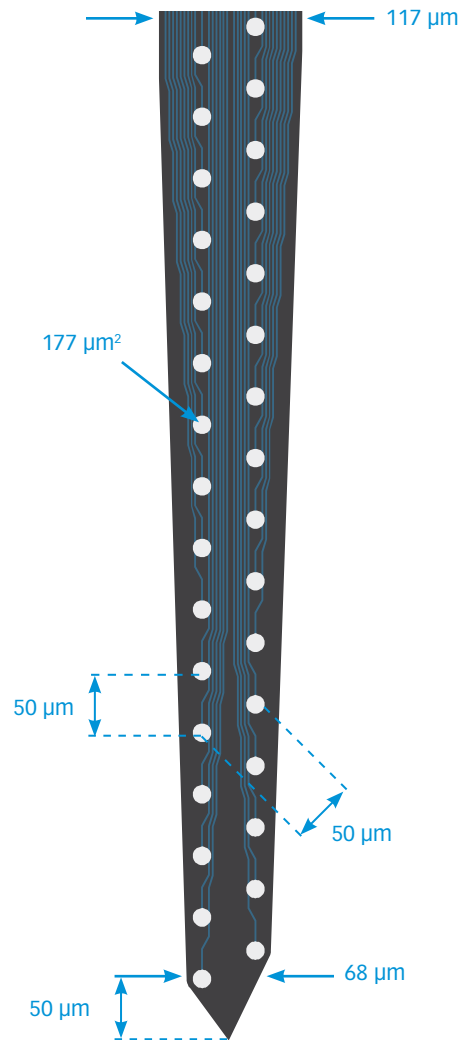
Thickness

15 μm
50 μm

A2X32-poly2-5mm-50s-200-177



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

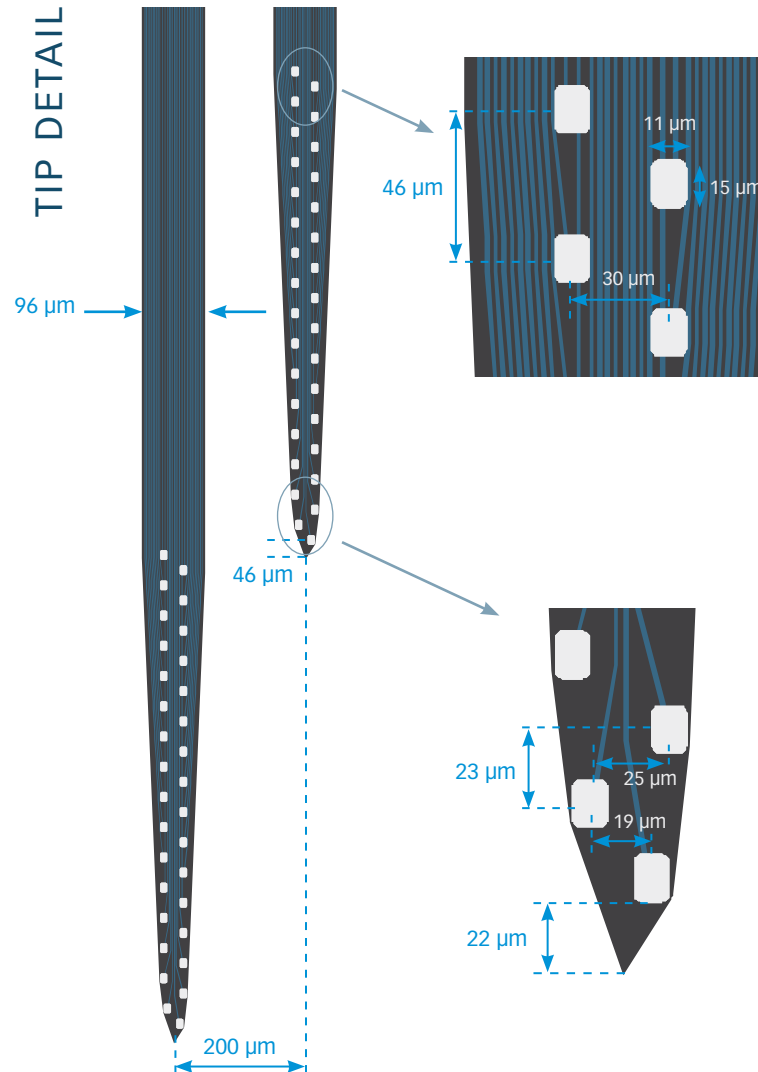
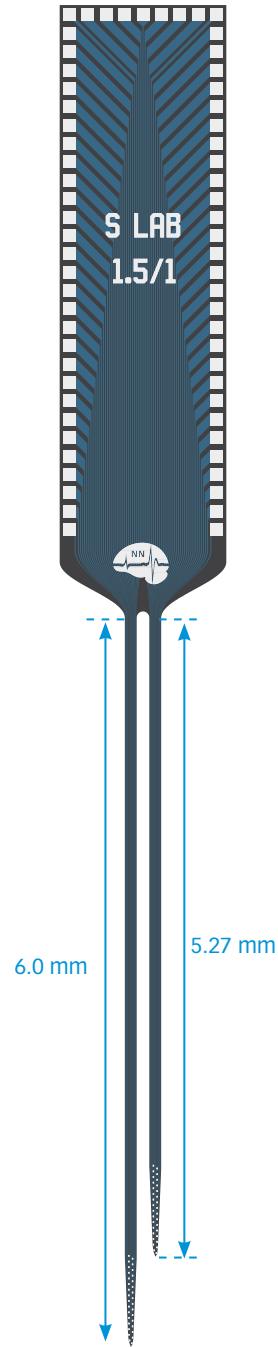
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

Thickness

15 μm

A2X32-Poly2-6mm-23s-200-177



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

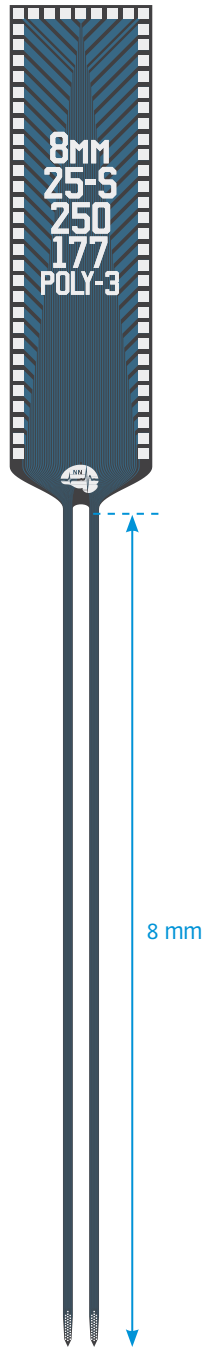
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

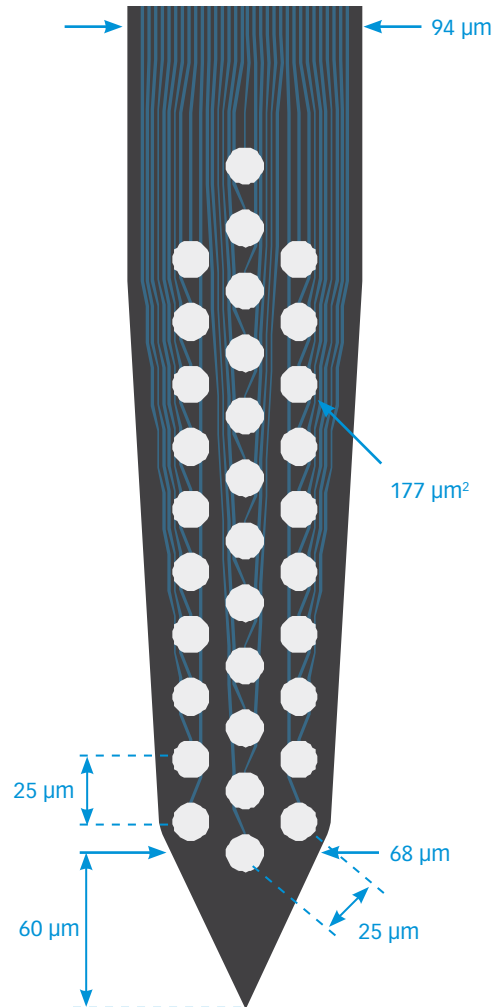
Thickness

15 μm

A2x32-Poly3-8mm-25s-250-177



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

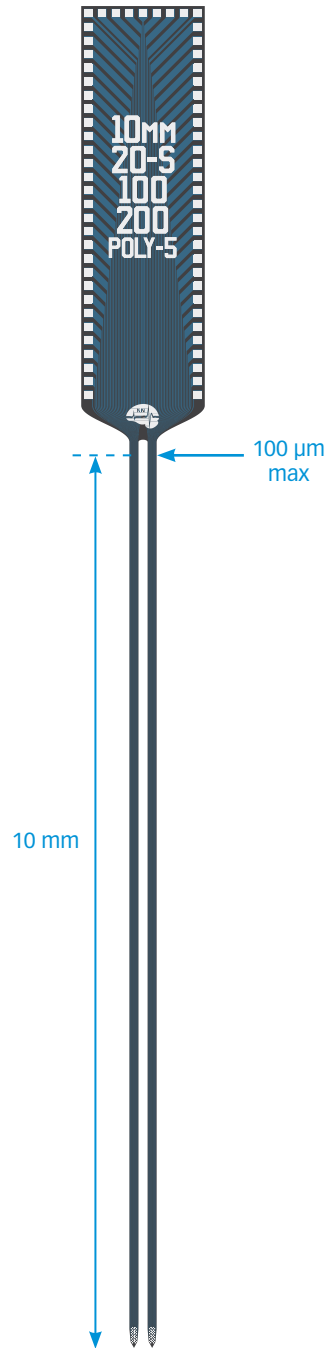
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

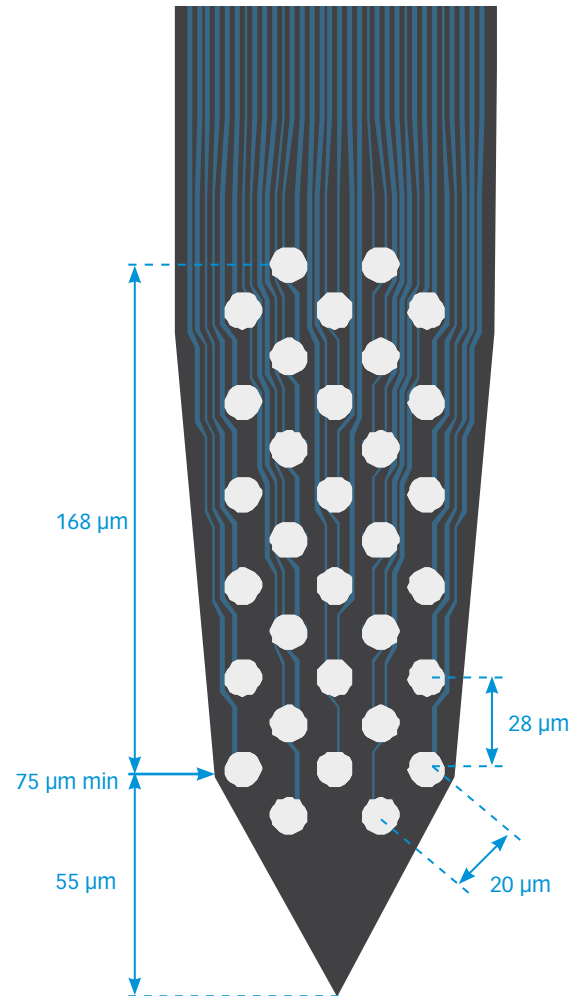
Thickness

15 μm

A2X32-Poly5-10mm-20s-200-100



TIP DETAIL



Available packages

ACUTE

A64

CHRONIC

H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS

AV64
AVI64
AVH64
AVIH64

OPTOGENETICS

OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE

MR_H64_30mm
MR_HC64_30mm

X-SERIES

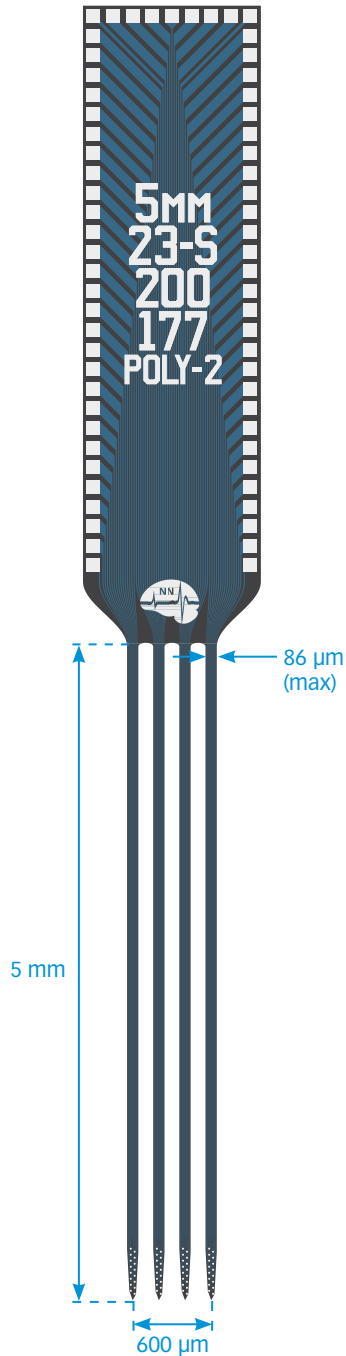
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

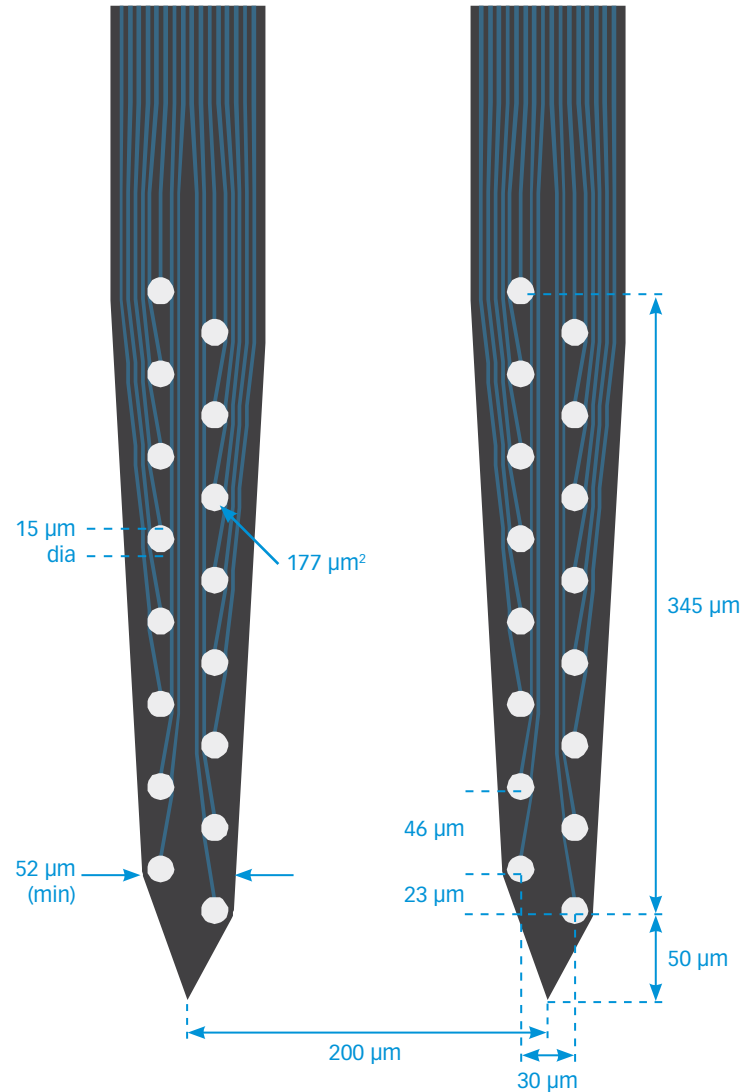
Thickness

15 μ m

A4x16-Poly2-5mm-23s-200-177



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

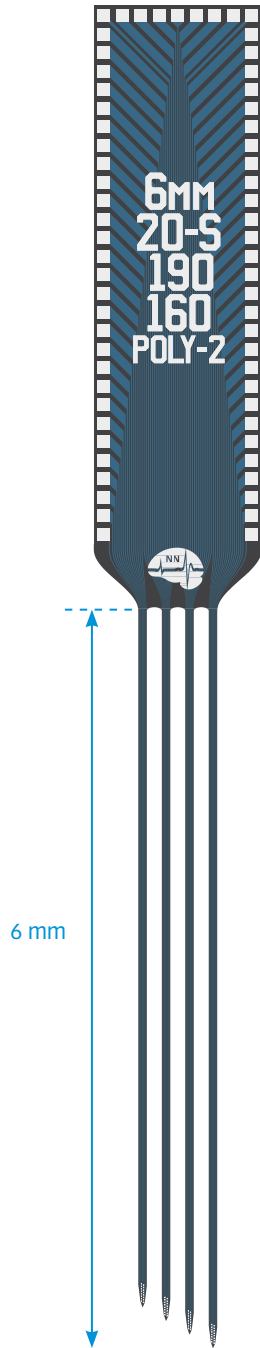
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

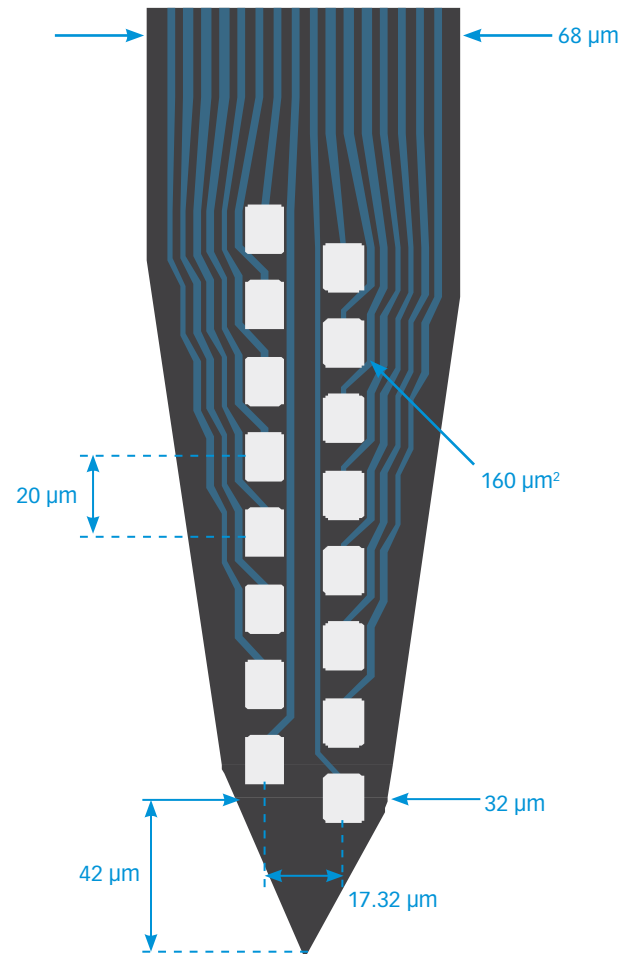
Thickness

15 μm

A4X16-Poly2-6mm-20s-stag-190-160



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

X-SERIES
X3_64
X3_H64

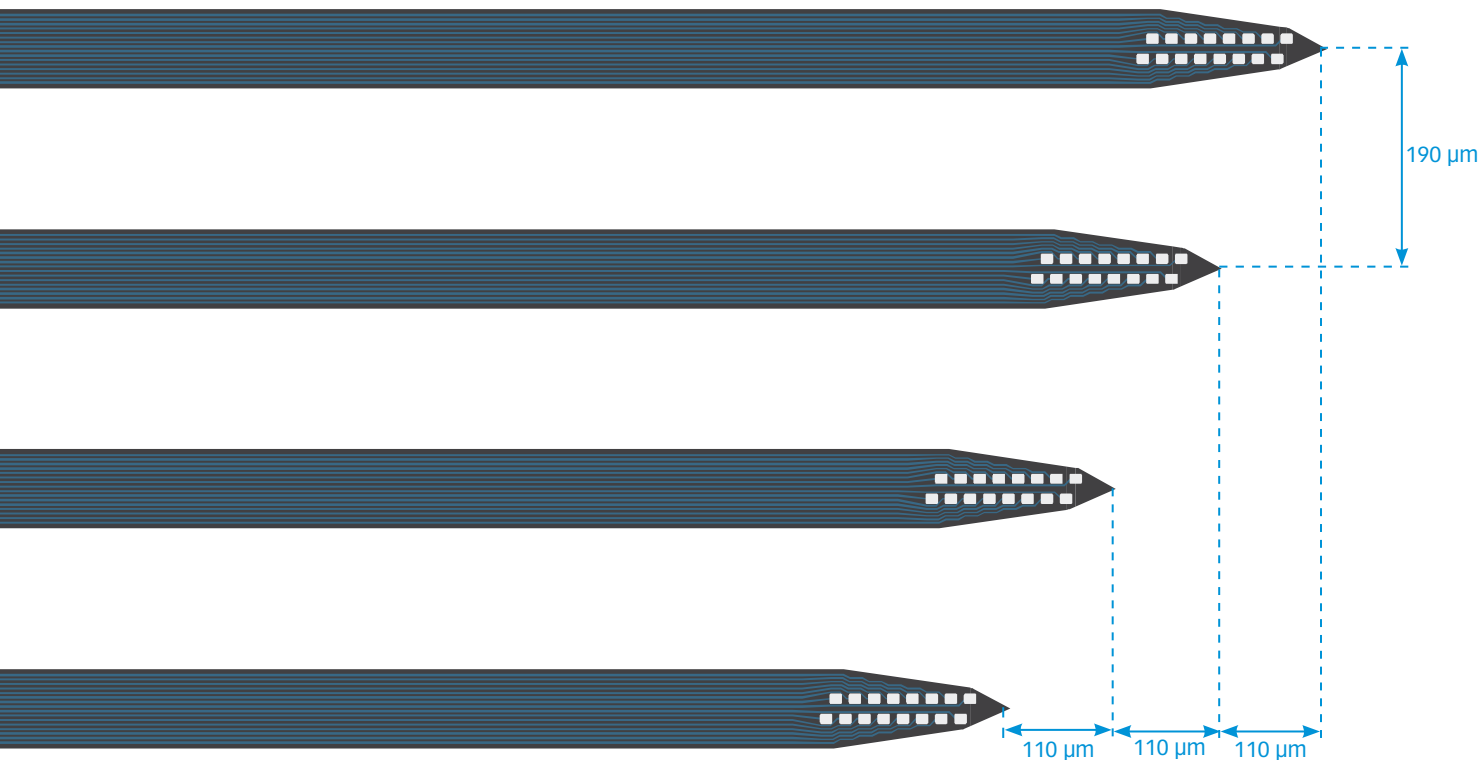
Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

Thickness

15 μm

A4x16-Poly2-6mm-20s-stag-190-160

TIP DETAIL CONTINUED



Available packages

ACUTE
A64

- CHRONIC**
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

- ACTIVUS**
AV64
AVI64
AVH64
AVIH64

- OPTOGENETICS**
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

- MR-COMPATIBLE**
MR_H64_30mm
MR_HC64_30mm

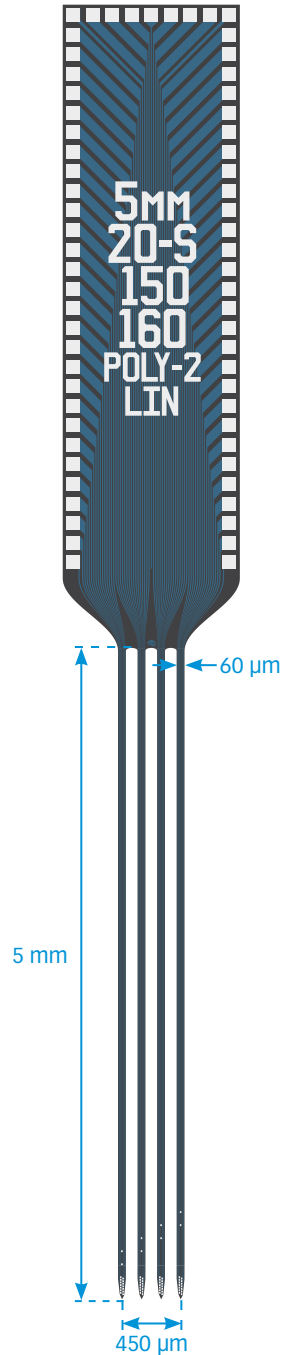
- X-SERIES**
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

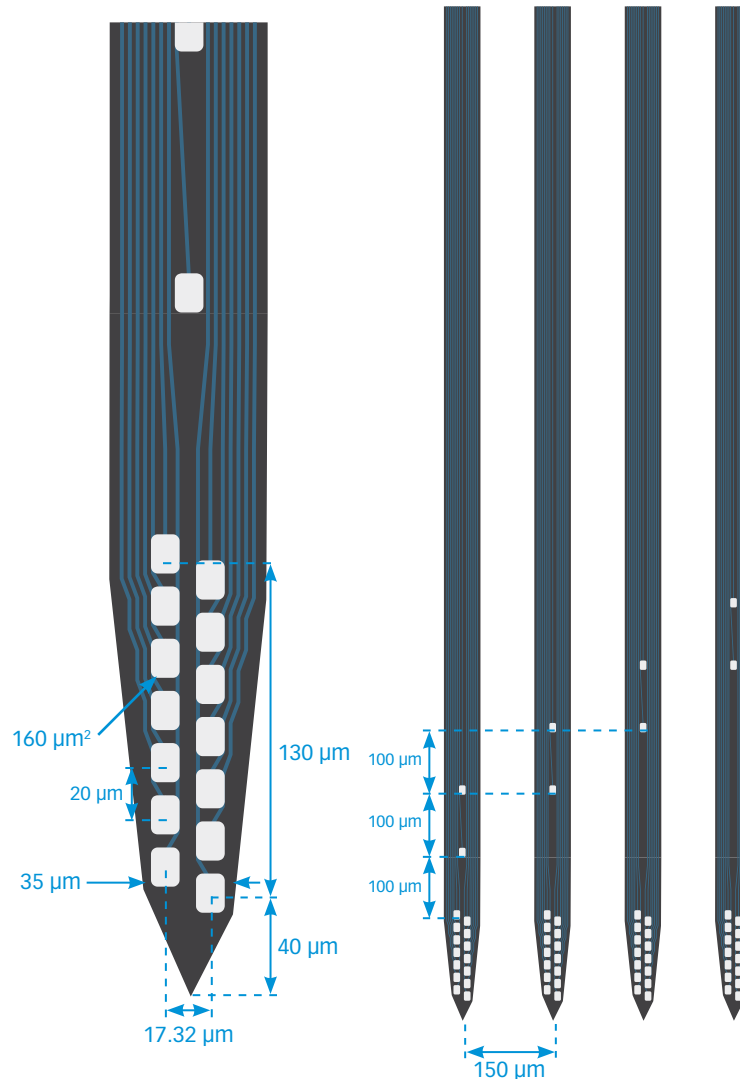
Thickness

15 μm

A4x16-Poly2-lin-5mm-20s-150-160



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

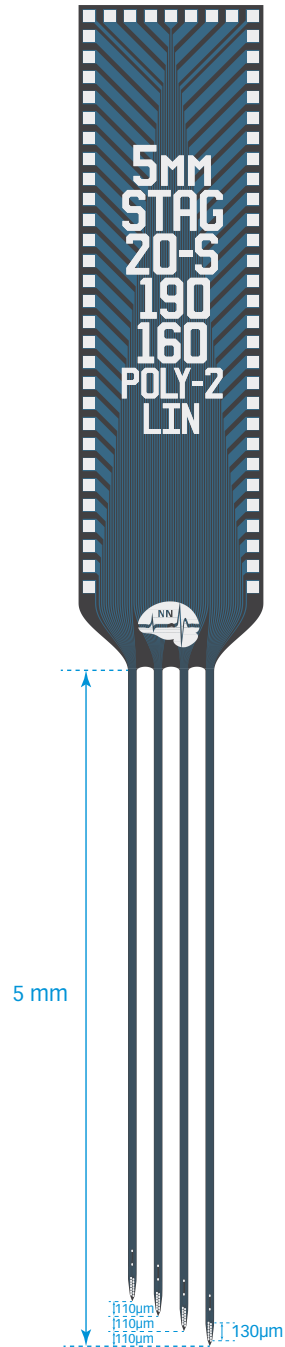
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

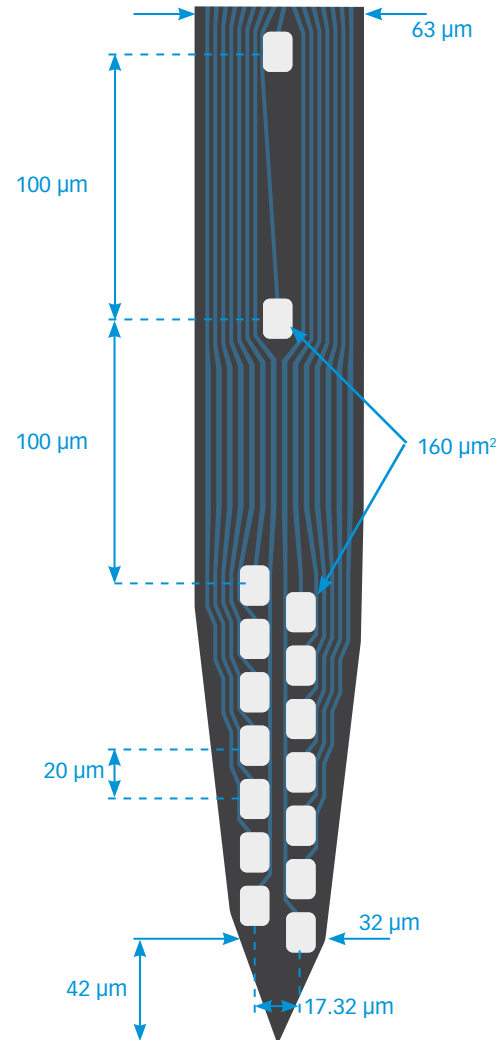
Thickness

15 μ m

A4x16-poly2-lin-5mm-20s-stag-190-160



TIP DETAIL



Available packages

ACUTE

A64

CHRONIC

H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS

AV64
AVI64
AVH64
AVIH64

OPTOGENETICS

OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE

MR_H64_30mm
MR_HC64_30mm

X-SERIES

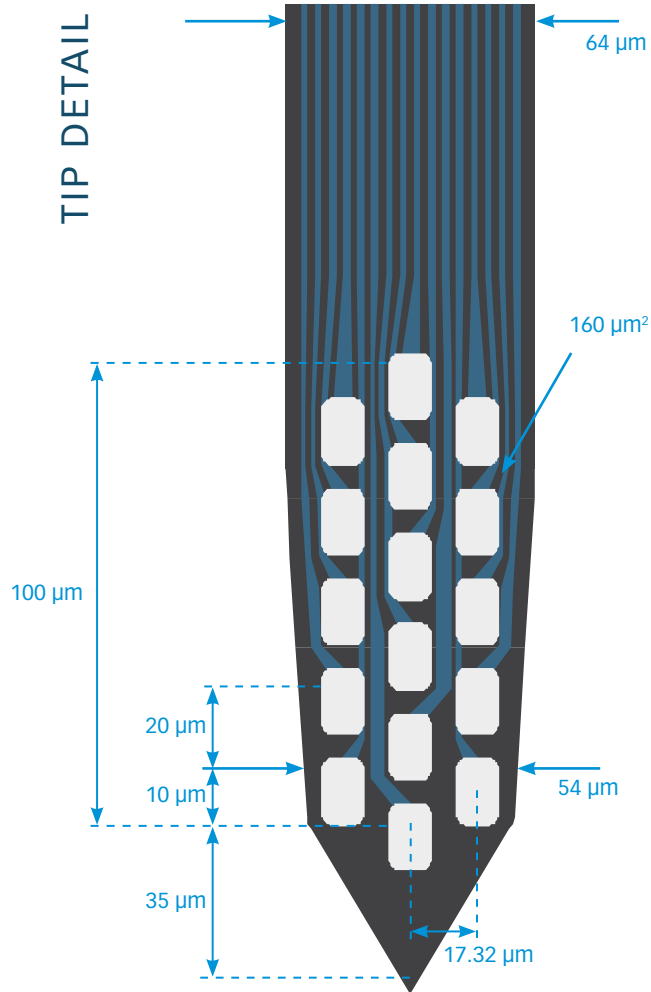
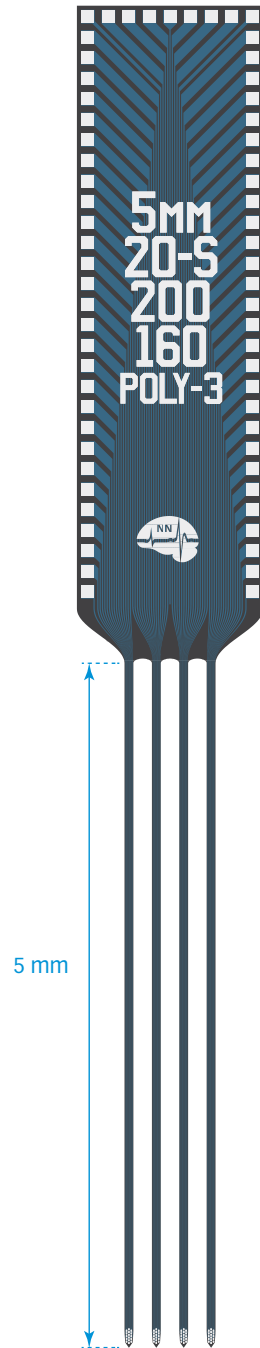
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

Thickness

15 µm

A4x16-poly3-5mm-20s-200-160



Available packages

ACUTE

A64

CHRONIC

H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS

AV64
AVI64
AVH64
AVIH64

OPTOGENETICS

OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE

MR_H64_30mm
MR_HC64_30mm

X-SERIES

X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

Thickness

15 μm

A5X12-16-Buz-Lin-5mm-100-200-160-177

Available packages

ACUTE

A64

CHRONIC

H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS

AV64
AVI64
AVH64
AVIH64

OPTOGENETICS

OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE

MR_H64_30mm
MR_HC64_30mm

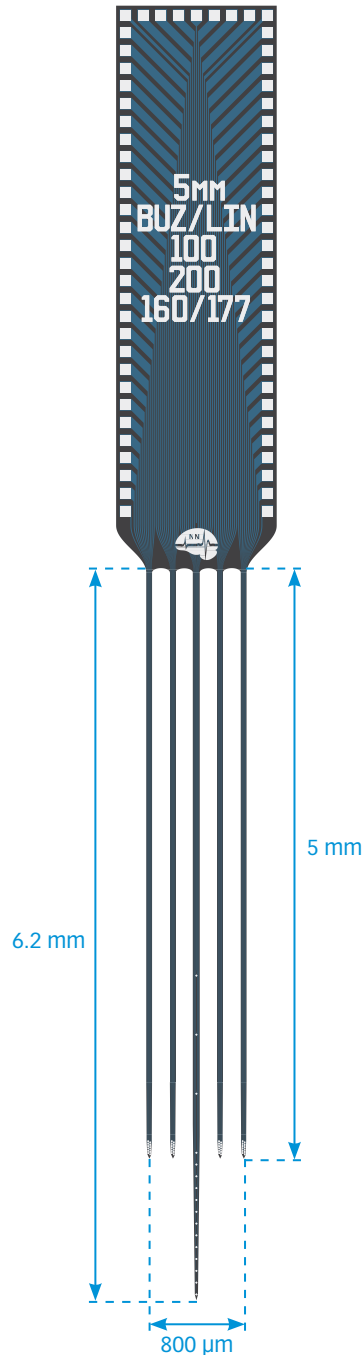
X-SERIES

X3_64
X3_H64

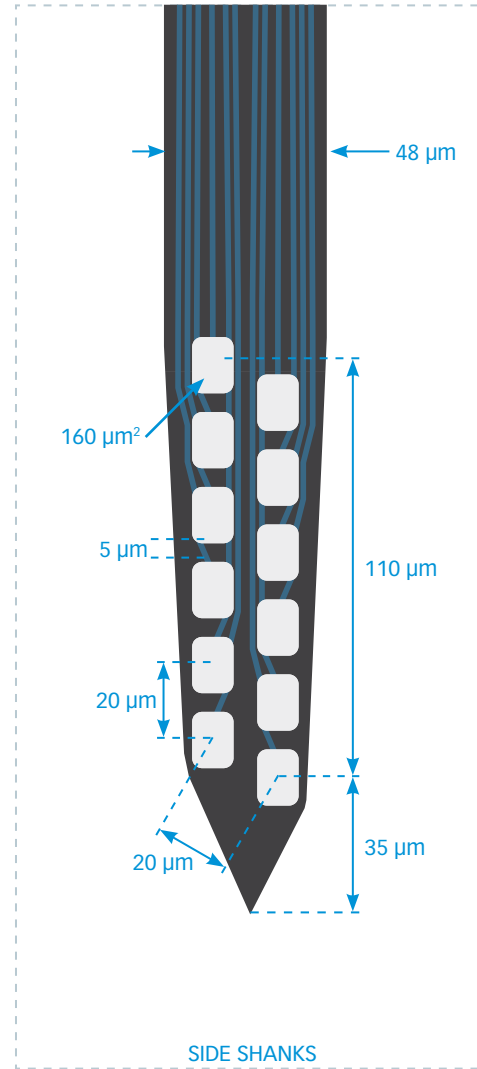
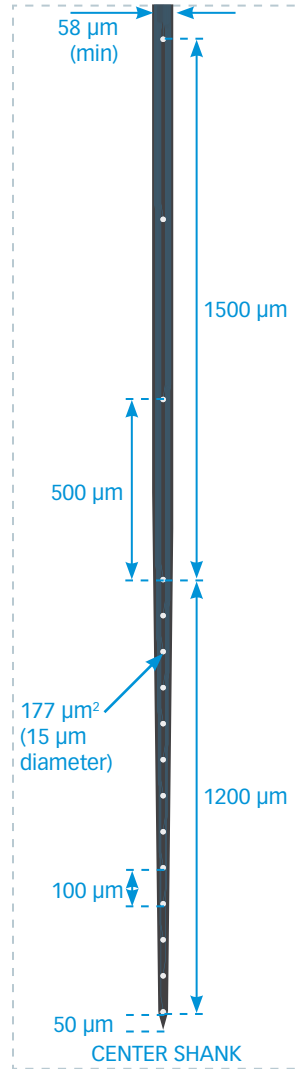
Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

Thickness

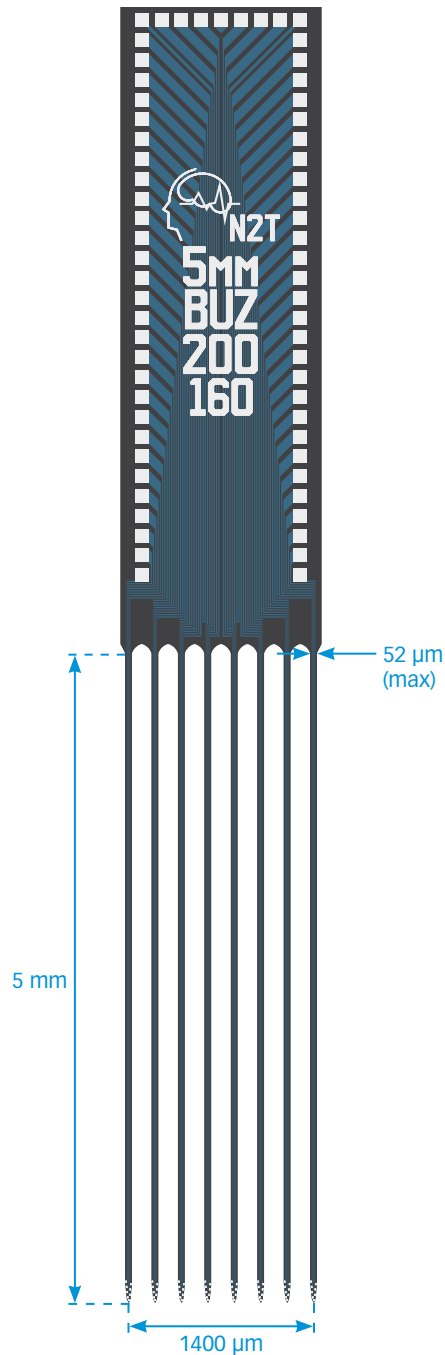
15 μ m



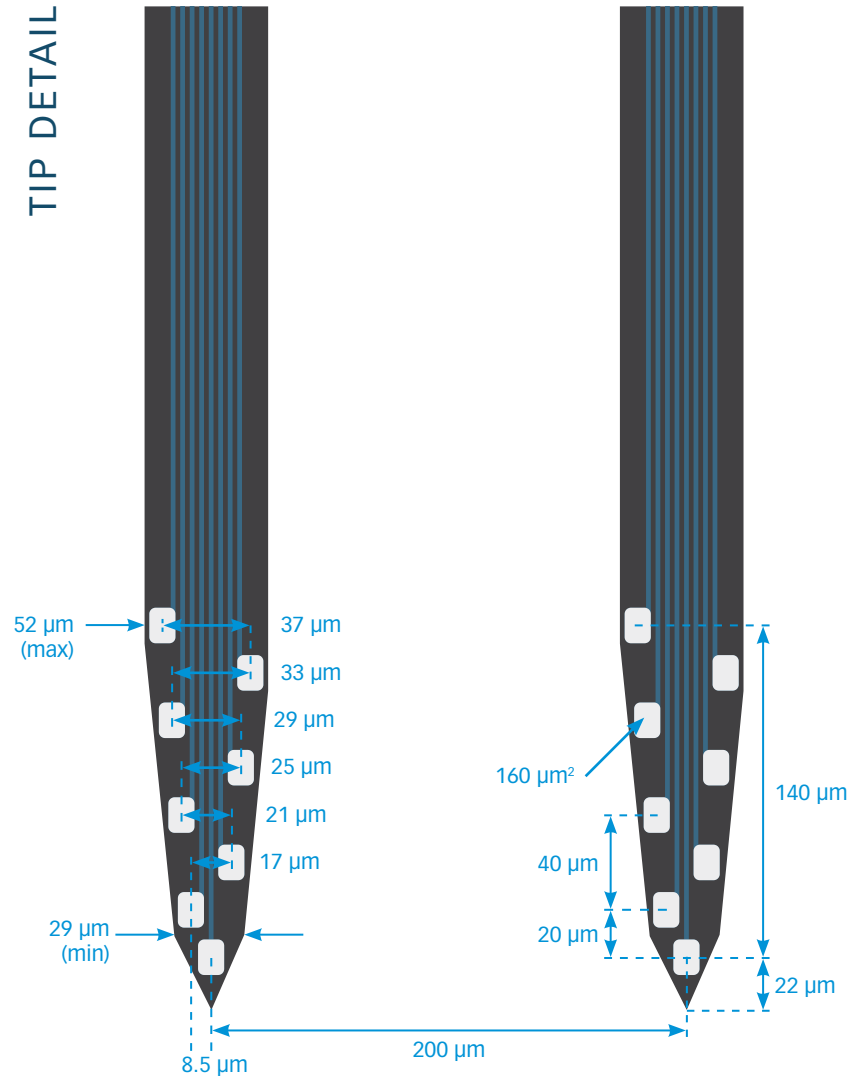
TIP DETAIL



Buzsaki64



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

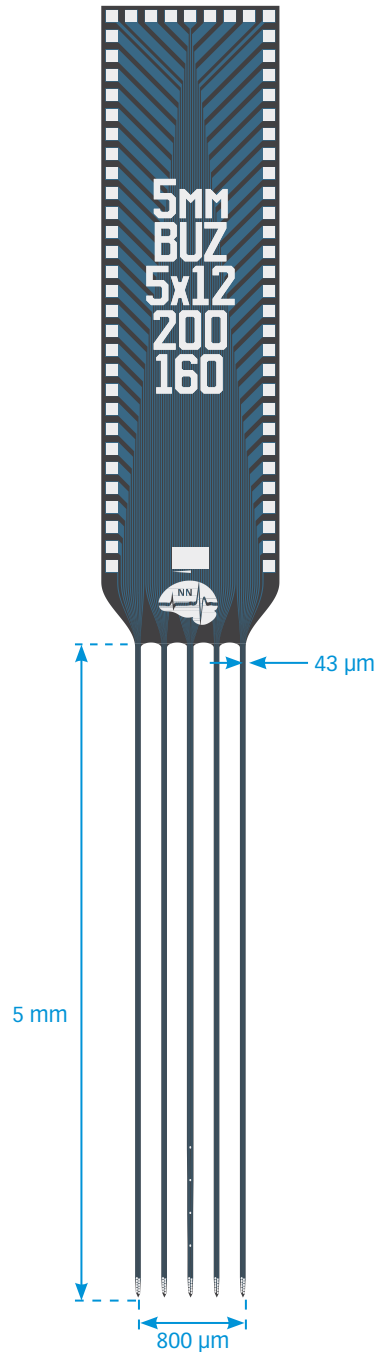
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

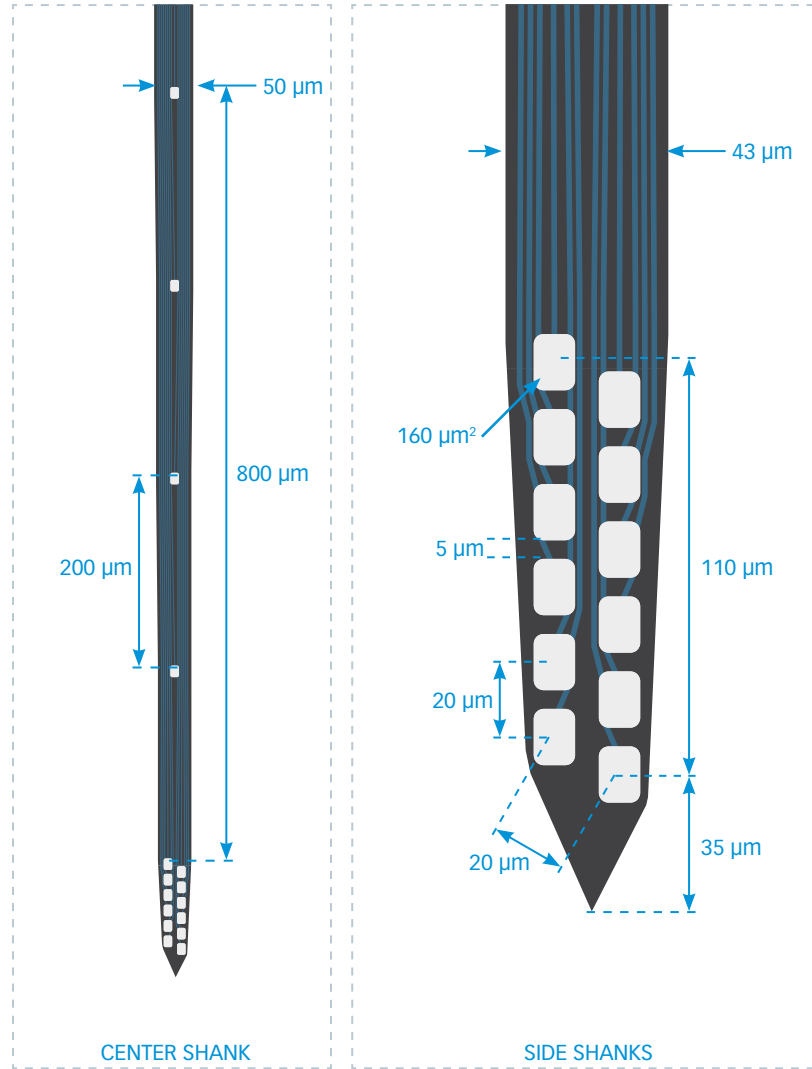
Thickness

15 μm

Buzsaki 5X12



TIP DETAIL



Available packages

ACUTE

A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

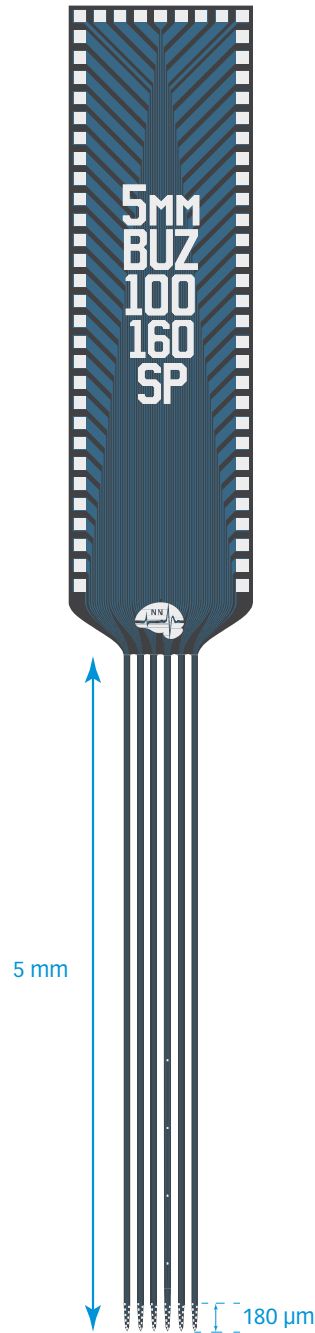
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

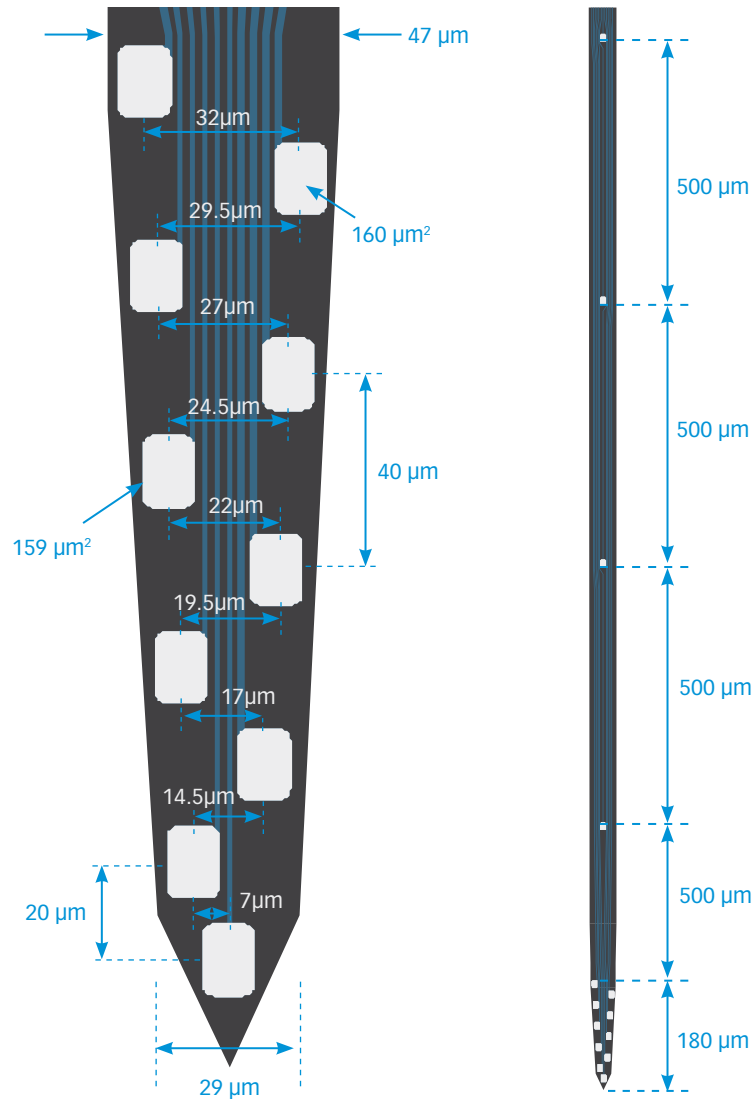
Thickness

15 μm

Buzsaki64-sp-100



TIP DETAIL



Available packages

ACUTE

A64

CHRONIC

H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS

AV64
AVI64
AVH64
AVIH64

OPTOGENETICS

OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE

MR_H64_30mm
MR_HC64_30mm

X-SERIES

X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

Thickness

15 μm

Buzsaki64L

Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

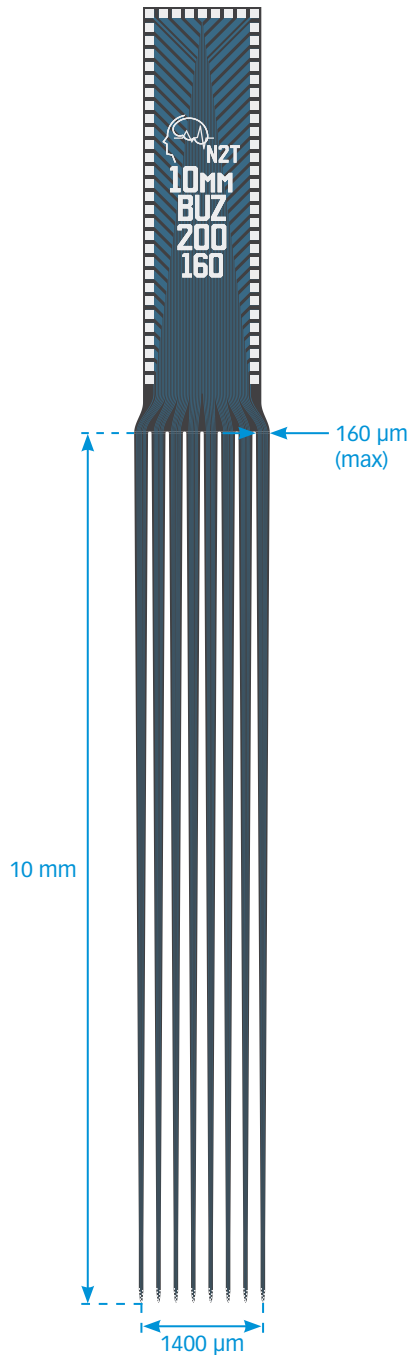
MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

X-SERIES
X3_64
X3_H64

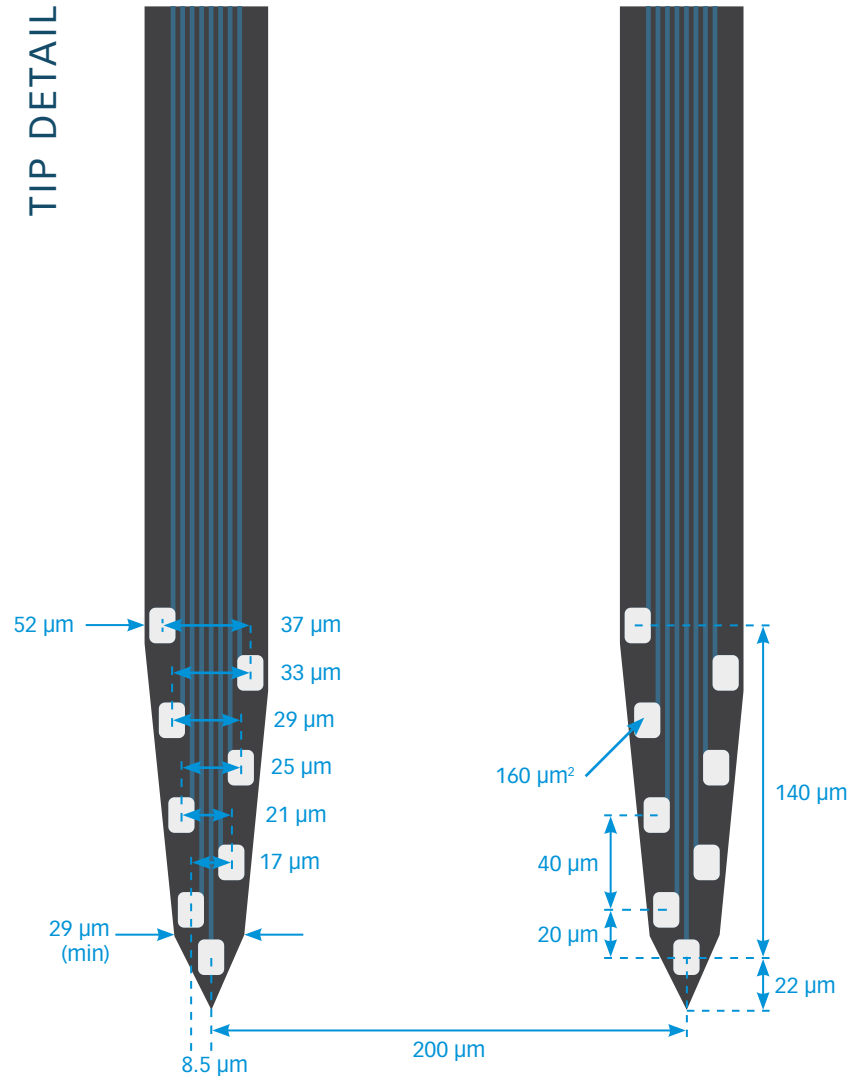
Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

Thickness

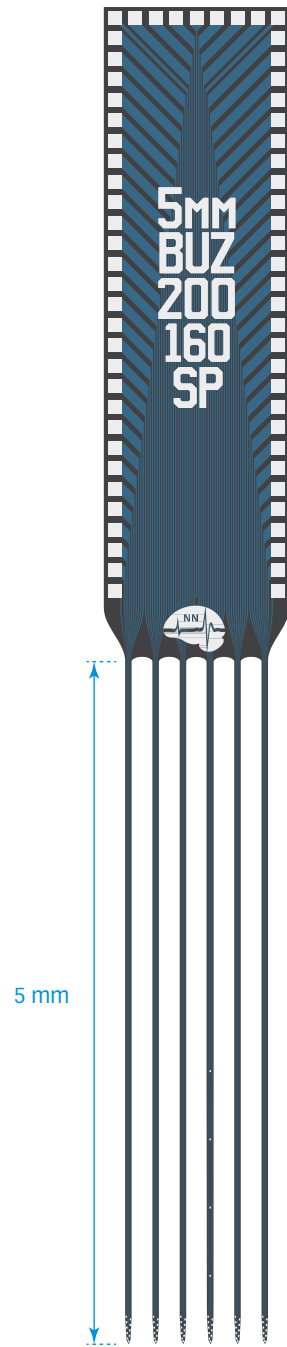
15 μ m
50 μ m



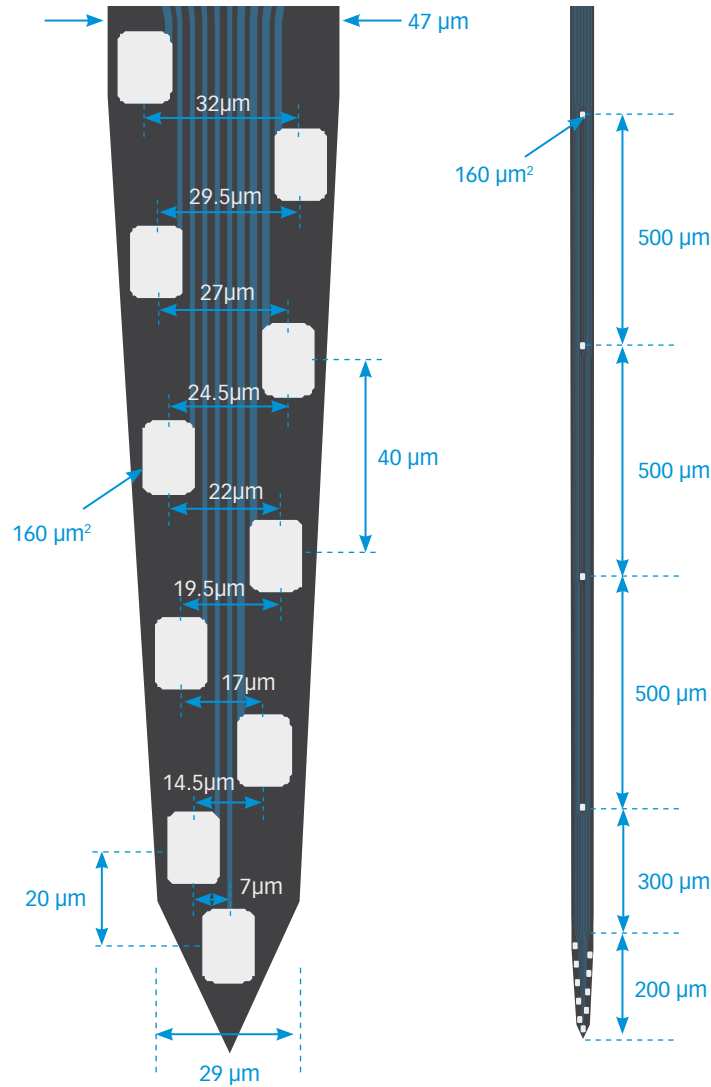
TIP DETAIL



Buzsaki64sp



TIP DETAIL



Available packages

ACUTE

A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

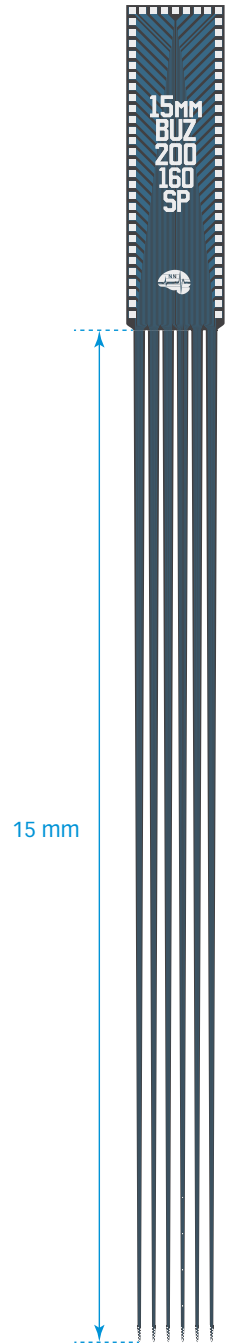
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

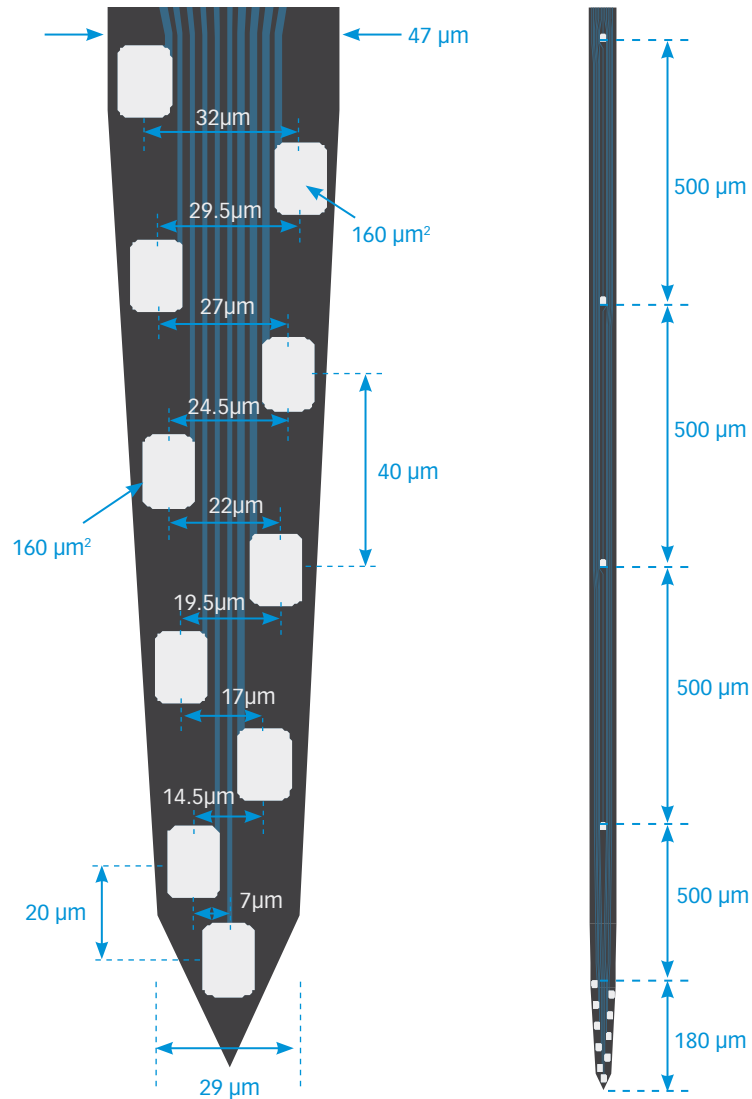
Thickness

15 μm

Buzsaki64-sp-15mm



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS
AV64
AVI64
AVH64
AVIH64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

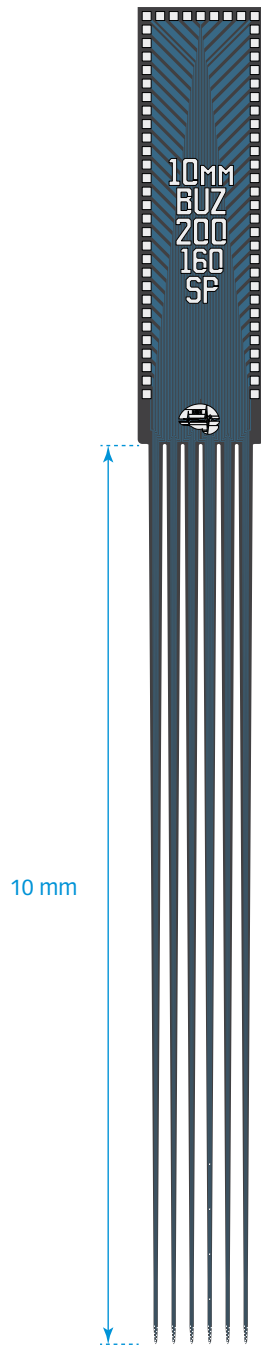
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

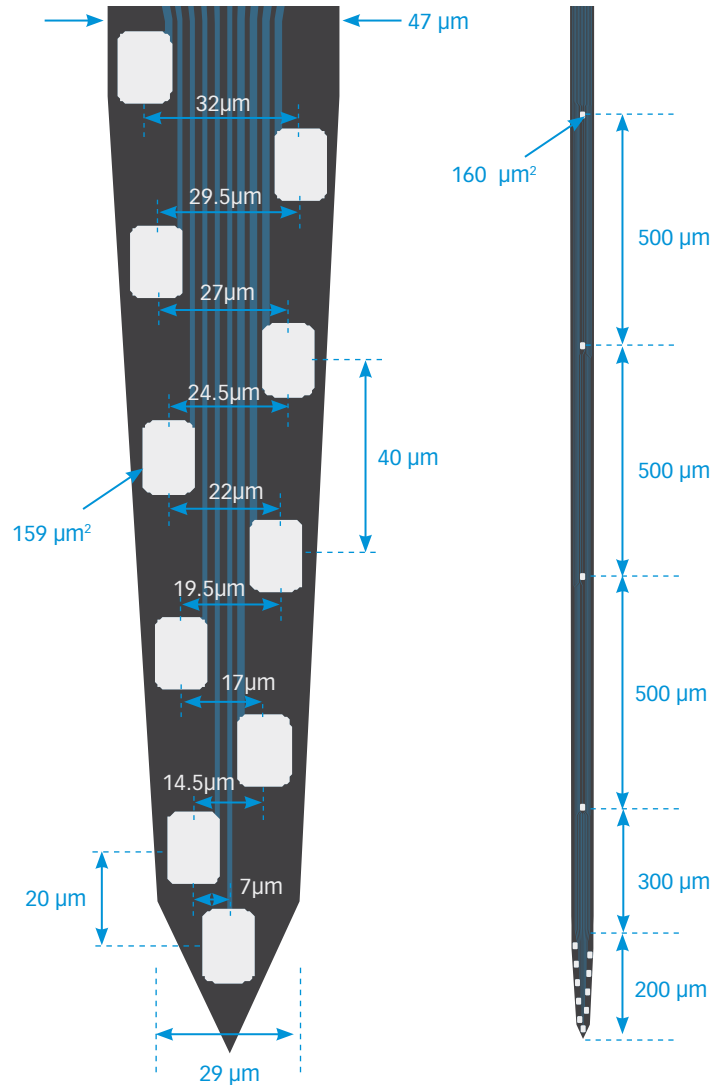
Thickness

15 μm

Buzsaki64spL



TIP DETAIL



Available packages

ACUTE

A64

CHRONIC

H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
SEACM64
Z64

ACTIVUS

AV64
AVI64
AVH64
AVIH64

OPTOGENETICS

OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE

MR_H64_30mm
MR_HC64_30mm

X-SERIES

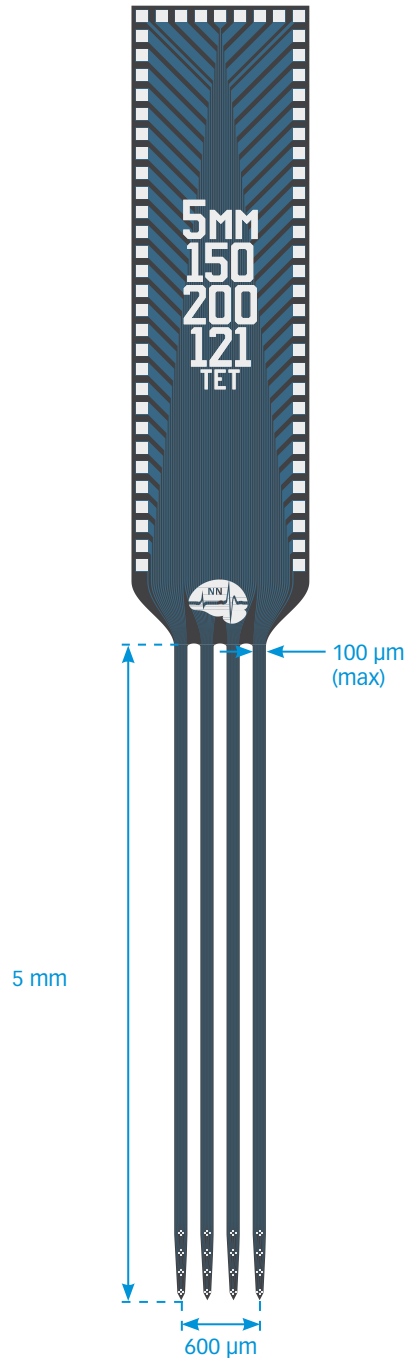
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

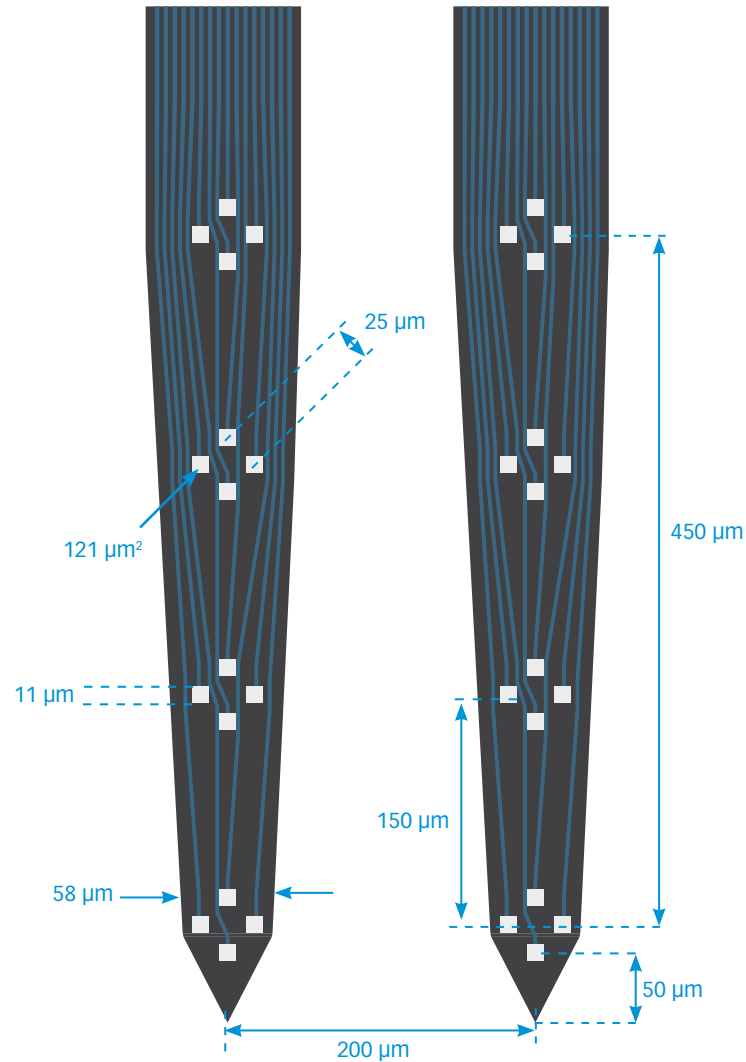
Thickness

15 μm
50 μm

A4x4-tet-5mm-150-200-121



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
Z64

SMART
S64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

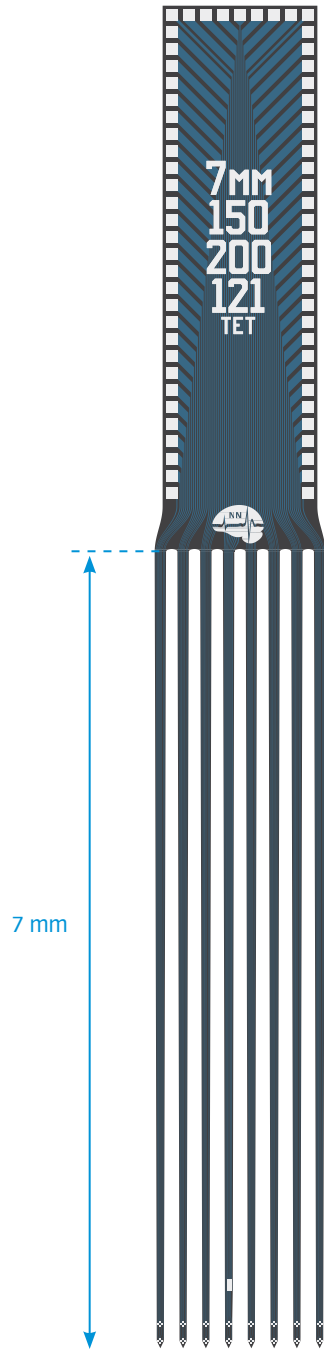
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

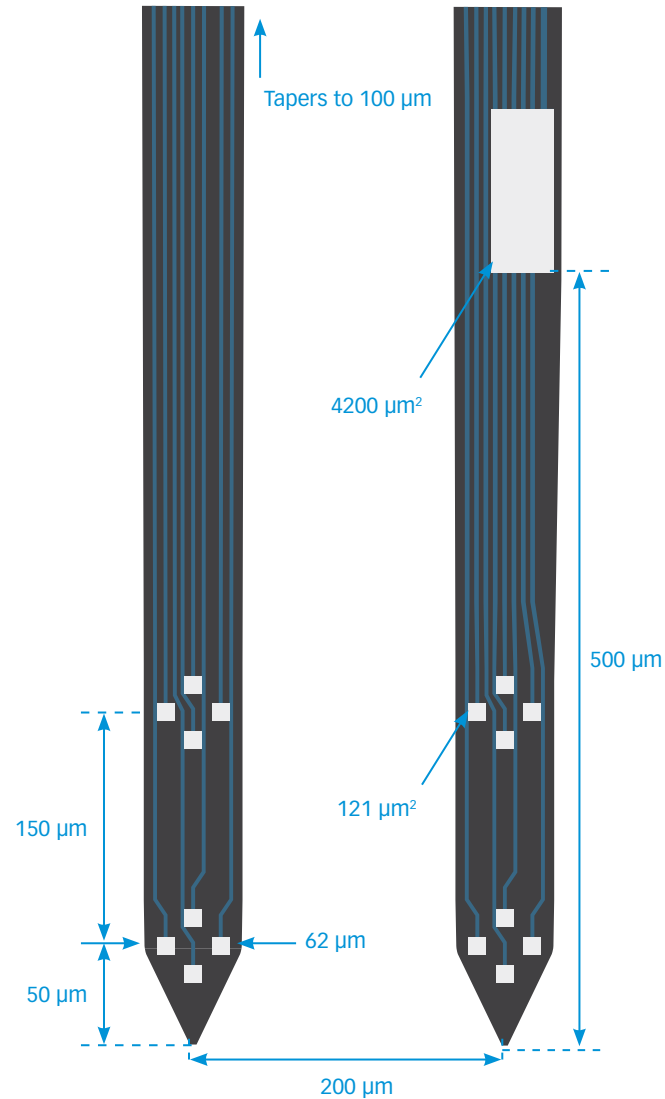
Thickness

15 µm

A8x2-tet-7mm-150-200-121



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
Z64

SMART
S64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

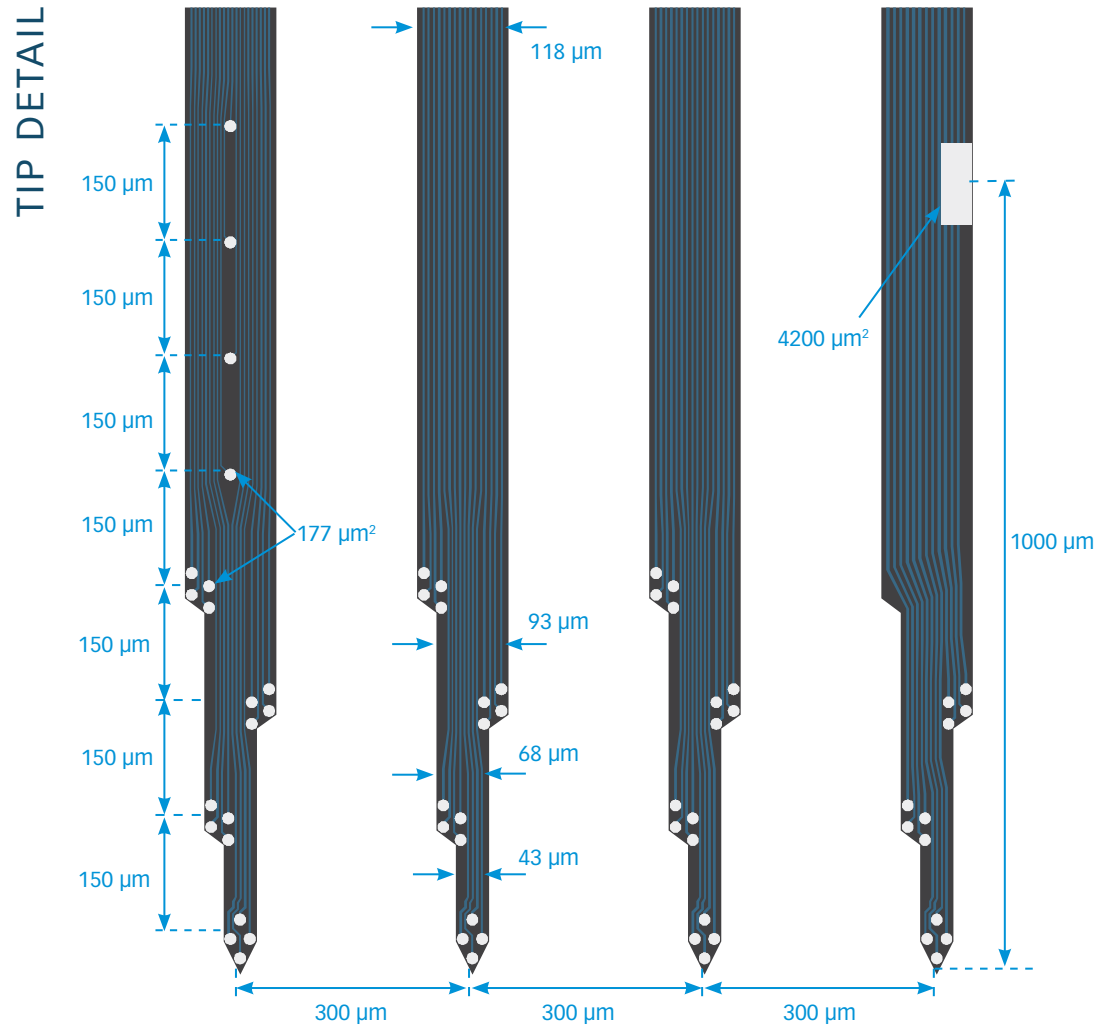
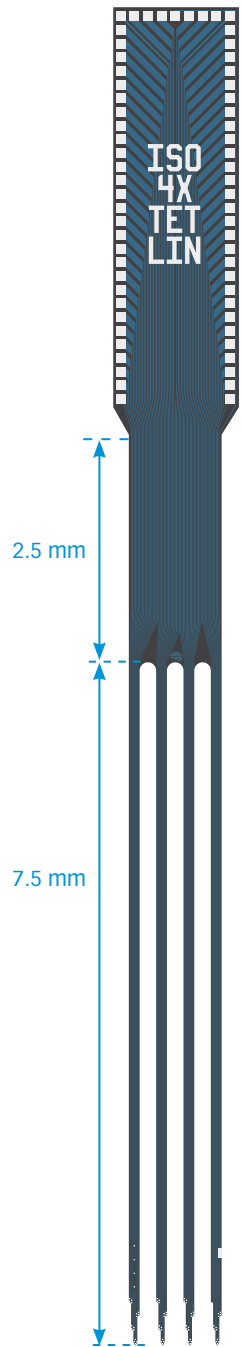
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

Thickness

15 μm

ISO64-4x-tet-lin-7.5mm



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
Z64

SMART
S64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

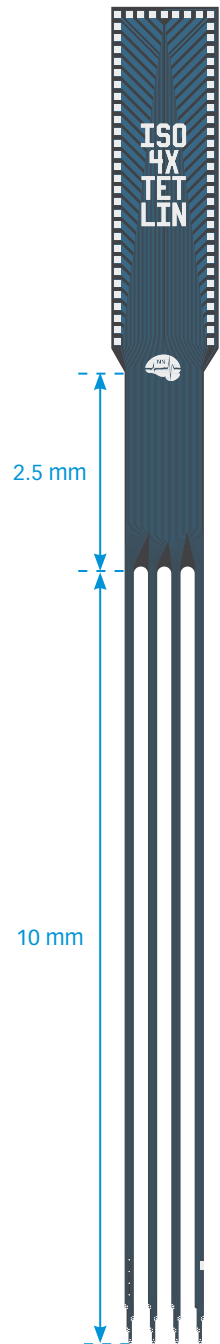
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

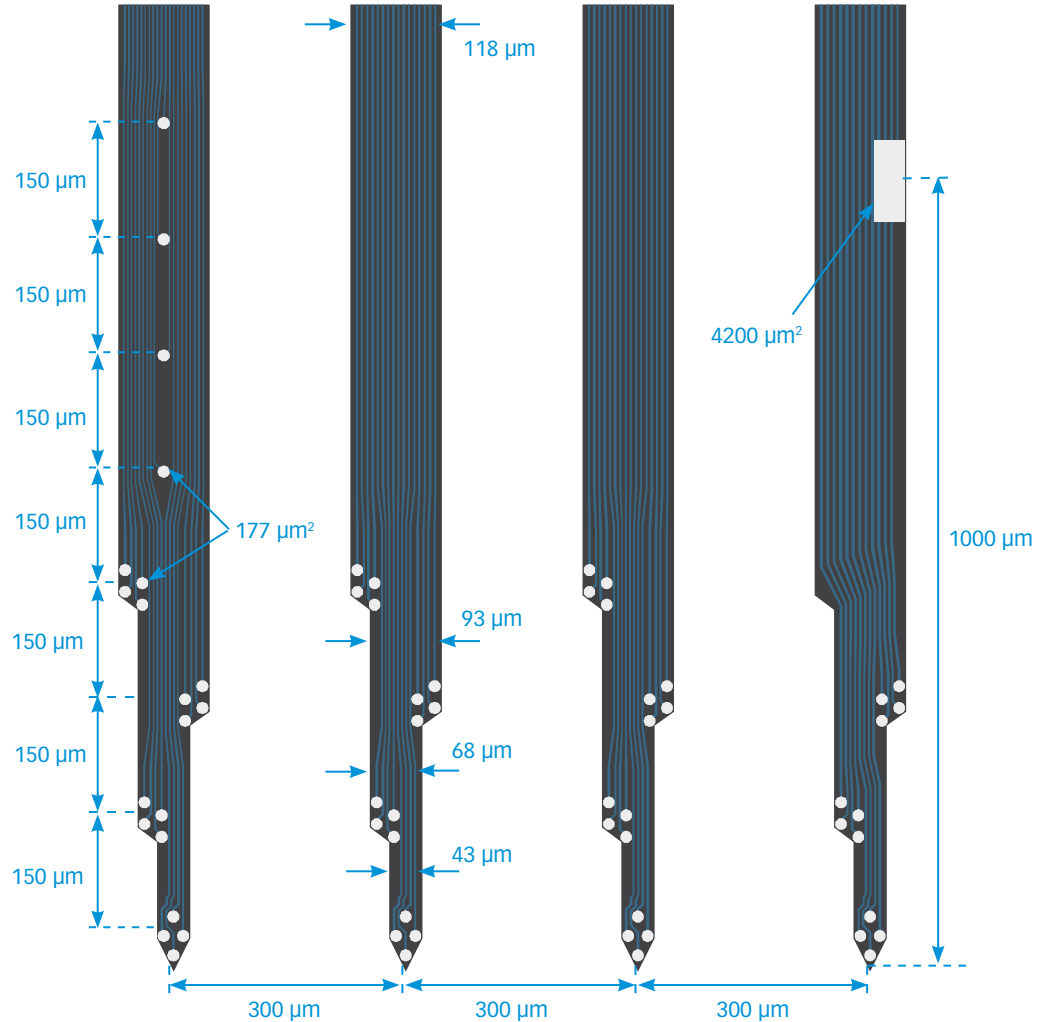
Thickness

15 μm
50 μm

ISO64-4x-tet-lin-10mm



TIP DETAIL



Available packages

ACUTE
A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
Z64

SMART
S64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

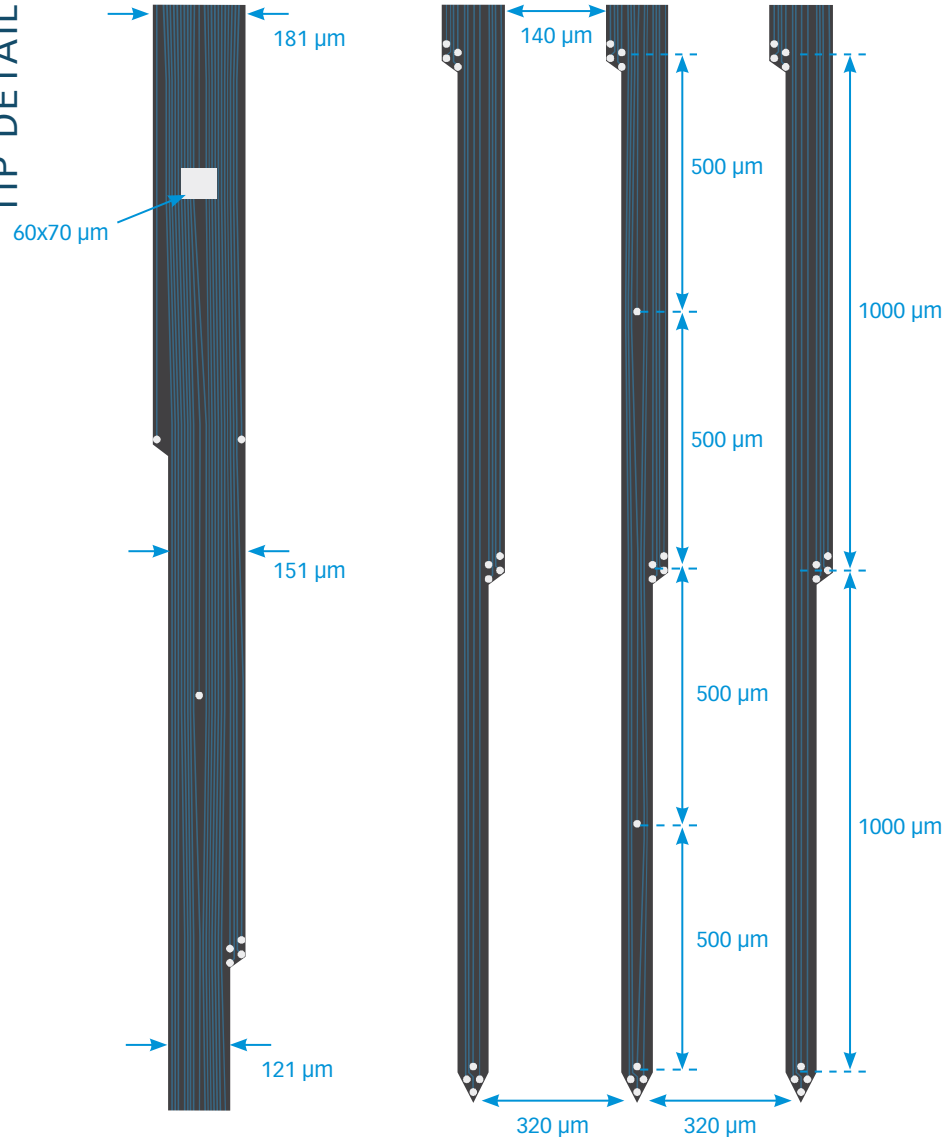
Thickness

50 micrometers

ISO64-3x-tet-lin-12mm



TIP DETAIL



Available packages

ACUTE

A64

CHRONIC
H64_30mm
H64LP_30mm
HC64_30mm
HZ64_30mm
Z64

SMART

S64

OPTOGENETICS
OA64LP
OA64LP_v2
OH64LP (oDrive)
OXA64LP (Optogenix)

MR-COMPATIBLE
MR_H64_30mm
MR_HC64_30mm

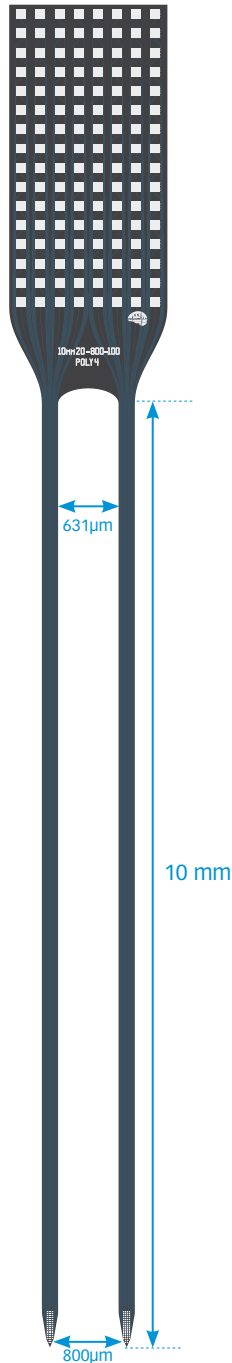
X-SERIES
X3_64
X3_H64

Note for H-package 64 channel designs: Unless otherwise requested you will receive a probe with up to 2 irregular sites. If you require a perfect probe, please specify when ordering.

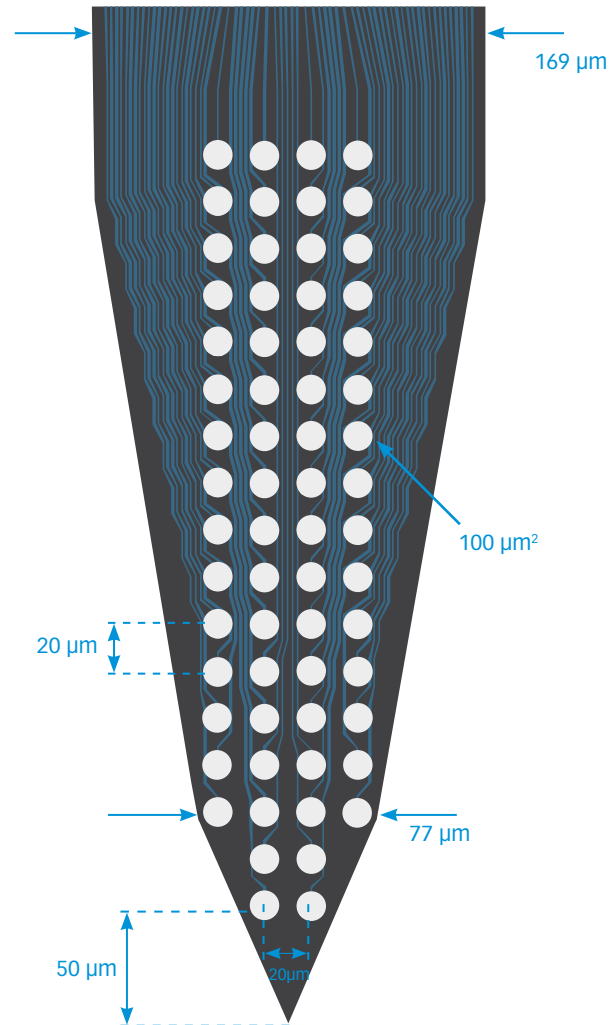
Thickness

50 μm

A2X64-Poly4-10mm-20-800-100



TIP DETAIL



Available packages

ACUTE
AC128

CHRONIC
HC128

ACTIVUS
AV128
AVI128
AVH128
AVIH128

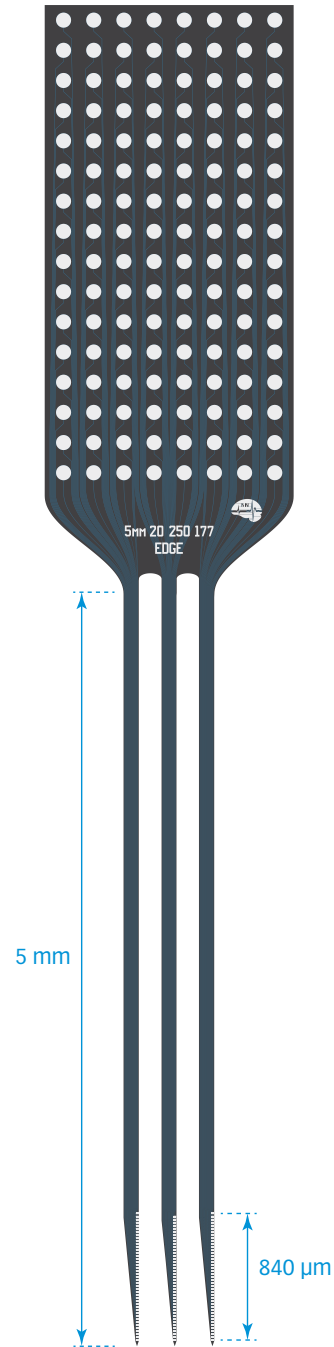
X-SERIES
X6_126
X6_128L
X6_H128

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

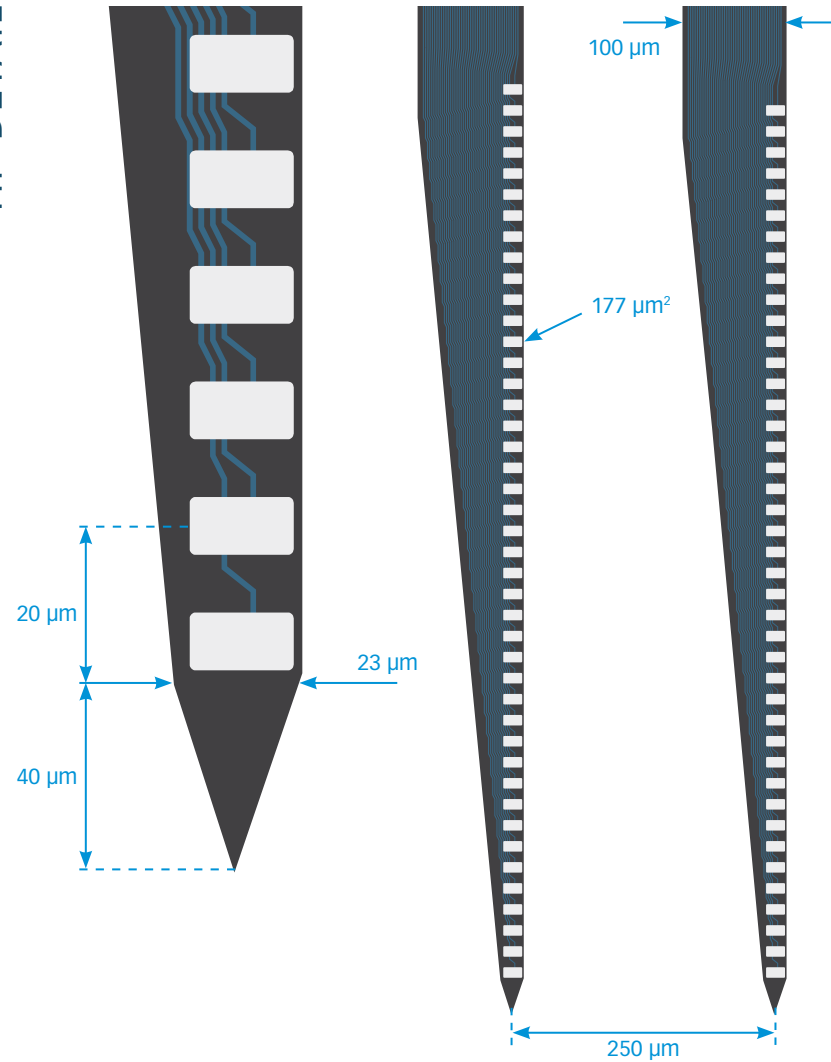
Thickness

15 μm

A3x43/42/43-edge-5mm-20-250-177



TIP DETAIL



Available packages

ACUTE
AC128

CHRONIC
HC128

ACTIVUS
AV128
AVI128
AVH128
AVIH128

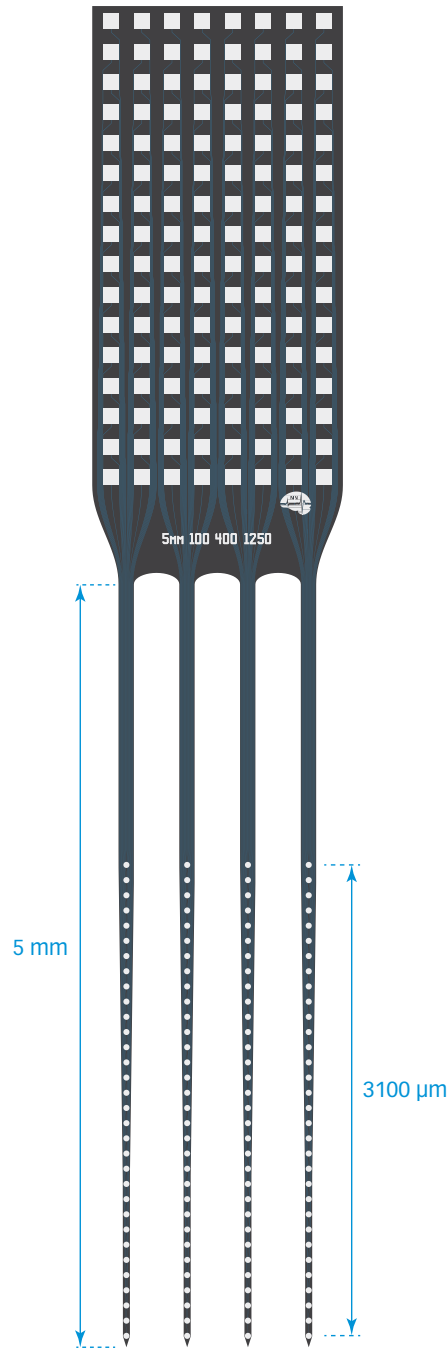
X-SERIES
X6_126
X6_128L
X6_H128

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

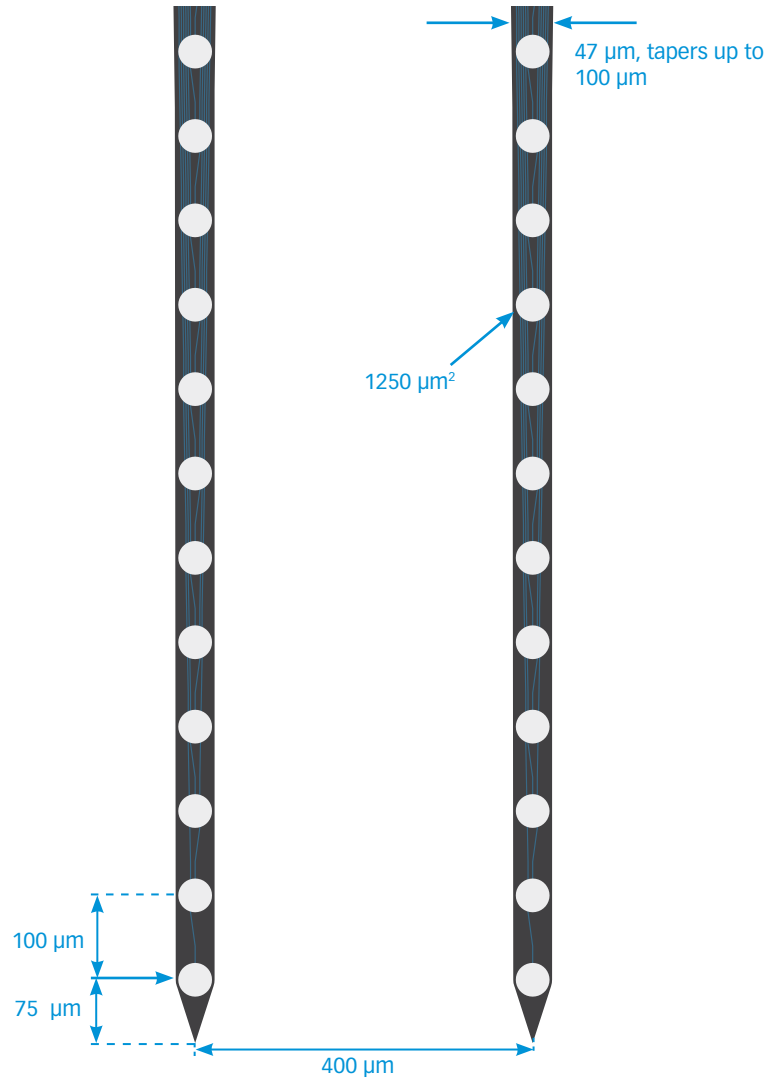
Thickness

15 μm

A4x32-5mm-100-400-1250



TIP DETAIL



Available packages

ACUTE
AC128

CHRONIC
HC128

ACTIVUS
AV128
AVI128
AVH128
AVIH128

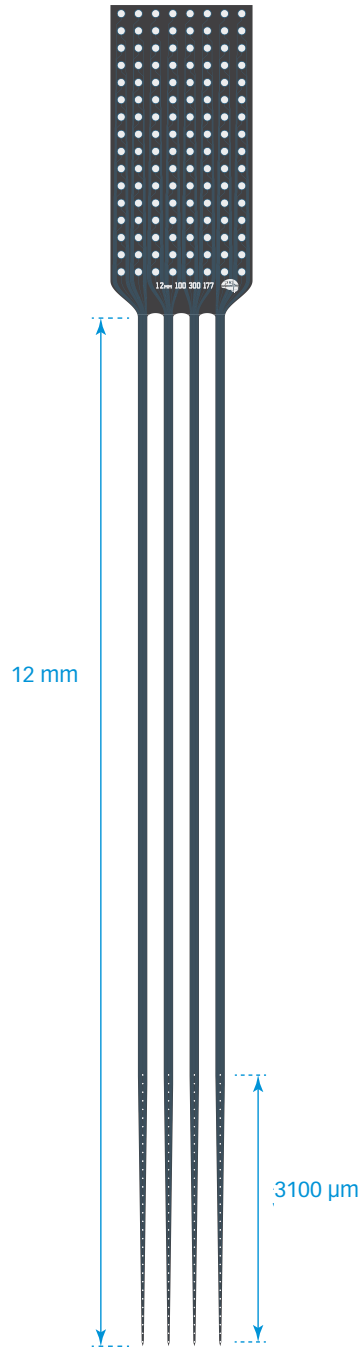
X-SERIES
X6_126
X6_128L
X6_H128

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

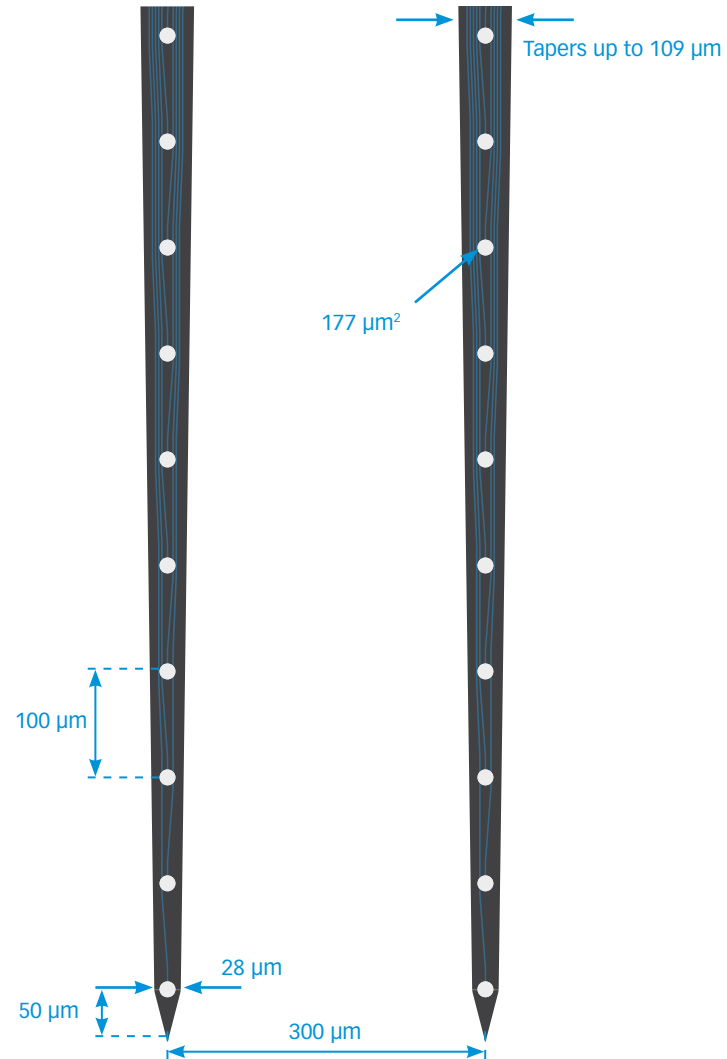
Thickness

15 µm

A4x32-12mm-100-300-177



TIP DETAIL



Available packages

ACUTE
AC128

CHRONIC
HC128

ACTIVUS
AV128
AVI128
AVH128
AVIH128

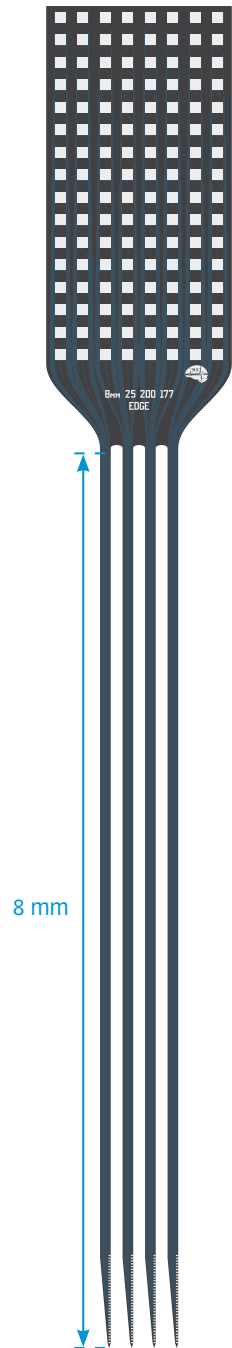
X-SERIES
X6_126
X6_128L
X6_H128

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

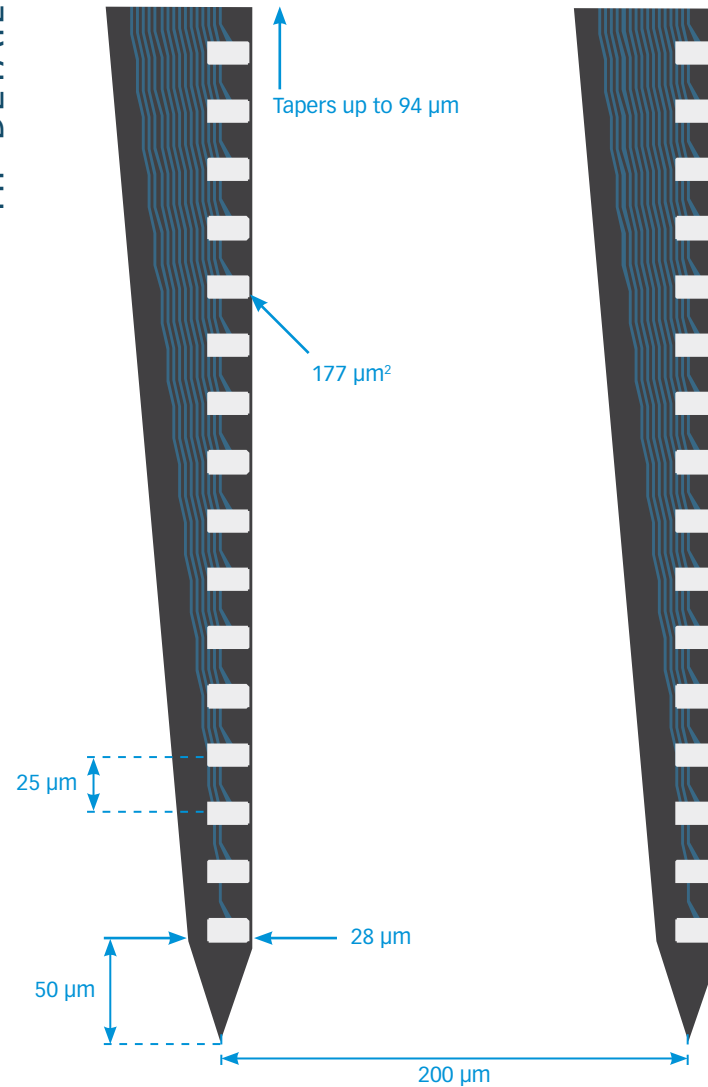
Thickness

50 μm

A4x32-edge-8mm-25-200-177



TIP DETAIL



Available packages

ACUTE
AC128

CHRONIC
HC128

ACTIVUS
AV128
AVI128
AVH128
AVIH128

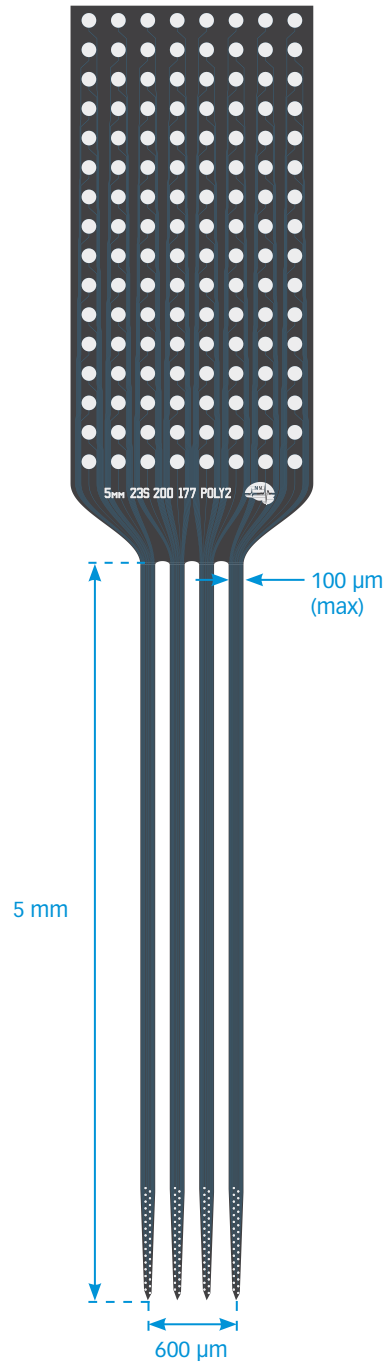
X-SERIES
X6_126
X6_128L
X6_H128

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

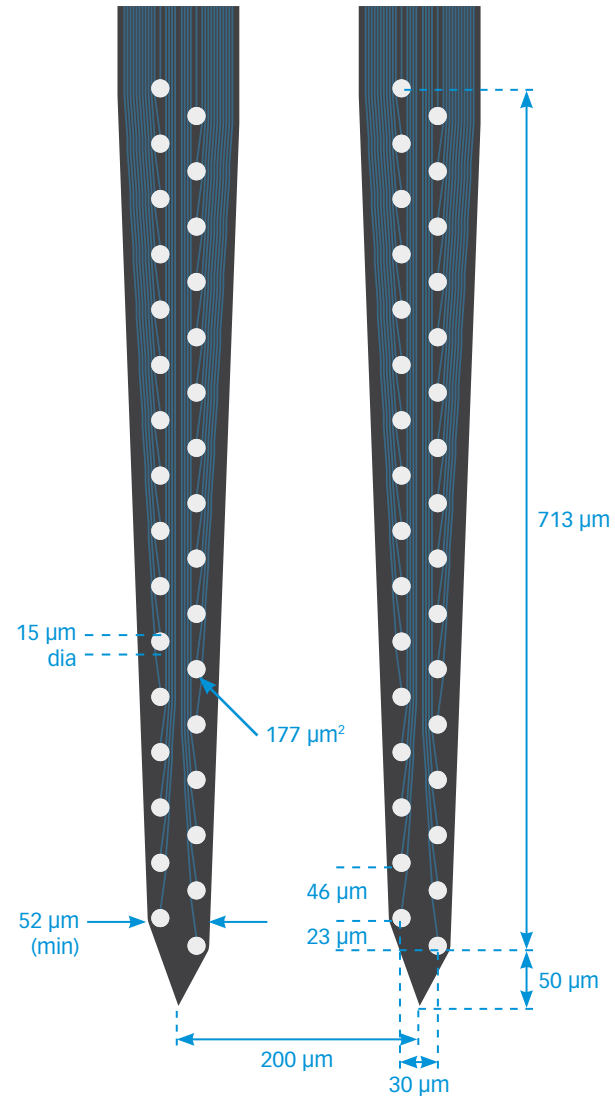
Thickness

15 μm

A4x32-Poly2-5mm-23s-200-177



TIP DETAIL



Available packages

ACUTE
AC128

CHRONIC
HC128

ACTIVUS
AV128
AVI128
AVH128
AVIH128

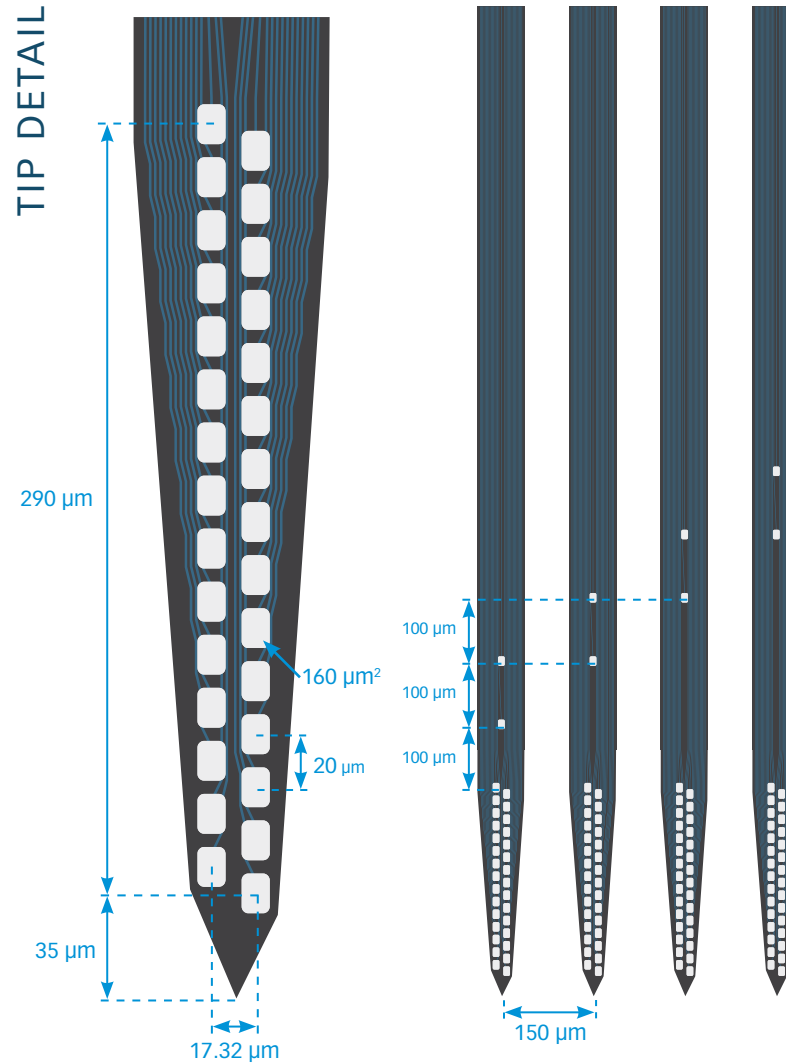
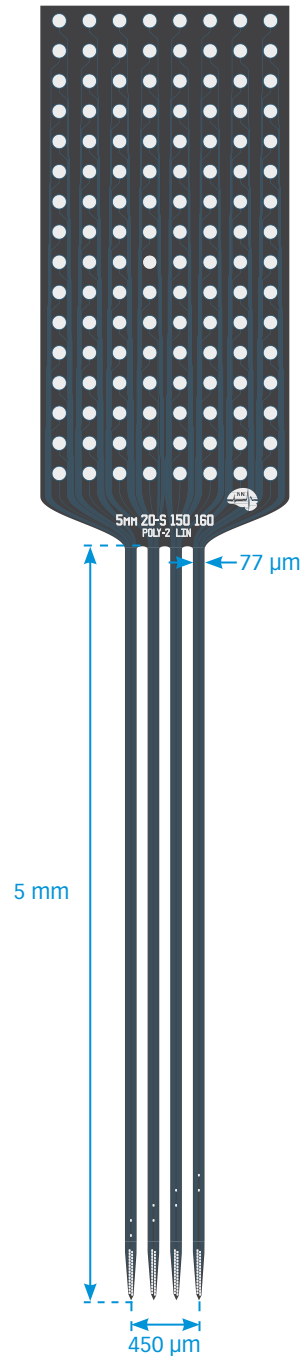
X-SERIES
X6_126
X6_128L
X6_H128

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

Thickness

15 µm

A4X32-Poly2-lin-5mm-20s-150-160



Available packages

ACUTE
AC128

CHRONIC
HC128

ACTIVUS
AV128
AVI128
AVH128
AVIH128

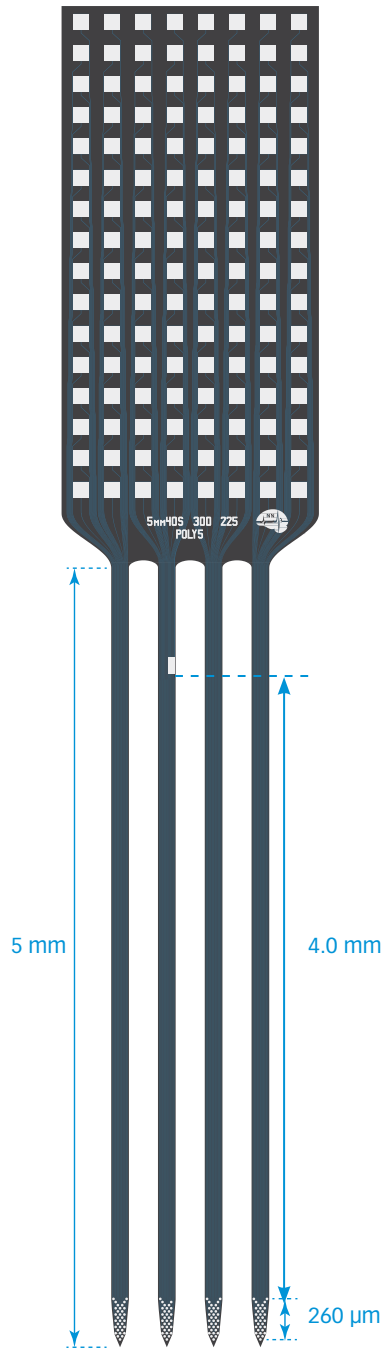
X-SERIES
X6_126
X6_128L
X6_H128

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

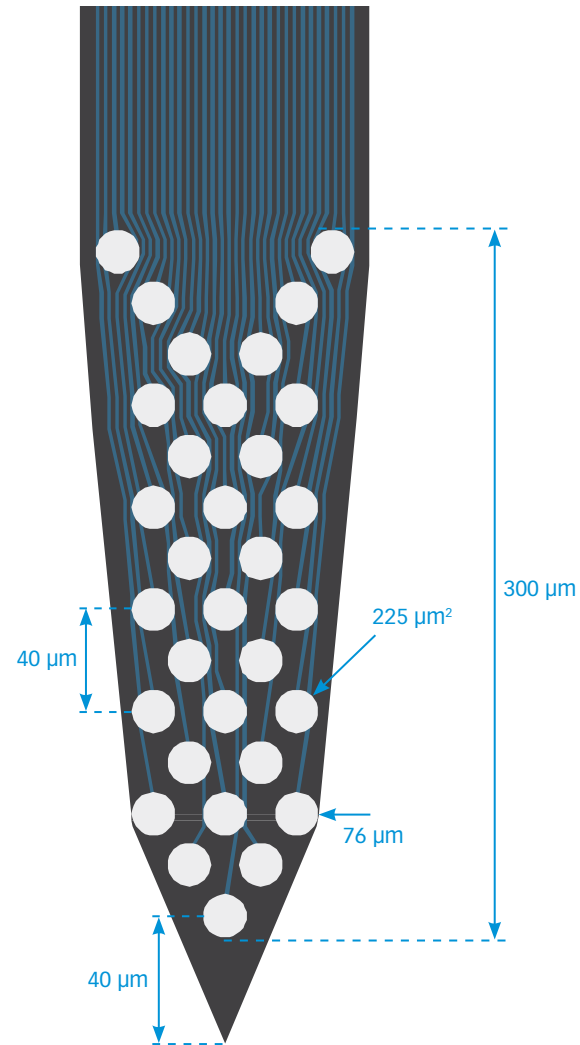
Thickness

15 μm

A4x32-Poly5-5mm-40s-300-225



TIP DETAIL



Available packages

ACUTE
AC128

CHRONIC
HC128

ACTIVUS
AV128
AVI128
AVH128
AVIH128

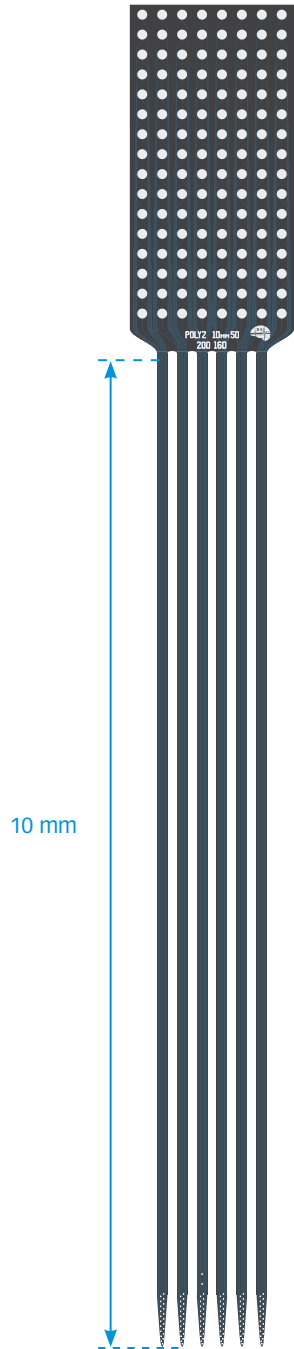
X-SERIES
X6_126
X6_128L
X6_H128

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

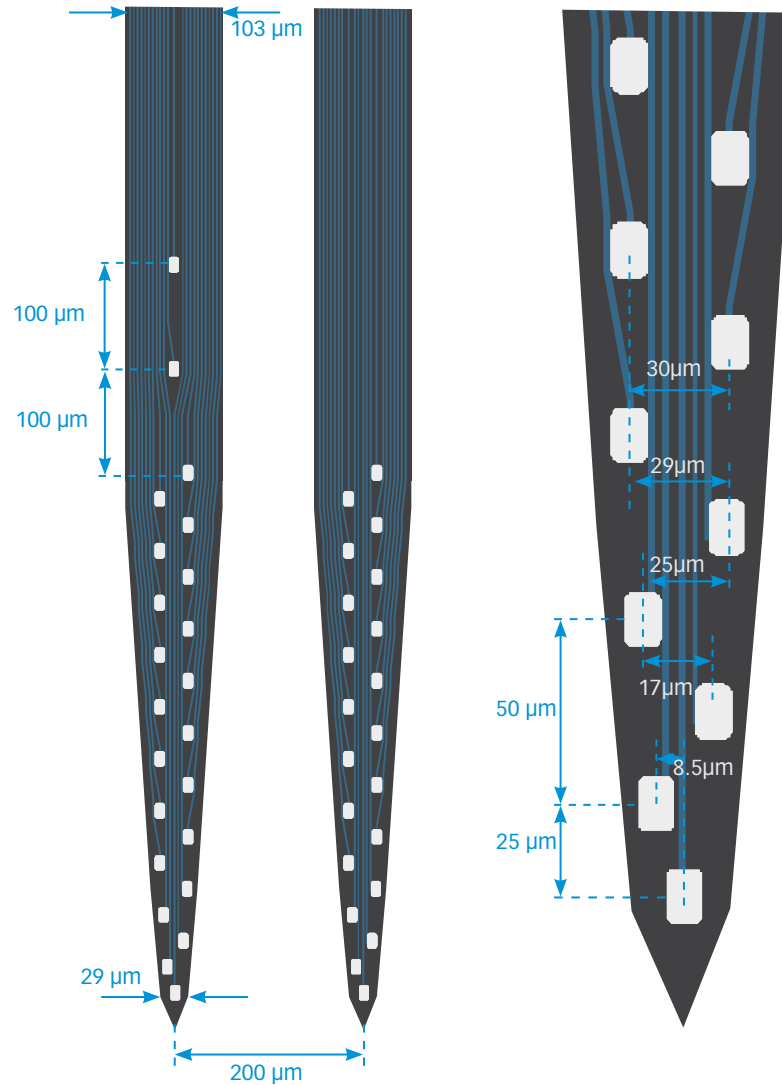
Thickness

15 μm

A6X21-poly2-10mm-50-200-160



TIP DETAIL



Available packages

ACUTE
AC128

CHRONIC
HC128

ACTIVUS
AV128
AVI128
AVH128
AVIH128

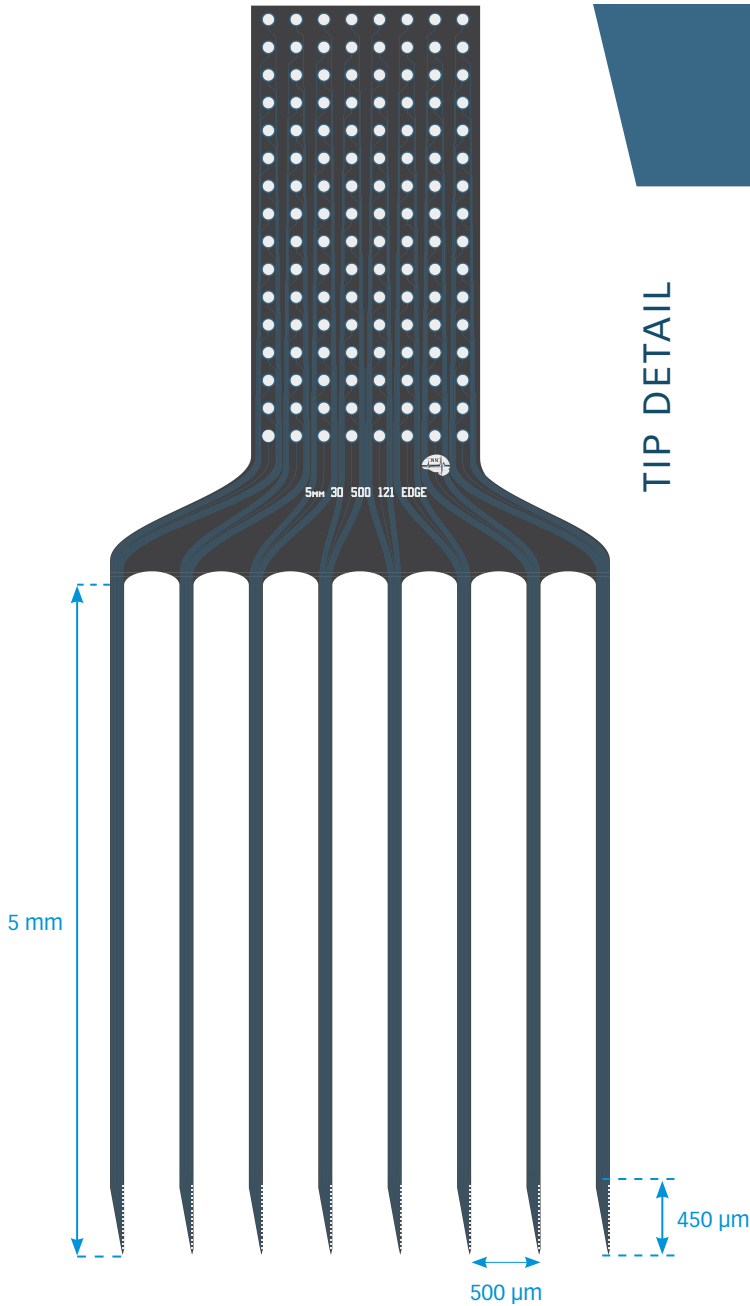
X-SERIES
X6_126
X6_128L
X6_H128

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

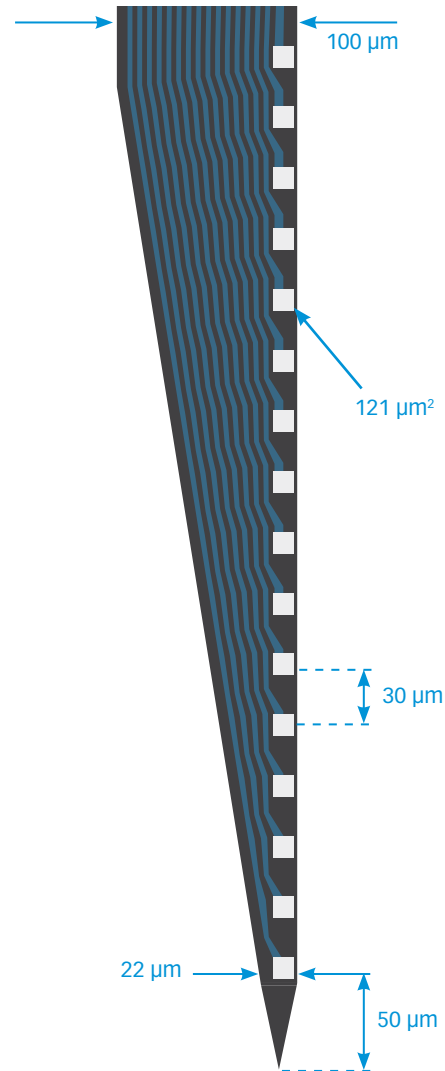
Thickness

50 µm

A8X16-edge-5mm-30-500-121



TIP DETAIL



Available packages

ACUTE
AC128

CHRONIC
HC128

ACTIVUS
AV128
AVI128
AVH128
AVIH128

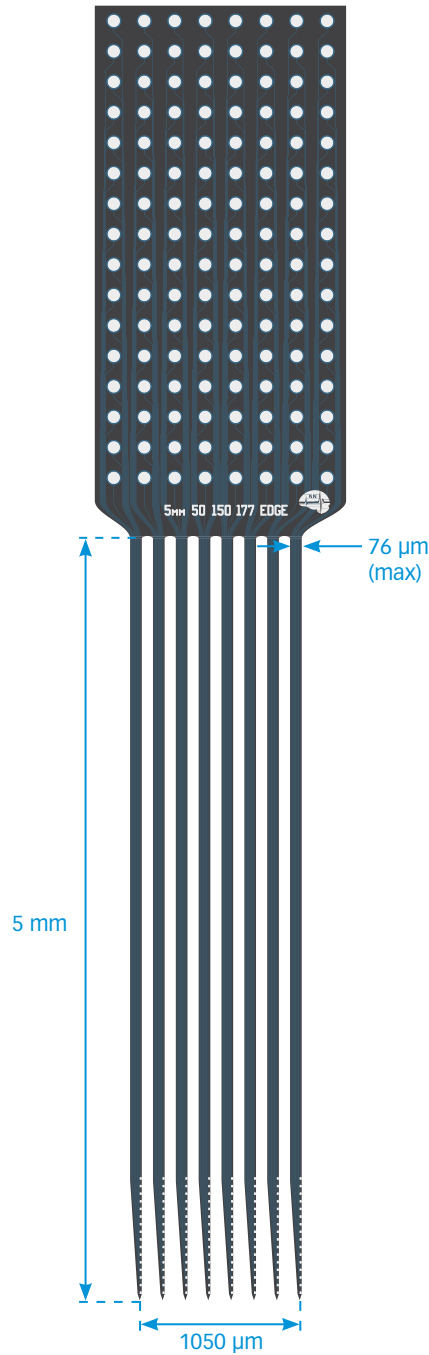
X-SERIES
X6_126
X6_128L
X6_H128

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

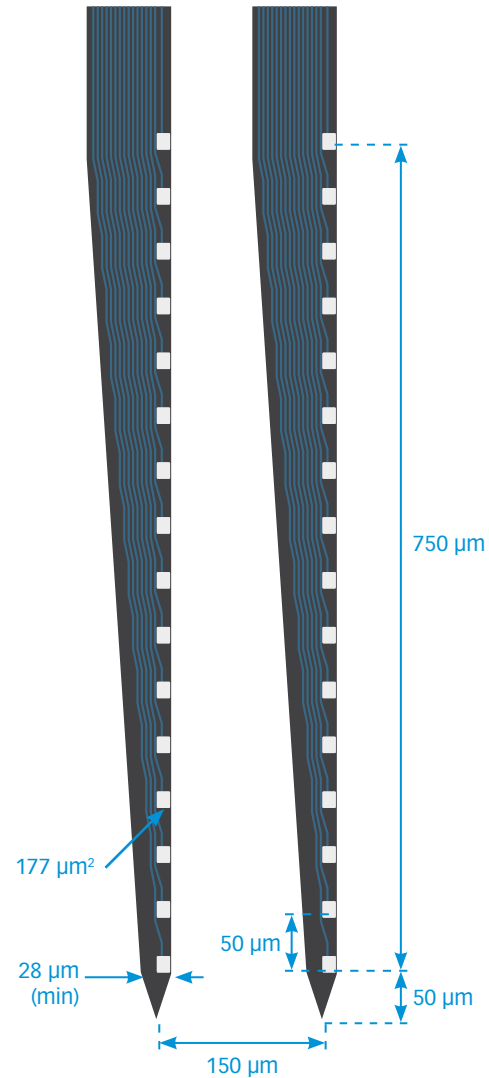
Thickness

15 μm

A8X16-Edge-5mm-50-150-177



TIP DETAIL



Available packages

ACUTE
AC128

CHRONIC
HC128

ACTIVUS
AV128
AVI128
AVH128
AVIH128

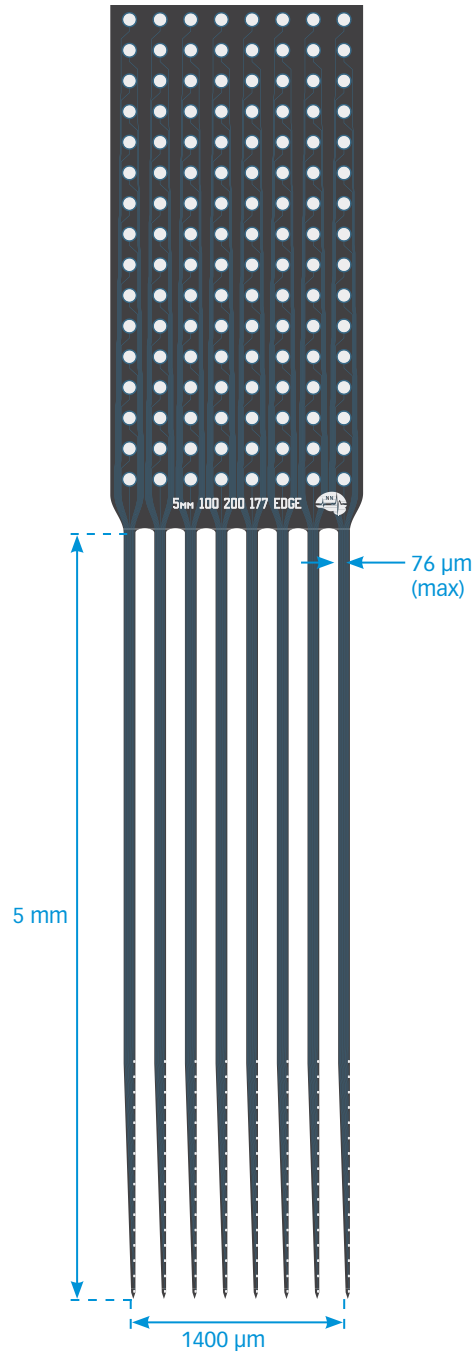
X-SERIES
X6_126
X6_128L
X6_H128

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

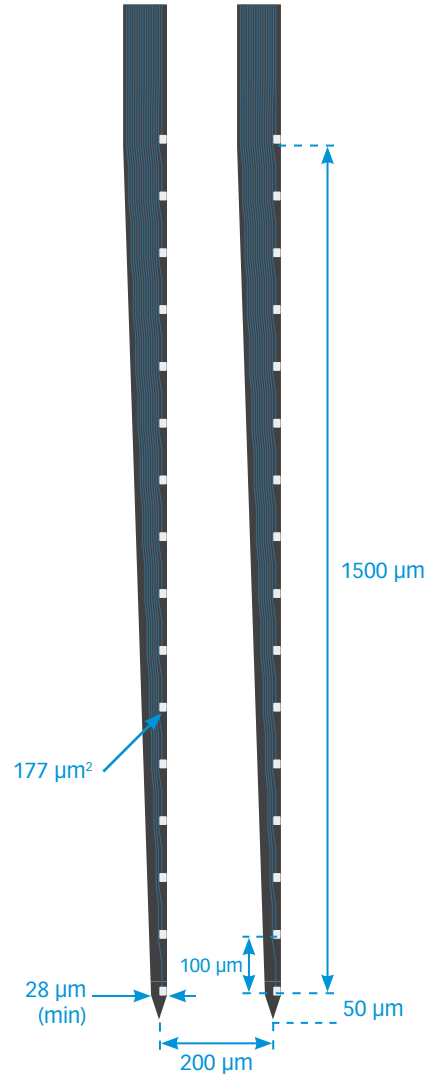
Thickness

15 μm

A8X16-Edge-5mm-100-200-177



TIP DETAIL



Available packages

ACUTE
AC128

CHRONIC
HC128

ACTIVUS
AV128
AVI128
AVH128
AVIH128

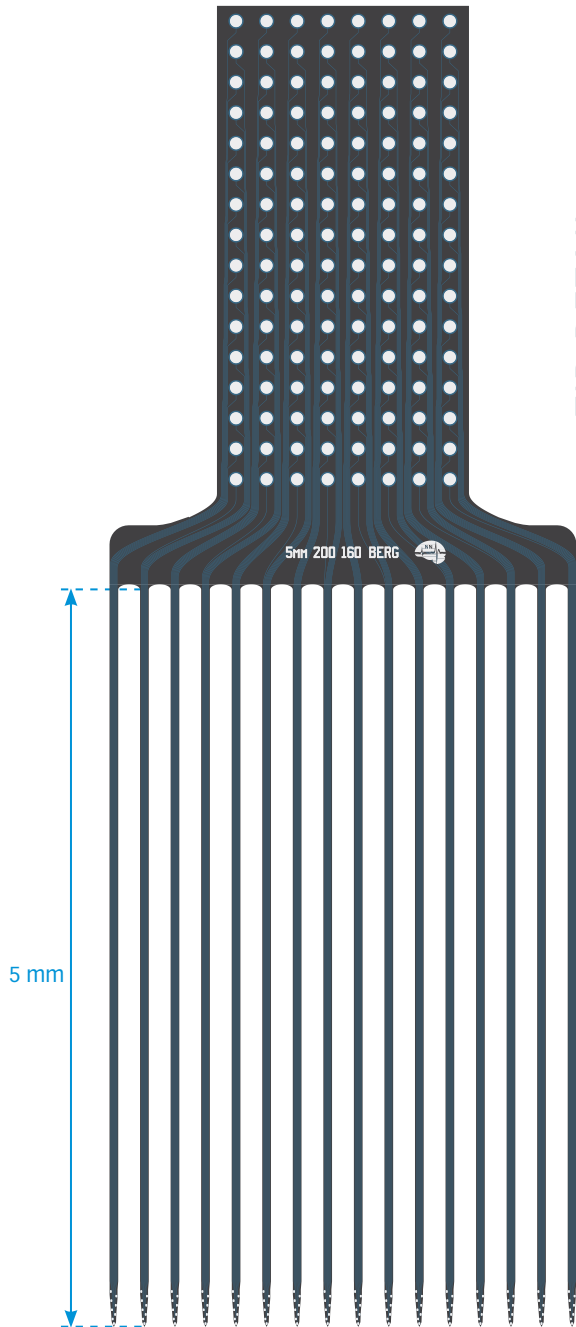
X-SERIES
X6_126
X6_128L
X6_H128

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

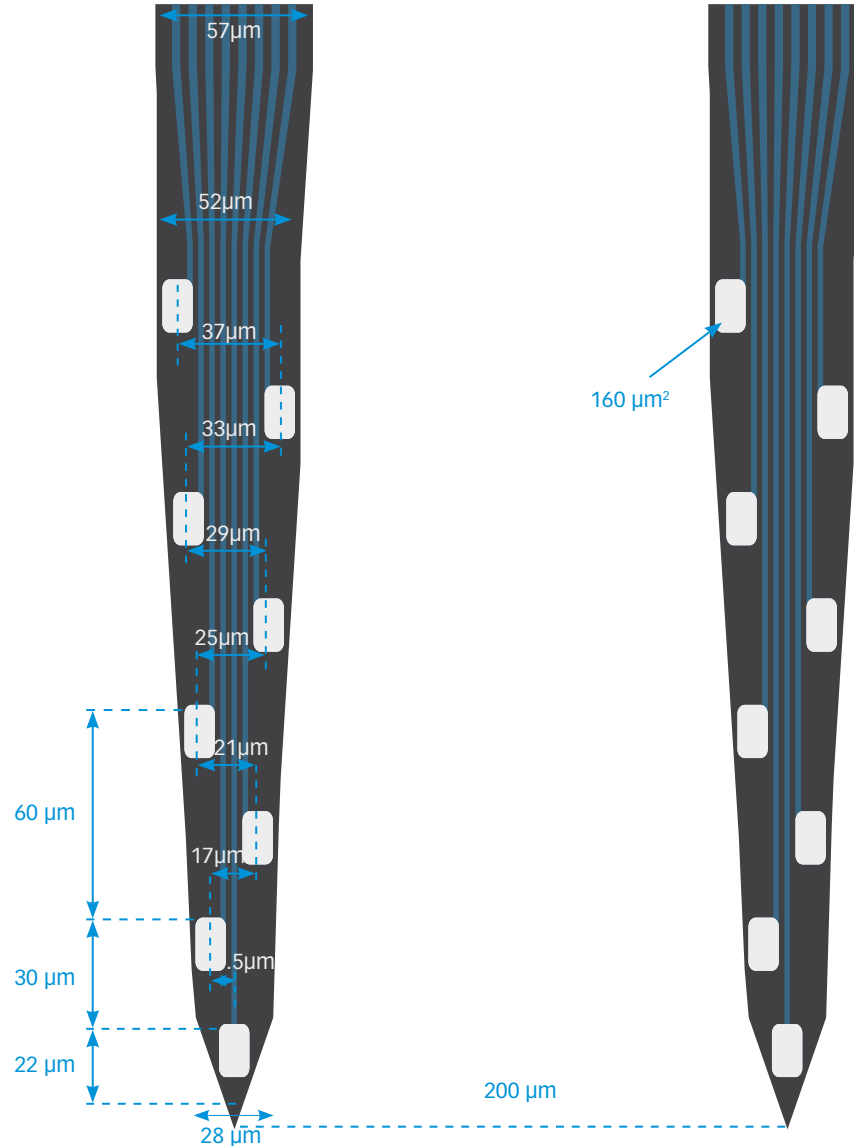
Thickness

15 μm

A16x8-5mm-berg-200-160



TIP DETAIL



Available packages

ACUTE
AC128

CHRONIC
HC128

ACTIVUS
AV128
AVI128
AVH128
AVIH128

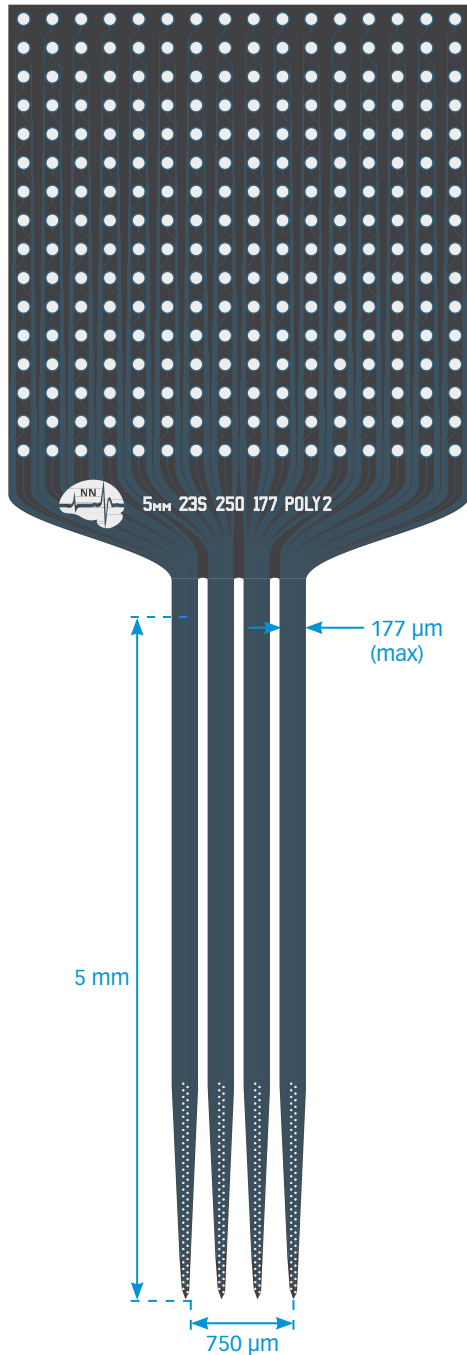
X-SERIES
X6_126
X6_128L
X6_H128

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

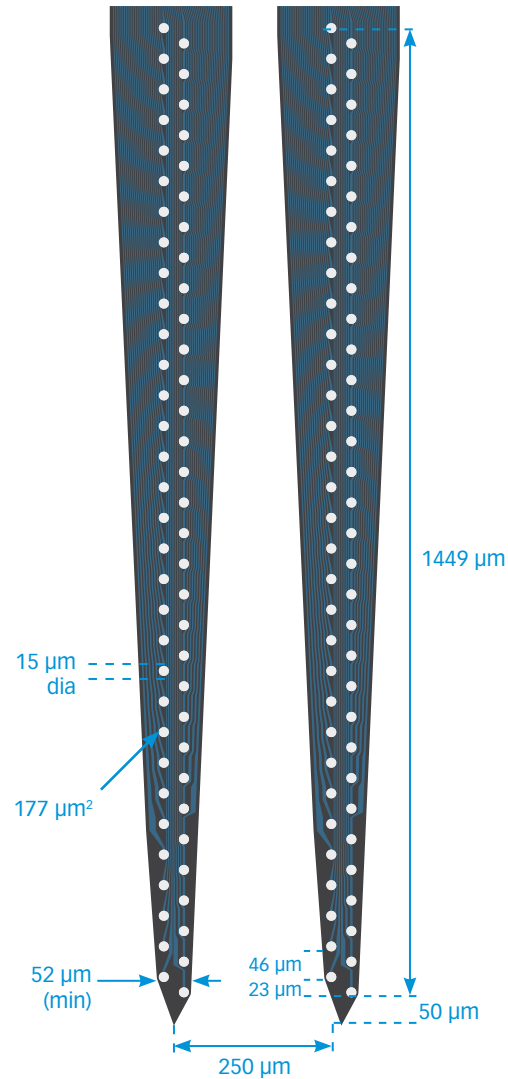
Thickness

15 μ m

A4X64-Poly2-5mm-23s-250-177



TIP DETAIL



Available packages

ACTIVUS

AV256

AVH256

INTAN

I256

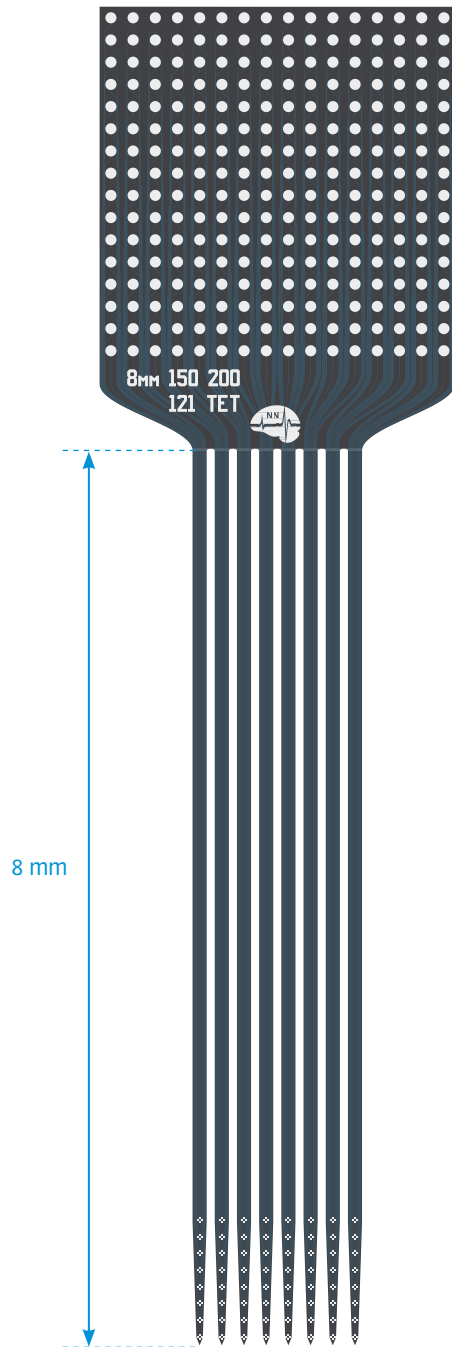
IH256

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

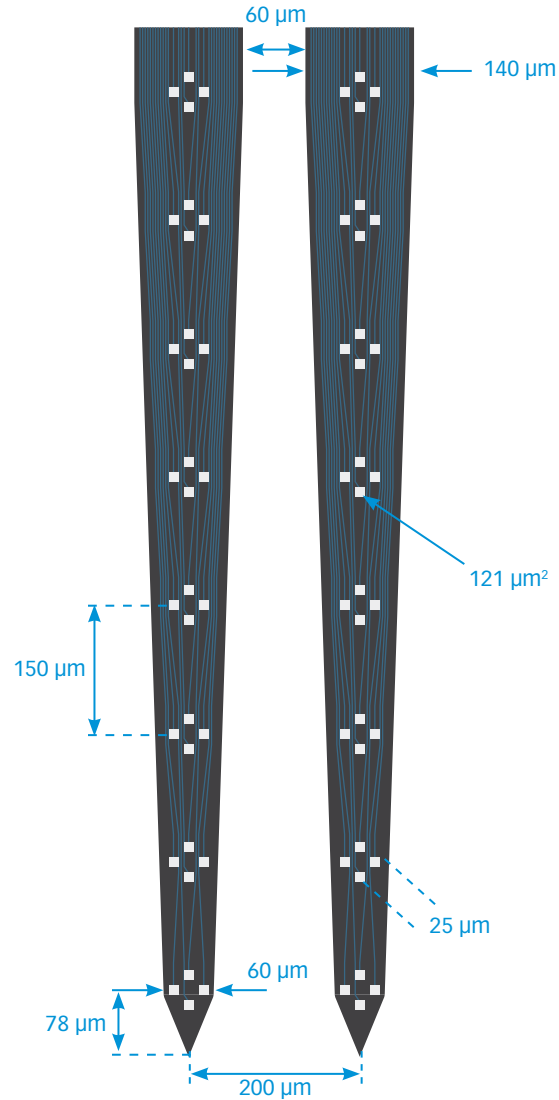
Thickness

15 µm

A8x8-tet-8mm-150-200-121



TIP DETAIL



Available packages

ACTIVUS

AV256
AVH256

INTAN

I256
IH256

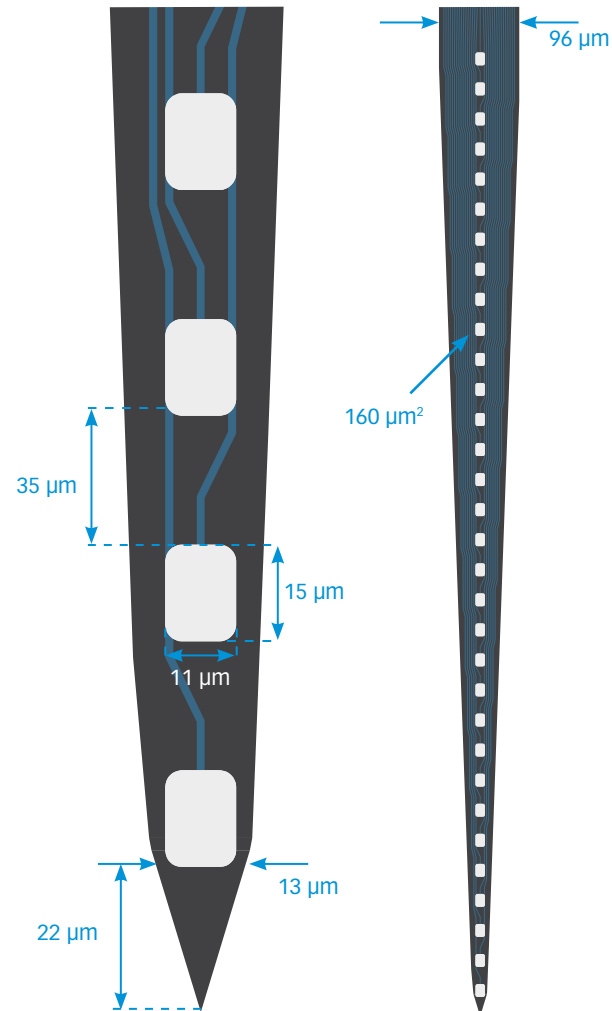
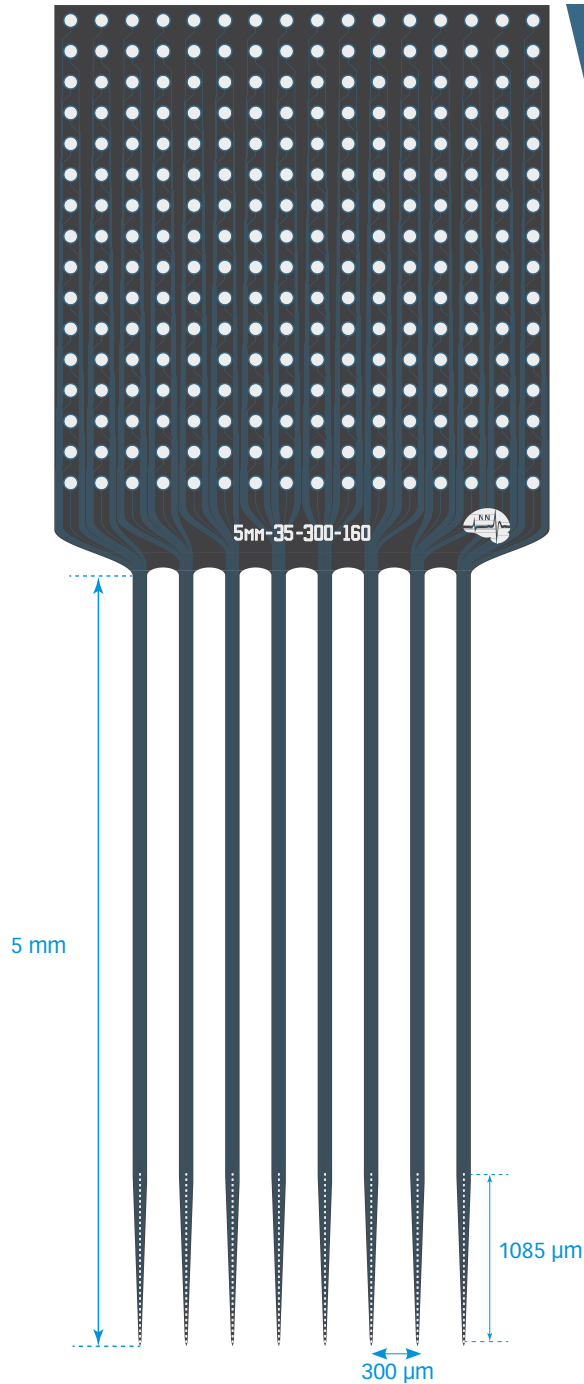
Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

Thickness

50 μm

A8X32-5mm-35-300-160

TIP DETAIL



Available packages

ACTIVUS

AV256
AVH256

INTAN

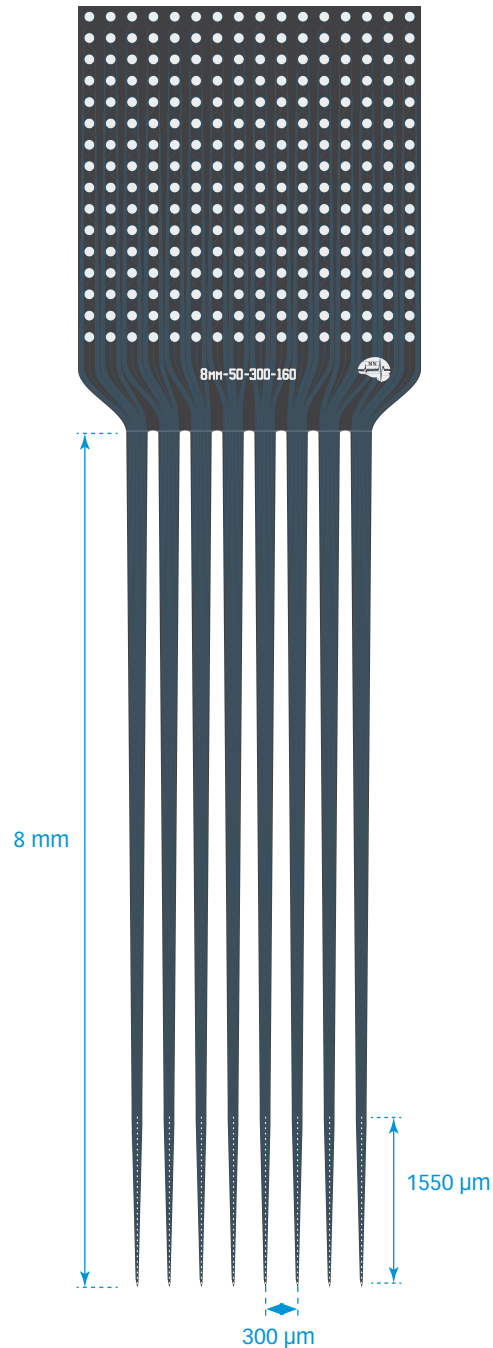
I256
IH256

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

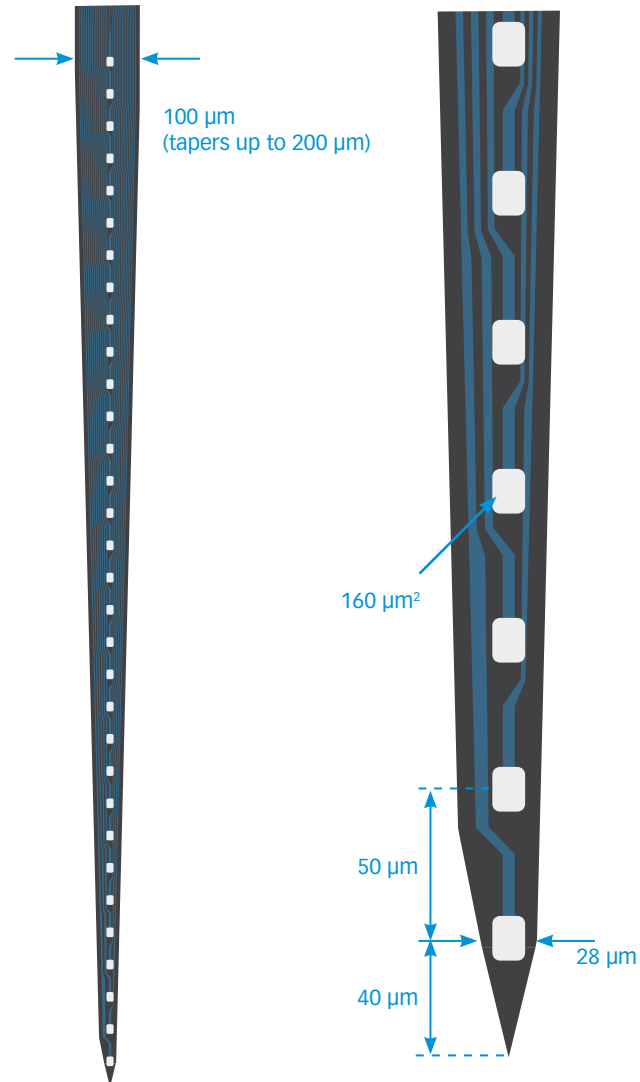
Thickness

15 µm

A8x32-8mm-50-300-160



TIP DETAIL



Available packages

ACTIVUS

AV256
AVH256

INTAN

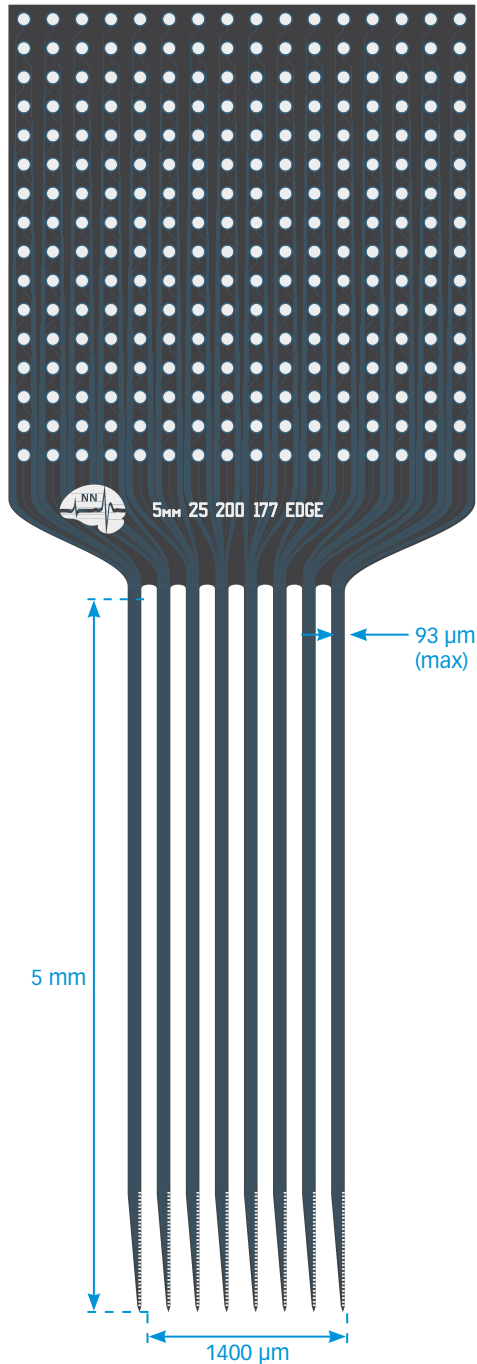
I256
IH256

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

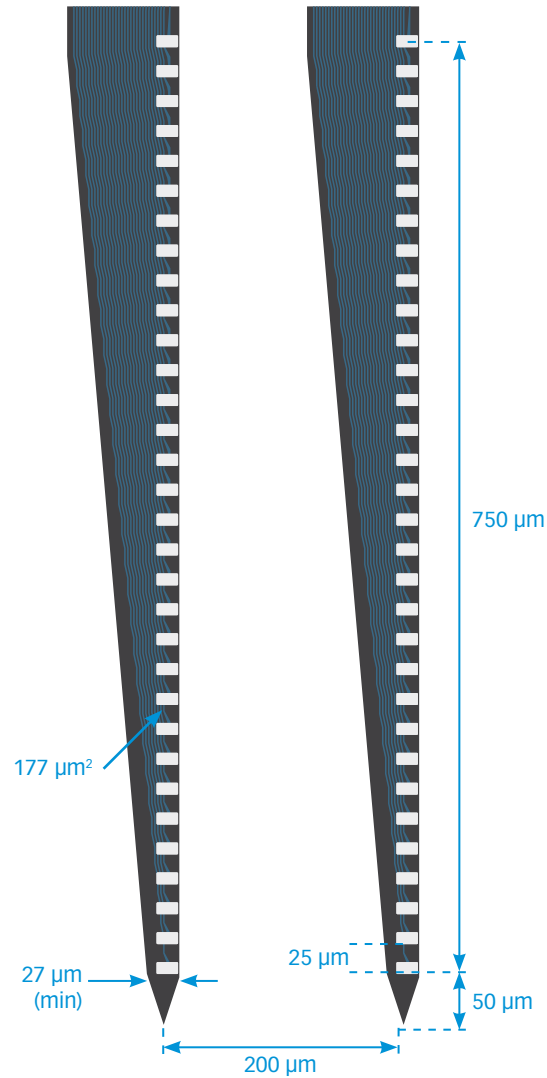
Thickness

15 μm

A8X32-Edge-5mm-25-200-177



TIP DETAIL



Available packages

ACTIVUS

AV256

AVH256

INTAN

I256

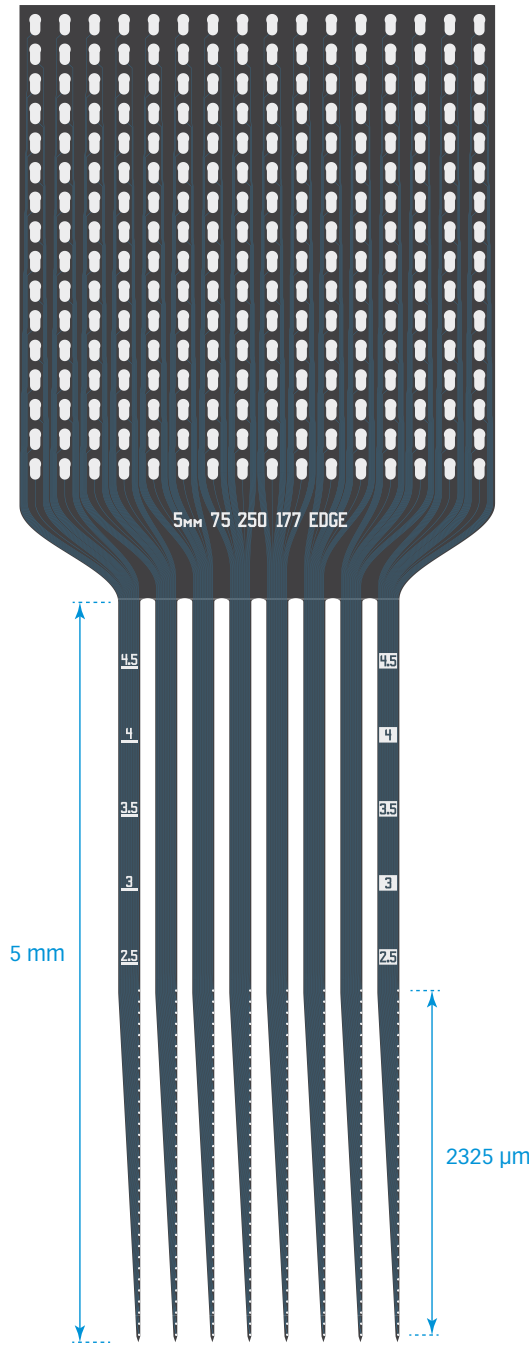
IH256

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

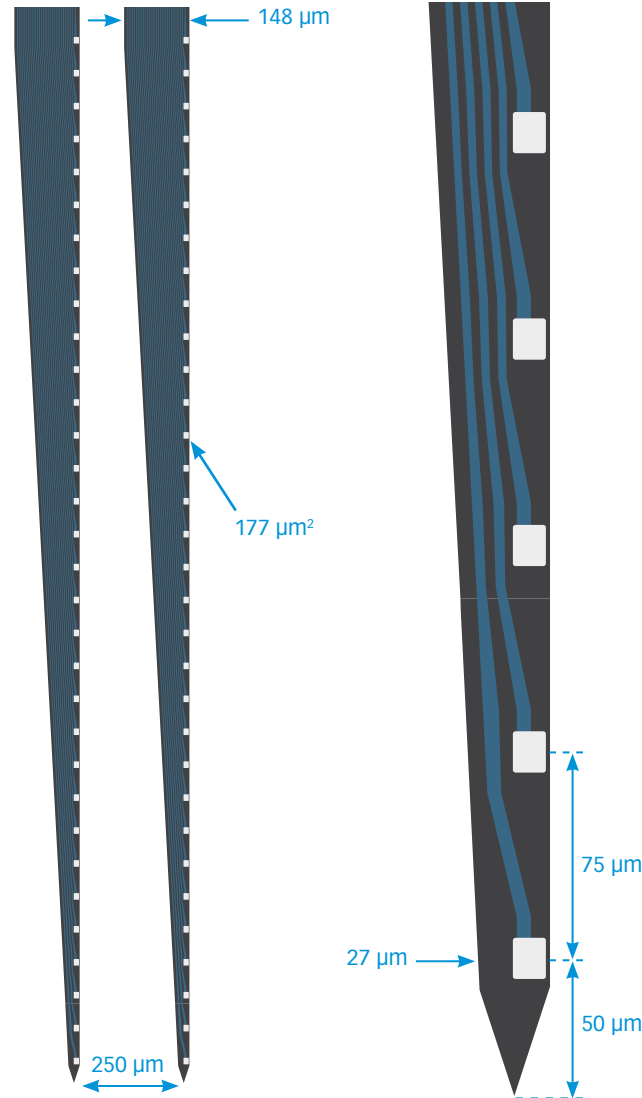
Thickness

15 μm

A8X32-Edge-5mm-75-250-177



TIP DETAIL



Available packages

ACTIVUS

AV256
AVH256

INTAN

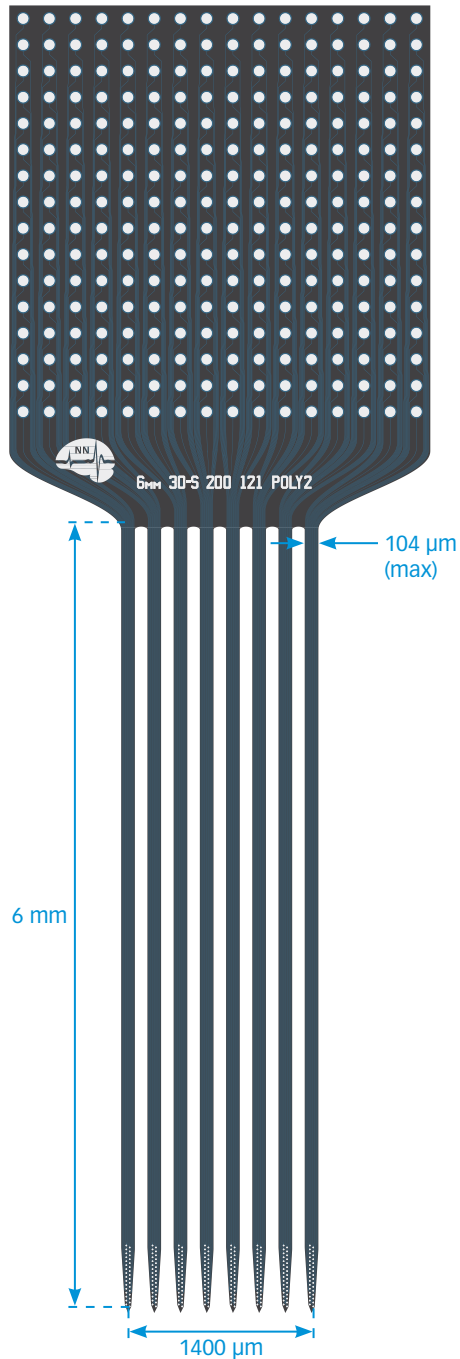
I256
IH256

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

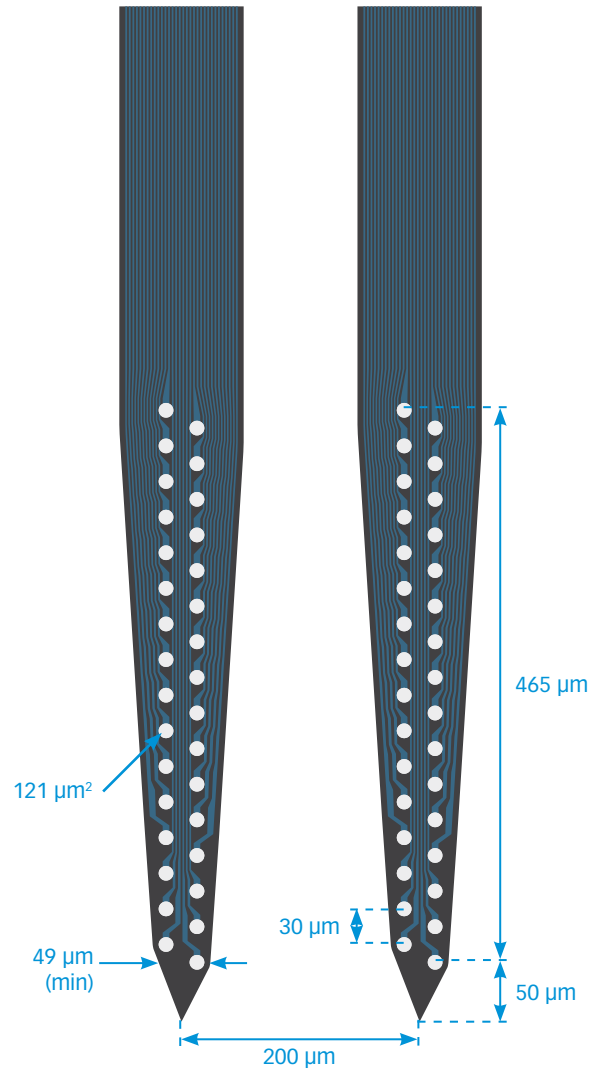
Thickness

50 µm

A8X32-Poly2-6mm-30s-200-121



TIP DETAIL



Available packages

ACTIVUS

AV256

AVH256

INTAN

I256

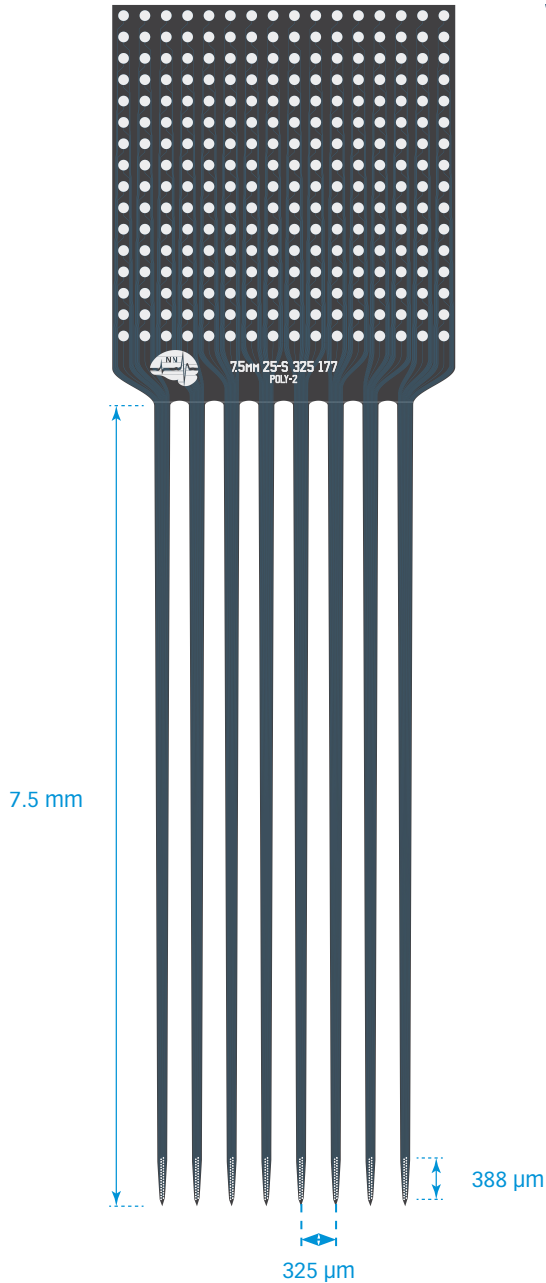
IH256

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

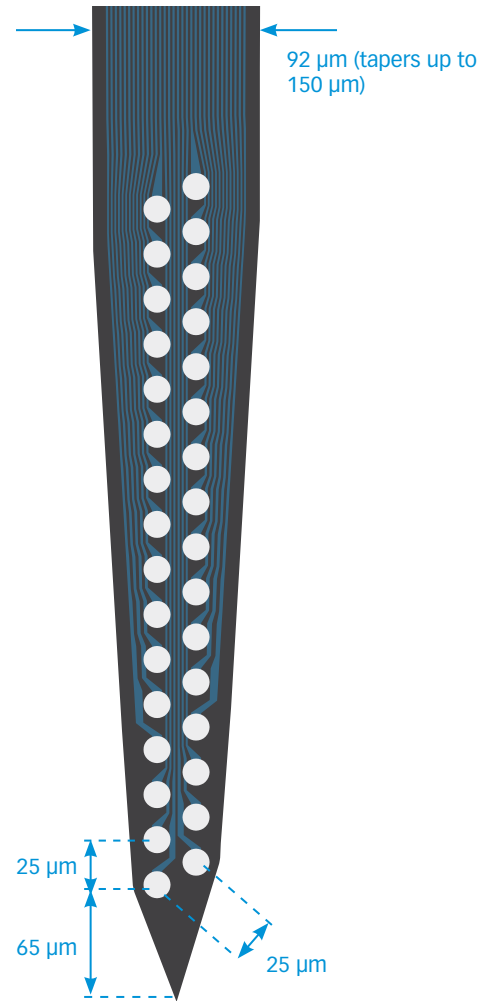
Thickness

15 µm

A8X32-Poly2-7.5mm-25s-325-177



TIP DETAIL



Available packages

ACTIVUS

AV256
AVH256

INTAN

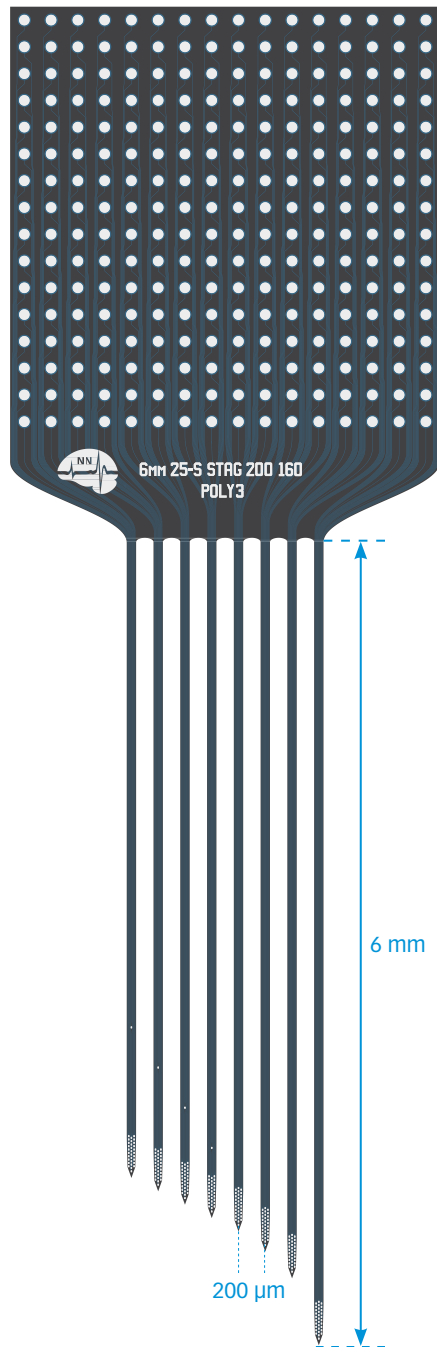
I256
IH256

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

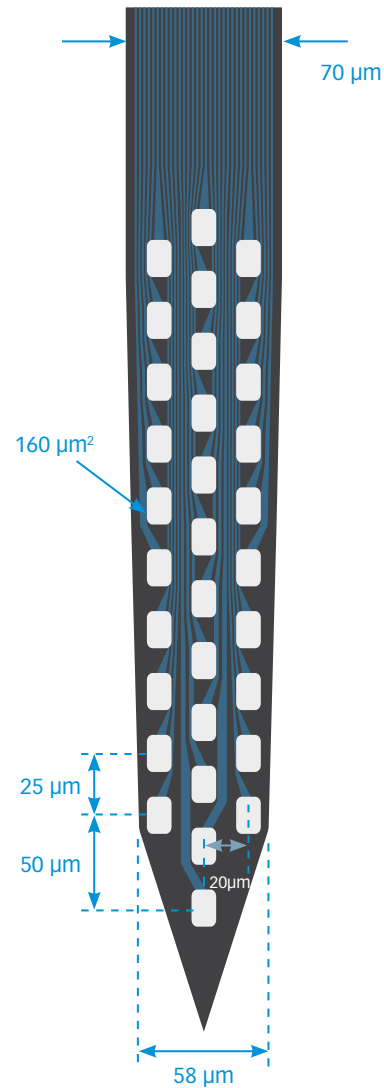
Thickness

50 μm

A8x32-poly3-6mm-25s-stag-200-160



TIP DETAIL



Available packages

ACTIVUS

AV256
AVH256

INTAN

I256
IH256

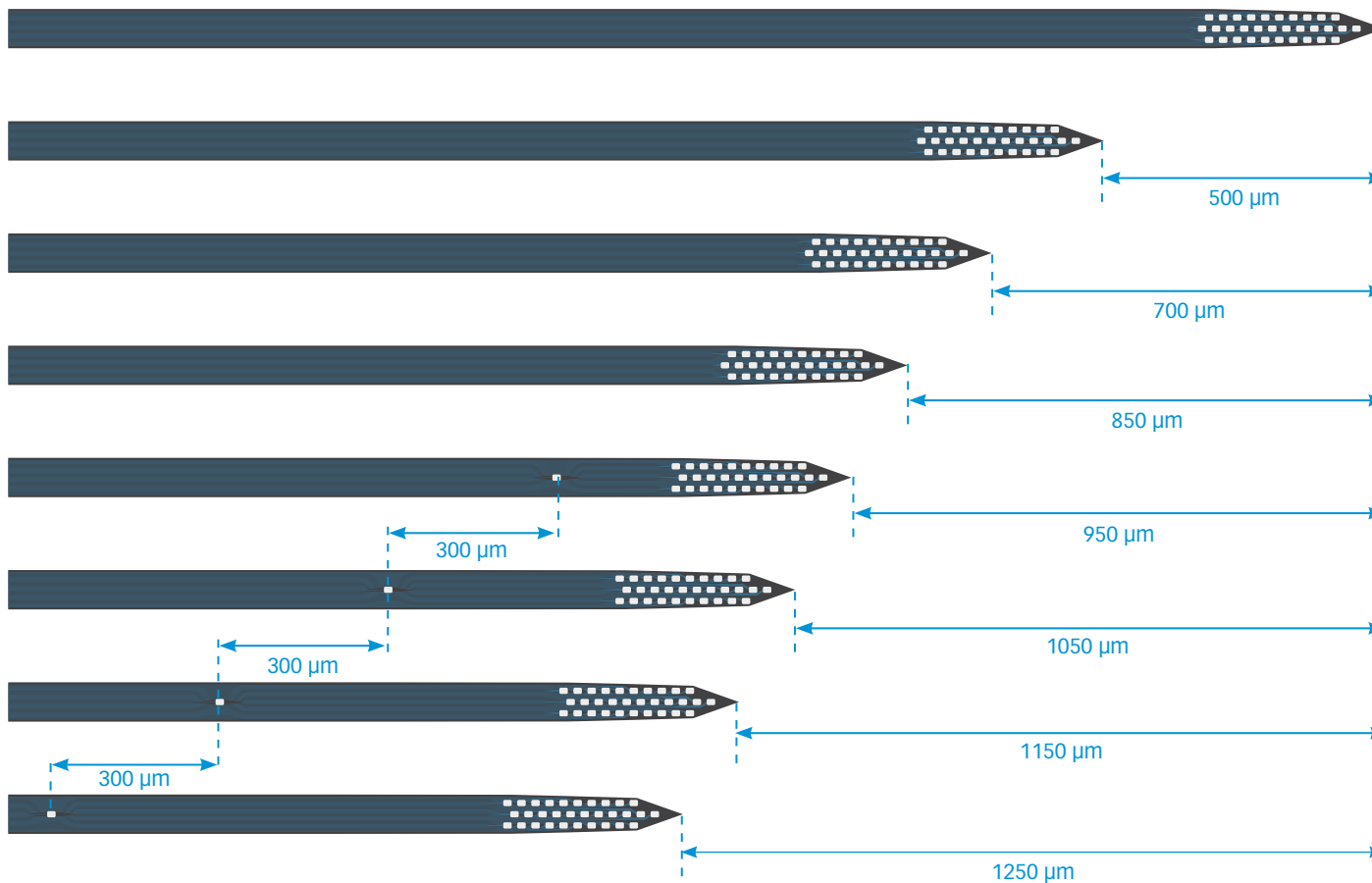
Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

Thickness

15 µm

A8x32-poly3-6mm-25s-stag-200-160

TIP DETAIL CONTINUED



Available packages

ACTIVUS

AV256
AVH256

INTAN

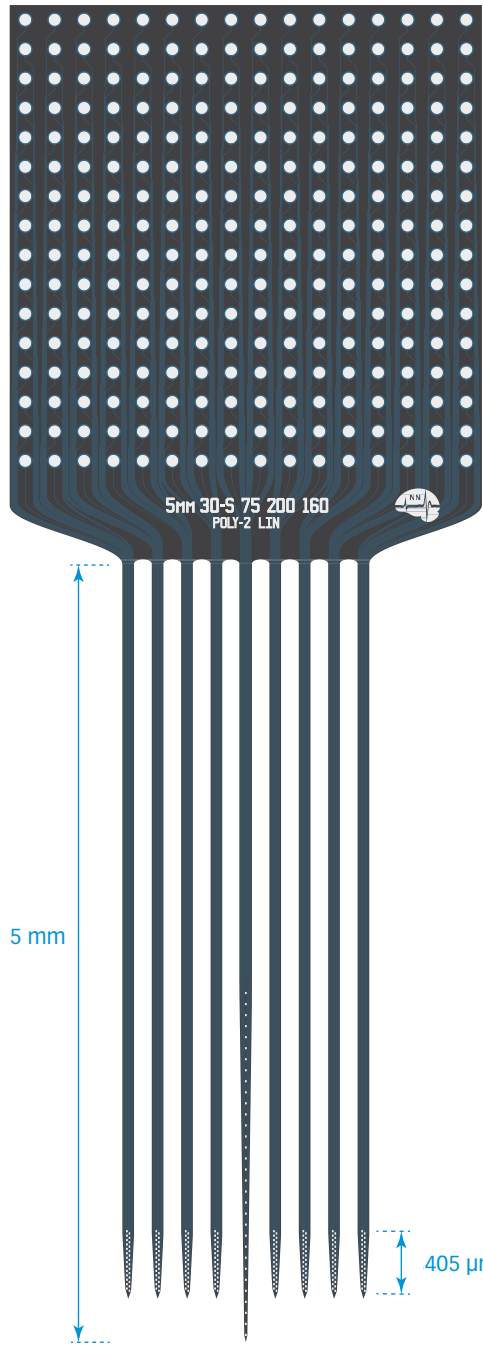
I256
IH256

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

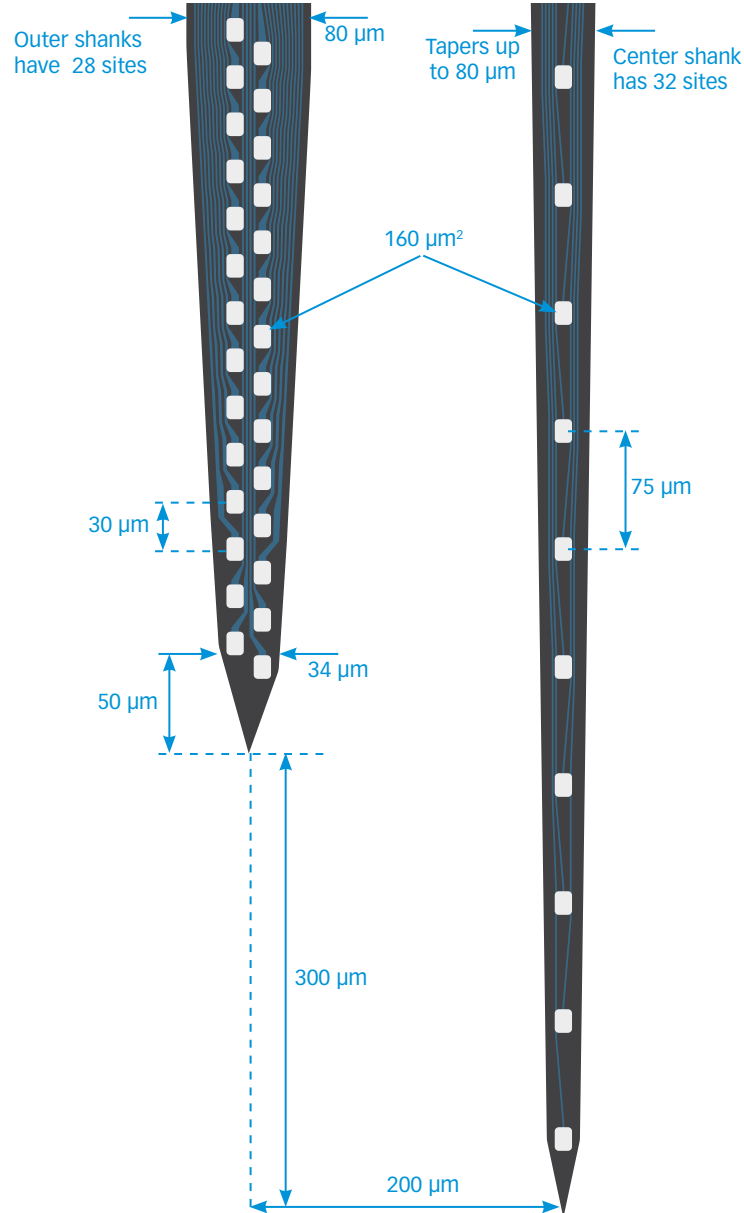
Thickness

15 μm

A9x28-poly2/lin-5mm-30s/75-200-160



TIP DETAIL



Available packages

ACTIVUS

AV256
AVH256

INTAN

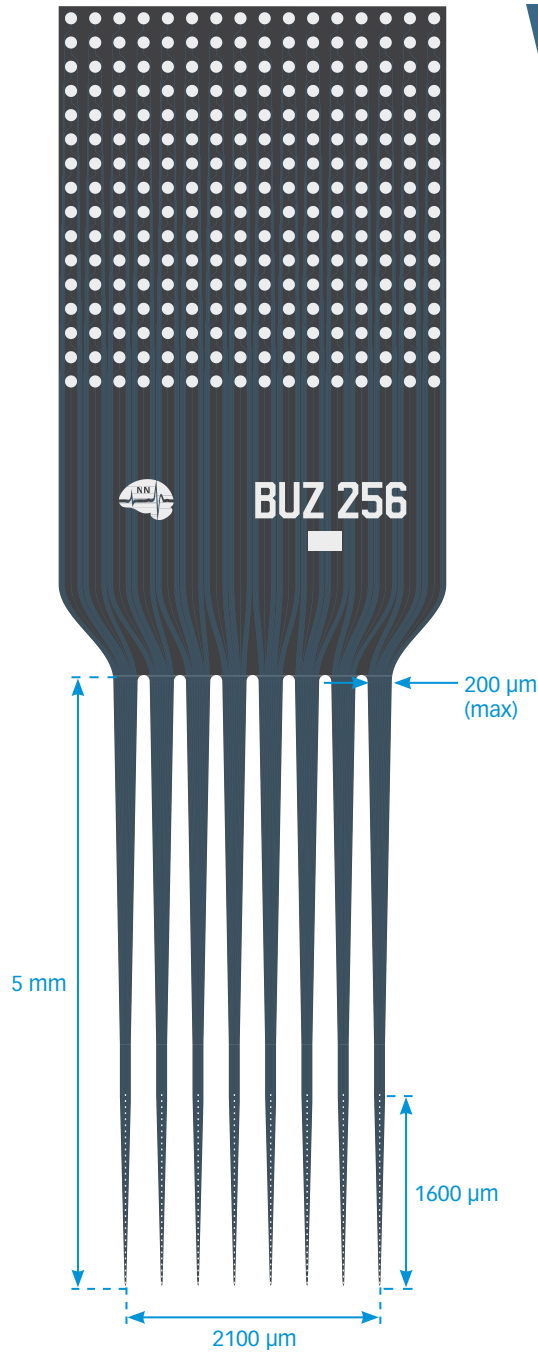
I256
IH256

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

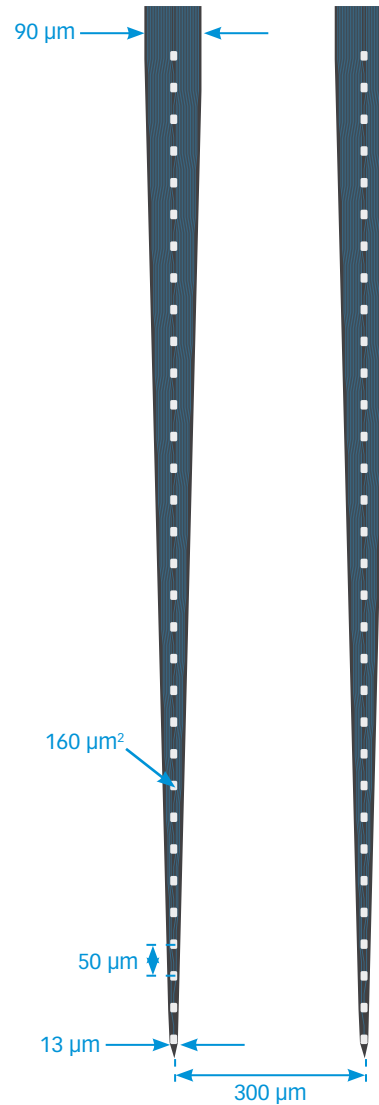
Thickness

15 μ m

Buzsaki256



TIP DETAIL



Available packages

ACTIVUS

AV256

AVH256

INTAN

I256

IH256

Note: Given the high channel count of this design, there may be up to 15% irregular sites on the assembled device

Thickness

15 μm

Optoelectrodes

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Illustration showing flat optical fiber mounted on an electrode array shank.

NeuroNexus **Optoelectrodes** enable concurrent optogenetic stimulation and high-resolution electrophysiology.

A Powerful Tool – Optical fibers are laminated onto silicon probes to create an optoelectrode. Utilize a single fiber, or configure multiple fibers on a single probe (one fiber per electrode shank) to activate different opsins or target different brain areas.

Options – Utilize any electrode array design and select from multiple fiber types (and specify their termination locations on each shank) to create your ideal optoelectrode. Optogenetics packages use the “O” prefix (e.g. OA, OCM).

Minimal Tissue Damage – New OptogeniX fibers taper to a point for minimal impact on brain tissue.

Controlled Artifact – NeuroNexus optoelectrodes are engineered for minimal photoelectric artifacts.

FIBER OPTIONS

NeuroNexus offers multiple types of optical fibers, with different diameters, tip profiles, and numerical aperture values. Please consider the best option for your application.

Flat Profile

Inner diameter/Outer diameter, Numerical Aperture

50 μm /62.5 μm , 0.22 NA (etched)
105 μm /125 μm , 0.22 NA (standard)
200 μm /220 μm , 0.22 NA
200 μm /225 μm , 0.39 NA
400 μm /425 μm , 0.39 NA
50 μm /62.5 μm , 0.66 NA
105 μm /125 μm , 0.66 NA (Plexon)
200 μm /220 μm , 0.66 NA

Tapered Profile (OptogeniX)

Inner diameter/Outer diameter, Numerical Aperture

105 μm /125 μm , 0.22 NA
200 μm /225 μm , 0.39 NA
200 μm /230 μm , 0.66 NA

More information on following pages.

MULTI-FIBER OPTOELECTRODES

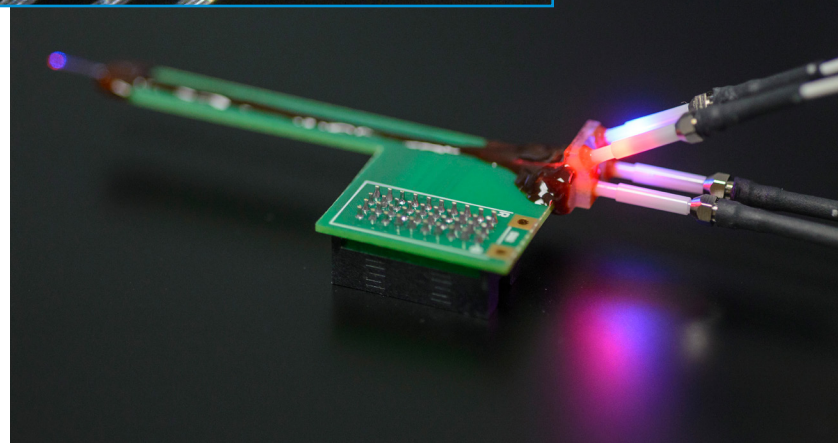
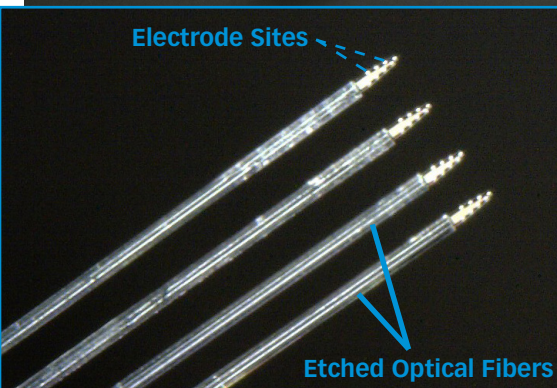
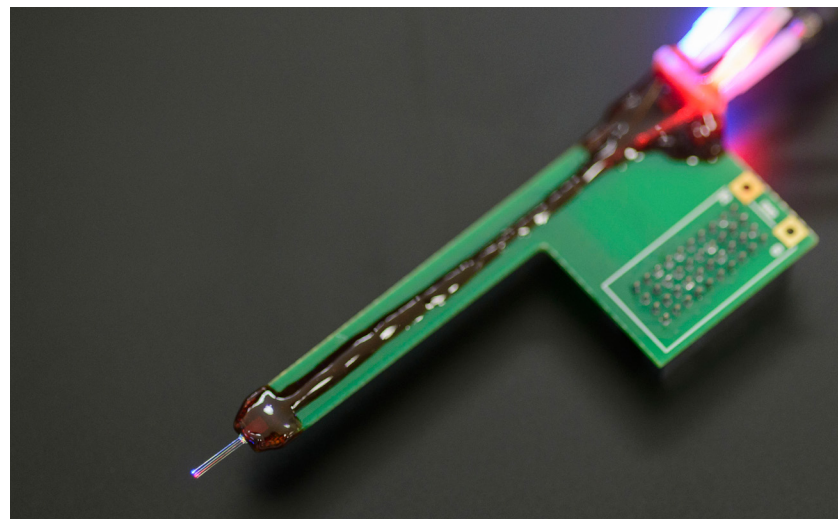
NeuroNexus offers **multi-fiber optoelectrodes** for expanded optogenetics applications in a compact, robust package.

Using acid etched optical fibers (65 μm), up to 8 fibers can be attached to each probe (one fiber per electrode array shank). Because of the physical limitations of optical fibers and NeuroNexus microelectrode arrays, there are some design constraints.

RIGHT, TOP: Quad-optrode package showing lit fibers

RIGHT, BOTTOM: Compact ceramic ferrule attachment

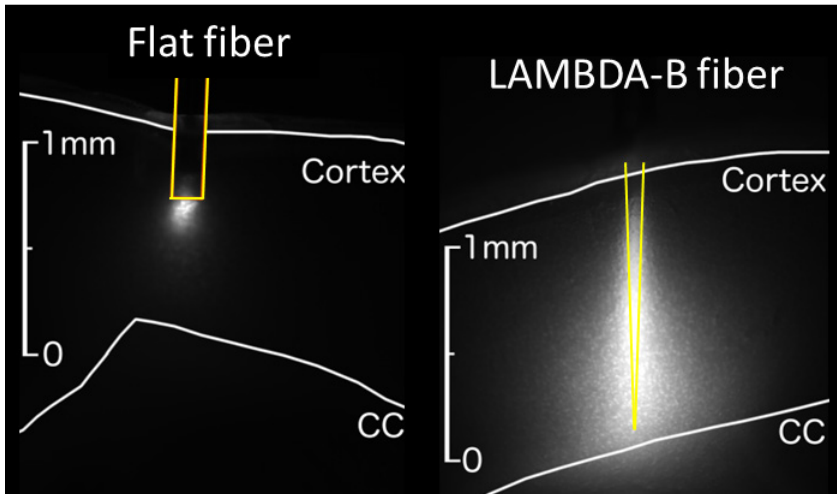
INSET: Close-up image of a Buzsaki32 electrode array showing mounted fibers



SPECIFICATIONS (FLAT FIBER)

Fibers (ID/OD, NA)	50 μm /62.5 μm , 0.22 NA (etched) 105 μm /125 μm , 0.22 NA (standard) 200 μm /220 μm , 0.22 NA 200 μm /225 μm , 0.39 NA 400 μm /425 μm , 0.39 NA 50 μm /62.5 μm , 0.66 NA 105 μm /125 μm , 0.66 NA (Plexon) 200 μm /220 μm , 0.66 NA
Fiber Tip Profile	Flat
Weight (Coupler)	< 0.5 g
Durability	< 5% transmission variability after 40 connections
Rotation Test	< 2% variation over 1 rotation
Connection Strength	> 300 g before latch separation (typical)
Maximum Shear Force	900 g (applied to top of female coupler)
Length	Tolerance \pm 500 μm

TAPERED FIBERS



OptogeniX Tapered Fibers can also be specified for a NeuroNexus optoelectrode:

- OptogeniX tapered fibers are designed to illuminate large volumes of tissue in a more homogeneous way than standard optical fibers.
- Gain stimulation efficiency, with less tissue damage.
- Sub-sample your target region – without probe movement – by using an OptogeniX Light Delivery System like the **ThetaStation** (right).

OPTOGENIX THETA STATION

The OptogeniX **ThetaStation-1** is an opto-mechanical tool designed to perform *in vivo* site-selective stimulation with OptogeniX tapered fibers. ThetaStation-1 can be operated with any fiber-coupled source of visible light (either a laser or an LED).



SPECIFICATIONS (TAPERED FIBER)

Fibers (ID/OD, NA)
 105 μm /125 μm , 0.22 NA
 200 μm /225 μm , 0.39 NA
 200 μm /230 μm , 0.66 NA

Fiber Tip Profile Tapered

Emitting Length (5% tolerance)

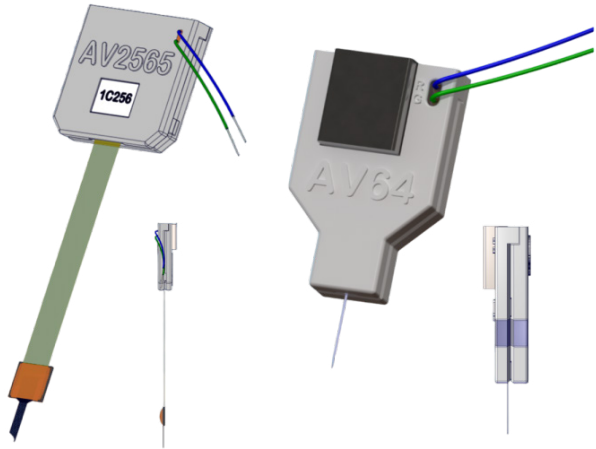
125 μm OD fiber:
 0.7 mm, 0.9 mm, 1.2 mm

225 μm OD fiber:
 1.0 mm, 1.5 mm, 2.0 mm, 2.5 mm

230 μm OD fiber:
 1.0 mm, 1.5 mm, 2.0 mm, 2.5 mm

Activus Probes

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INDEX



Activus probes empower you to scale up channel count with the added bonus of a better signal-to-noise ratio.

- Virtually unlimited design space
- Compatible with existing probe designs
- Compatible with customized probe designs
- Ultra-compact package
- Improved signal-to-noise (SNR)
- Multiplexed signals reduce connector size
- Digitization close to signal source – leads to added protection against unwanted noise artifacts

Connector Package

Acute/cable-less

Smartlink/ μ HDMI: AV64, AV128, AV256
Intan/SPI: AVI64, AVI128

Chronic/cabled

Smartlink/ μ HDMI: AVH64, AVH128, AVH256
Intan/SPI: AVIH64, AVIH128

Ordering Information

- Cable or no cable (Chronic & Acute)
- Cable Length: 30 or 40 mm
- SmartBox Pro Interface Connector
- Open-ephys & Intan Interface Connector
- Compatible with implantable microdrives
- Compatible with NNx insertion assist devices

System Requirements -One of these three:

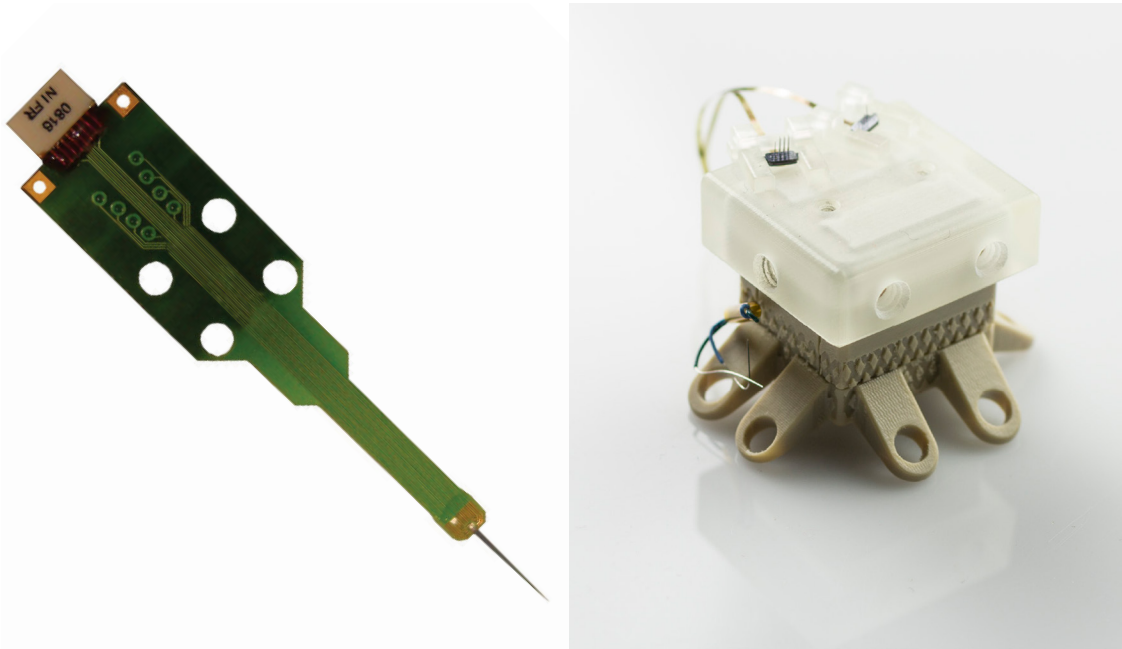
- NeuroNexus XDAQ/Smartbox Pro + Radiens Neuro-Analytics Suite
- Open-Ephys DAQ System
- Intan DAQ System

SPECIFICATIONS

Electrodes	All passive probes: 64, 128, 256 sites
Shanks	1-16, all passive probe options
Shank Lengths	1.5-15mm, all pas- sive probe options

MR-Compatible

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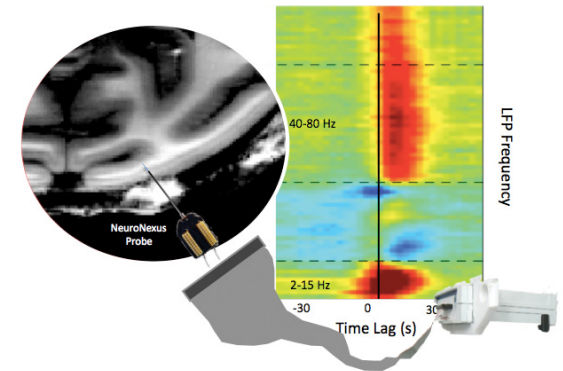


When configured with the MR-Series Package, NeuroNexus probes include only trace amounts of ferromagnetic material and cause minimal or no distortion during typical MR imaging. Most of our Omnetics connector-based packages can be made MR compatible. Please contact us for details.

Above, Left: MR-Compatible probes use special Omnetics connectors, marked "NI FR."

Above, Right: The Matrix Array can be made MR-Compatible for chronic MRI applications in small and large animals..

CORRELATION OF fMRI and ELECTROPHYSIOLOGY



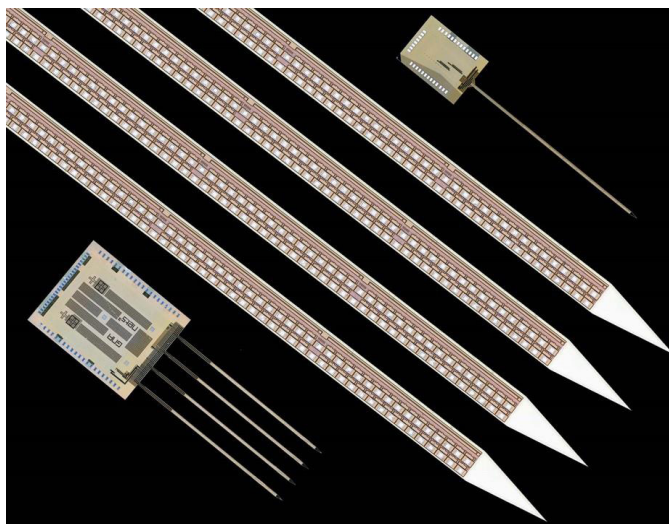
SPECIFICATIONS

Electrode Site Material	Iridium (standard), Platinum (custom), Gold (custom)
Electrode Thickness	15 μm or 50 μm (varies by design)
Electrode Length	2 - 10 mm (varies by design)
Channel Count	16, 32, 64 (varies by design)
Packages	MR_A16, MR_CM16, MR_CM32, MR_ HC16, MR_HC32, MR_HC64, Matrix Array

SiNAPS Pixel Probes

FULLY INTEGRATED SILICON CMOS PROBES

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Advantages

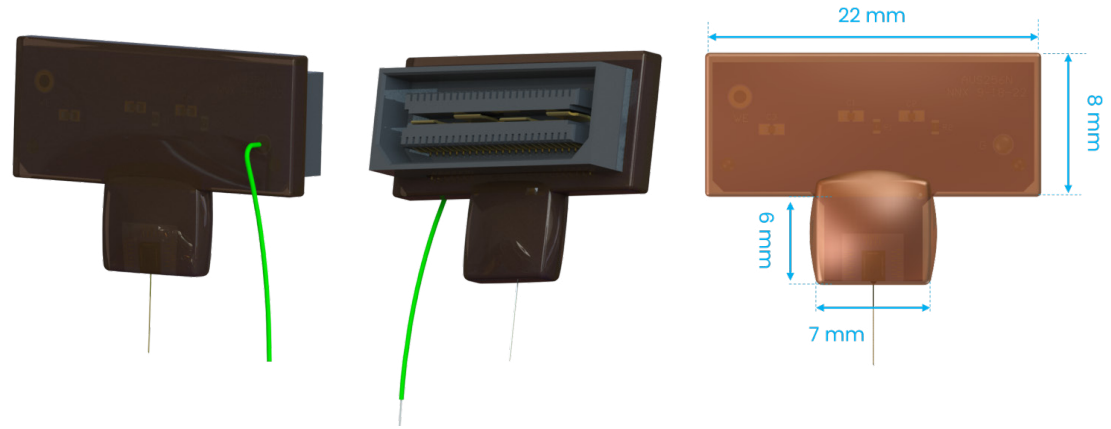
- 256 to 1024 electrode sites
- High-density electrode spacing
- Large, high-resolution span of electrodes
- Ability to record from all electrode sites on up to 8 shanks, not just a subset like the neuropixel probes
- Improved signal-to-noise (SNR) of acquired signals
- Ultra-compact package
- Multiplexed signals (32:1), reduced connector size

As we did with the earliest commercial silicon probes in 2004, NeuroNexus is again advancing the field. We are now offering [SiNAPS Pixel](#) fully-integrated silicon CMOS probes alongside a complete turn-key recording system to provide you ultra-high density (UHD) neural recording in a cost-effective solution. The probes and system are available now, with promotional pricing and support to early adopters.

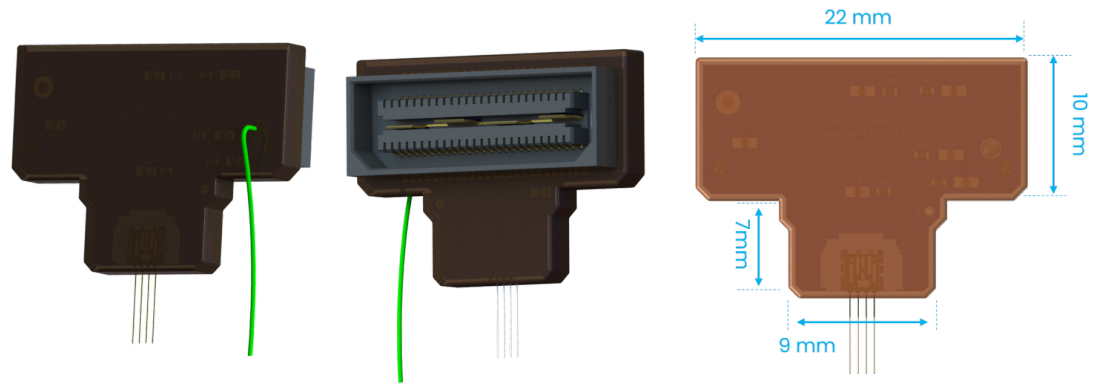
NeuroNexus SiNAPS probes use the pioneering new Active Pixel Sensor (APS) technology in which active circuits for signal amplification, low-pass filtering, and multiplexing read-out are located directly underneath each electrode-pixel. The probes are used with a cost-effective, turn-key recording system that runs [Radiens™ Allego](#) software, featuring automated mapping, monitoring, and visualization of all electrode sites simultaneously and more.

NeuroNexus is partnering with [Corticale](#) to commercialize this exciting new option for high-performance, cost-effective ultra-high density (UHD) neural recording.

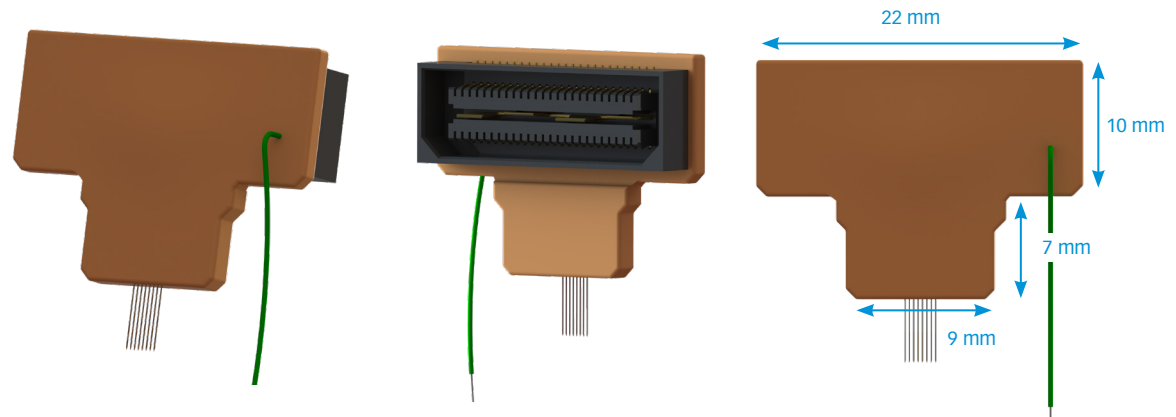
SINAPS_1S_256



SINAPS_4S_1024



SINAPS_8S_1024



SiNAPS Pixel Probes

SPECIFICATIONS

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SPECIFICATIONS

RMS Noise	6.5 μ V (300-7500 Hz)
In-pixel amplifier	46 dB (DC-4 kHz)
Power Consumption	<6 μ W/electrode-pixel
Sampling Frequency	20 ksample/s
Electrode Size	14 \times 14 μ m ²
Electrode/Channels	256, 1024
Electrode Pitch	29 μ m
Shank Spacing (center-to-center)	560 \pm 2 μ m (4-shank probe) 300 \pm 2 μ m (8-shank probe)
Electrode Material	Platinum
Shank Length	5656 \pm 60 μ m; active length: 3768 \pm 1 μ m
Shank Width	88 \pm 2 μ m
Shank Thickness	50 \pm 5 μ m



Regular Packages

- SiNAPS_8s_1024
- SiNAPS_1s_256-AVS256
- SiNAPS_4s_1024-AVS1024

Opto Packages

- SiNAPS_1S_256-OAVS256
- SiNAPS_4S_1024-OAVS1024
- SiNAPS_8S_1024-OAVS1024

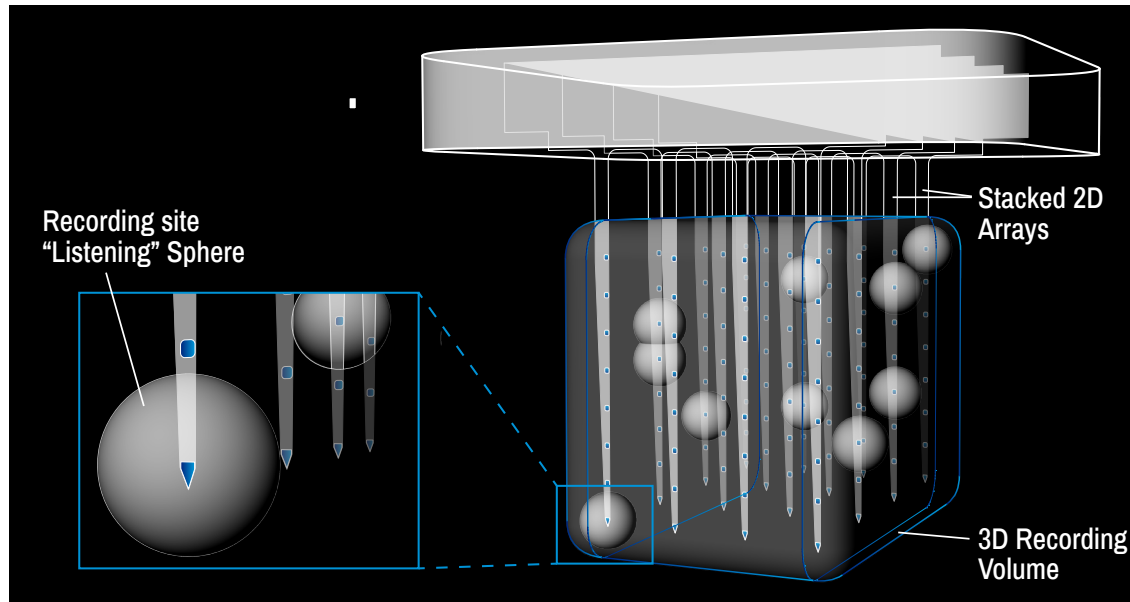
System Requirements

- Smartbox Pro
- SiNAPS interface box
- Radiens Analytics Suite
- Laptop or desktop computer

Matrix Array™

TRUE 3D NEURAL INTERFACE FOR LARGE AND SMALL ANIMALS

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The **Matrix Array™** is a versatile neural interface. It can be used in acute or chronic experiments for both small and large animals, interfacing with large populations of neurons in 3D space, up to 10 mm deep.

- **3D Neural Interface** – The Matrix Array™ concurrently spans cortical columns and layers, interfacing with a volume of tissue and large populations of neurons.
- **Robust** – Lab-tested and refined to the smallest detail, the Matrix Array™ can withstand demanding chronic applications.
- **Versatile** – The modular assembly of the Matrix Array allows for varied configurations: record from cortical and/or subcortical areas, as well as from the brain surface, all with the same probe. Electrode length, site area, and shank/site spacing can all be customized for your application.
- **High Channel Density** – Record and stimulate from 64 up to 256 channels..

- **Refined surgical procedure** – NeuroNexus worked closely with labs to develop a low-speed, low-risk, automated implantation procedure, reducing recovery time and preserving tissue health.
- **Optogenetics-compatible** – Configure a Matrix Array with an integrated optical fiber for novel optogenetics applications.

MATRIX ARRAY™ OPTIONS

The Matrix Array unlocks 3D neural interfacing in a wide variety of applications:

Acute

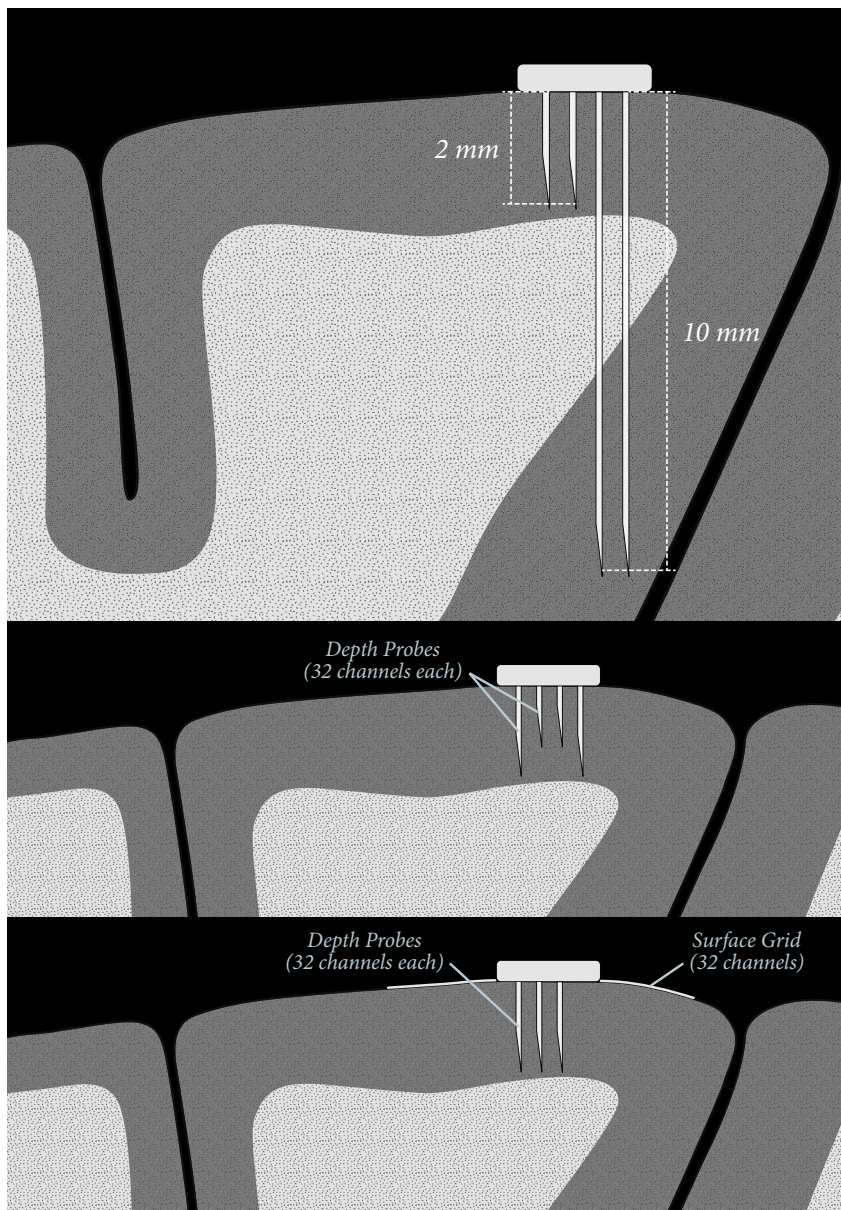
Matrix Arrays can be configured for acute work with any animal model.

Chronic Small Animal

Compact 64- or 128-channel Matrix Arrays can be configured for chronic small animal applications.

Chronic Large Animal/Primate

Robust large animal packages with up to 256 channels have been extensively tested and proven over months in labs performing primate research.



Above: Illustrations of potential Matrix Array™ configurations. Top: Combine short and long array designs to target both the sulcus and gyrus. Middle: Combine array designs of different lengths to target adjacent cortical layers. Bottom: Combine depth probes with surface grids.

Matrix Arrays™ offer unique potential to understand neuronal networks in novel ways.

The support structure of the Matrix Array™ is a silicon platform where our industry-standard 2D silicon electrodes are installed. Both the slot spacing and the 2D electrode array combination can be customized, giving you unsurpassed flexibility in customizing a true 3D probe capable of spanning any anatomical structure. An ultra-flexible cable assembly connects the Matrix Array™ to conventional percutaneous connectors.

- Configure electrode length, site area, spacing; combine different 2D array designs for a tailored neural interface.
- Silicon platform comes in 3 sizes for different 2D array spacing: 200 μm , 300 μm , 600 μm , 800 μm , and 1000 μm .
- Penetrating arrays can be combined with surface ECoG grids

SPECIFICATIONS

Channel Count	64, 128, 256 (see following pages)
X-Axis (2D Array) Dimension	1800 μm max width
Y-Axis (2D Array) Spacing Options	300 μm , 400 μm , 600 μm , 800 μm , 1000 μm (specify when ordering)
Z-Span (Depth)	Up to 10 mm (varies by array design/selection)
Cable Length (distance from implant to connector)	30 mm, customizable up to 50 mm
Electrode Site Material	Iridium (standard), Platinum (custom), Gold (custom)
Electrode Array Thickness	50 μm

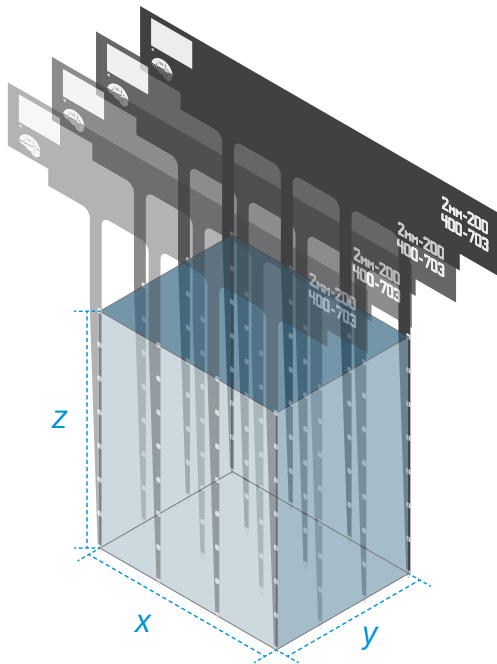
How to Configure a Matrix Array™

Step 1: Select an appropriate package for your experiment type and animal model. (See **Matrix Selection Guide**, next page.)

Step 2: Select 2D Arrays. Each 2D array has 32 electrode sites - for a 64-channel Matrix Array™, select two 2D arrays. For a 128-channel Matrix Array™, select four. You may combine different 2D Arrays in your selection, or include ECoG arrays for combined depth and surface recording.

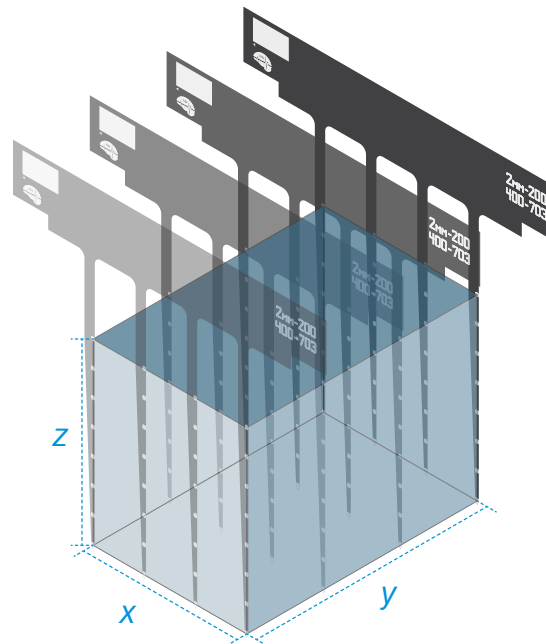
Step 3: Select a platform spacing. The illustration below shows tissue coverage with 3 of the 6 different platform spacings available. In this example, the M4x8-2mm-200-400-177 is used; to calculate tissue coverage for your design, use the dimensions available on the following pages. 6 platform spacings are available: 300 μm , 400 μm , 600 μm , 800 μm , and 1000 μm .

300 μm spacing



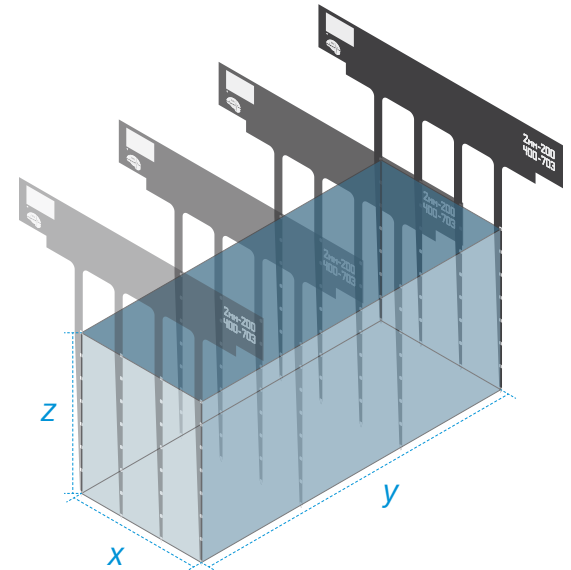
x: 1200 μm
y: 900 μm
z: 1400 μm
volume: $\approx 1.512 \text{ mm}^3$

600 μm spacing





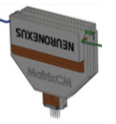
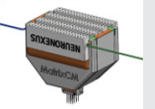
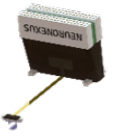
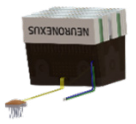
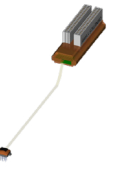

x: 1200 μm
y: 1800 μm
z: 1400 μm
volume: $\approx 3.024 \text{ mm}^3$

1000 μm spacing



x: 1200 μm
y: 3000 μm
z: 1400 μm
volume: $\approx 5.04 \text{ mm}^3$

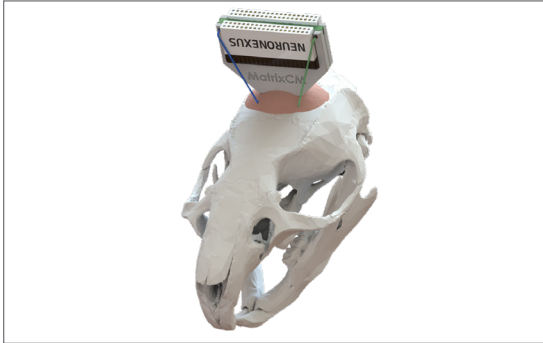
MATRIX SELECTION GUIDE

Images	Package	Channel Count	Platform Arrangement	Animal Model	Application	Full Cable Lengths	Exposed Cable Lengths	Platform (4x***)	Connector	Passive or Active
	MA64 Matrix Acute	64	Single	Small, medium, large	Acute	19.6-60	20	300, 400, 600, 800, 1000 µm	OM32-SM-F	Passive
	MA128-Y/W Matrix Acute	128	Single	Small, medium, large	Acute	19.6-61	20	300, 400, 600, 800, 1000 µm	OM32-SM-F	Passive
	MCM64 Matrix CM	64	Single	Small	Acute / Chronic	13.9 (Con- cealed)	N/A	300, 400, 600, 800, 1000 µm	OM32-SM-F	Passive
	MCM128 Matrix CM	128	Single	Small	Acute / Chronic	13.9 (Con- cealed)	N/A	300, 400, 600, 800, 1000 µm	OM32-SM-F	Passive
	MH64 Matrix Hybrid	64	Single	Small	Chronic	36-60	25	300, 400, 600, 800, 1000 µm	OM32-SM-F	Passive
	MH128 Matrix Hybrid	64	Single	Small	Chronic	36-60	25	300, 400, 600, 800, 1000 µm	OM32-SM-F	Passive
	MMH64 Modular Matrix Hybrid	128	Single	Small	Chronic	36-60	35	300, 400, 600, 800, 1000 µm	OM32-SM-F	Passive
	MHS64 Matrix Hybrid Strengthened	64	Single	Medium	Chronic	36-60	25	300, 400, 600, 800, 1000 µm	OM32-SM-F	Passive

Images	Package	Channel Count	Platform Arrangement	Animal Model	Application	Full Cable Lengths	Exposed Cable Lengths	Platform (4x***)	Connector	Passive or Active
	MHS64, MHS128 Matrix Hybrid Strengthened	128	Single	Medium	Chronic	36-60	25	300, 400, 600, 800, 1000 µm	OM32-SM-F	Passive
	MMHS64 Modular Matrix Hybrid Strengthened	64	Single	Medium	Chronic	44.5-64	35	300, 400, 600, 800, 1000 µm	OM32-SM-F	Passive
	MHS128-P Matrix Hybrid Strengthened with Pedestal	128	Single	Large	Chronic	44.5-60	40	300, 400, 600, 800, 1000 µm	OM32-SM-F	Passive
	MHS128-KN Matrix Hybrid Strengthened with Knurls	128	Single	Large	Chronic	44.5-60	40	300, 400, 600, 800, 1000 µm	OM32-SM-F	Passive
	MHS128-BSF Matrix Hybrid Strengthened with Bone Screw Feet	128	Single	Large	Chronic	44.5-60	40	300, 400, 600, 800, 1000 µm	OM32-SM-F	Passive
	MAVH128-SP Matrix Activue Hybrid	128	Single	Large	Chronic	44.5-60	40	300, 400, 600, 800, 1000 µm	µHDMI	Active
	MAVH256-SP Matrix Activue Hybrid	256	Single	Large	Chronic	44.5-60	40	300, 400, 600, 800, 1000 µm	µHDMI	Active
	MAVH256-DP Matrix Activue Hybrid	256	Dual	Large	Acute	44.5-60	40	300, 400, 600, 800, 1000 µm	µHDMI	Active

MATRIX PACKAGES

Small



MCM64 on Rat Skull



MH64

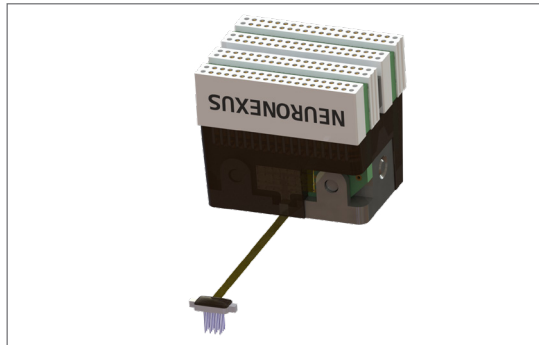
Small Matrix Array Packages

MCM64	MA64
MCM128	MA128
MH64	
MH128	

Medium



MA128 (Acute Matrix Array)

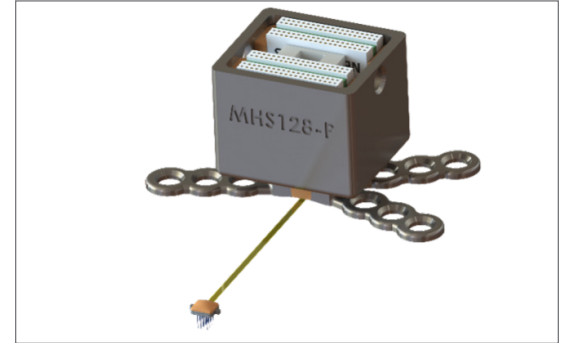


MHS128

Medium Matrix Array Packages

MHS64	MA64
MHS128	MA128

Large



MHS128-P



MAVH256-DP

Large Matrix Array Packages

MHS128-P	MAVH128-SP
MHS128-KN	MAVH256-SP
MHS128-BSF	MAVH256-DP

Matrix Package Naming Key:

CM = Cableless

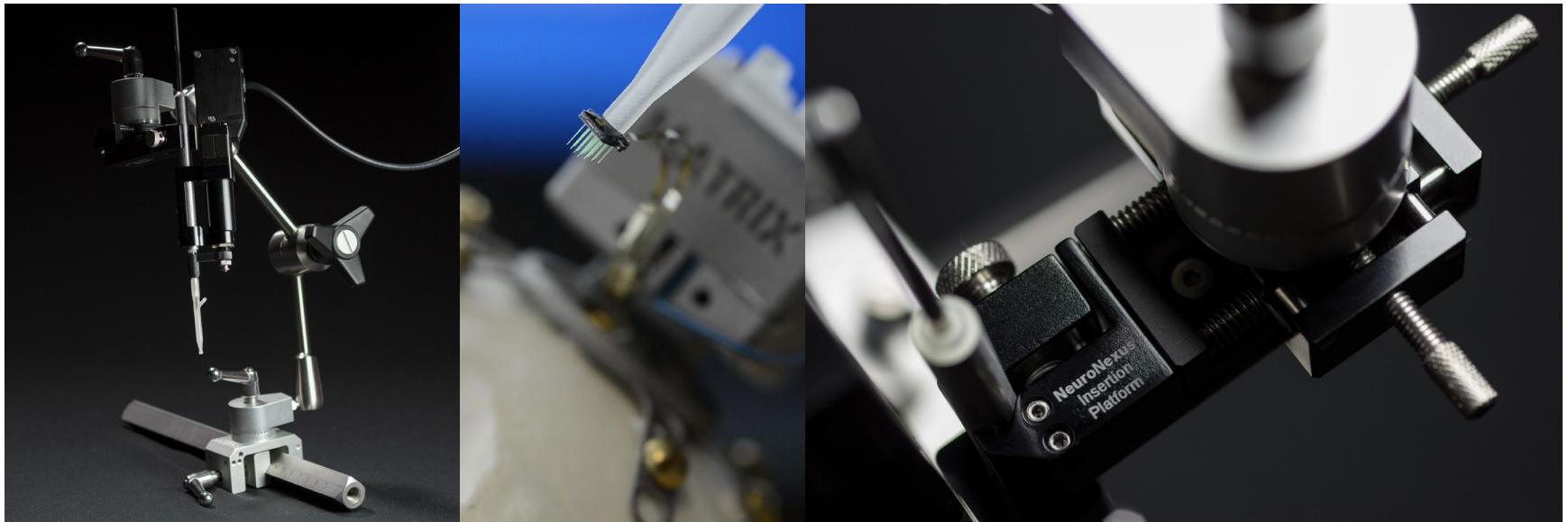
H = Cable

S = Strengthened

HD = Primate / Pedestal

LP = Low Profile / No feet

Dual = Dual Platform



The **Matrix™ Insertion Tool** (above, left, mounted on **All-Angle Arm** and attached to a Kopf® rail) is a computer-controlled, precision linear actuator to support surgical implantation of NeuroNexus arrays. Through an intuitive software application, arrays can be implanted to precise locations, at speeds most suitable for each application.

The Insertion Tool can be mounted to standard stereotaxic manipulators. All NeuroNexus probe packages are compatible.

The Matrix Insertion Tool is ideal for insertion of our Matrix Arrays™. The carefully calibrated insertion minimizes damage from excessive insertion force. The IST-Matrix utilizes vacuum suction to hold the Matrix Array™ during insertion, allowing for an easy, vibration-free release after implant.

SPECIFICATIONS (INSERTION TOOL)

Speed	0.22 µm/s - 8 mm/s (0.5 - 2 mm/s recommended)
Travel Range	0 - 50 mm
Accuracy	30 µm
Step Size	0.05 µm
Dimensions	150 mm (L) x 30 mm (W) x 20 mm (H)

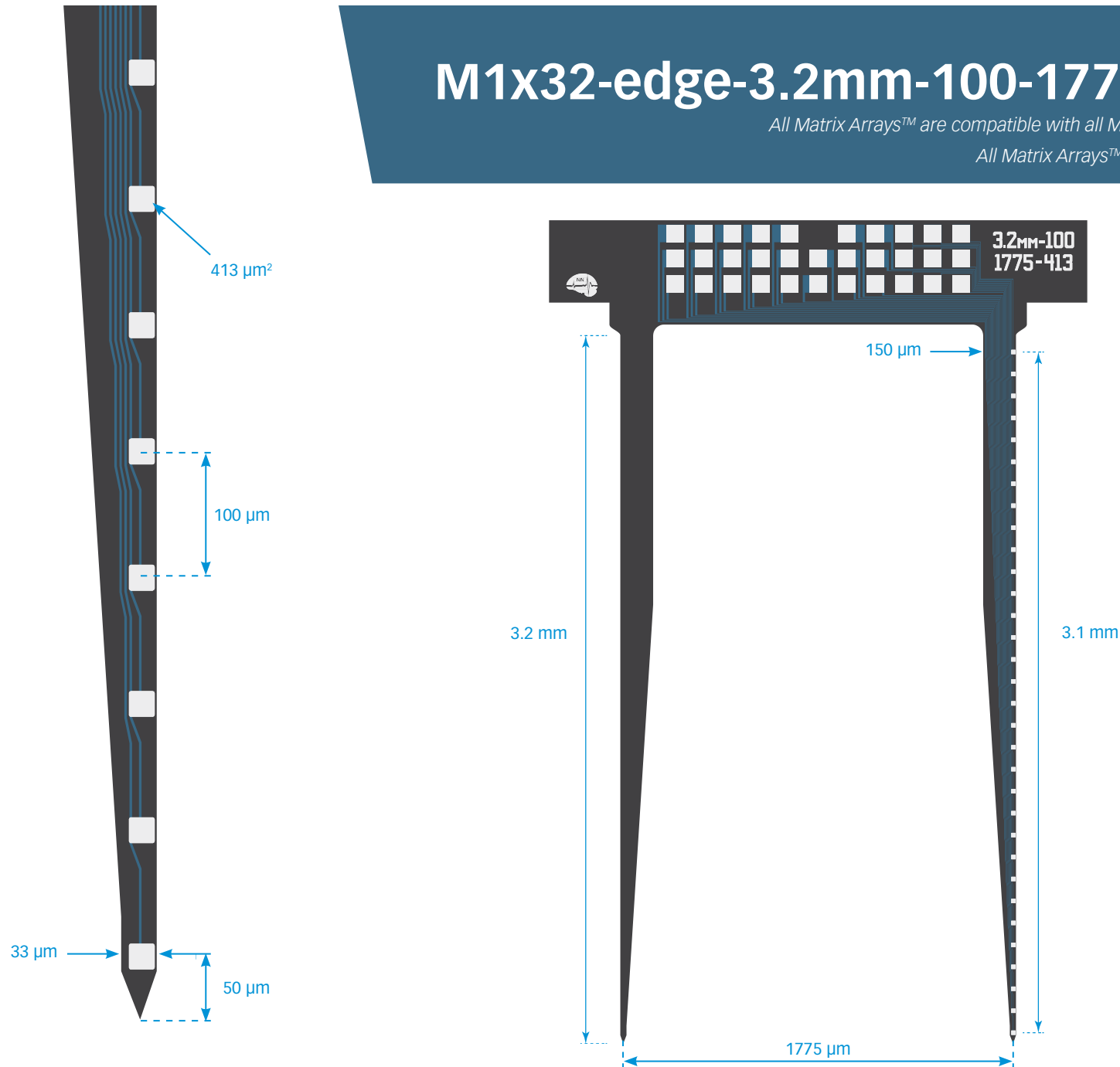
SPECIFICATIONS (ALL-ANGLE ARM)

Total Length	245 mm
Range of movement	Fully articulated positioning arm: 90° pivotable and 360° rotatable ends, 360° rotatable elbow
Insertion Platform	± 5 mm in 2 axes

M1x32-edge-3.2mm-100-1775-413

All Matrix Arrays™ are compatible with all Matrix™ packages

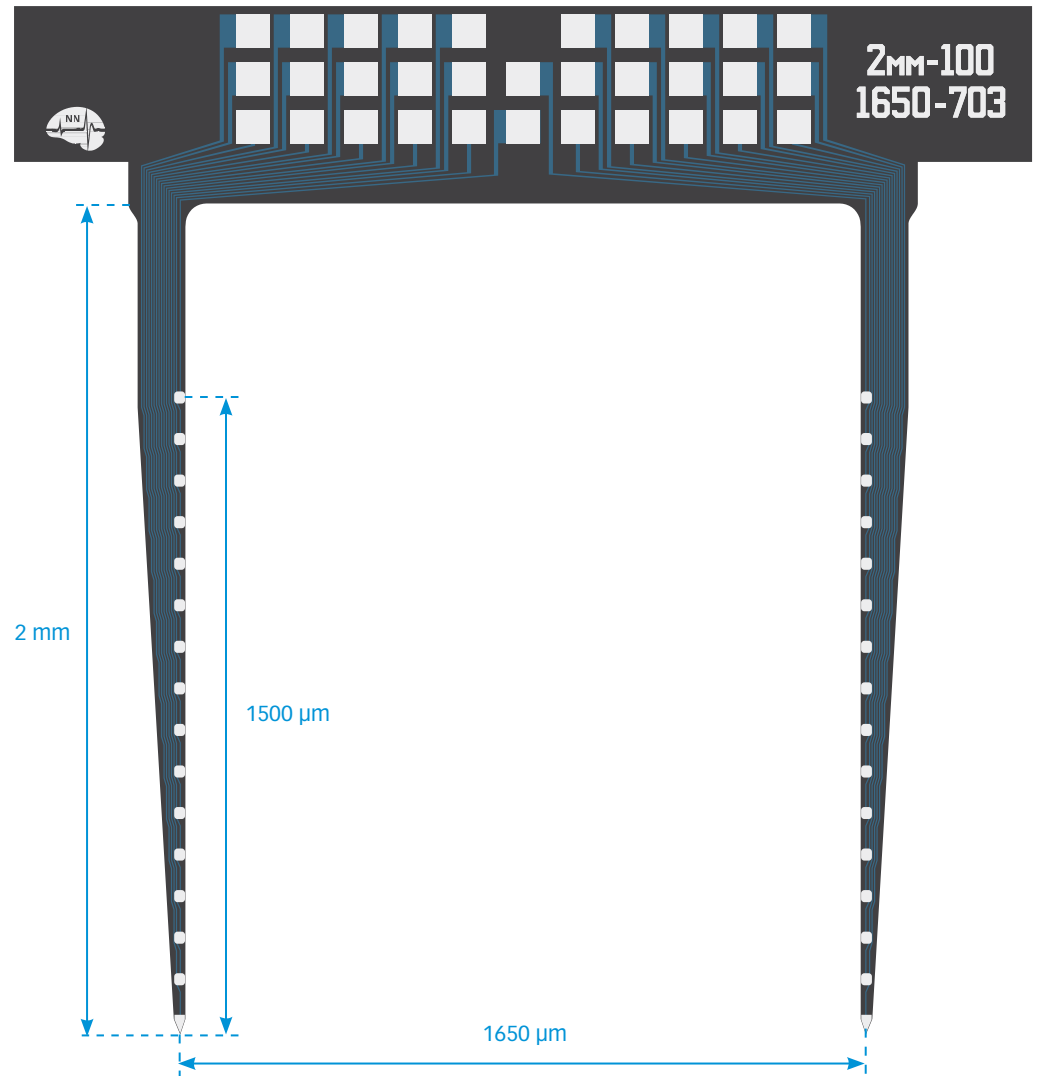
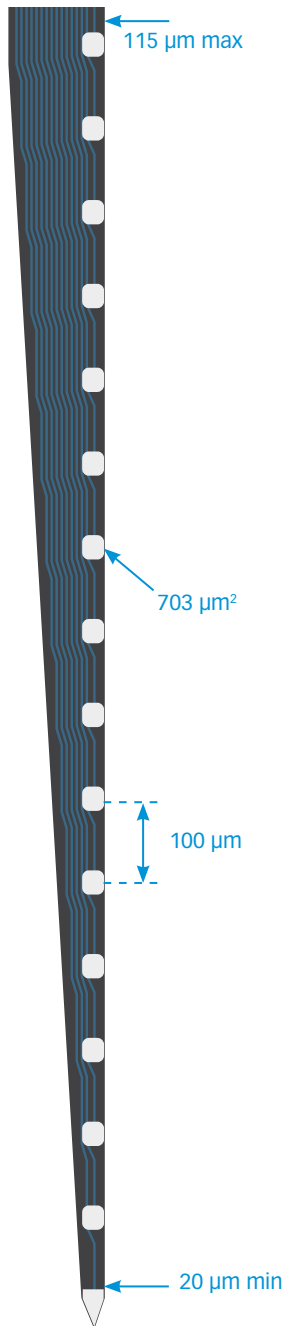
All Matrix Arrays™ are 50 μm thick

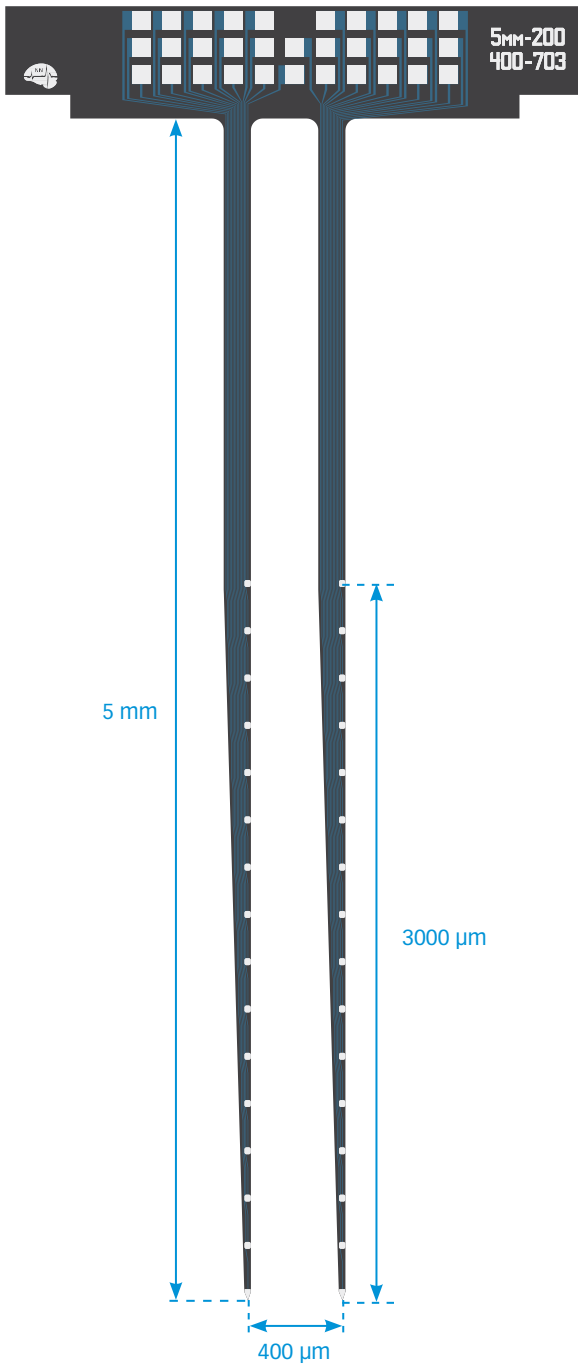


M2x16-2mm-100-1650-703

All Matrix Arrays™ are compatible with all Matrix™ packages

All Matrix Arrays™ are 50 μm thick

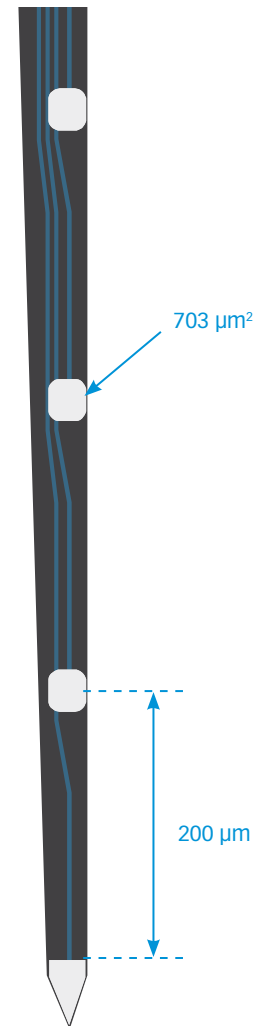




M2x16-5mm-200-400-703

All Matrix Arrays™ are compatible with all Matrix™ packages

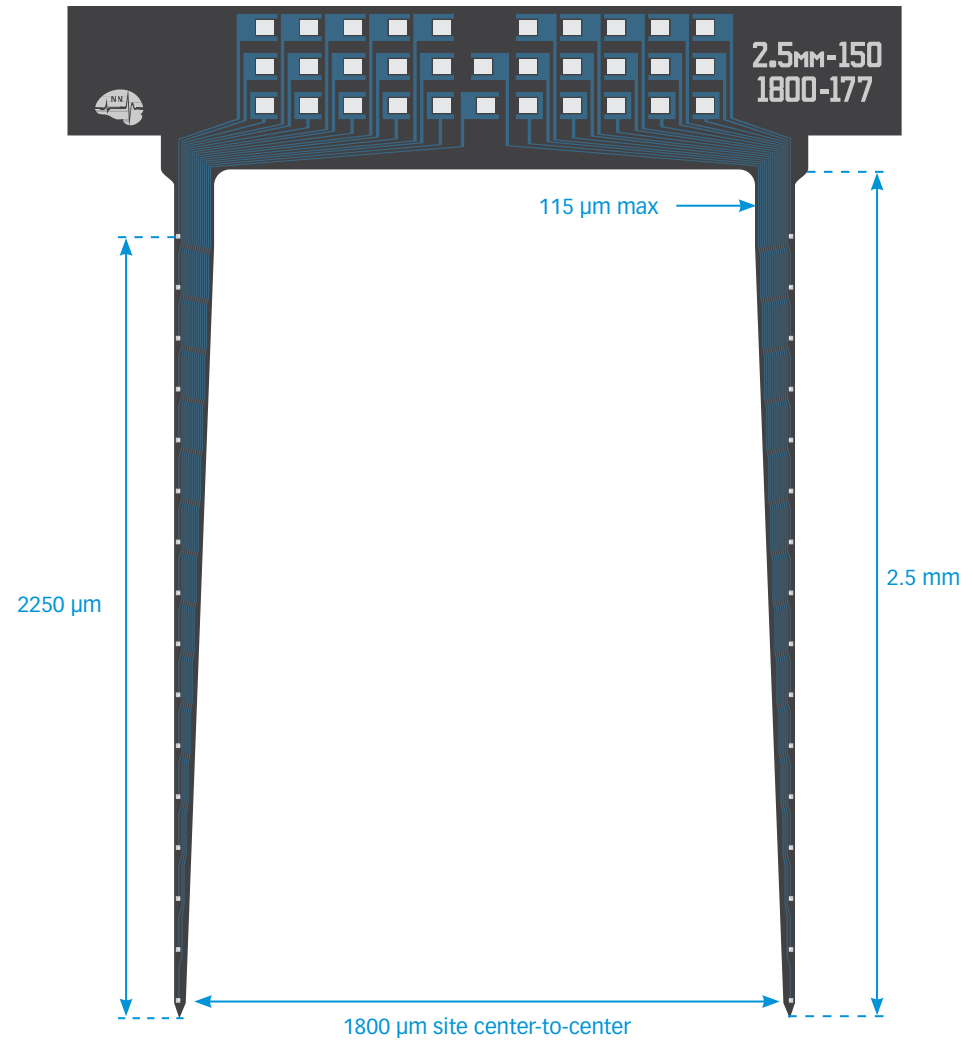
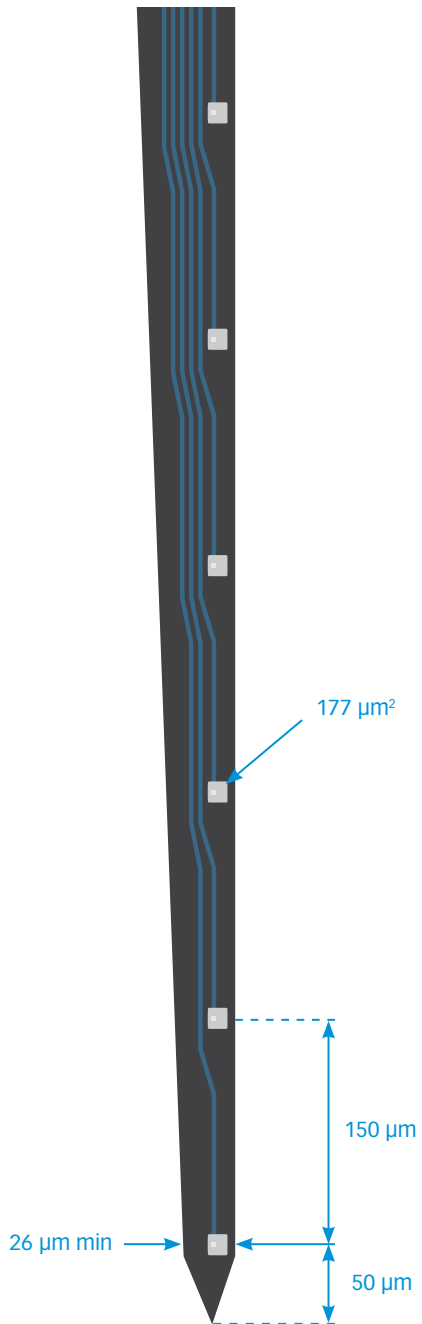
All Matrix Arrays™ are 50 μm thick



M2x16-edge-2.5mm-150-1800-177

All Matrix Arrays™ are compatible with all Matrix™ packages

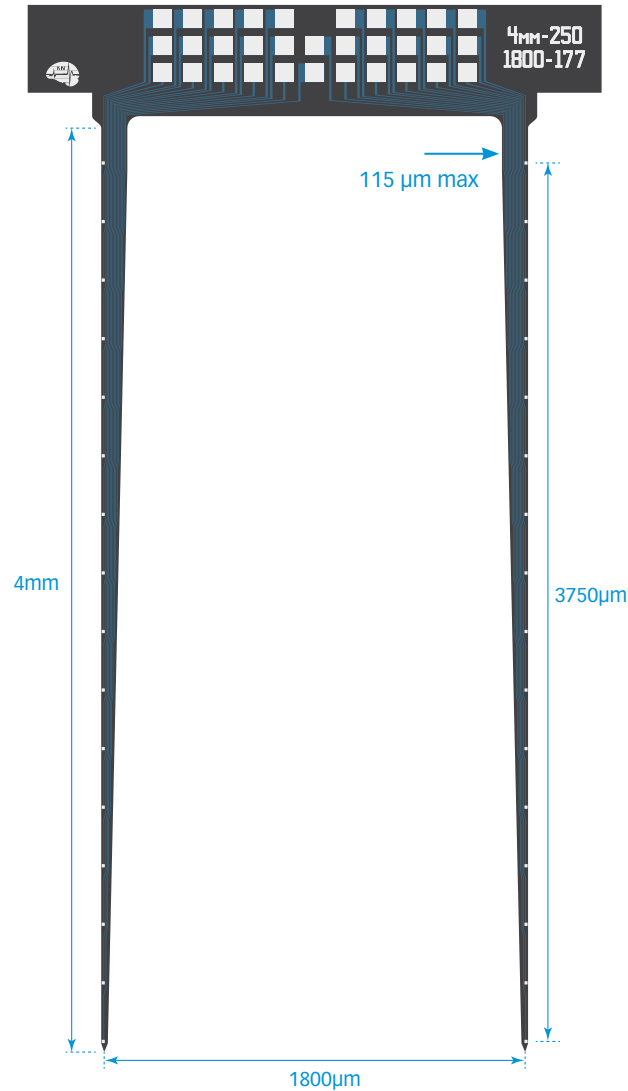
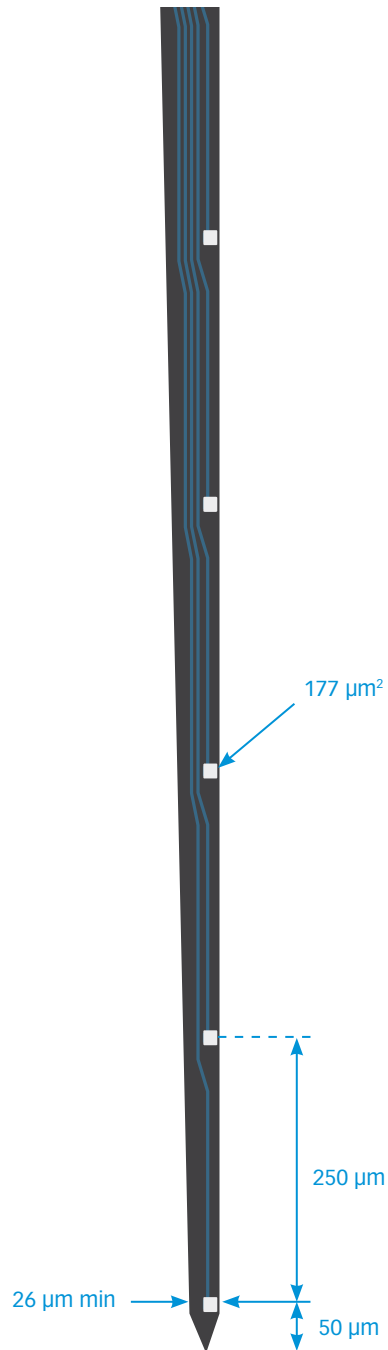
All Matrix Arrays™ are 50 μm thick

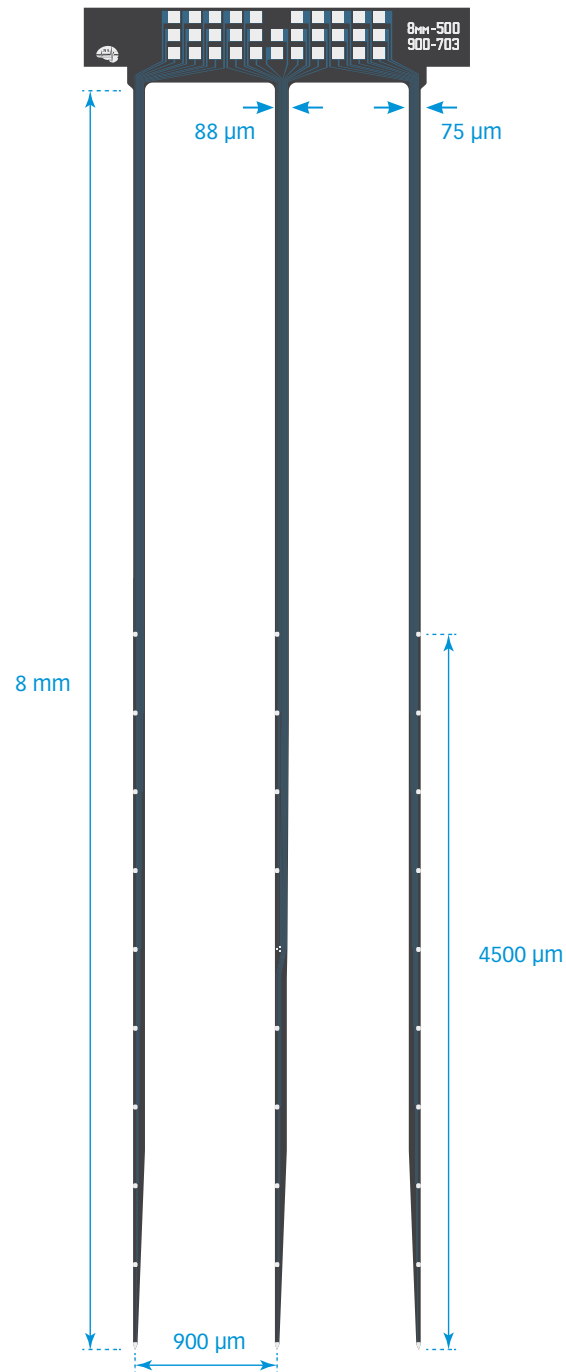


M2X16-edge-4mm-250-1800-177

All Matrix Arrays™ are compatible with all Matrix™ packages

All Matrix Arrays™ are 50 μm thick

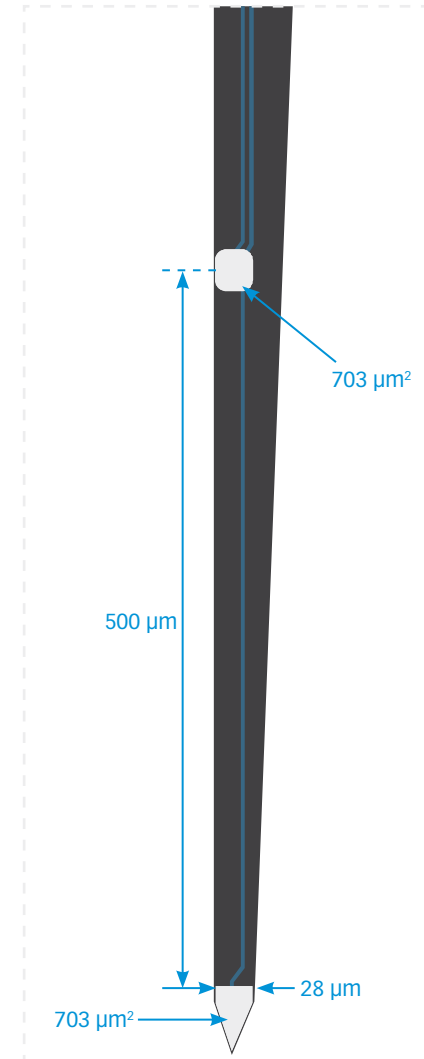
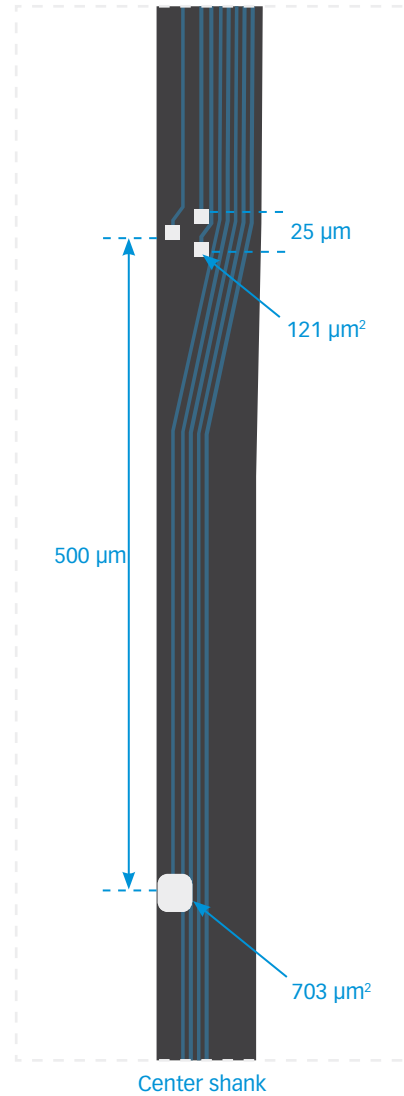




M3x10-8mm-500-900-703

All Matrix Arrays™ are compatible with all Matrix™ packages

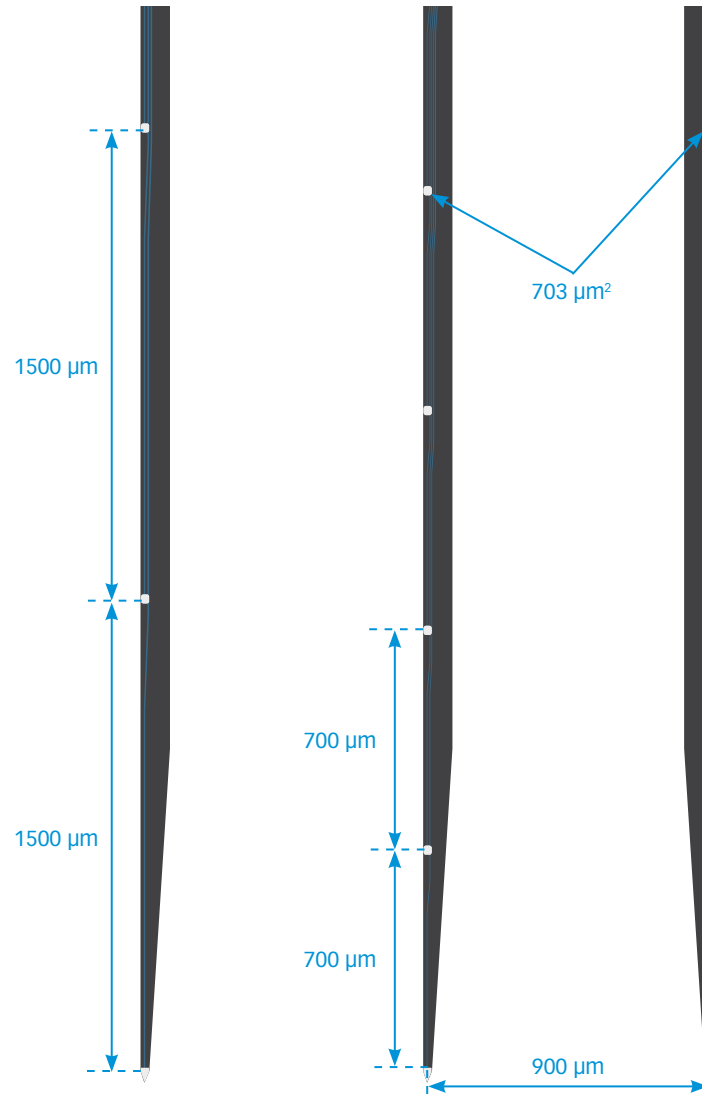
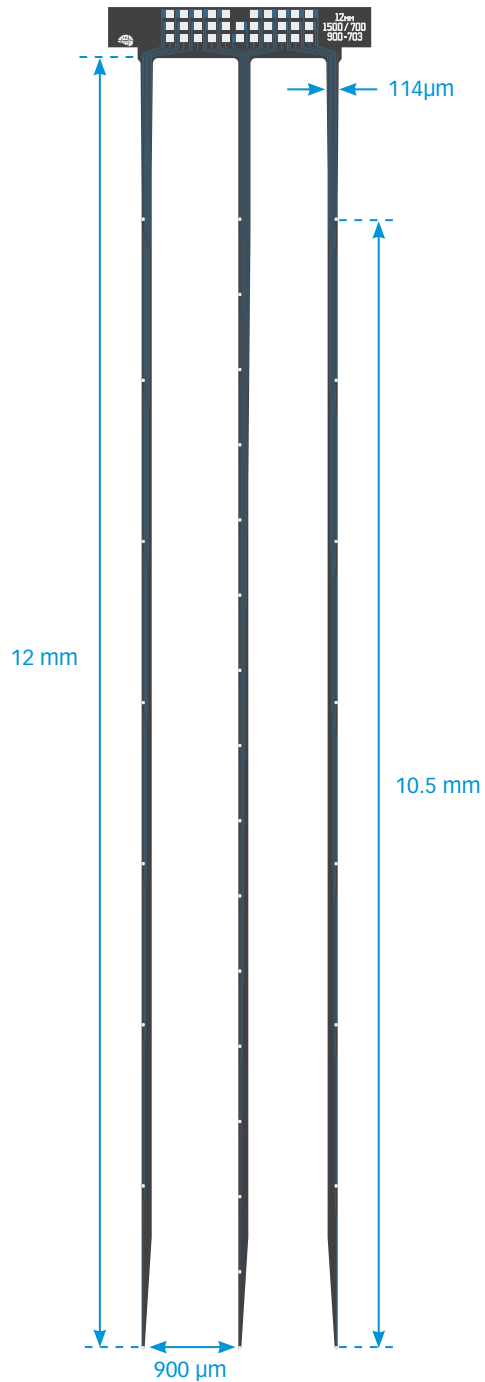
All Matrix Arrays™ are 50 μm thick



M3x8/16-12mm-1500/700-900-703

All Matrix Arrays™ are compatible with all Matrix™ packages

All Matrix Arrays™ are 50 μm thick

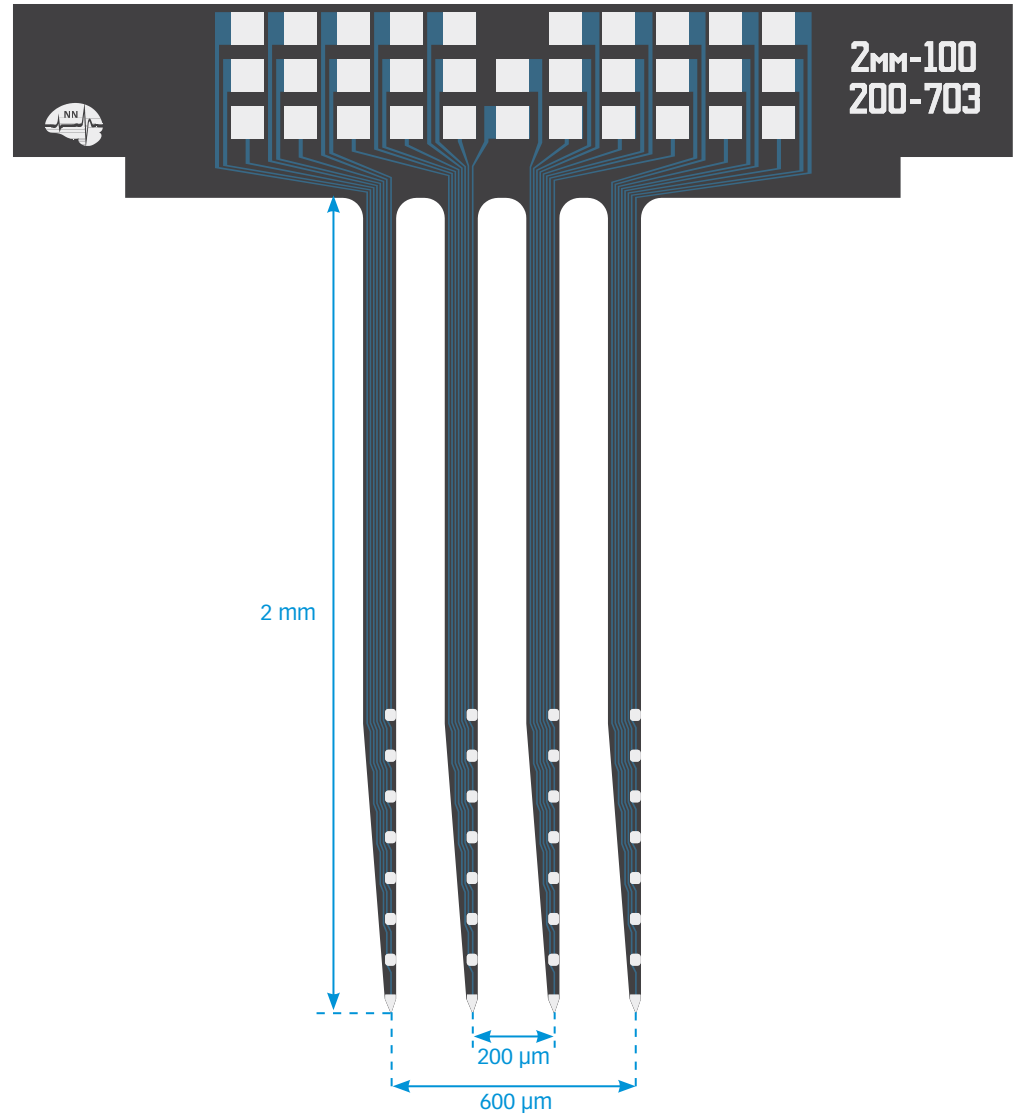
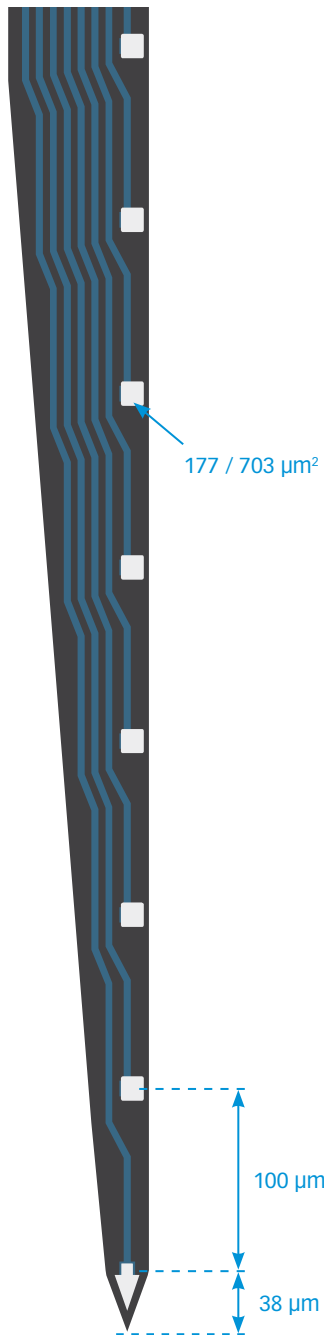


M4x8-2mm-100-200-177

M4x8-2mm-100-200-703

All Matrix Arrays™ are compatible with all Matrix™ packages

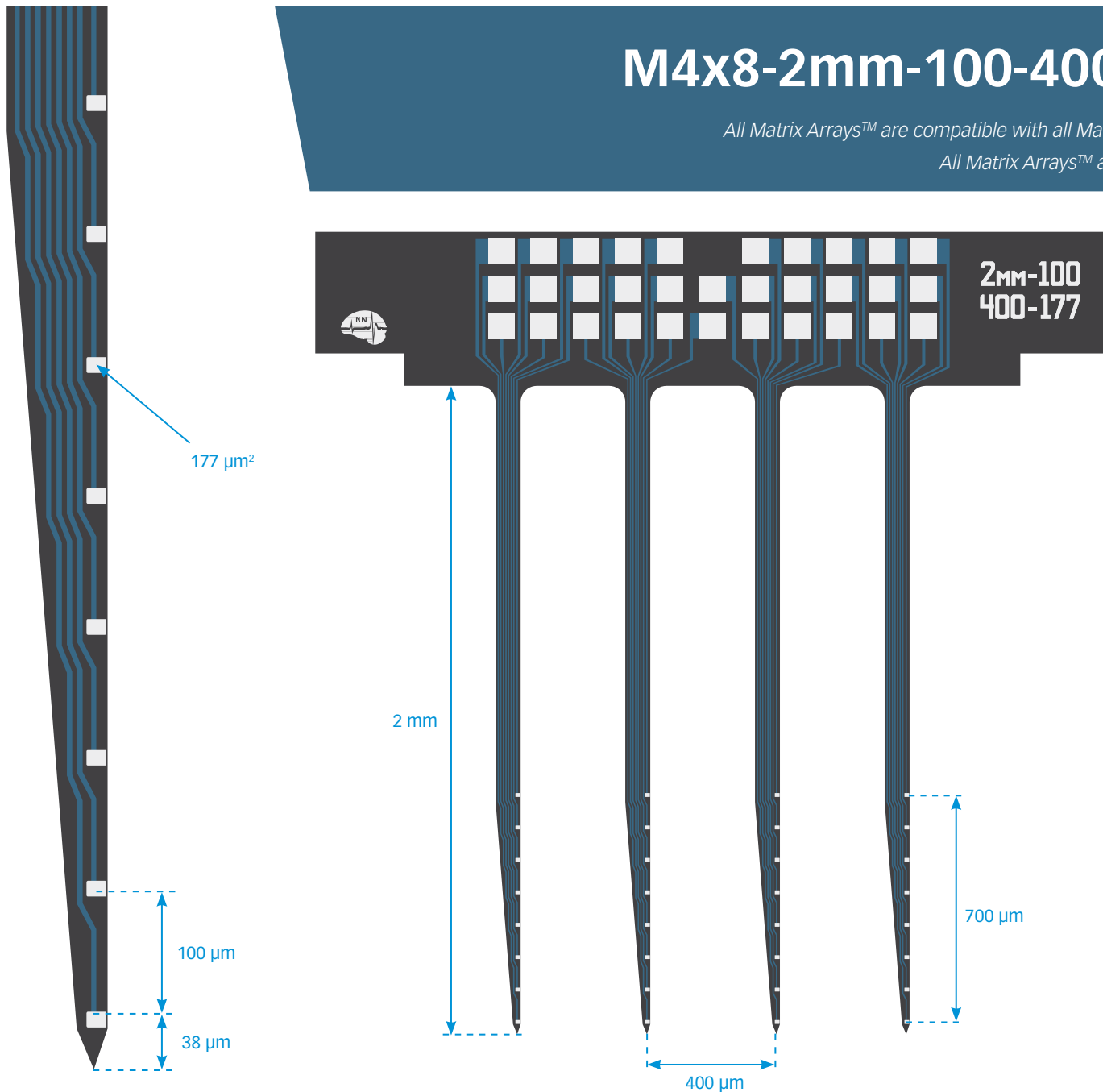
All Matrix Arrays™ are 50 μm thick



M4x8-2mm-100-400-177

All Matrix Arrays™ are compatible with all Matrix™ packages

All Matrix Arrays™ are 50 μm thick

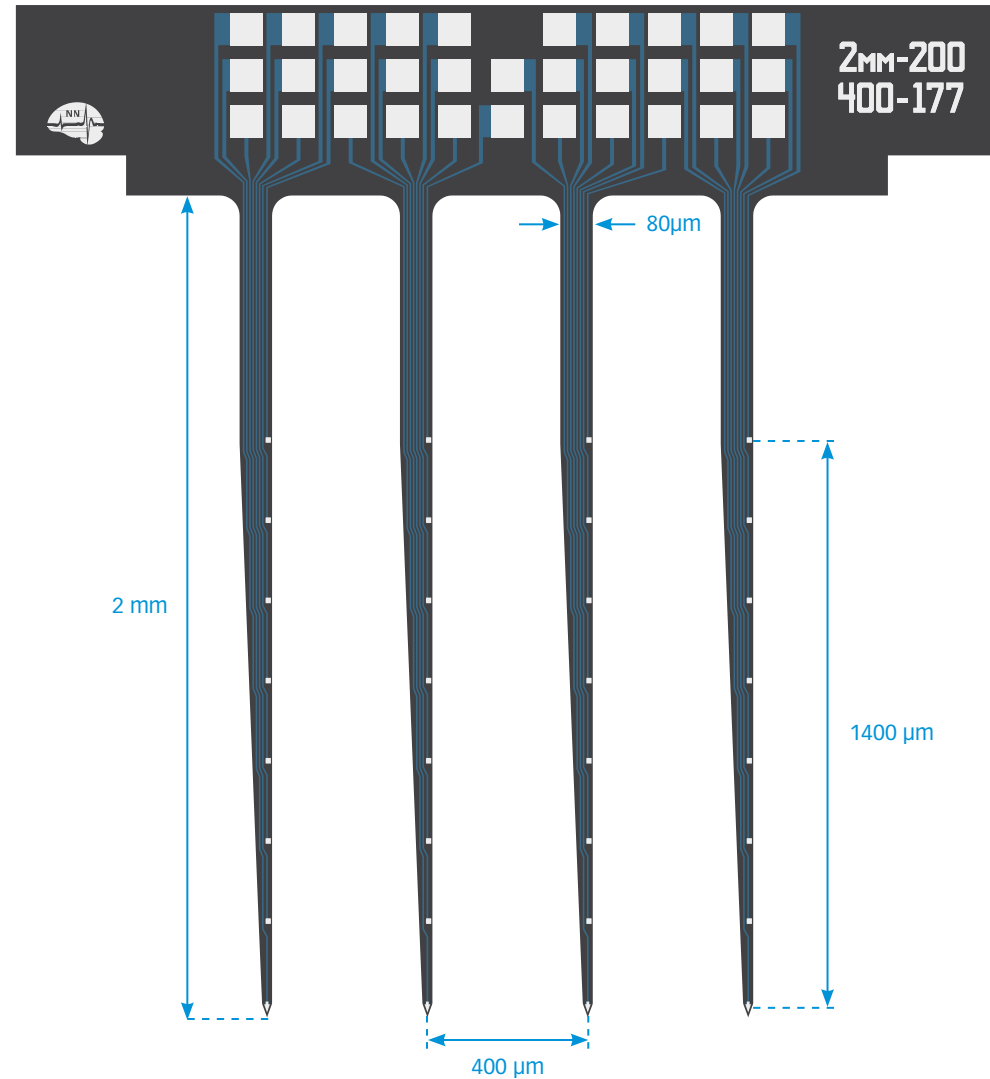
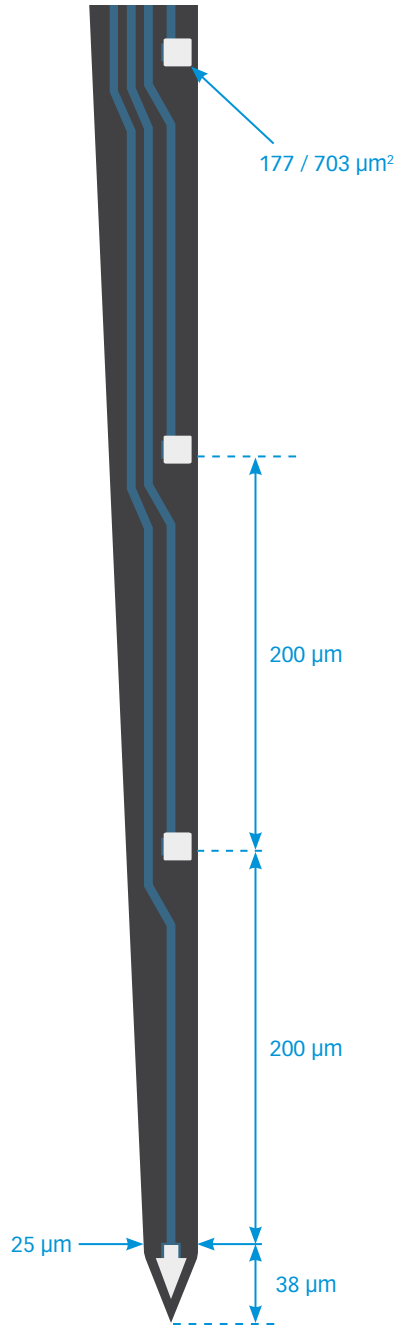


M4x8-2mm-200-400-177

M4x8-2mm-200-400-703

All Matrix Arrays™ are compatible with all Matrix™ packages

All Matrix Arrays™ are 50 μm thick

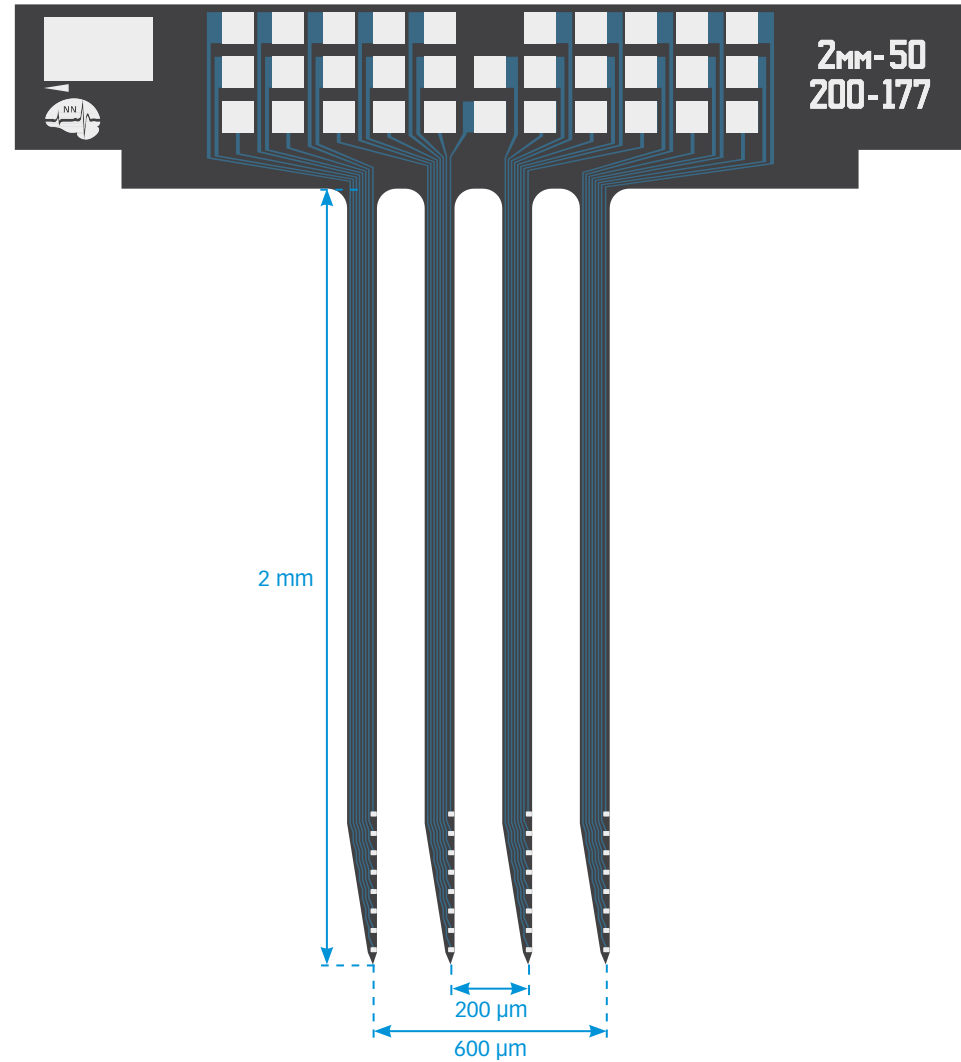
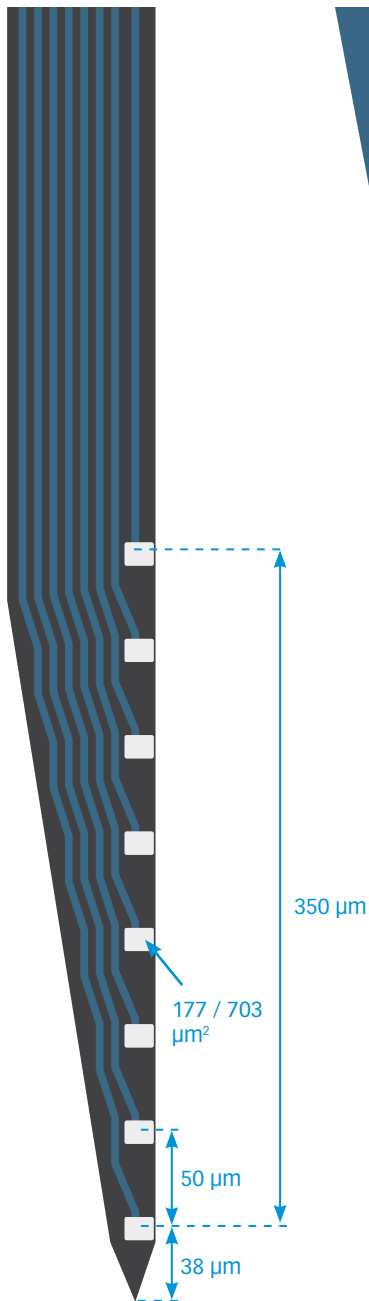


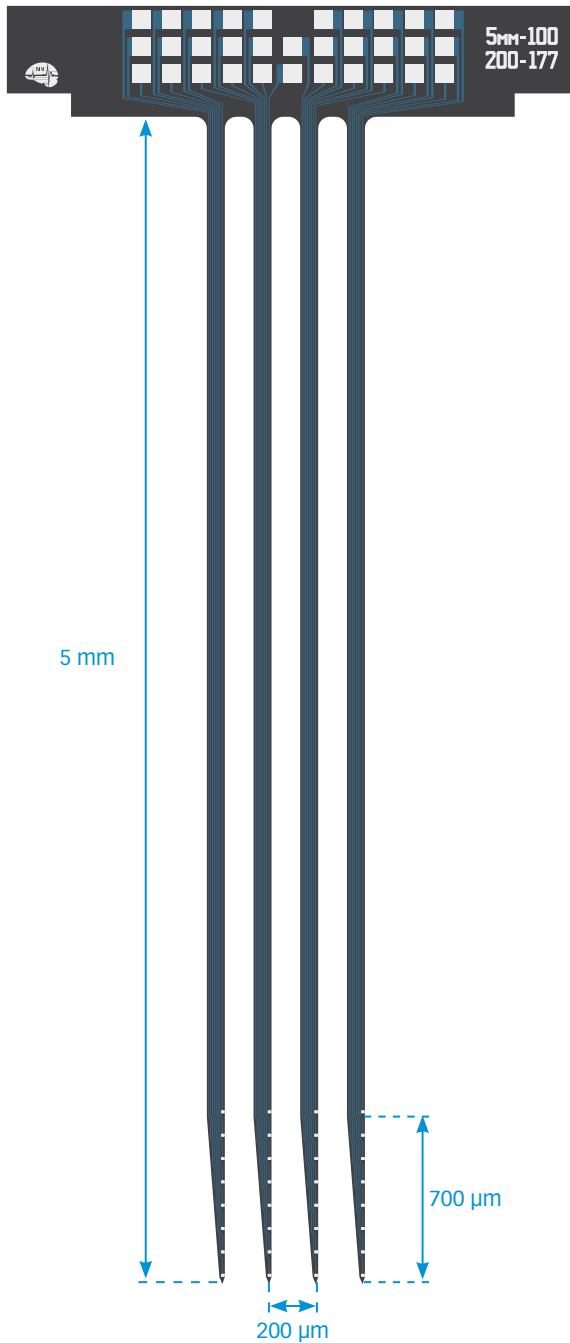
M4x8-2mm-50-200-177

M4x8-2mm-50-200-703

All Matrix Arrays™ are compatible with all Matrix™ packages

All Matrix Arrays™ are 50 μm thick



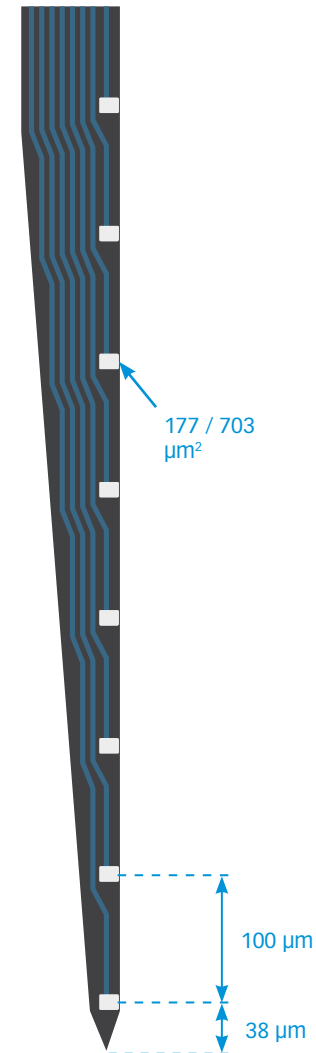


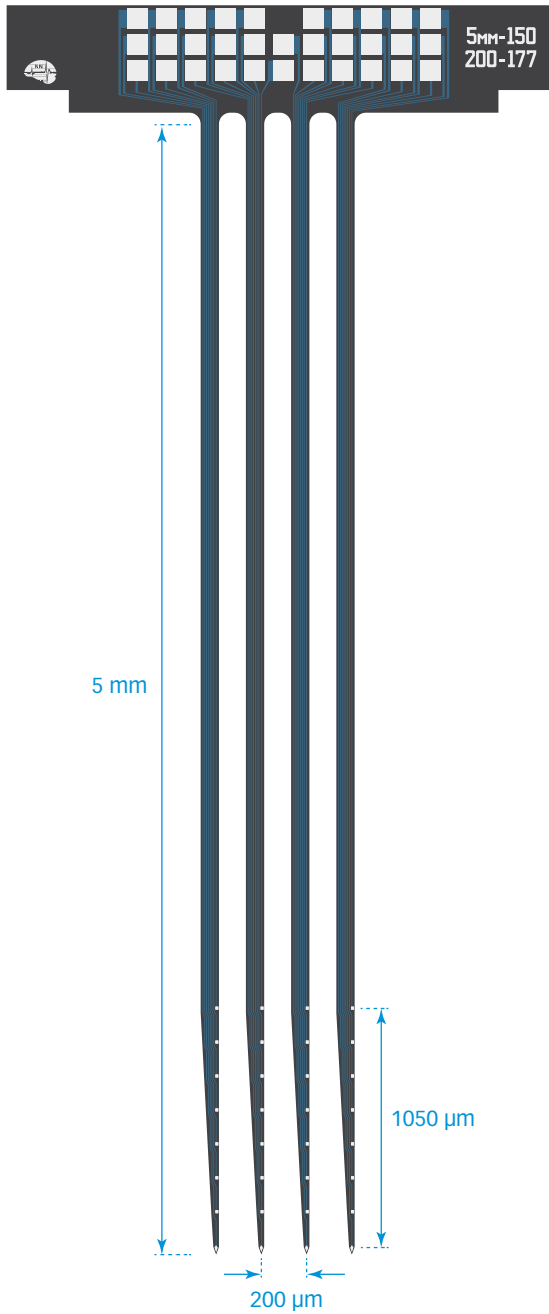
M4x8-5mm-100-200-177

M4x8-5mm-100-200-703

All Matrix Arrays™ are compatible with all Matrix™ packages

All Matrix Arrays™ are 50 μm thick



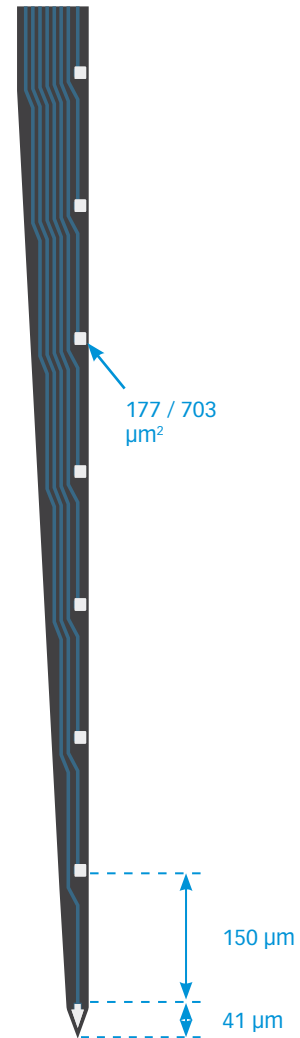


M4x8-5mm-150-200-177

M4x8-5mm-150-200-703

All Matrix Arrays™ are compatible with all Matrix™ packages

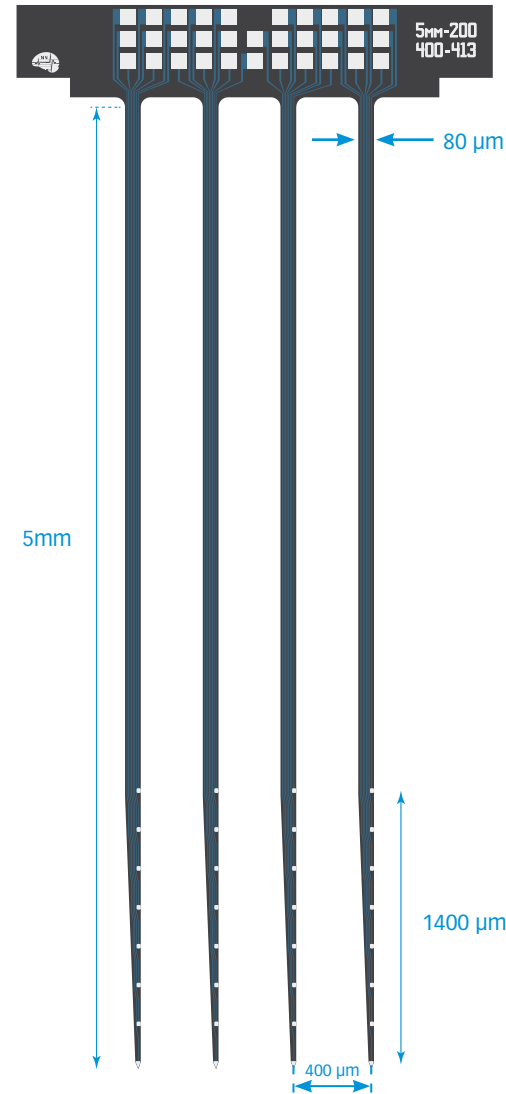
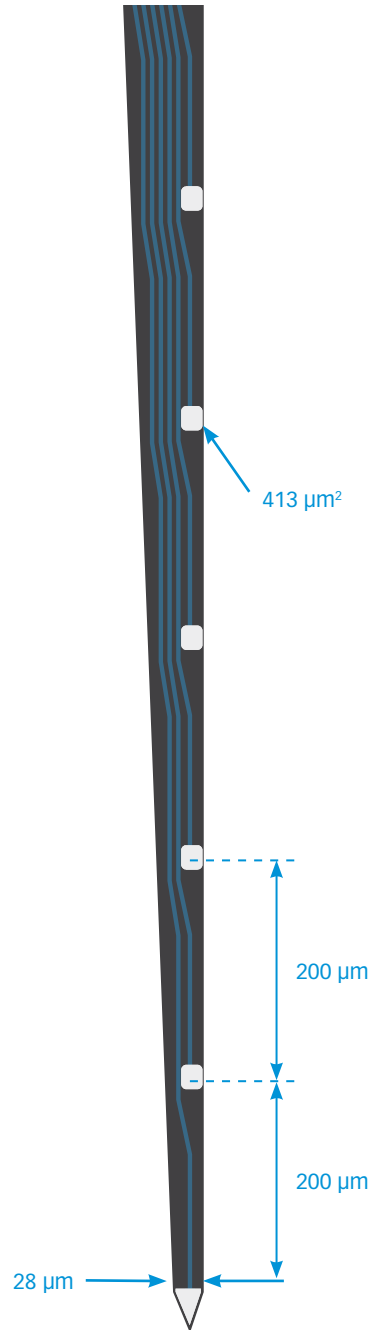
All Matrix Arrays™ are 50 μm thick



M4x8-5mm-200-400-413

All Matrix Arrays™ are compatible with all Matrix™ packages

All Matrix Arrays™ are 50 μm thick

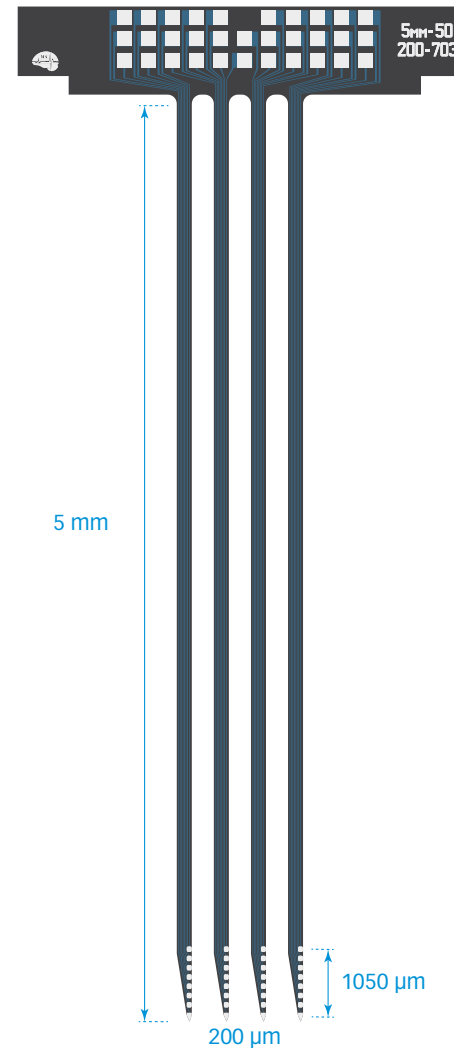
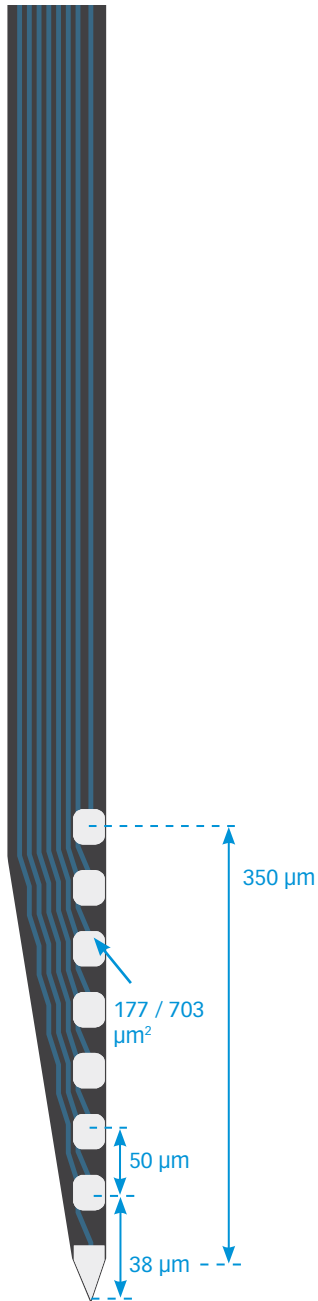


M4x8-5mm-50-200-177

M4x8-5mm-50-200-703

All Matrix Arrays™ are compatible with all Matrix™ packages

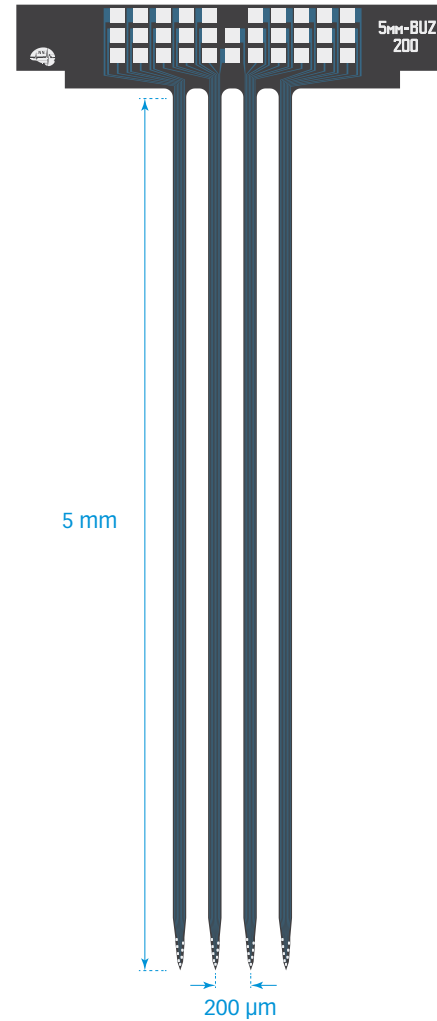
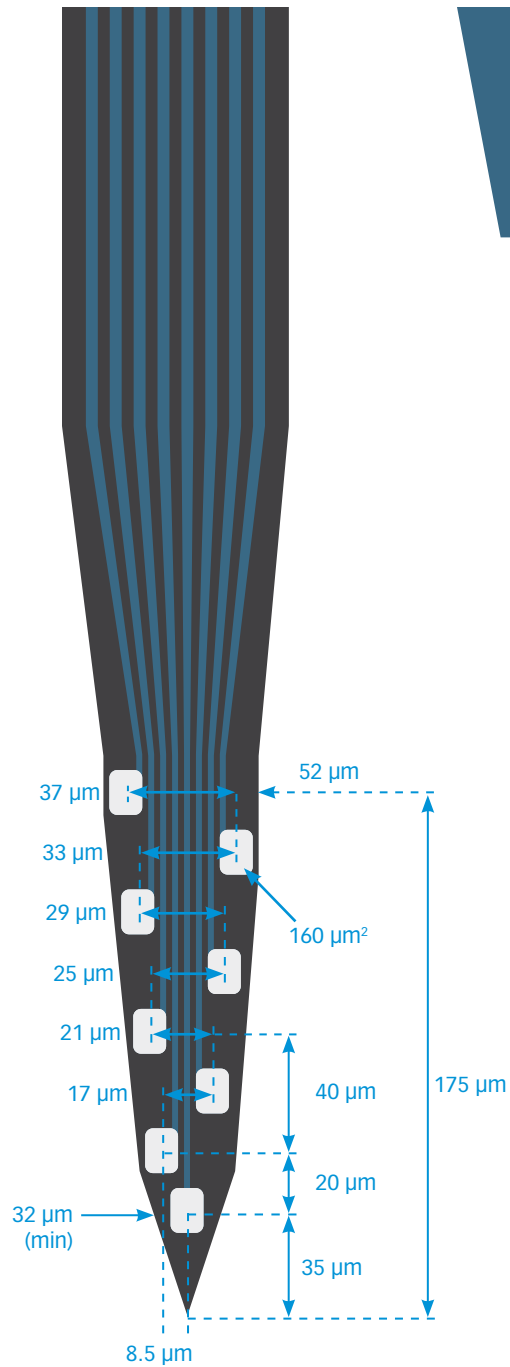
All Matrix Arrays™ are 50 μm thick

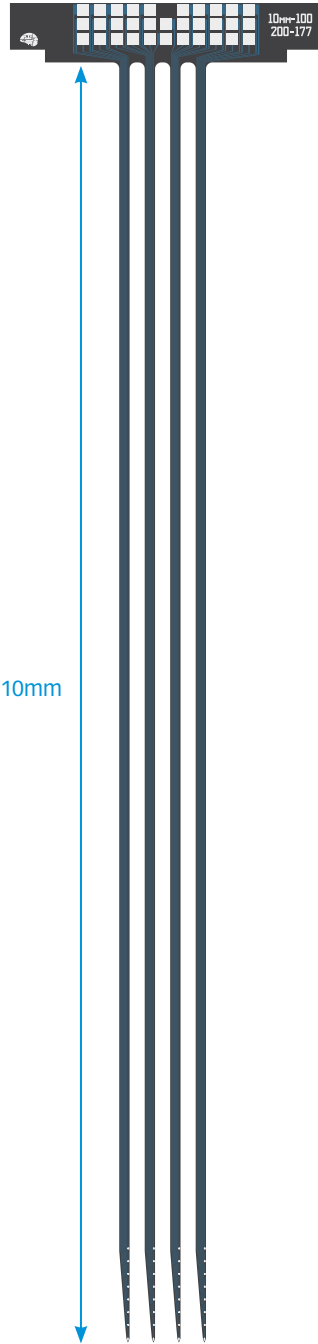


M4x8-5mm-Buz-200

All Matrix Arrays™ are compatible with all Matrix™ packages

All Matrix Arrays™ are 50 μm thick

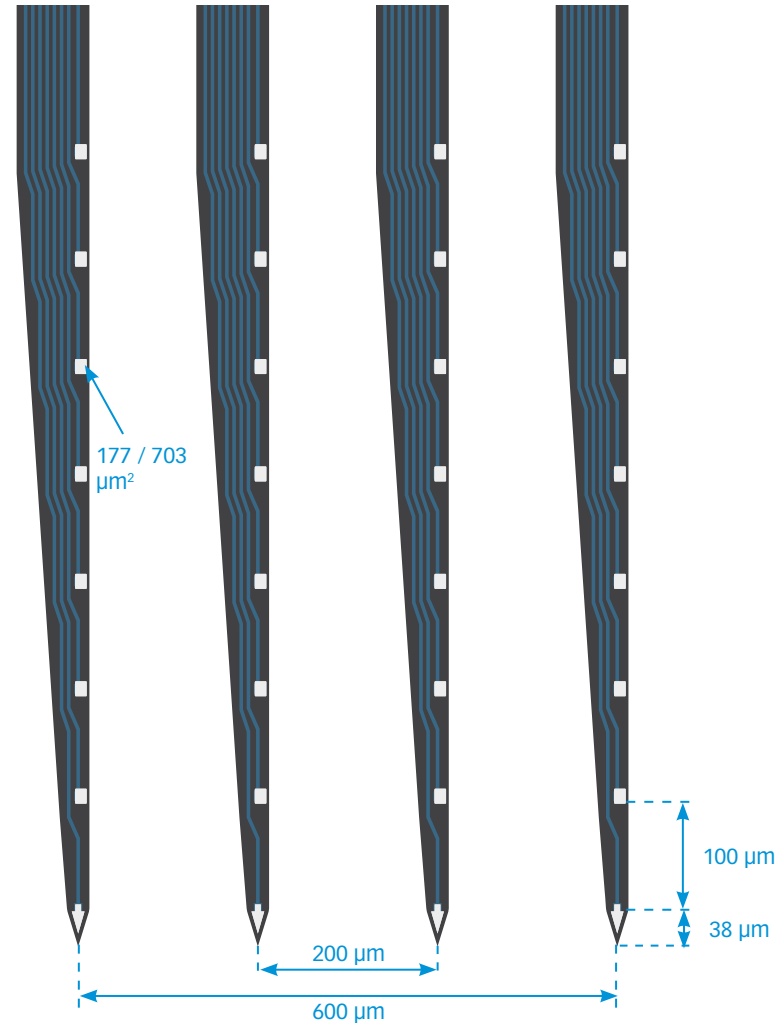




M4x8-10mm-100-200-177

M4x8-10mm-100-200-703

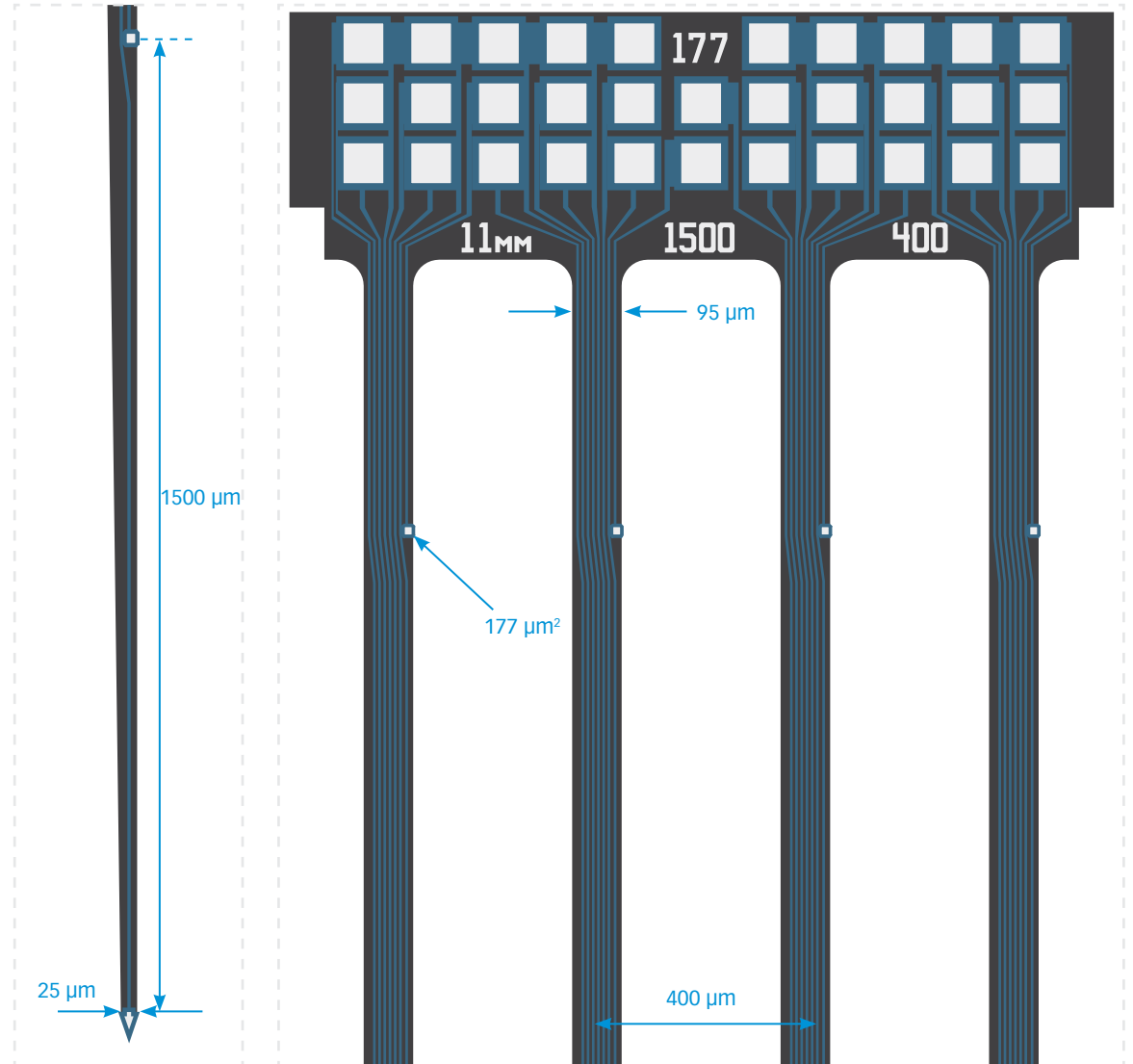
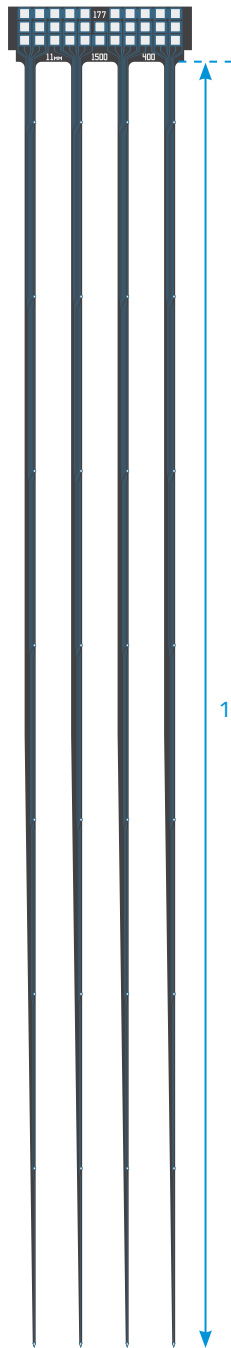
All Matrix Arrays™ are compatible with all Matrix™ packages
All Matrix Arrays™ are 50 μm thick



M4x8-11mm-1500-400-177

All Matrix Arrays™ are compatible with all Matrix™ packages

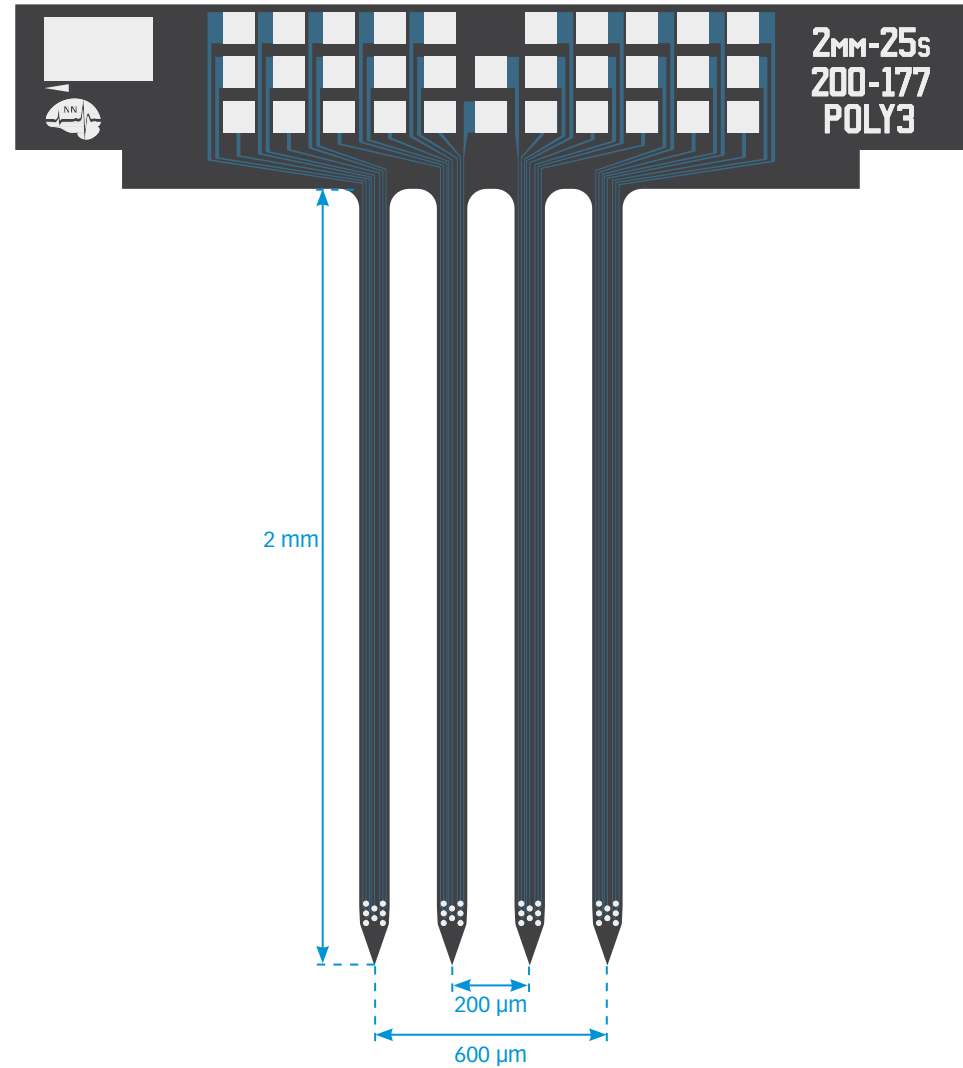
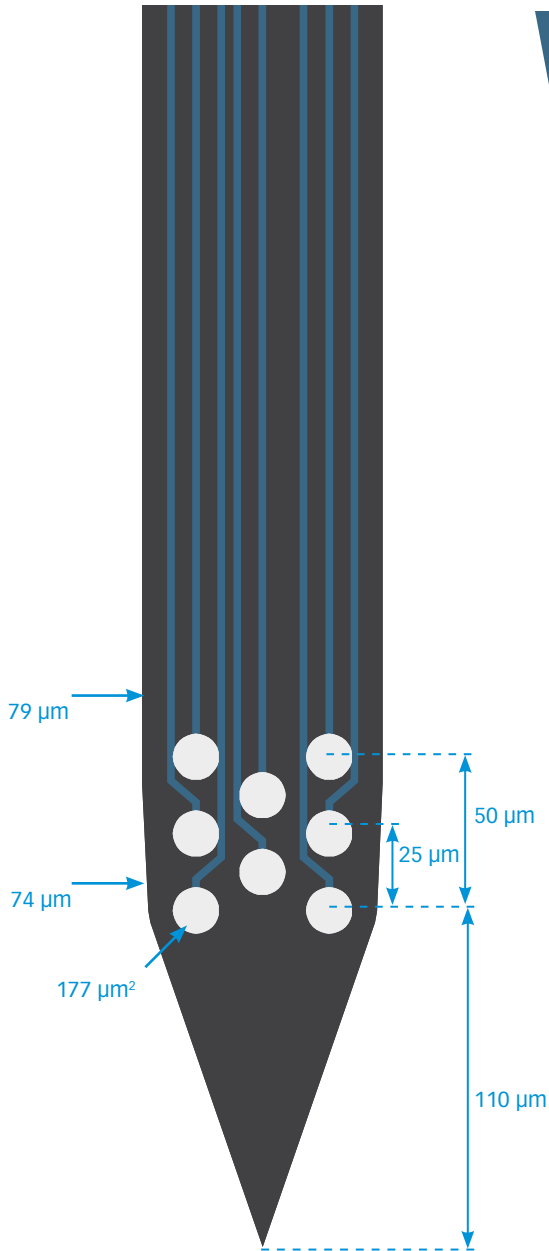
All Matrix Arrays™ are 50 µm thick



M4x8-Poly3-2mm-25s--200-177

All Matrix Arrays™ are compatible with all Matrix™ packages

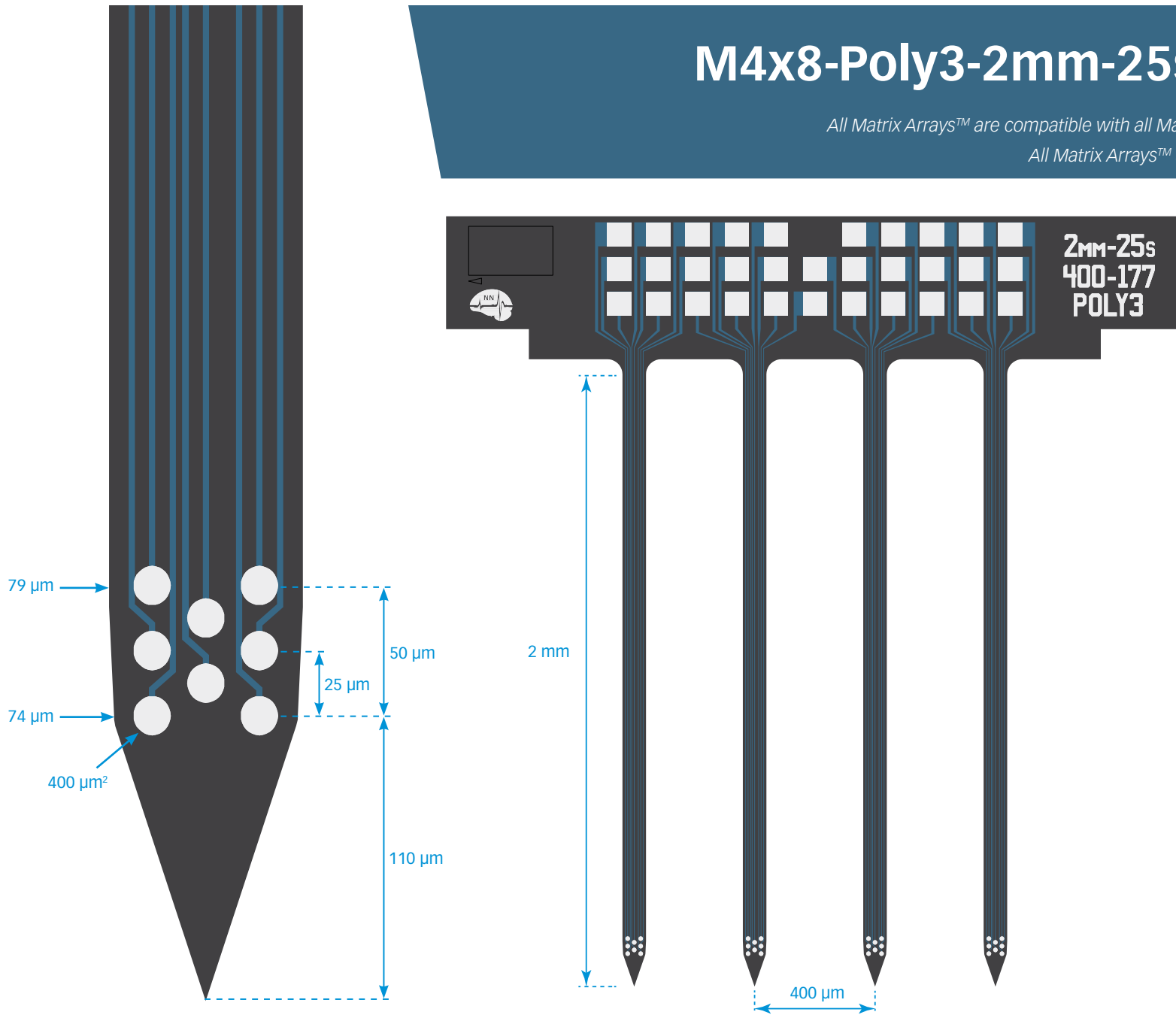
All Matrix Arrays™ are 50 μm thick



M4x8-Poly3-2mm-25s-400

All Matrix Arrays™ are compatible with all Matrix™ packages

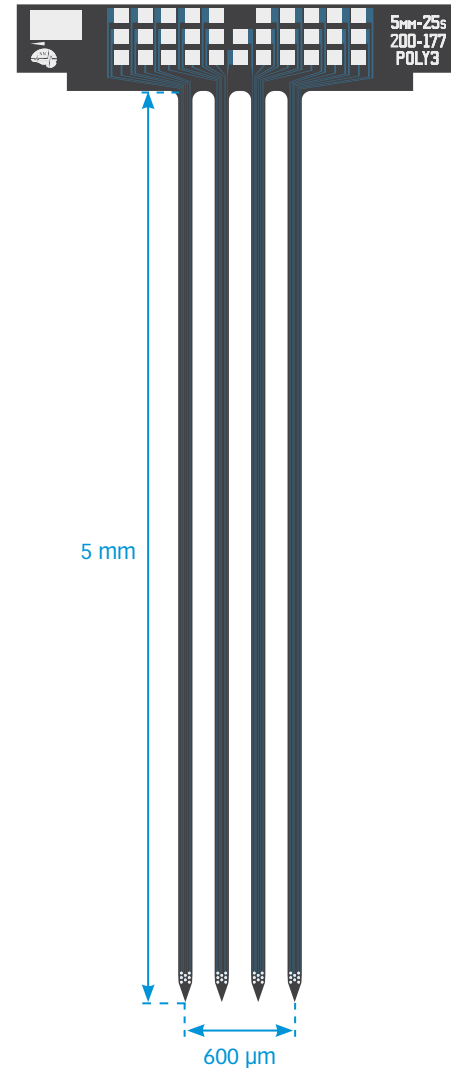
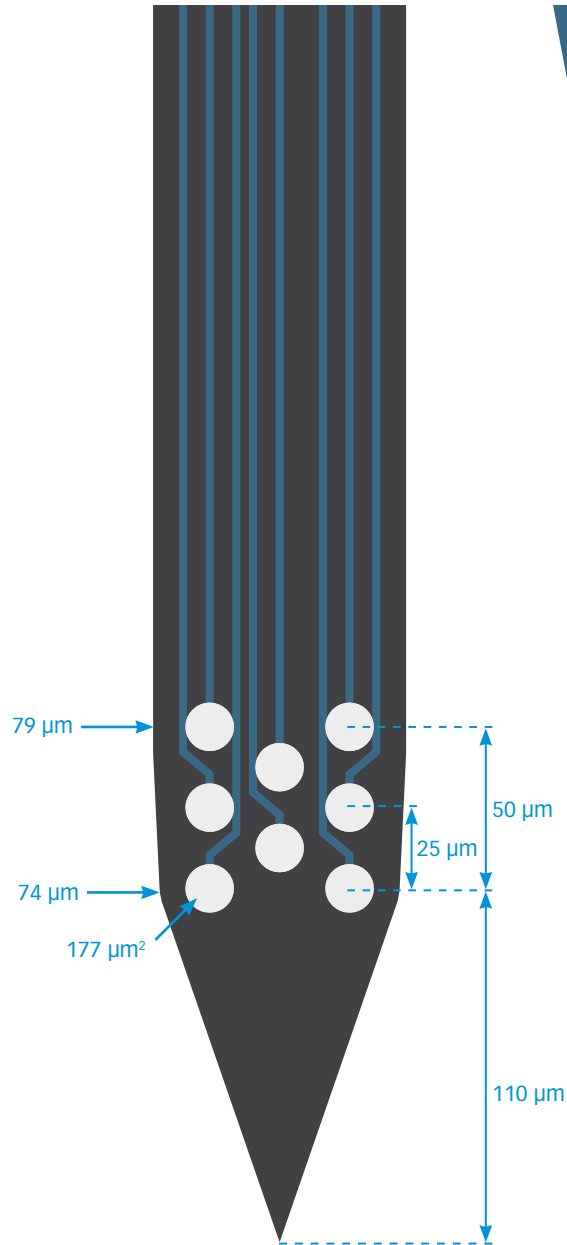
All Matrix Arrays™ are 50 μm thick



M4x8-poly3-5mm-25s-200-177

All Matrix Arrays™ are compatible with all Matrix™ packages

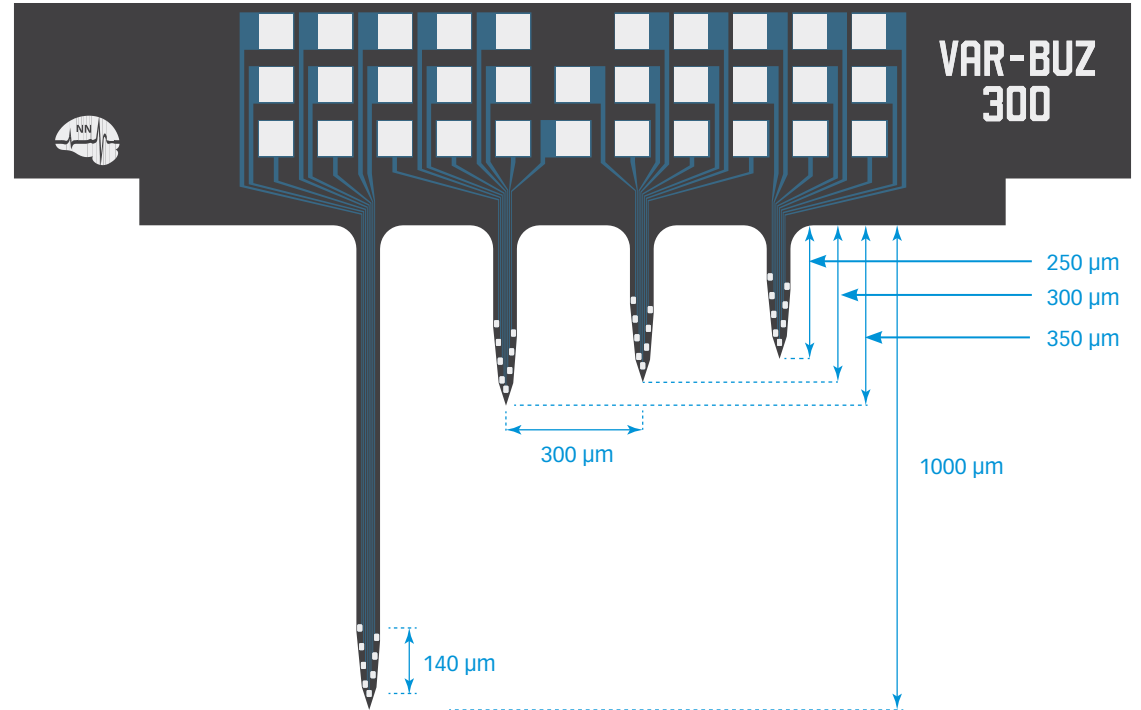
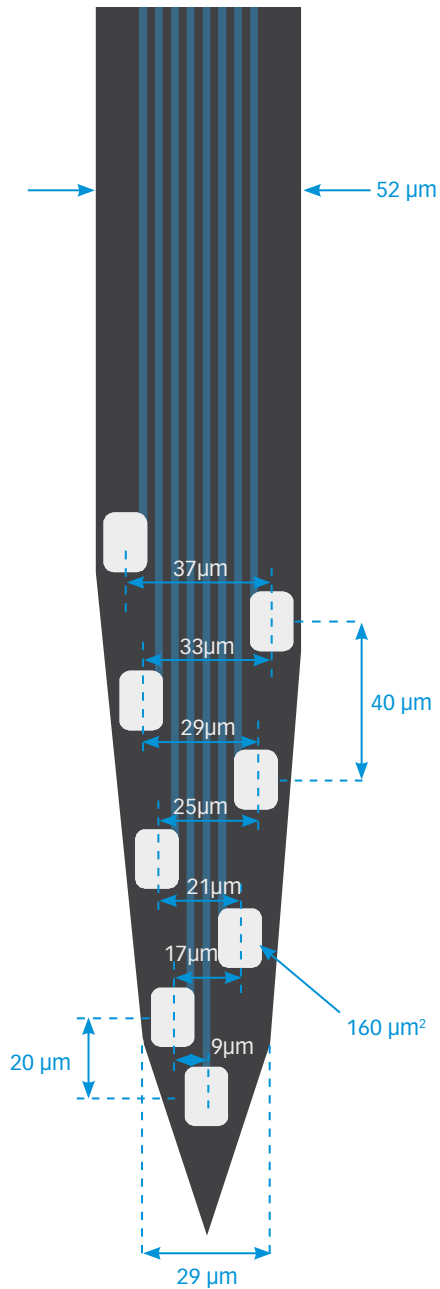
All Matrix Arrays™ are 50 μm thick



M4x8-var-buz-300

All Matrix Arrays™ are compatible with all Matrix™ packages

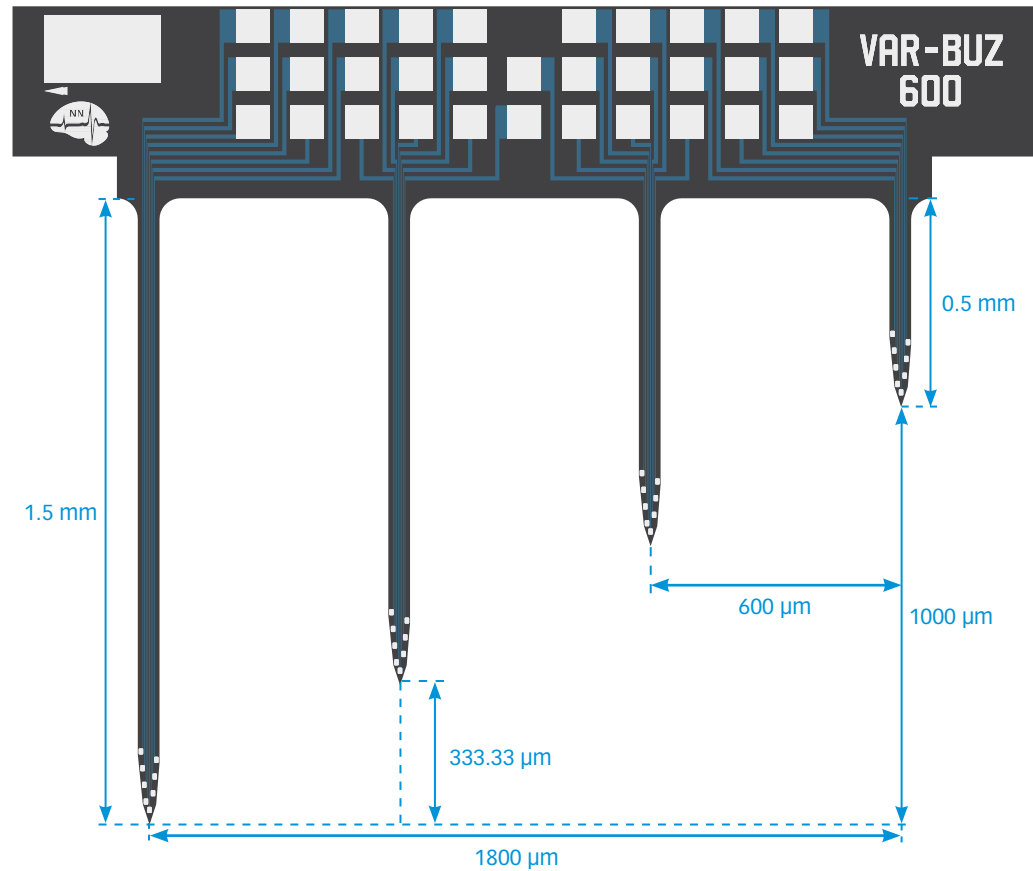
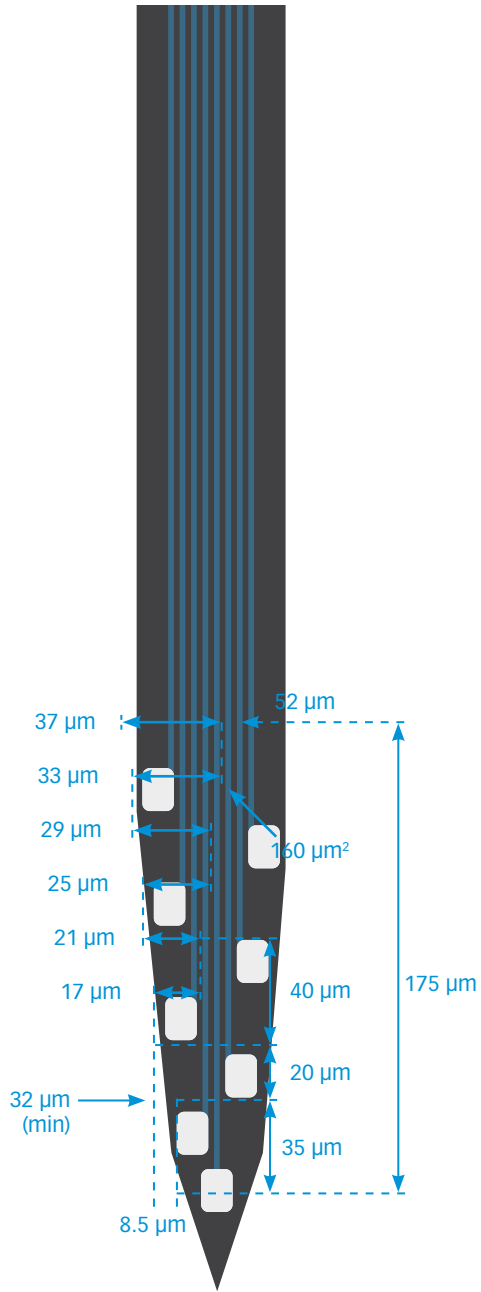
All Matrix Arrays™ are 50 μm thick



M4x8-var-Buz-600

All Matrix Arrays™ are compatible with all Matrix™ packages

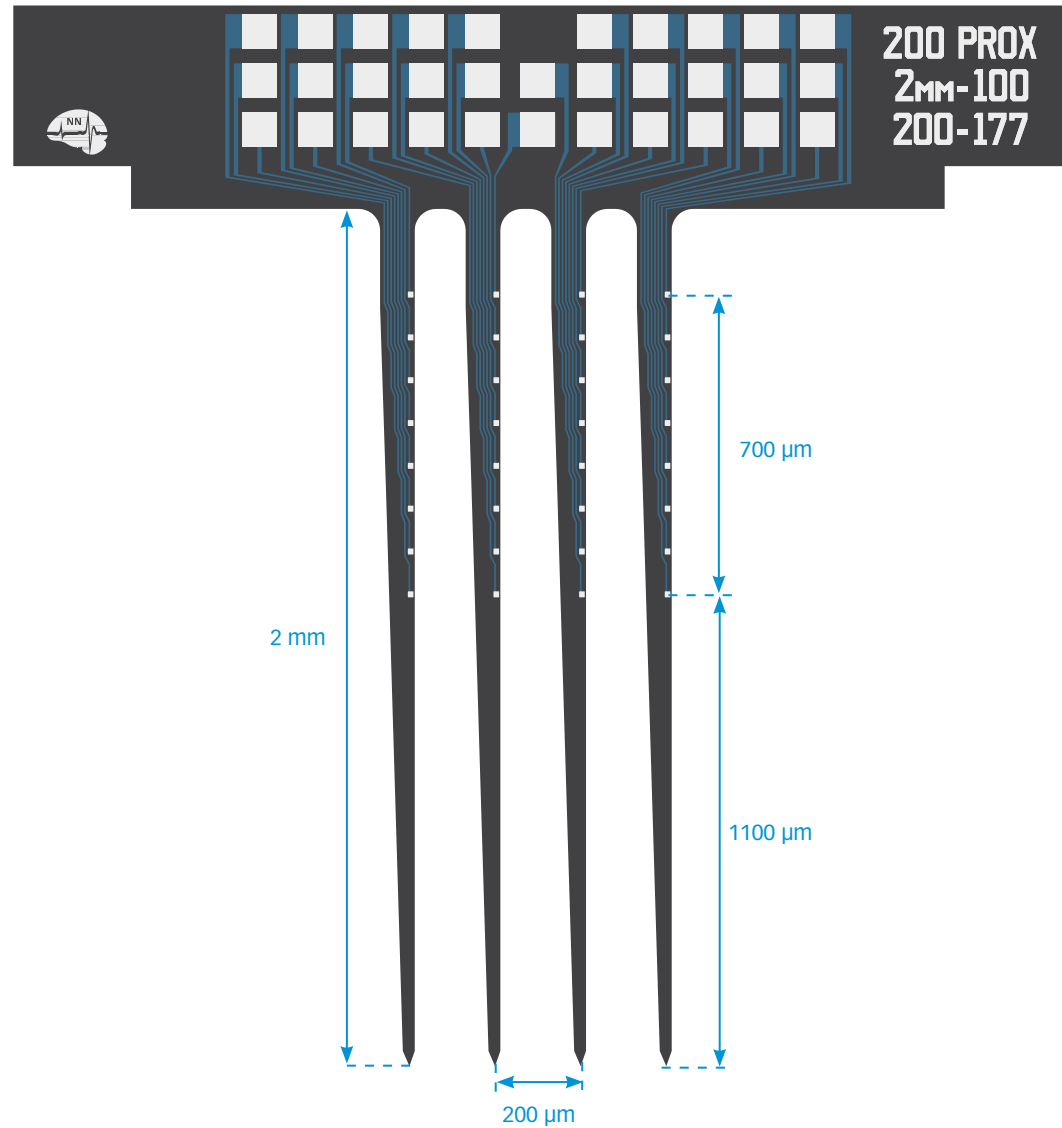
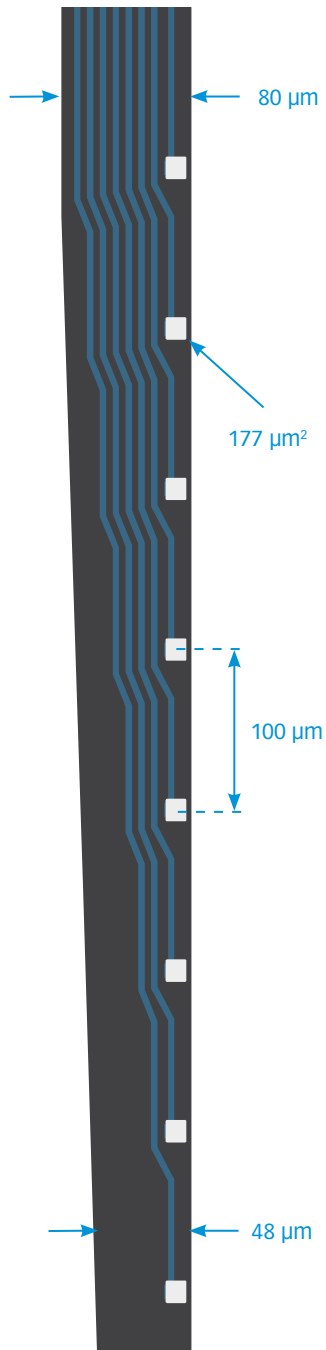
All Matrix Arrays™ are 50 μm thick



M4x8-prox200-2mm-100-200-177

All Matrix Arrays™ are compatible with all Matrix™ packages

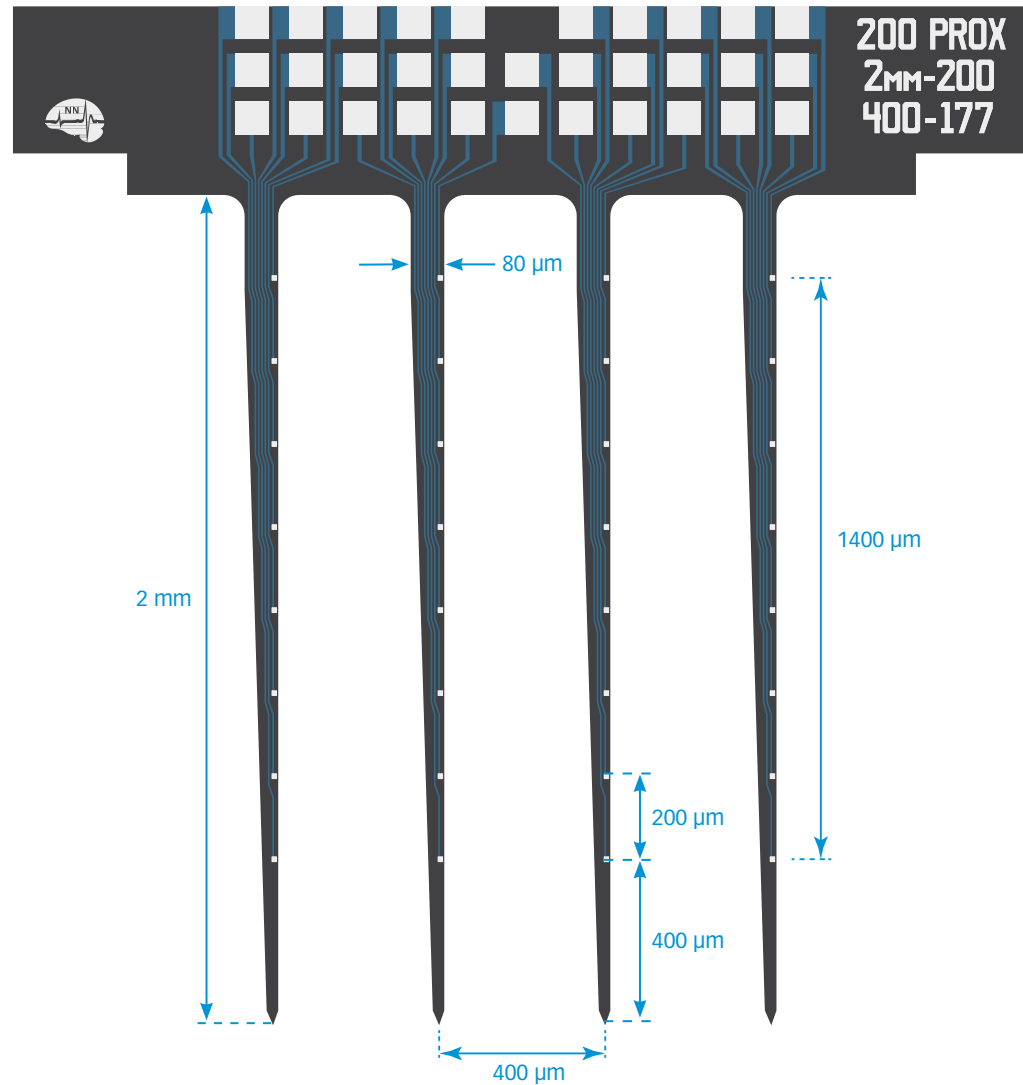
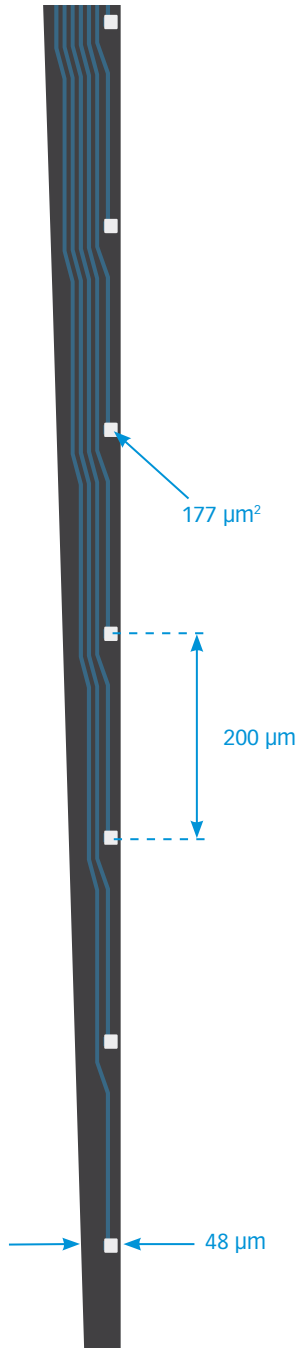
All Matrix Arrays™ are 50 μm thick

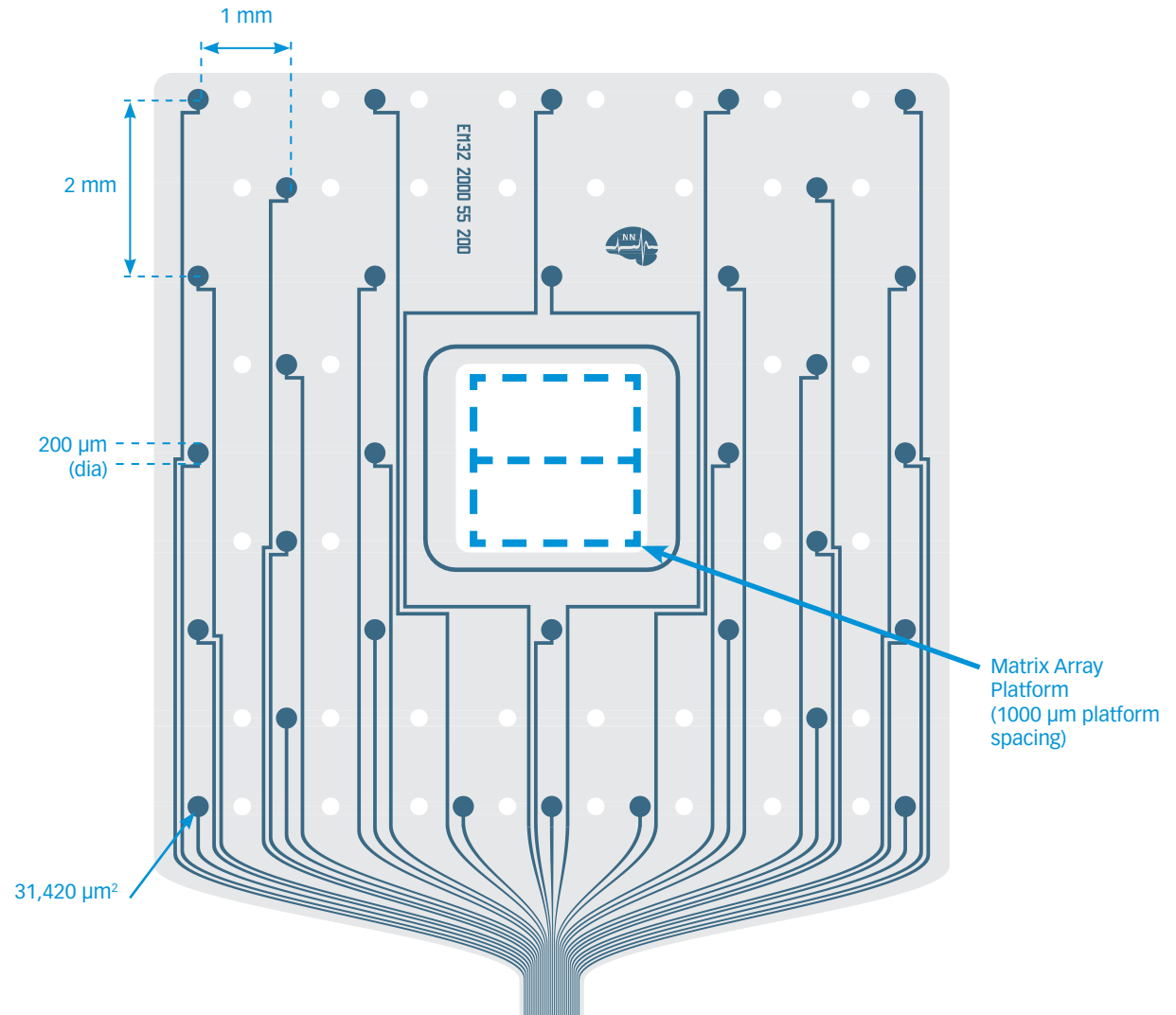
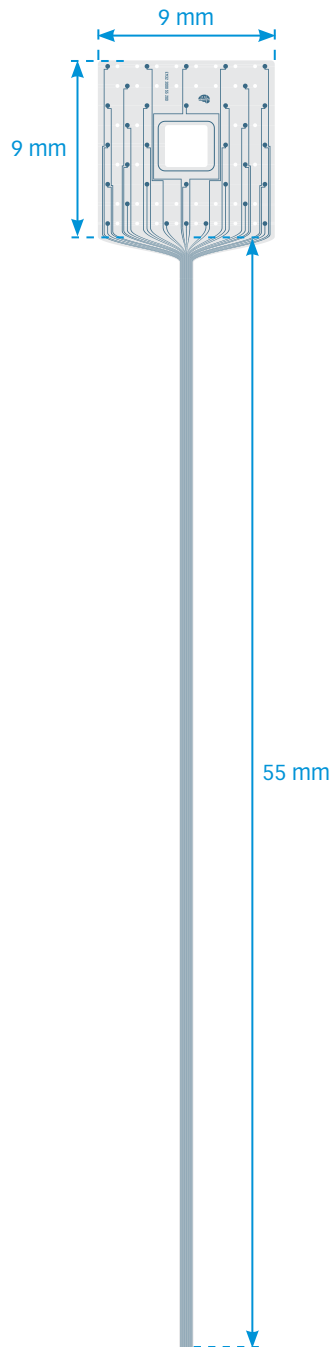


M4x8-prox200-2mm-200-400-177

All Matrix Arrays™ are compatible with all Matrix™ packages

All Matrix Arrays™ are 50 μm thick



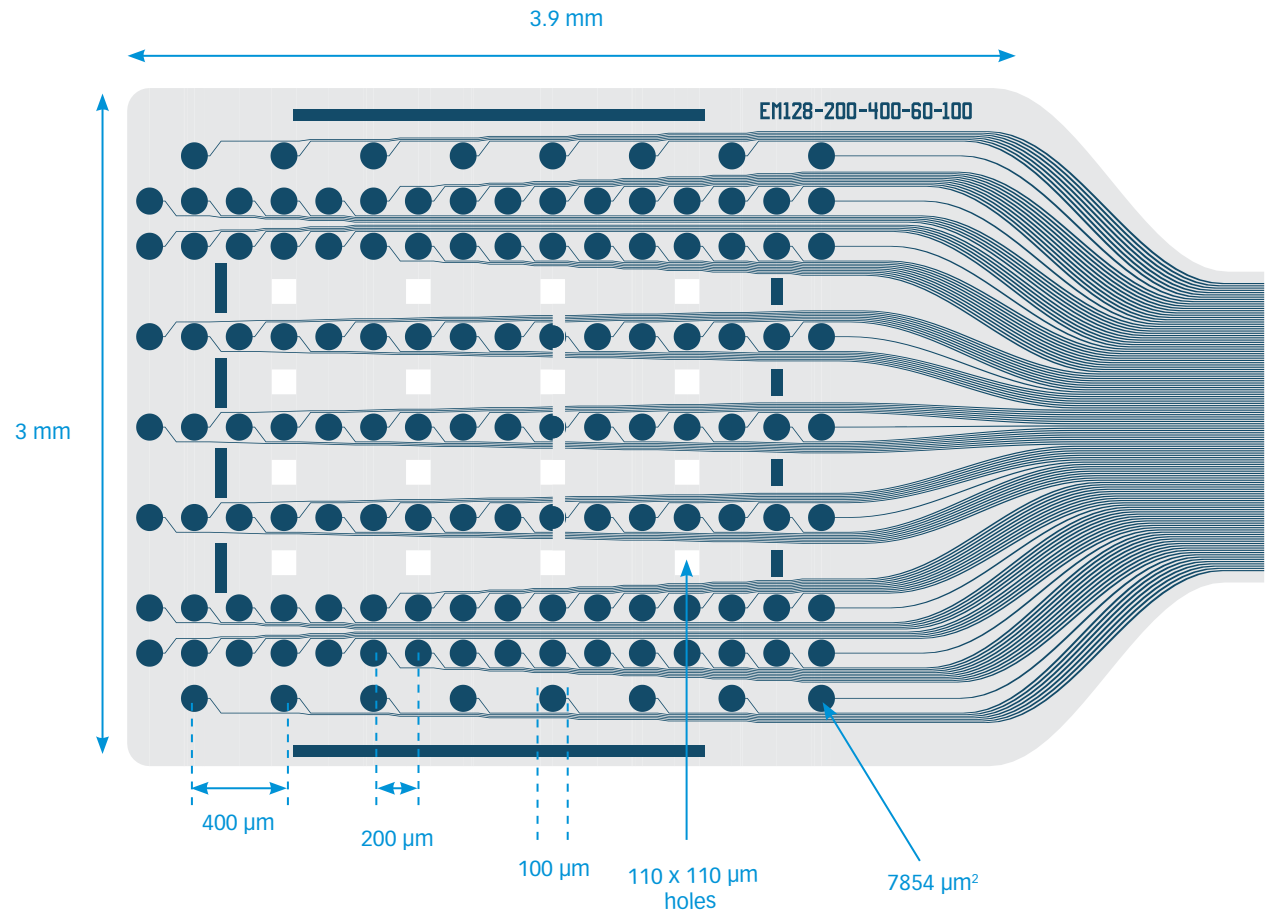
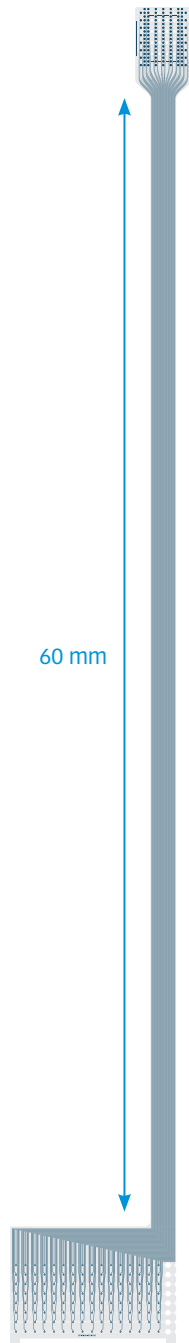


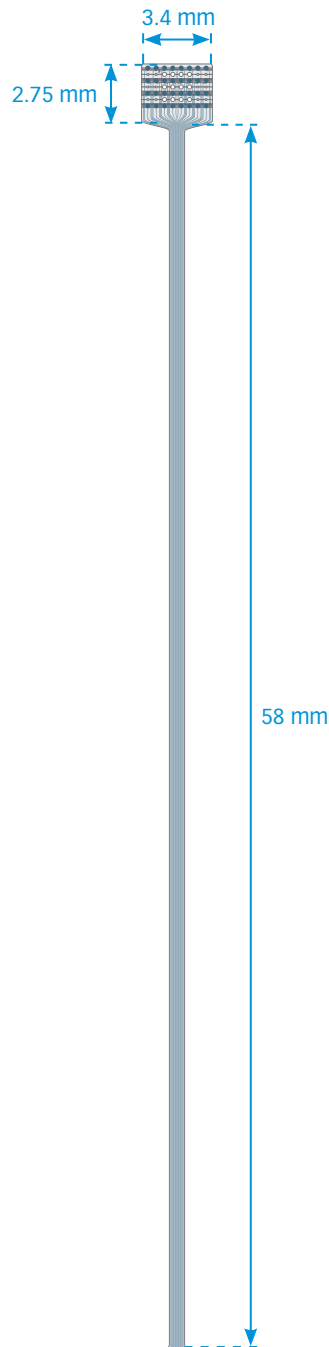
EM32-2000-55-200

ECoG can take the place of one of the four Matrix™ probes.

EM128-200-400-60-100

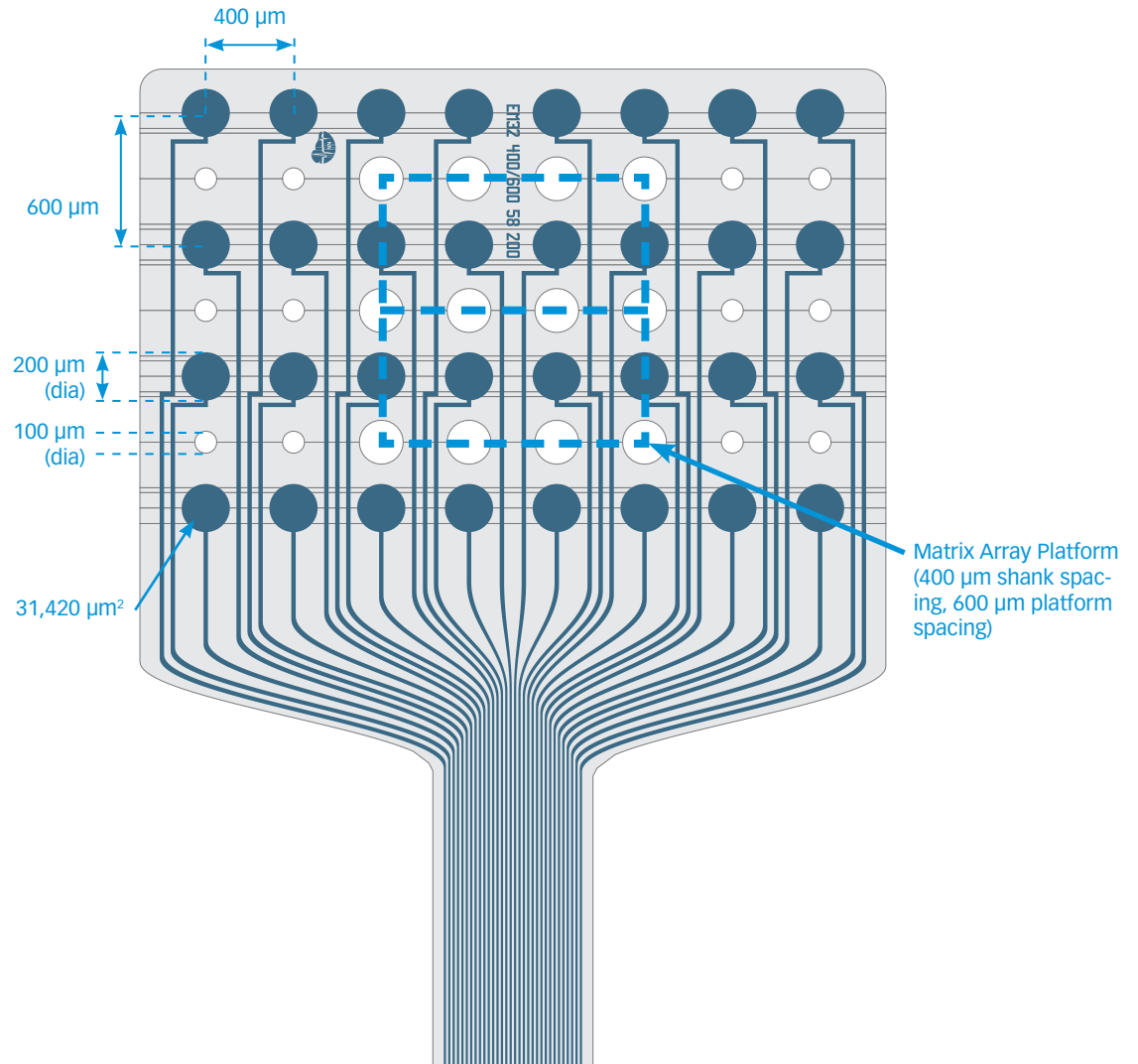
ECoG can take the place of one of the four Matrix™ probes.

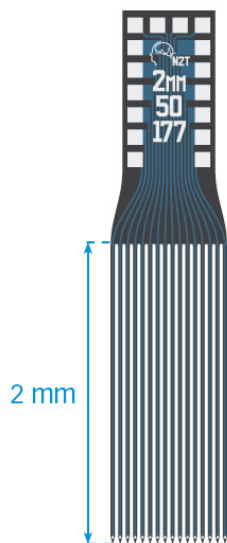




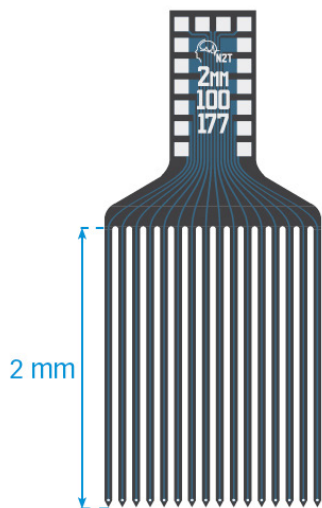
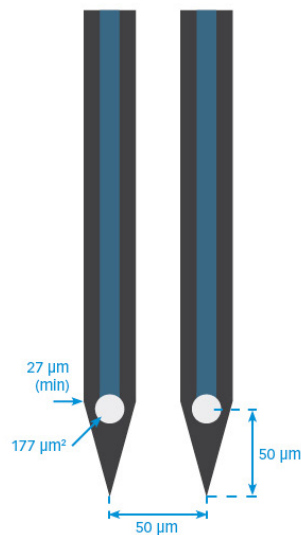
EM32-400-600-58-200

ECoG can take the place of one of the four Matrix™ probes.

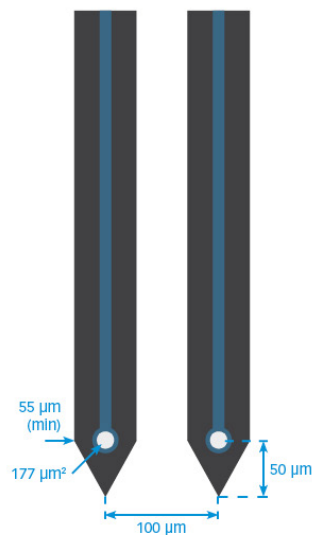




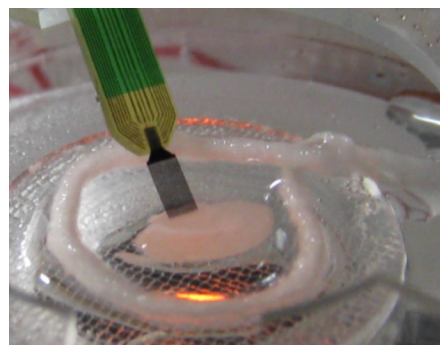
TIP DETAIL



TIP DETAIL



Designed by Dr. Liset Menendez de la Prida at Instituto Cajal – CSIC, the A16x1 microelectrode array is designed specifically for *in vitro* slice applications. Its 16 tip sites, along with its slender comb design, enable high-resolution *in vitro* research.



*“Both single-cell activity and field potential population events can be easily recorded. The linear array allows for propagation studies both *in vitro* and *in vivo* and it can be used for current source density analysis in slices.”*
- Dr. Liset Menendez de la Prida, Instituto Cajal - CSIC

SPECIFICATIONS

Electrode Site Material	Iridium (standard)
Implantable Length	2 mm
Total Horizontal Coverage	750 µm or 1500 µm
Channel Count	16

A16x1-2mm-50-177

A16x1-2mm-50-703

Available packages

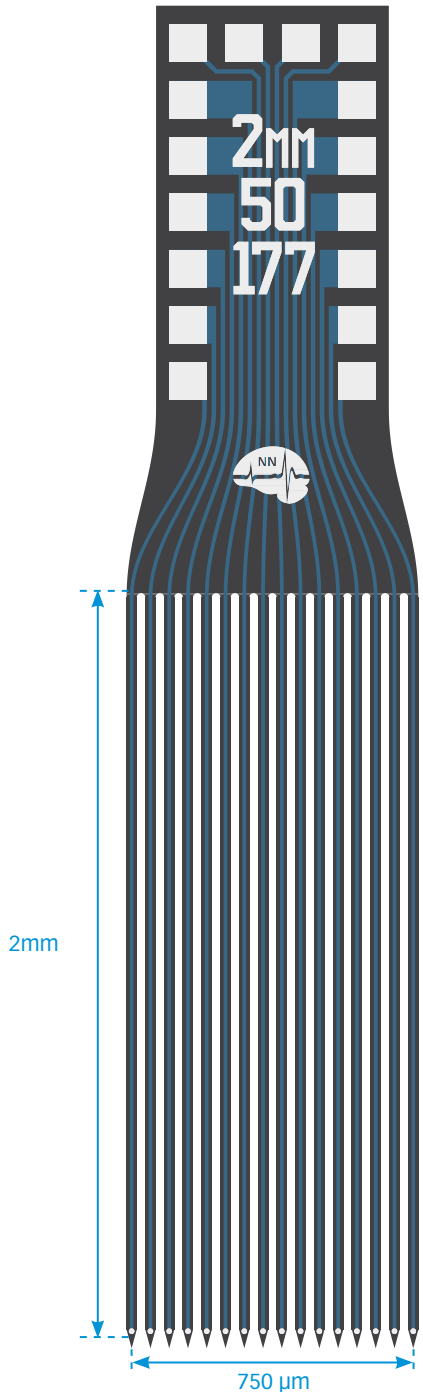
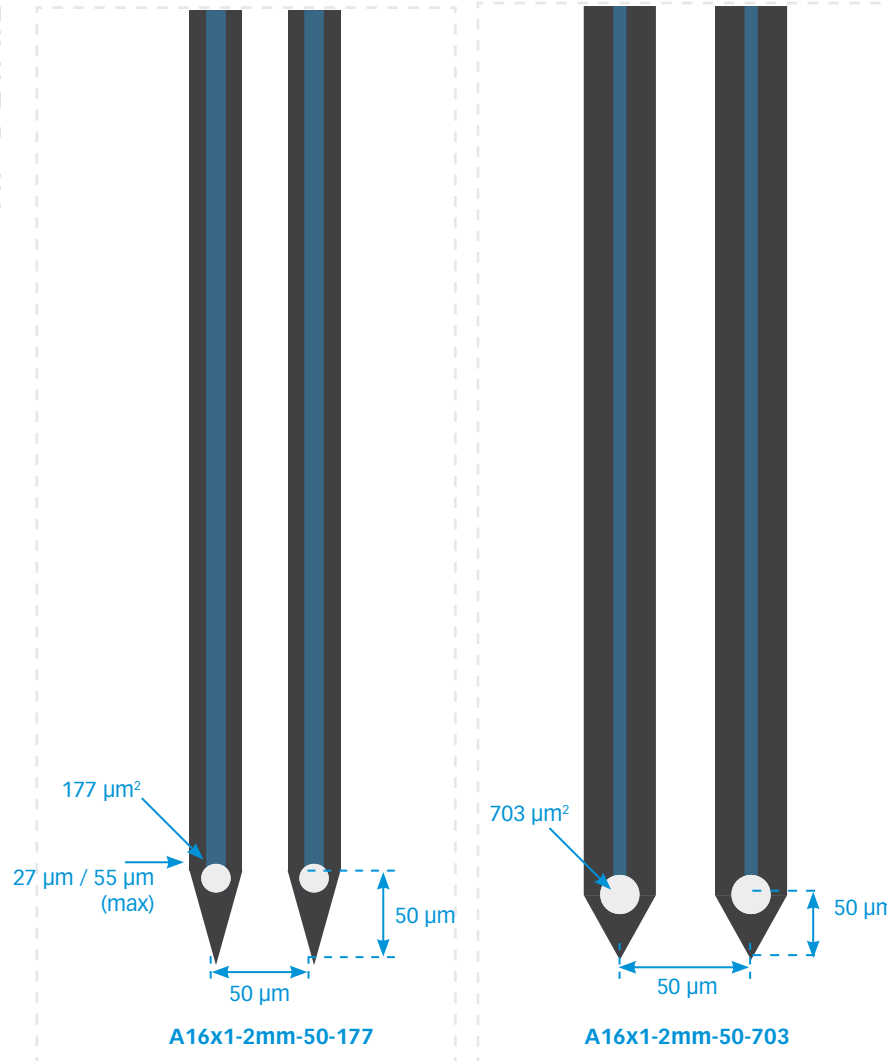
ACUTE
A16

CHRONIC
CM16LP
H16_21mm
Z16

Thickness

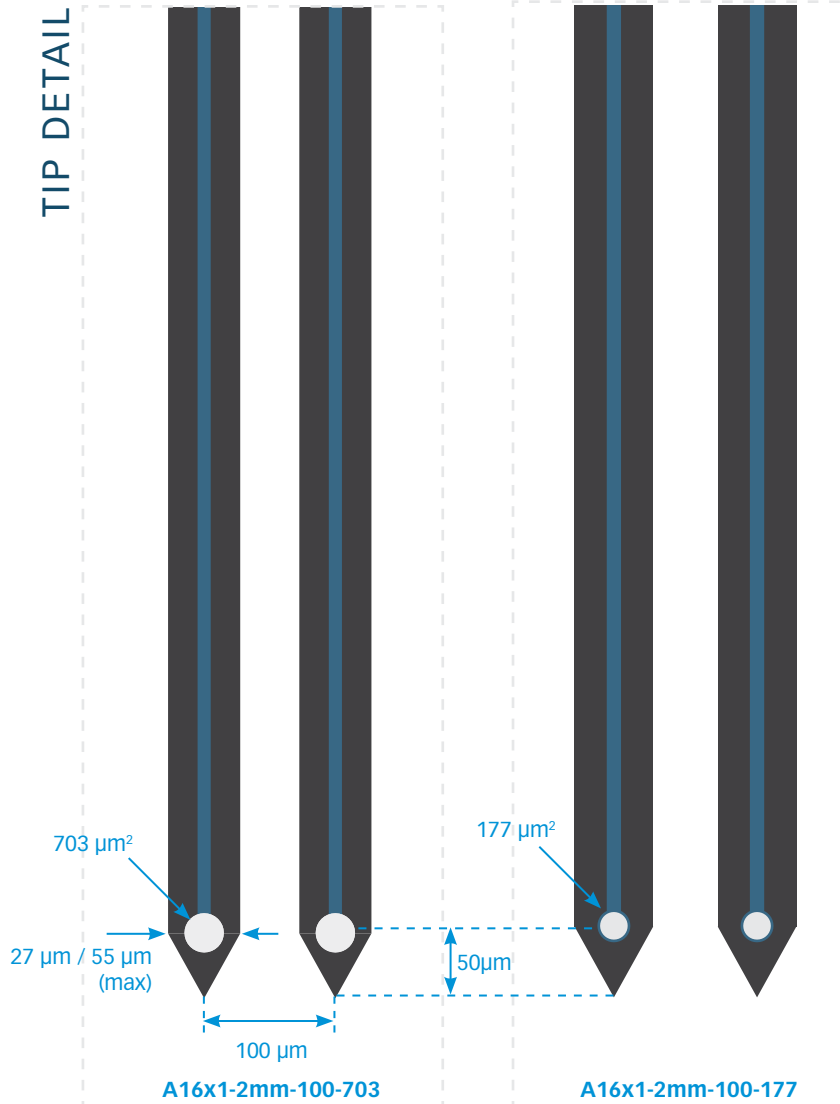
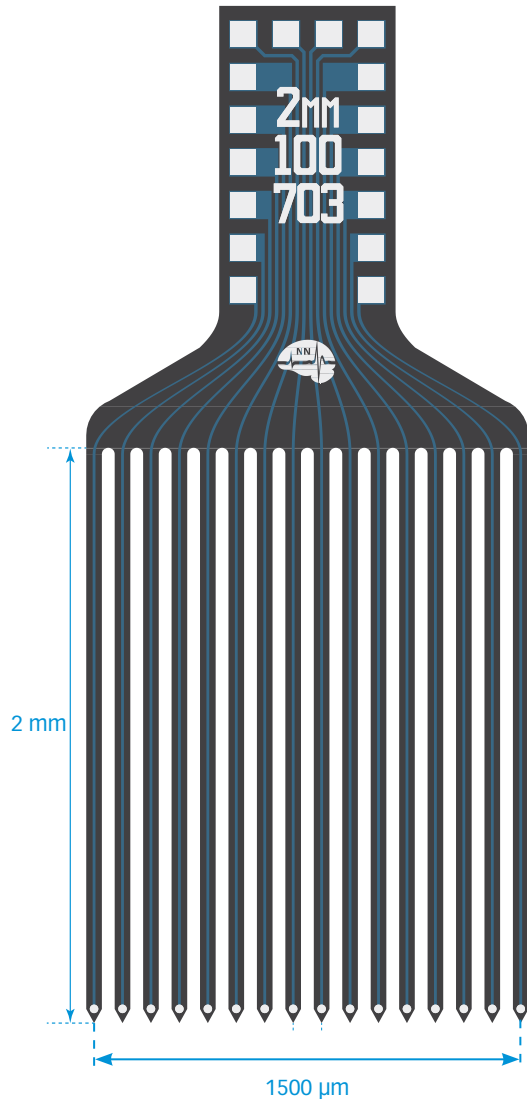
15 μ m

TIP DETAIL



A16x1-2mm-100-703

A16x1-2mm-100-177



Available packages

ACUTE
A16

CHRONIC
CM16LP
H16_21mm
Z16

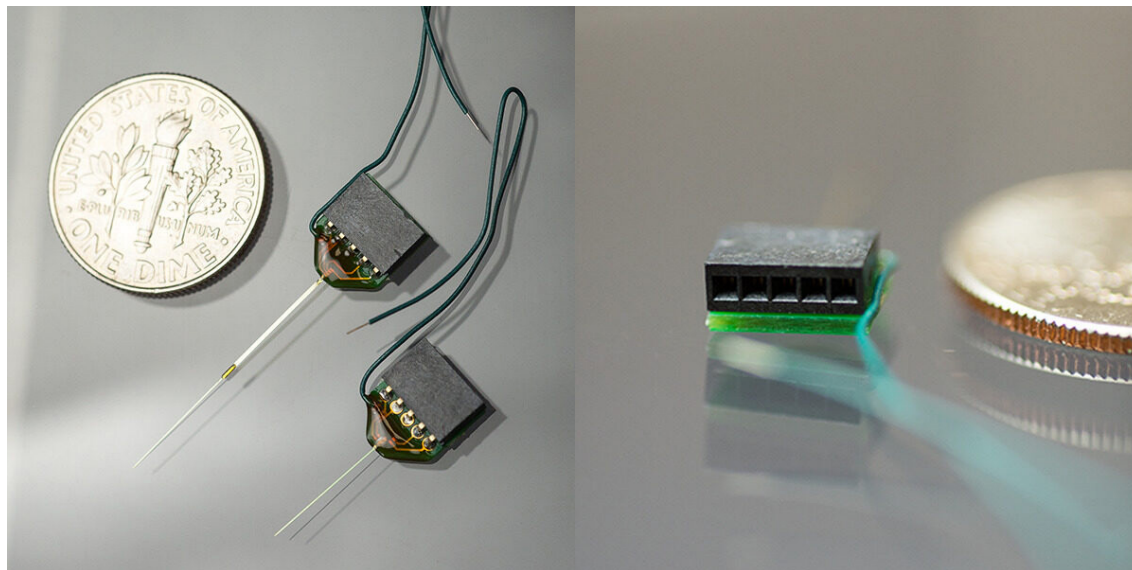
Thickness

15 µm

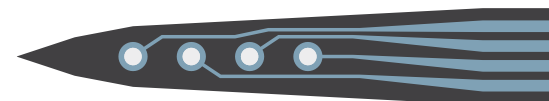
Qtrode

4-channel Probe / Wire Tetraode Upgrade

[BACK TO INDEX](#)



LINEAR



TETRODE



Above: Qtrodes come in linear and tetraode site layouts

NeuroNexus **Qtrodes** are low-cost 4-channel probes designed to replace tetrodes and/or wires in your lab. Qtrodes are also ideal for acute or chronic experiments requiring lower channel counts.

- **Predictable geometry** – Obtain consistent recording results with precise, reproducible geometry and electrical characteristics from our silicon probes.
- **Optogenetics-compatible** – Combine an acute or chronic Qtrode with an optical fiber to combine electrophysiology with optogenetic stimulation. Opto-Qtrodes use the “O” prefix designation, e.g. “OCQ4.”
- **Improved Chronic experiments** – Combine a Qtrode with a microdrive for potentially better chronic experiment longevity and data yield.
- **Fast Delivery** – Qtrodes are stocked for quick shipment and delivery. Please note there is a minimum order of 5 Qtrodes. (This applies to all models.)

SPECIFICATIONS

Electrode Site Material	Iridium (standard)
Electrode Thickness	15 μm or 50 μm (varies by design)
Electrode Length	3, 5, 10 mm (varies by design)
Site Layout	Linear or Tetraode
Channel Count	4

Q1x4-3mm-100-177

Available packages

ACUTE

Q4

CHRONIC

CQ4
HQ4_21mm
EIB

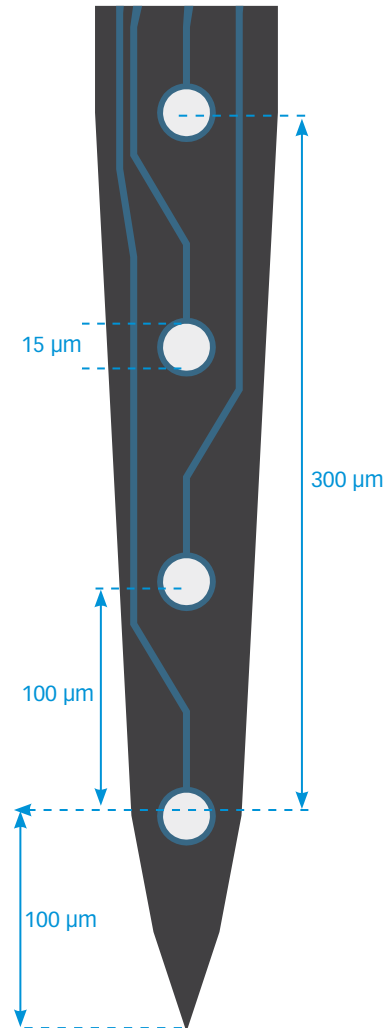
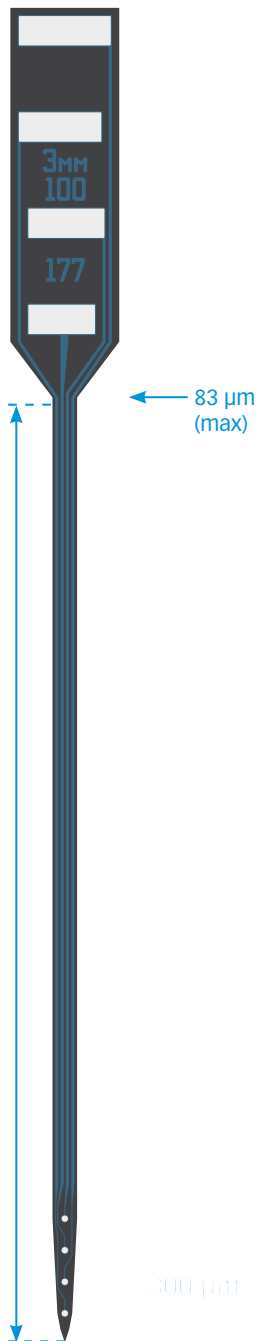
OPTOGENETICS

OAQ4LP
OCQ4LP
OHQ4LP

Thickness

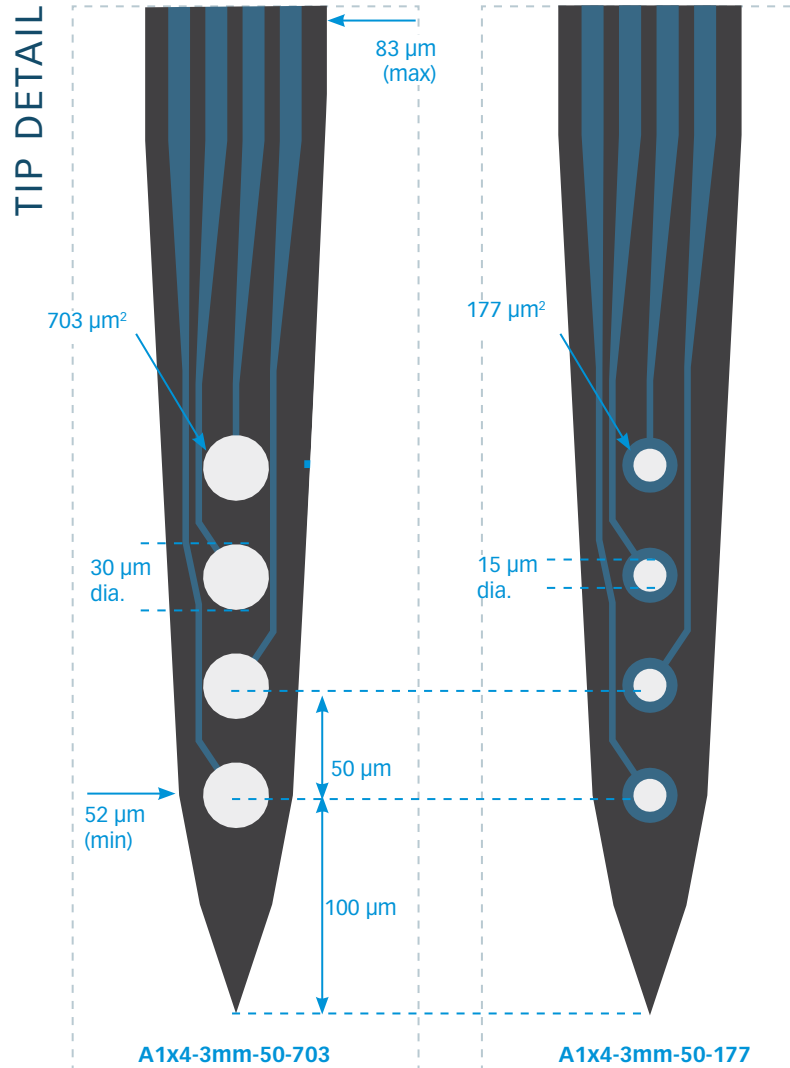
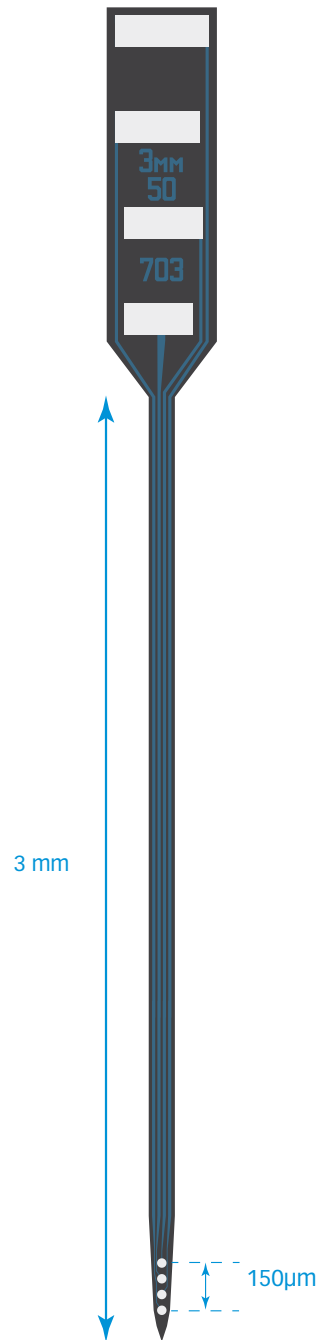
15 μm
50 μm

TIP DETAIL



Q1x4-3mm-50-703

Q1x4-3mm-50-177



Available packages

ACUTE

Q4

CHRONIC

CQ4
HQ4_21mm
EIB

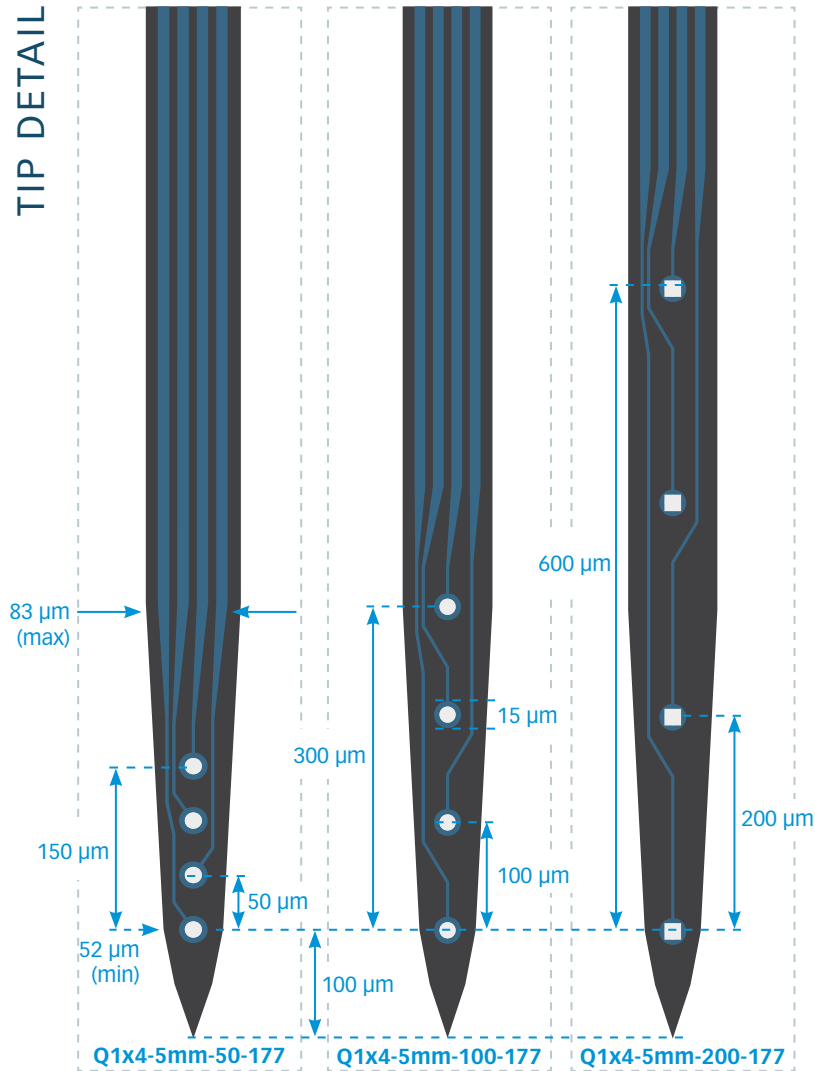
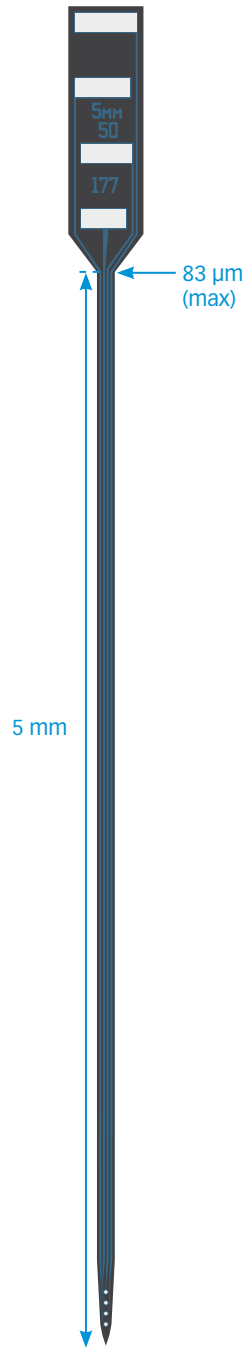
OPTOGENETICS

OAQ4LP
OCQ4LP
OHQ4LP

Thickness

15 μm
50 μm

Q1x4-5mm-50-177 Q1x4-5mm-100-177 Q1x4-5mm-200-177



Available packages

ACUTE

Q4

CHRONIC

CQ4
HQ4_21mm
EIB

OPTOGENETICS

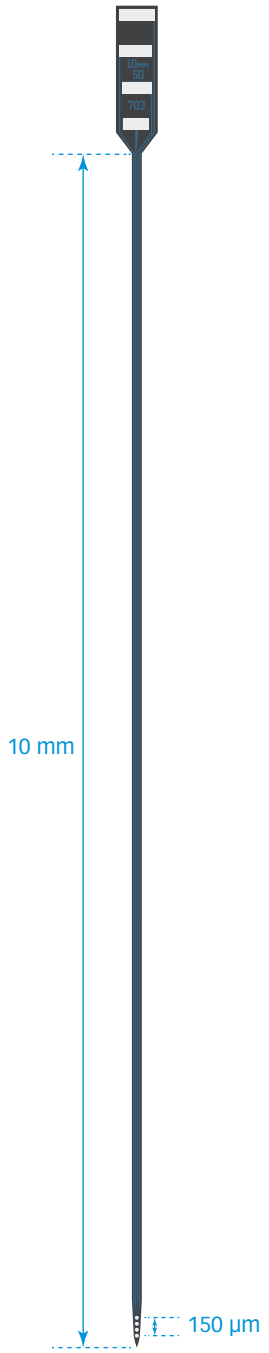
OAQ4LP
OCQ4LP
OHQ4LP

Thickness

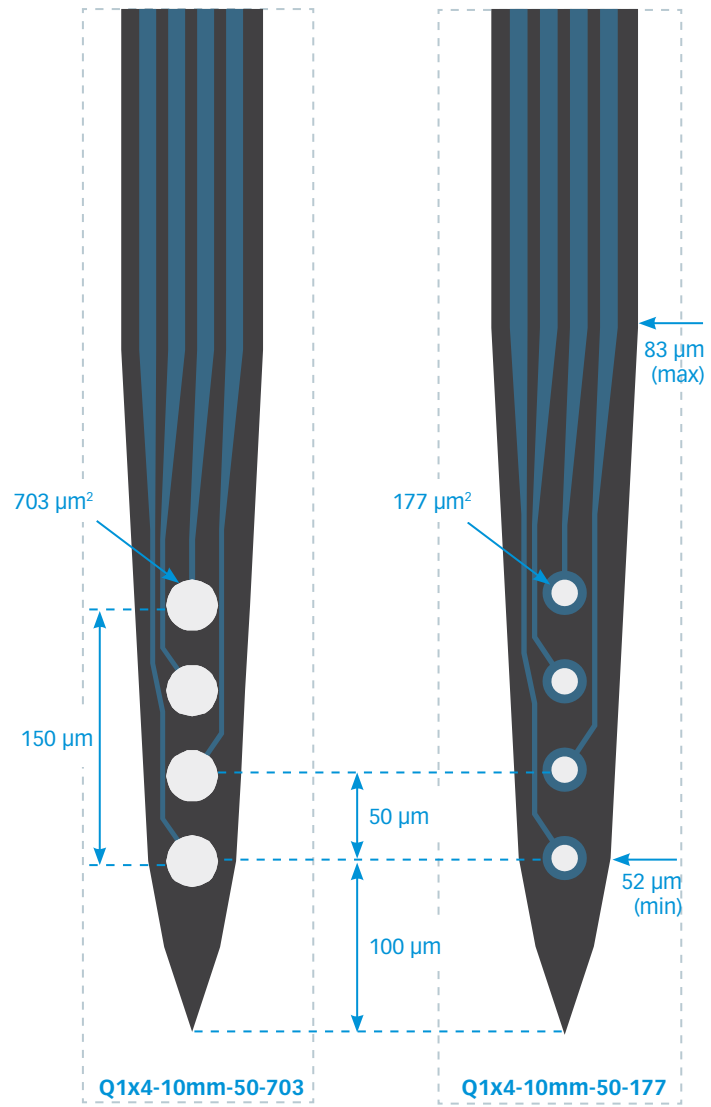
15 μ m
50 μ m

Q1x4-10mm-50-703

Q1x4-10mm-50-177



TIP DETAIL



Available packages

ACUTE
Q4

CHRONIC
CQ4
HQ4_21mm
EIB

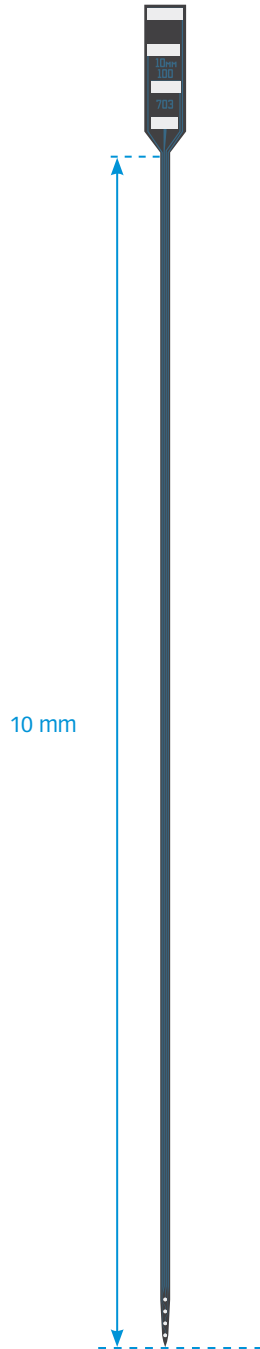
OPTOGENETICS
OAQ4LP
OCQ4LP
OHQ4LP

Thickness

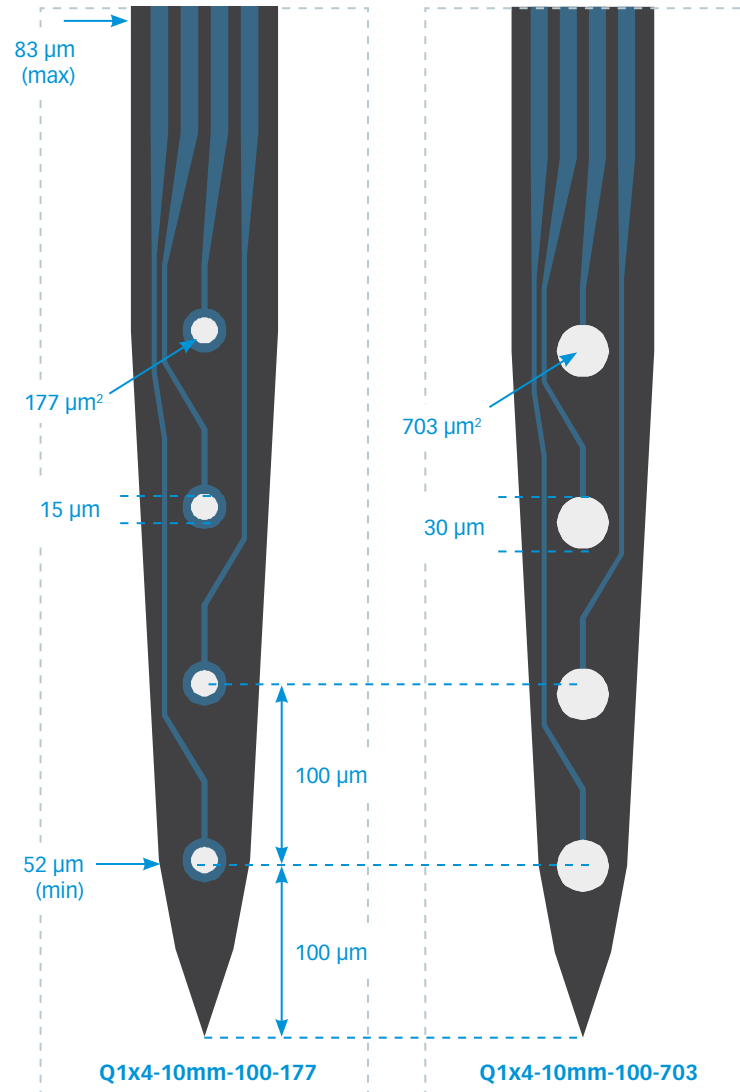
50 µm

Q1x4-10mm-100-703

Q1x4-10mm-100-177



TIP DETAIL



Available packages

ACUTE

Q4

CHRONIC

CQ4
HQ4_21mm
EIB

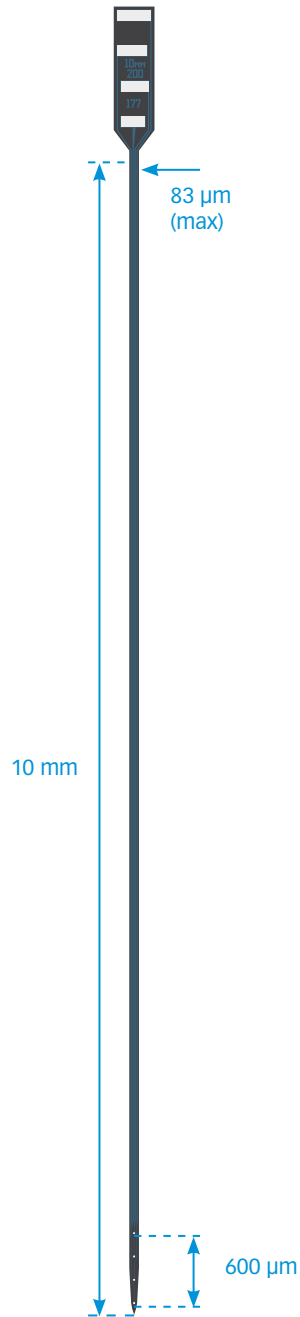
OPTOGENETICS

OAQ4LP
OCQ4LP
OHQ4LP

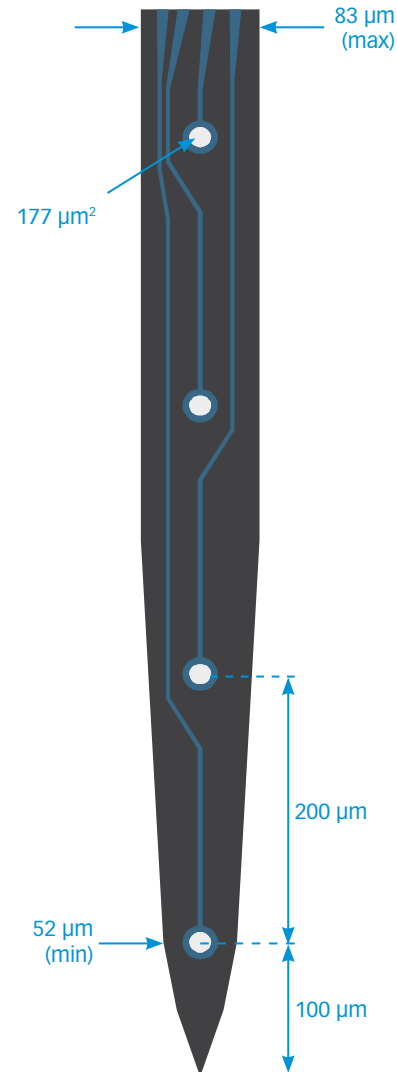
Thickness

50 μm

Q1x4-10mm-200-177



TIP DETAIL



Available packages

ACUTE

Q4

CHRONIC

CQ4
HQ4_21mm
EIB

OPTOGENETICS

OAQ4LP
OCQ4LP
OHQ4LP

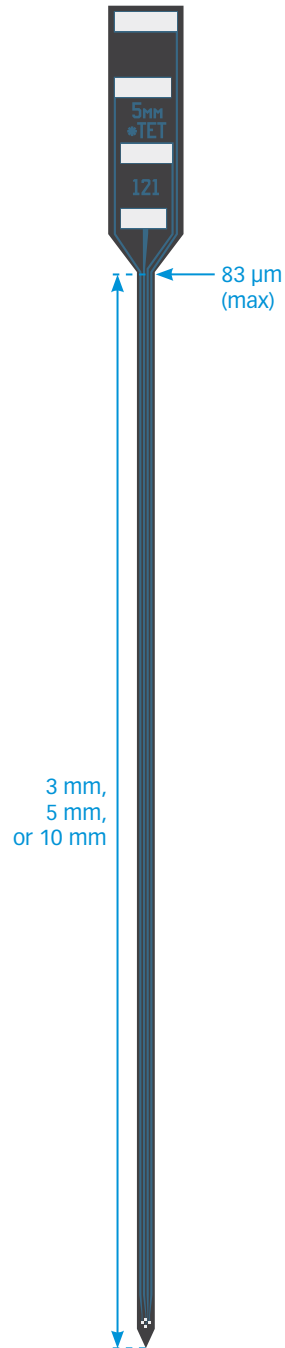
Thickness

50 μm

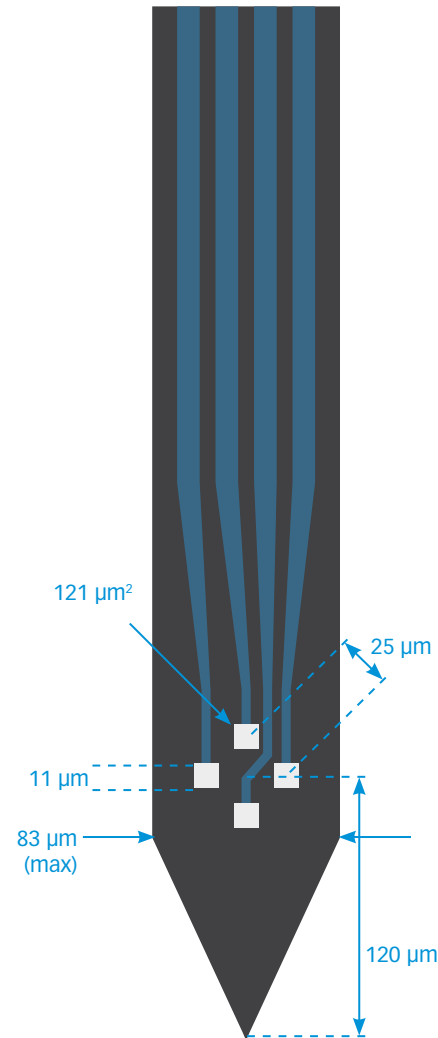
Q1x1-tet-3mm-121

Q1x1-tet-5mm-121

Q1x1-tet-10mm-121



TIP DETAIL



Available packages

ACUTE

Q4

CHRONIC

CQ4
HQ4_21mm
EIB

OPTOGENETICS

OAQ4LP
OCQ4LP
OHQ4LP

Thickness

15 μm (3 mm, 5 mm)
50 μm (3 mm, 5 mm, 10 mm)



**Penetrating Probes
for targets > 10mm
or deeper**

Vector Array™

DEEP BRAIN PROBE / ACUTE, CHRONIC, AND OPTOGENETICS

BACK TO
INDEX



Left: 16- and 32- channel Vector Arrays
Below: 64-channel Vector Array on a US penny



The **Vector Array™** is optimized for deep brain applications, utilizing NeuroNexus microelectrode technology to record and stimulate in high resolution in hard-to-reach structures. Vector Arrays™ are compatible with NaN and Narishige drives.

Reach Deep Brain Structures – The Vector Array™ comes in 70 mm and 110 mm implantable lengths to reach deep structures in large animal models.

High Resolution – Record and/or stimulate with 16, 32, or 64 channels. The Vector Array™ features the same precise electrode geometry and contact density as other NeuroNexus microelectrode arrays.

Versatile – Configure the Vector Array™ for acute or chronic applications.

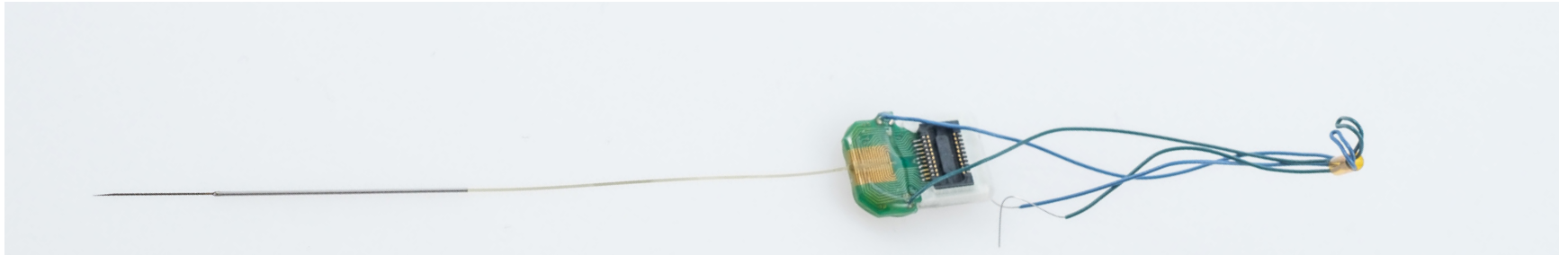
Optogenetics-Compatible – An optical fiber can be mounted on the Vector Array™ for optogenetics applications. (See Specifications for fiber options. Opto-Vector packages use “OV” designation.)

Options – Specify a laminar array design, or utilize multiple representation techniques with a Poly2 contact layout. Alternatively, design your own custom Vector Array.

Robust Hybrid Assembly – The Vector Array™ combines a high-resolution silicon probe with a rigid stainless steel support body. This arrangement provides strength where needed, while minimizing tissue damage at the recording sites.

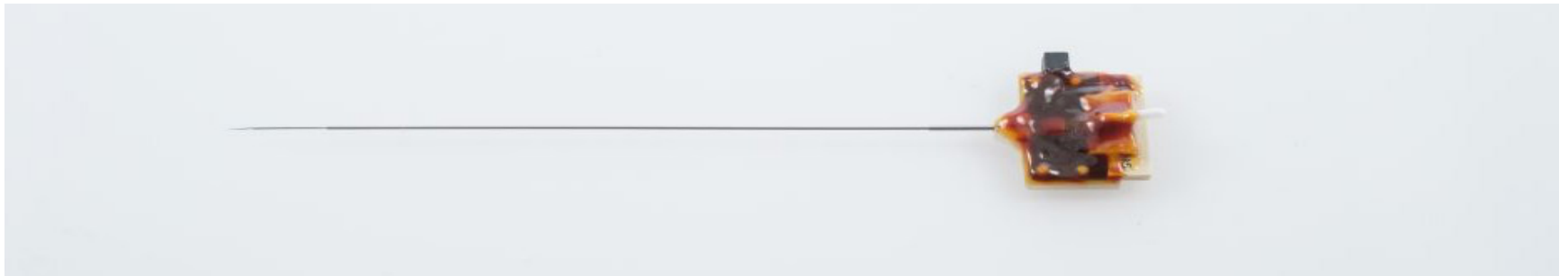
Inexpensive – With a low cost per use, the Vector Array™ increases your data yield while saving you money.

CHRONIC VECTOR ARRAY™



The Chronic Vector Array™ is a new design enabling access to deep brain structures (> 10 mm deep) during chronic applications. Chronic Vector Arrays™ can be configured with implantable lengths from 30 - 55 mm. Please factor in implantation hardware (clamps, etc.) when configuring your probe.

OPTO VECTOR ARRAY™



FLAT FIBER OPTIONS (ID / OD / NA)

50 μm /62.5 μm , 0.22 NA (etched)

105 μm /125 μm , 0.22 NA (standard)

200 μm /220 μm , 0.22 NA

200 μm /225 μm , 0.39 NA

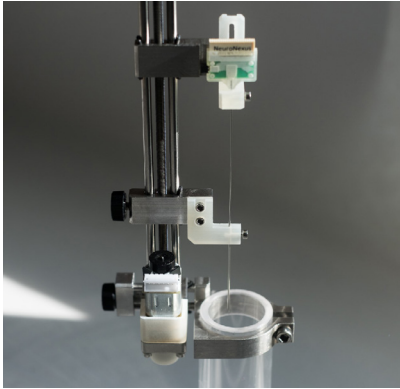
400 μm /425 μm , 0.39 NA

50 μm /62.5 μm , 0.66 NA

105 μm /125 μm , 0.66 NA

200 μm /220 μm , 0.66 NA

ACUTE VECTOR ARRAY™



The **Acute Vector Array™** is optimized for acute deep brain applications, utilizing NeuroNexus microelectrode technology to record and stimulate high resolution in hard-to-reach structures.

SITE LAYOUT

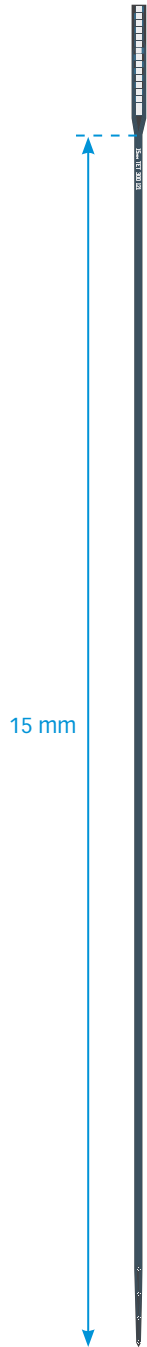
Edge sites provide a Linear layout, but electrodes are strategically positioned along a vertical edge of the shank

Polytrode electrode site layout is available as Poly2 (two columns of sites). This offers a mix of linear and traditional tetrode benefits, with sites close enough together to allow a degree of redundancy across different sites while sampling a larger space.

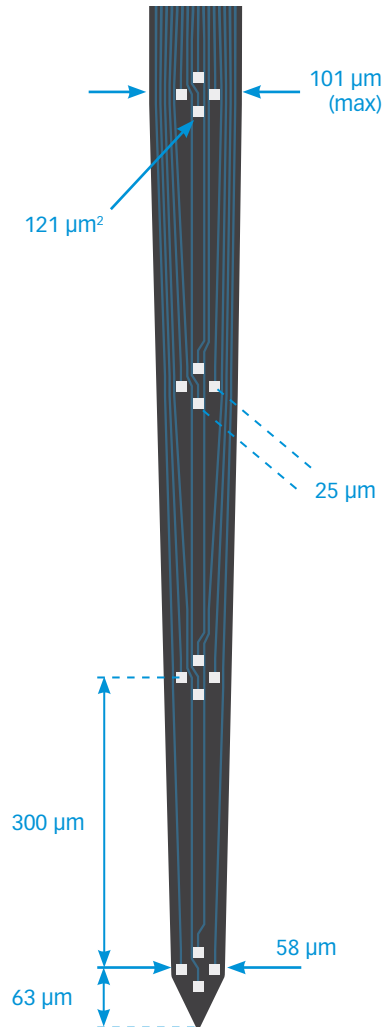
SPECIFICATIONS

Channel Count	16, 32, 64
Total Length*	<i>Acute:</i> 70 mm or 110 mm (specify support tube length when ordering) <i>Chronic:</i> 30-55 mm
Silicon Electrode Length	10 mm
Silicon Electrode Width	20 μm min (Edge design), 75 μm min (Poly2 design), 175 μm max
Silicon Electrode Thickness	50 μm
Site Area	177 μm^2
Site Coverage	375 μm - 6300 μm , depending on design
Electrode Site Material	Iridium
Site Target	Single Unit or LFP/ Stimulation
Support Body Diameter	315 μm OD (16-channels) 400 μm OD (32- and 64-channels)
Available Packages	V16, V32, V64, VC16, VC32, VC64, VZ16, VZ32, VZC16, VZC32, OV16, OV32

V1x4-tet-15mm-300-121



TIP DETAIL



Available packages

ACUTE

- V16_60_50
- V16_100_50
- VZ16_60_50
- VZ16_100_50

CHRONIC

- VC16
- VZC16

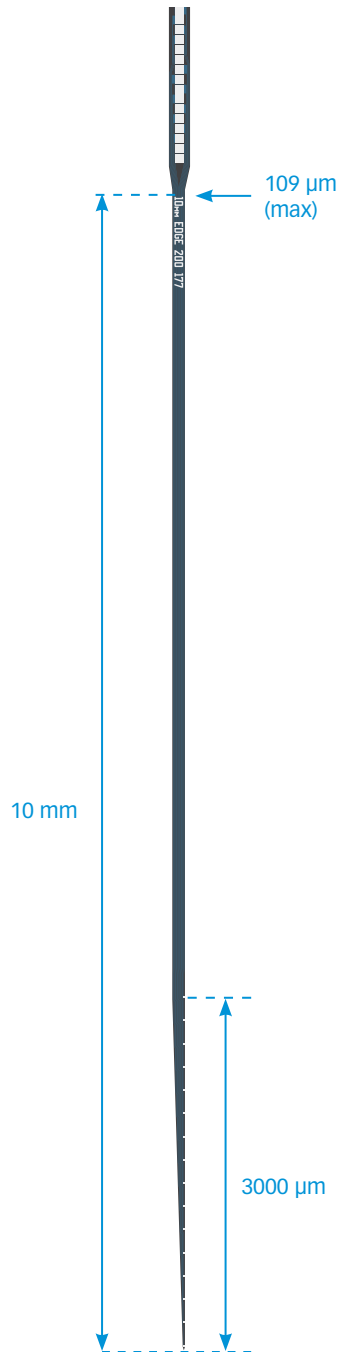
OPTOGENETICS

- OV16_60_50
- OV16_100_50

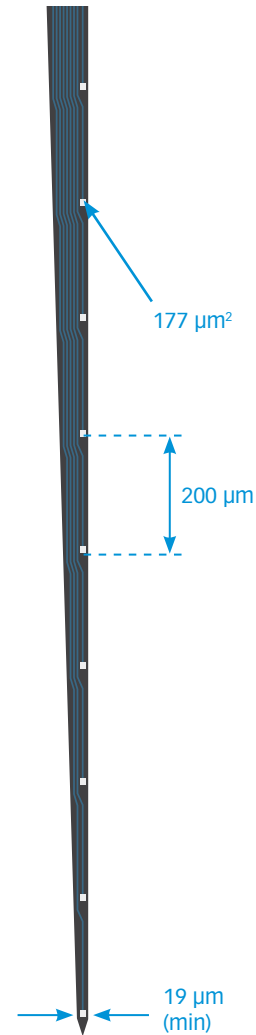
Thickness

50 μm

V1x16-edge-10mm-200-177



TIP DETAIL



Available packages

ACUTE

V16_60_50
V16_100_50
VZ16_60_50
VZ16_100_50

CHRONIC

VC16
VZC16

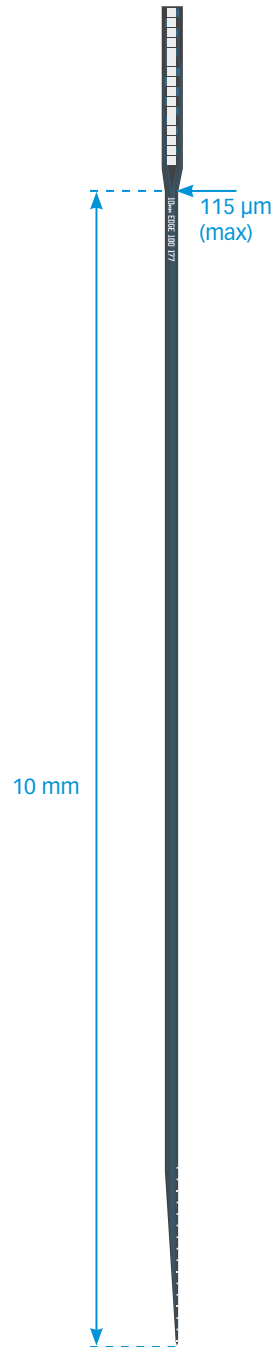
OPTOGENETICS

OV16_60_50
OV16_100_50

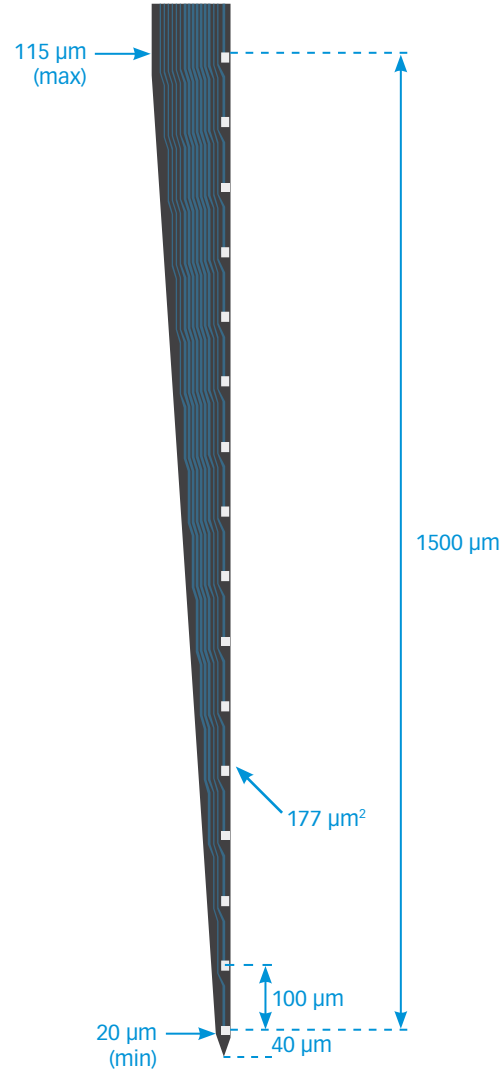
Thickness

50 μm

V1X16-Edge-10mm-100-177



TIP DETAIL



Available packages

ACUTE

V16_60_50
V16_100_50
VZ16_60_50
VZ16_100_50

CHRONIC

VC16
VZC16

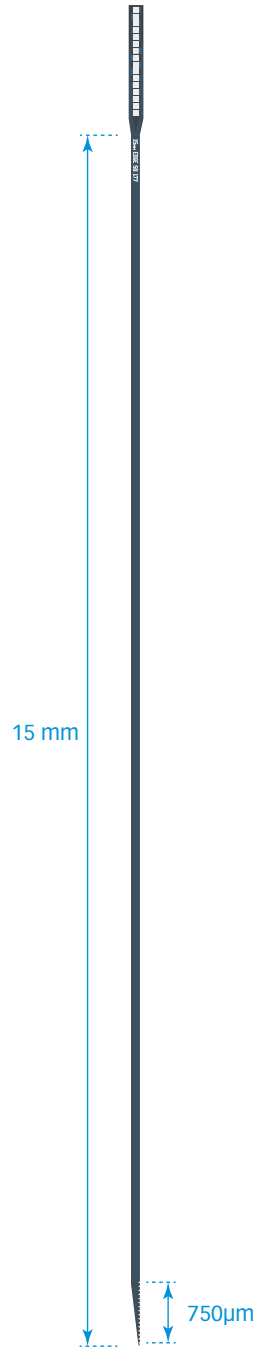
OPTOGENETICS

OV16_60_50
OV16_100_50

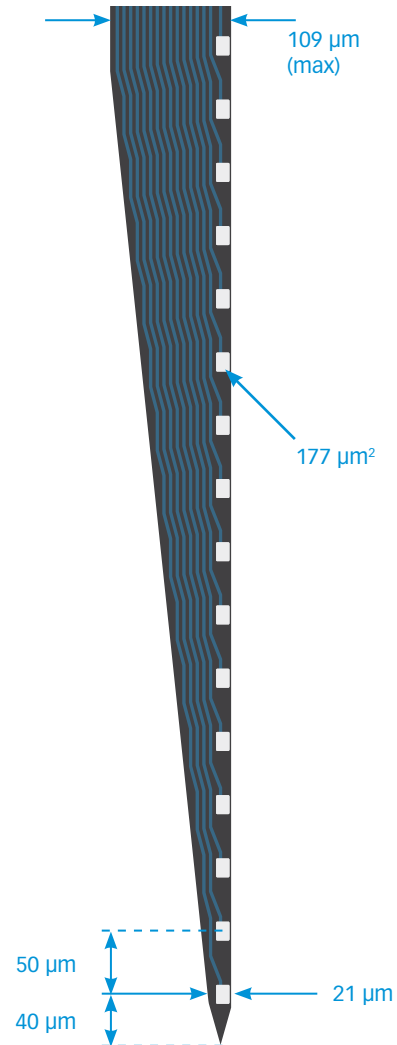
Thickness

50 μm

V1x16-edge-15mm-50-177



TIP DETAIL



Available packages

ACUTE

V16_60_50
V16_100_50
VZ16_60_50
VZ16_100_50

CHRONIC

VC16
VZC16

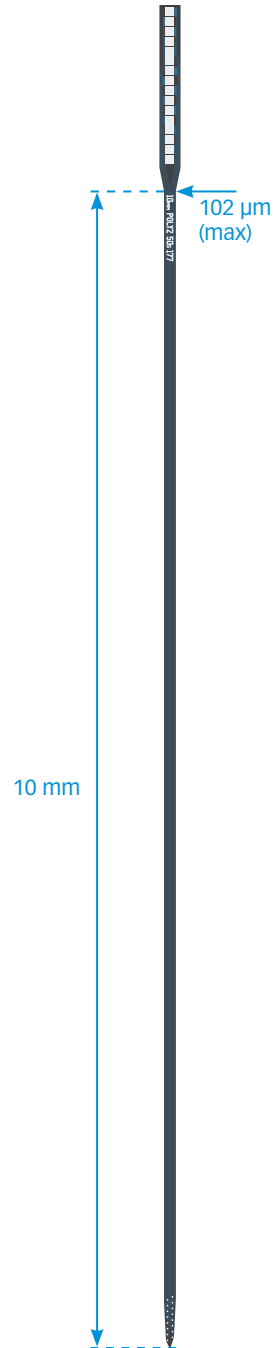
OPTOGENETICS

OV16_60_50
OV16_100_50

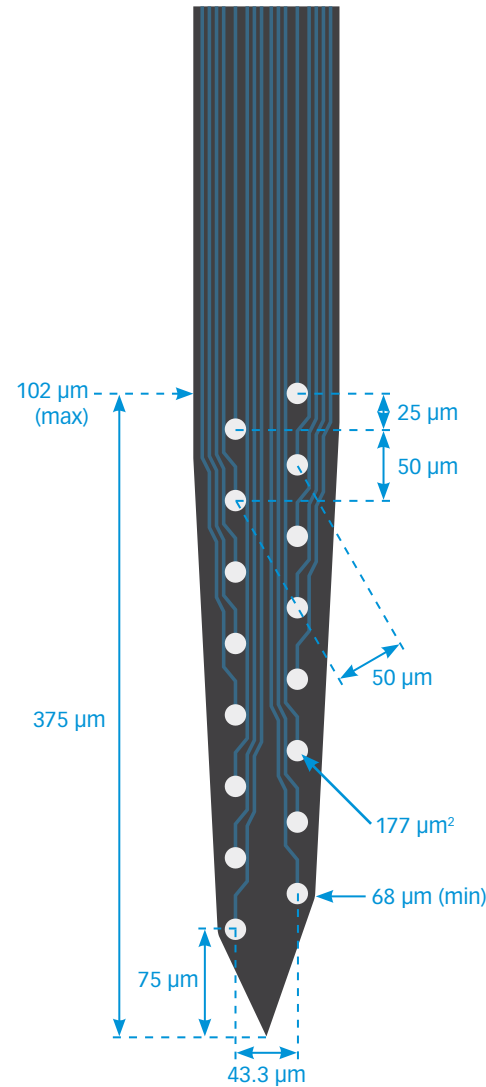
Thickness

50 μm

V1x16-Poly2-10mm-50s-177



TIP DETAIL



Available packages

ACUTE

- V16_60_50
- V16_100_50
- VZ16_60_50
- VZ16_100_50

CHRONIC

- VC16
- VZC16

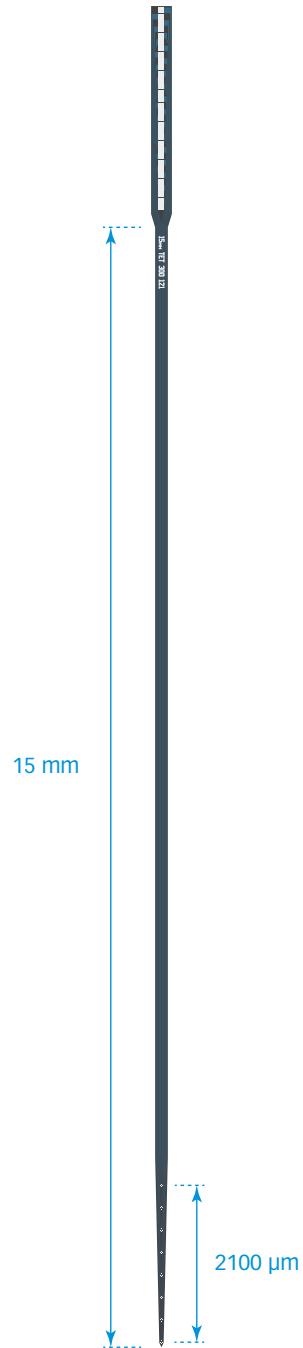
OPTOGENETICS

- OV16_60_50
- OV16_100_50

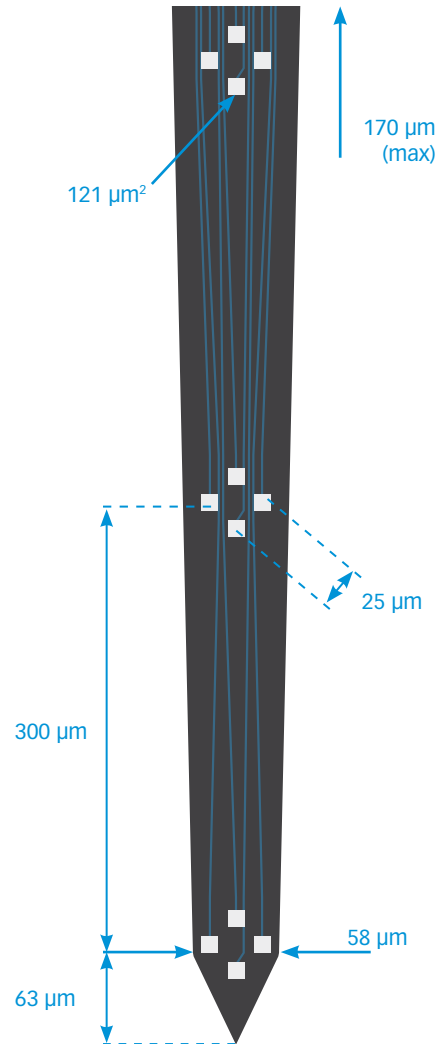
Thickness

50 μm

V1x8-tet-15mm-300-121



TIP DETAIL



Available packages

ACUTE

V32_60_50
V32_100_50
VZ32_60_50
VZ32_100_50

CHRONIC

VC32
VZC32

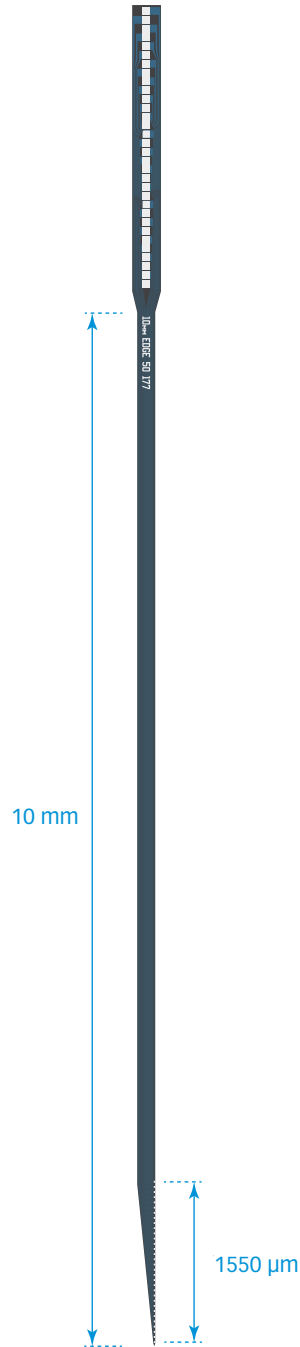
OPTRODE

OV32_60_50
OV32_100_50

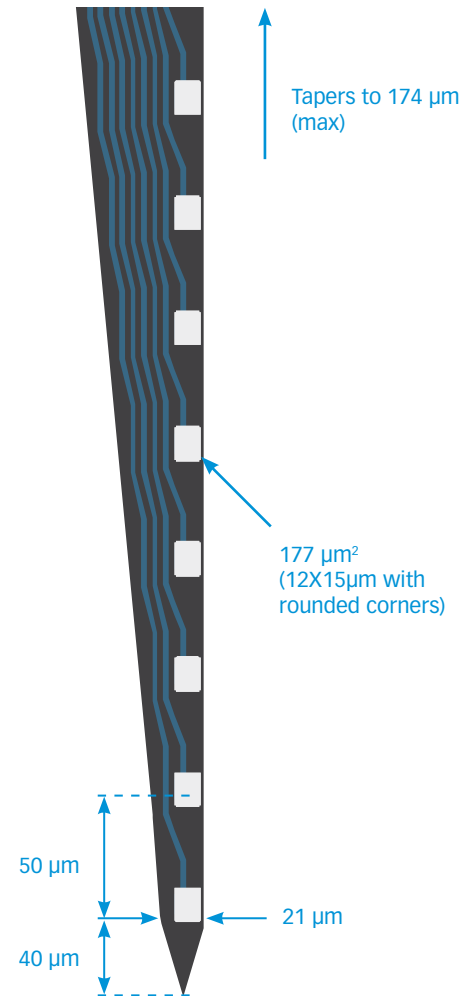
Thickness

50 µm

V1x32-edge-10mm-50-177



TIP DETAIL



Available packages

ACUTE

V32_60_50
V32_100_50
VZ32_60_50
VZ32_100_50

CHRONIC

VC32
VZC32

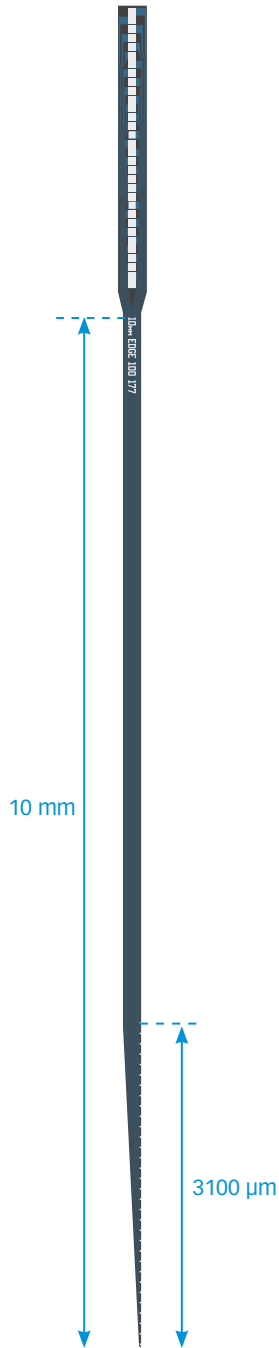
OPTRODE

OV32_60_50
OV32_100_50

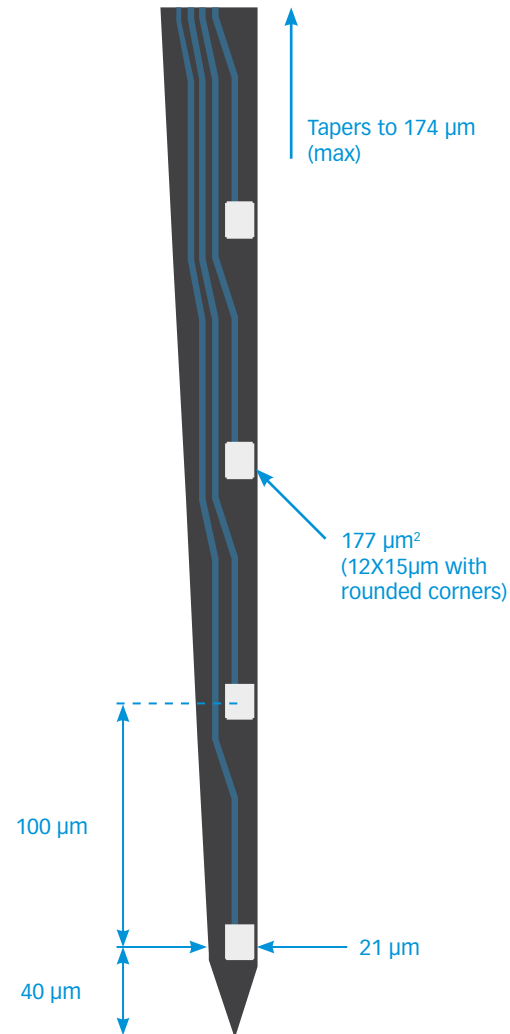
Thickness

50 μm

V1x32-edge-10mm-100-177



TIP DETAIL



Available packages

ACUTE

V32_60_50
V32_100_50
VZ32_60_50
VZ32_100_50

CHRONIC

VC32
VZC32

OPTRODE

OV32_60_50
OV32_100_50

Thickness

50 μm

V1x32-edge-10mm-150-177

Available packages

ACUTE

V32_60_50
V32_100_50
VZ32_60_50
VZ32_100_50

CHRONIC

VC32
VZC32

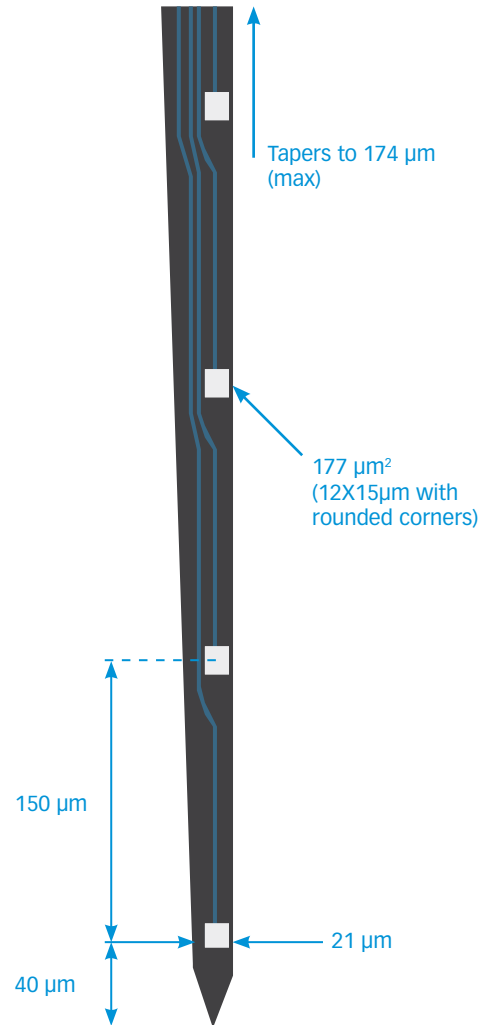
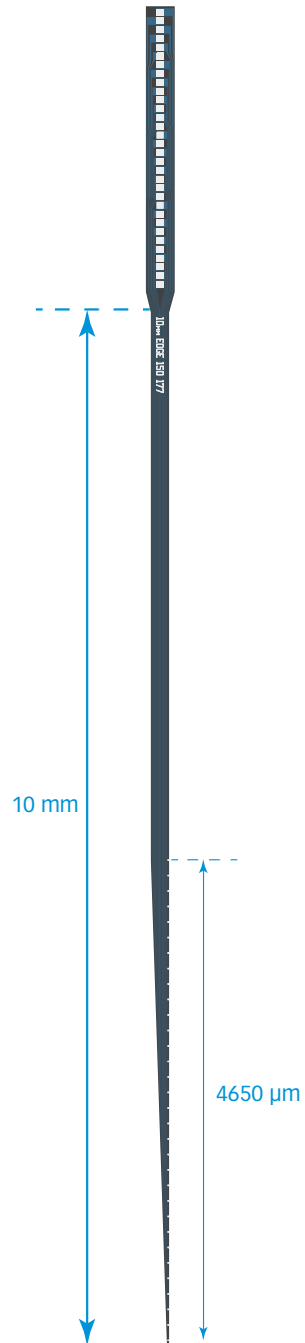
OPTRODE

OV32_60_50
OV32_100_50

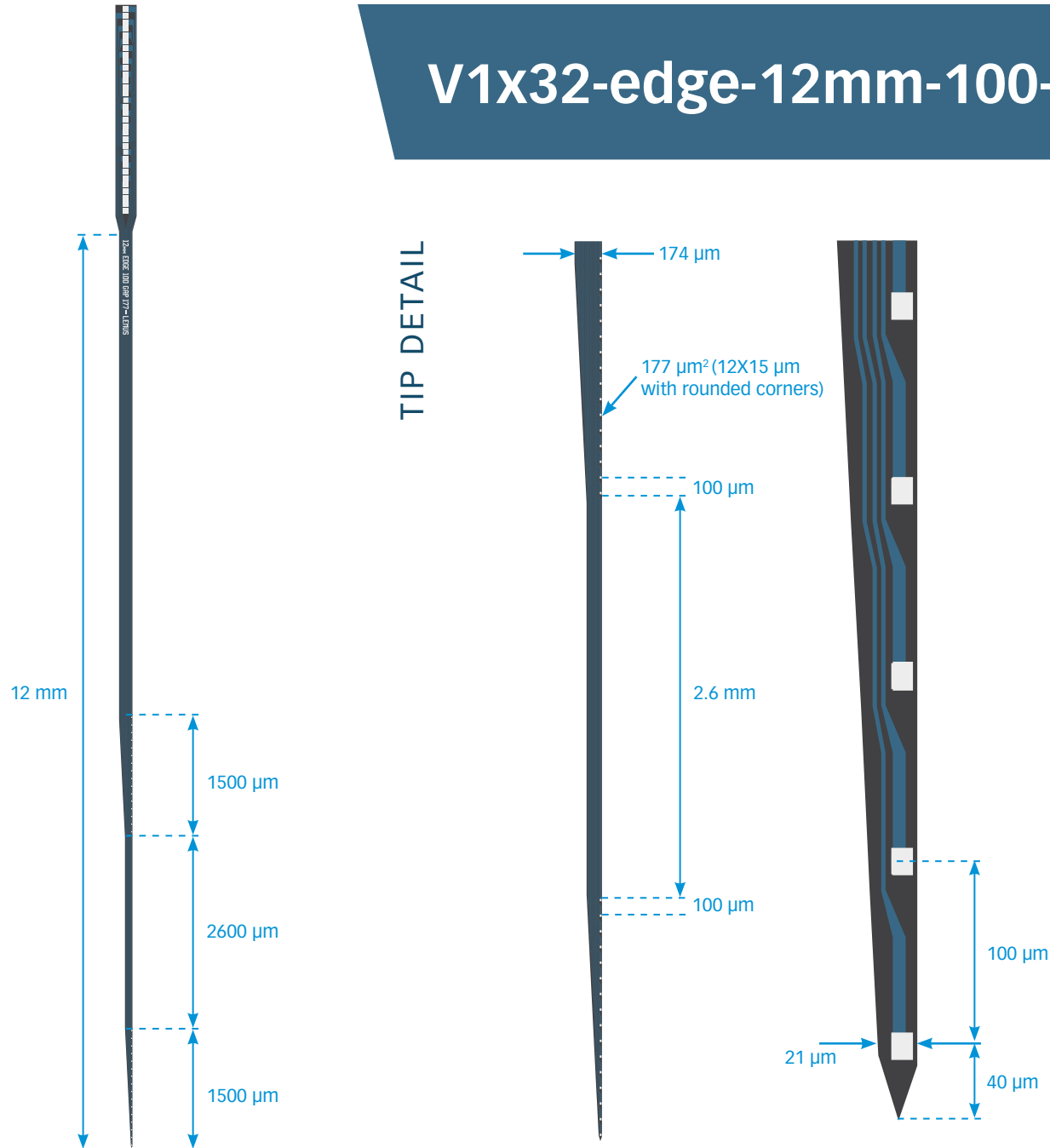
Thickness

50 μm

TIP DETAIL



V1x32-edge-12mm-100-2.6-gap-177



Available packages

ACUTE

- V32_60_50
- V32_100_50
- VZ32_60_50
- VZ32_100_50

CHRONIC

- VC32
- VZC32

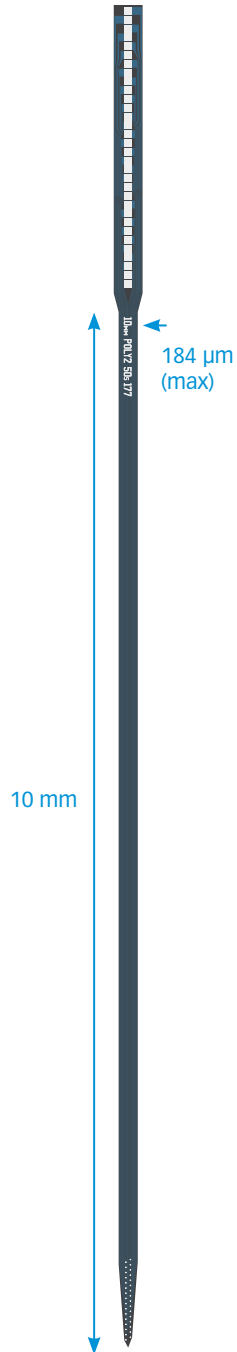
OPTRODE

- OV32_60_50
- OV32_100_50

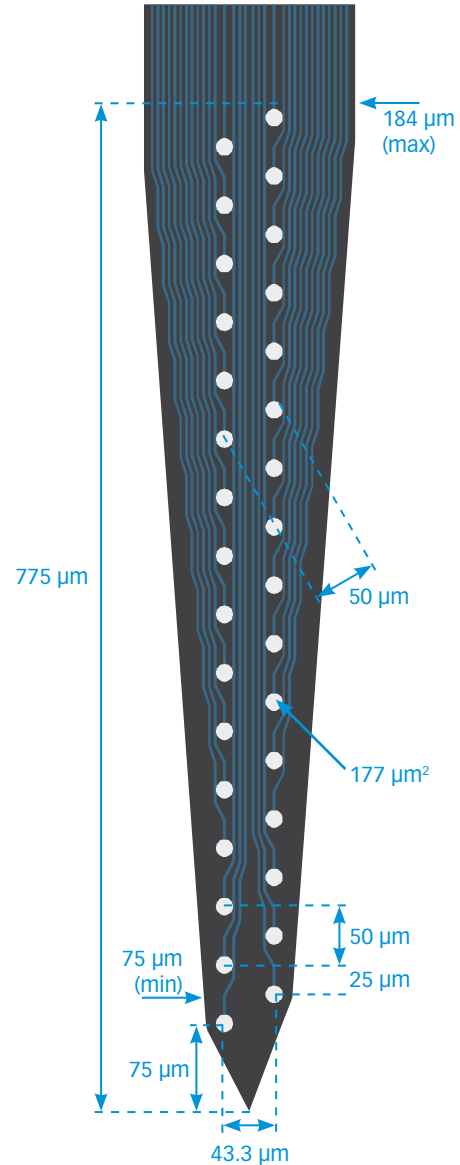
Thickness

50 μm

V1x32-Poly2-10mm-50s-177



TIP DETAIL



available packages

ACUTE

- V32_60_50
- V32_100_50
- VZ32_60_50
- VZ32_100_50

CHRONIC

- VC32
- VZC32

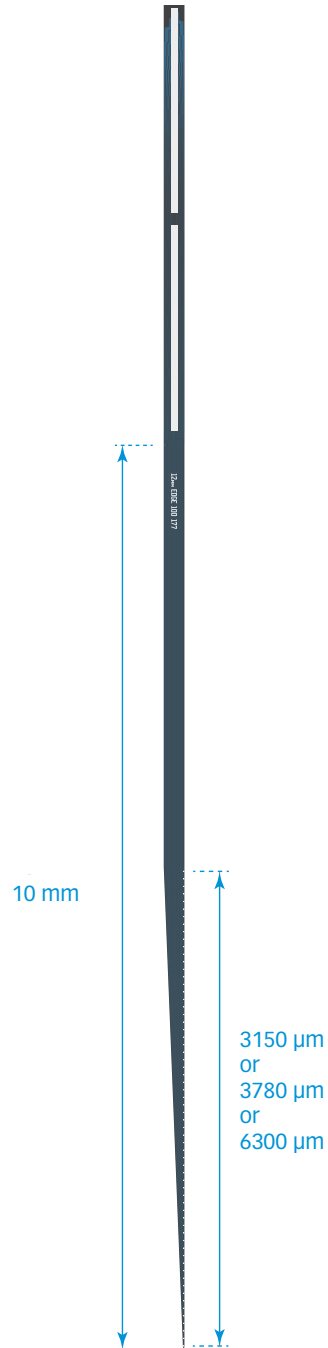
OPTRODE

- OV32_60_50
- OV32_100_50

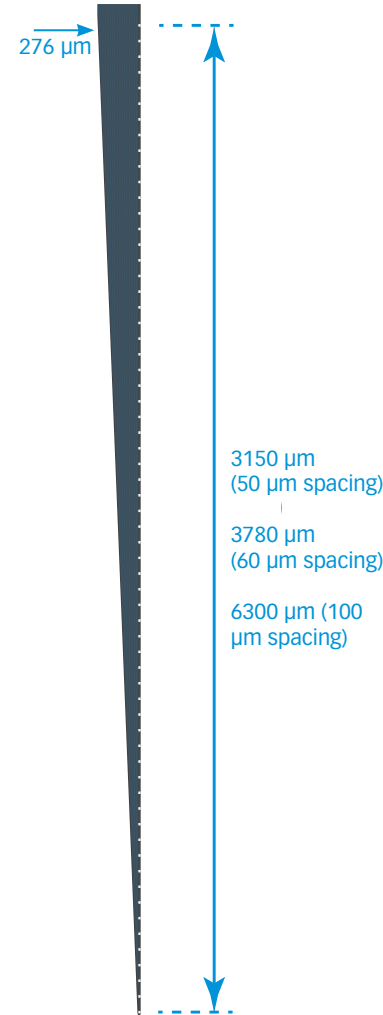
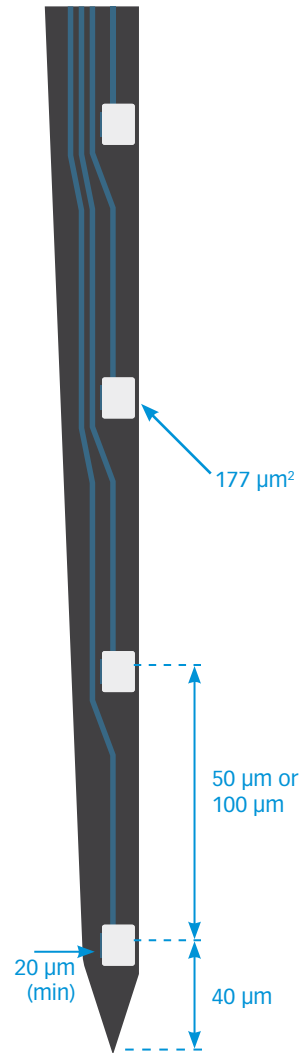
Thickness

50 μm

V1x64-Edge-10mm-50-177
V1x64-Edge-10mm-60-177
V1x64-Edge-10mm-100-177



TIP DETAIL



Available packages

ACUTE

V64_60_50
V64_100_50

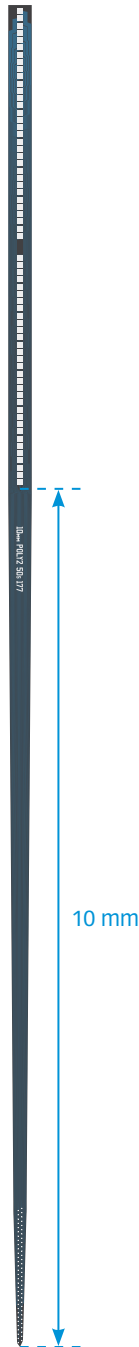
CHRONIC

VC64

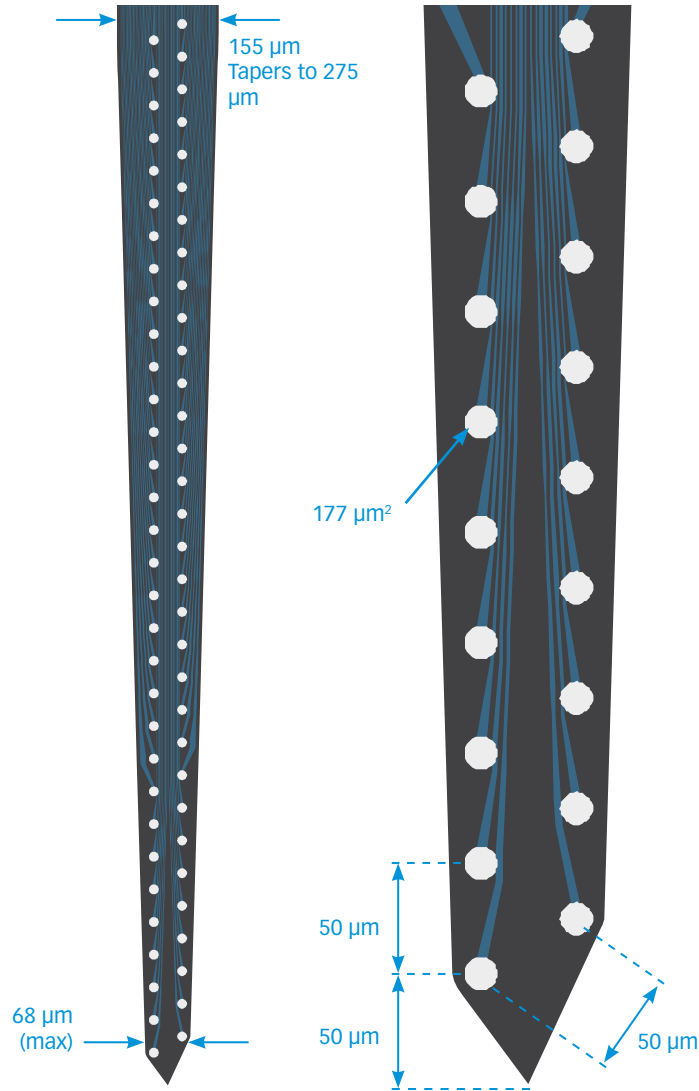
Thickness

50 μm

V1x64-poly2-10mm-50s-177



TIP DETAIL



Available packages

ACUTE

V64_60_50

V64_100_50

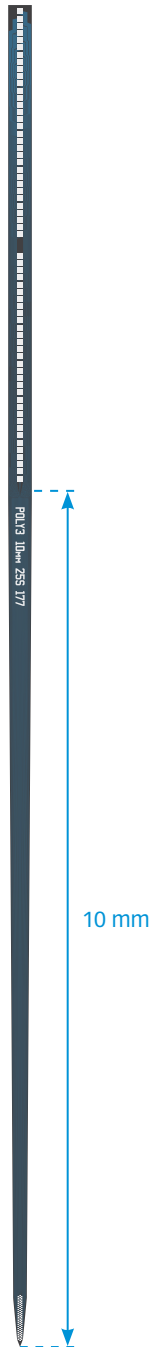
CHRONIC

VC64

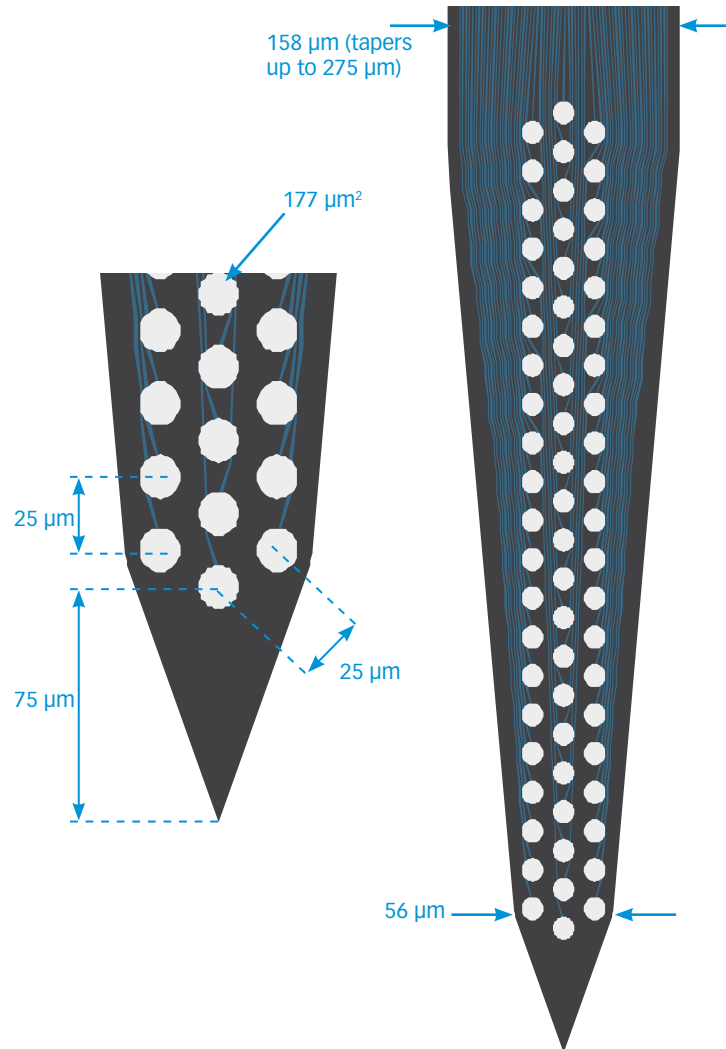
Thickness

50 μm

V1x64-poly3-10mm-25s-177



TIP DETAIL



Available packages

ACUTE

V64_60_50

V64_100_50

CHRONIC

VC64

Thickness

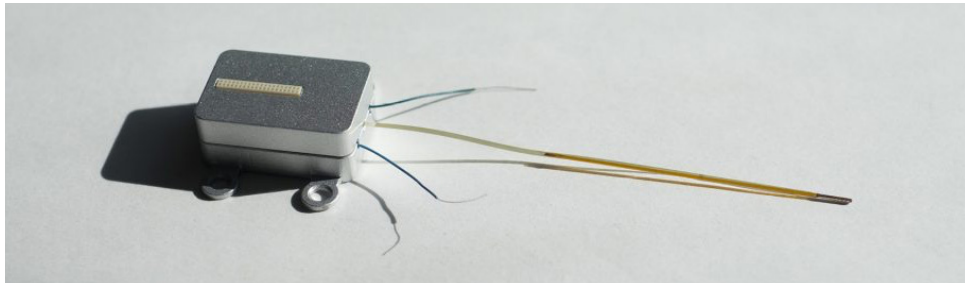
50 μm

The NeuroNexus **rDBSA** (research deep brain stimulation array) is the research-grade version of an innovative clinical DBS technology.

Acute or Chronic - The rDBSA is available in both acute and chronic versions.

High Resolution - Our 40-channel design enables precise, selective recording, and tunable microstimulation of deep brain structures.

Small Animal - We also offer a rat-sized rDBSA designed in collaboration with Daniel Ehrens at Johns Hopkins University.



Connector Package

32 Channels - Omnetics NPD36 connector; choose a subset of 32 channels. typically the 32 stimulation channels

40 Channels - Flex40: access all 40 channels

Rat DBSA- Omnetics NPD18 connector



SPECIFICATIONS

Electrode Site Material	Platinum
Substrate Material	Polyimide
Lead Diameter	0.75 mm
Penetration Length	up to 45 mm
Electrode Contact Shape	Elliptical
Channel Count	32 stimulating, 8 recording (total 40)