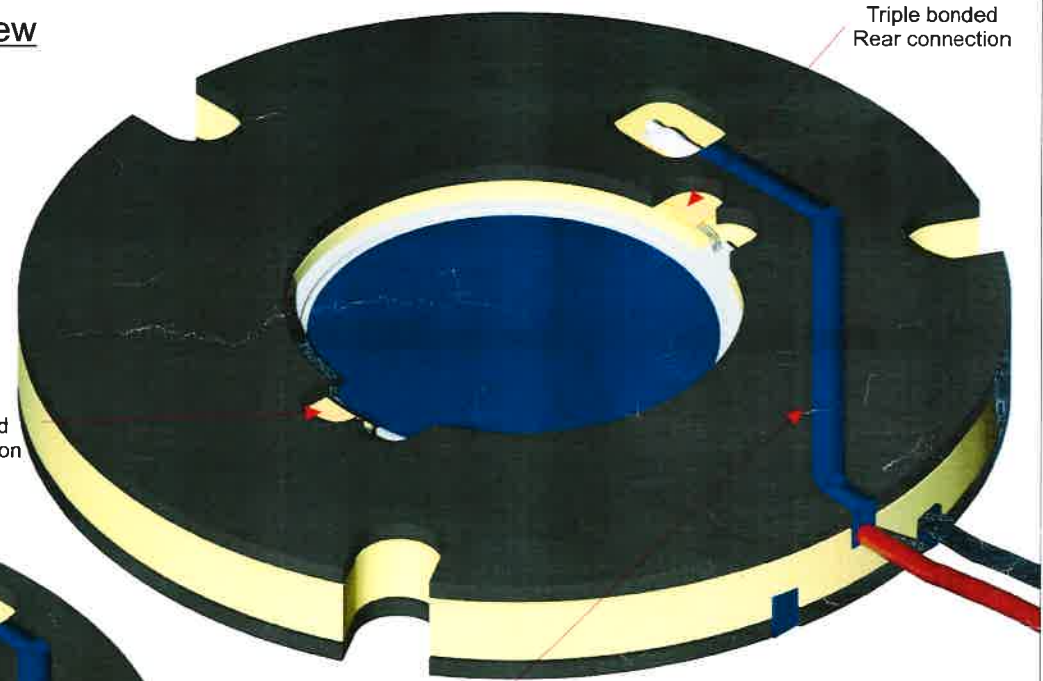


PTFE wires 200 mm long from exit

Black M22759/11-28-0 Front Junction AA  
 Red M22759/11-28-2 Rear Ohmic

Rear View



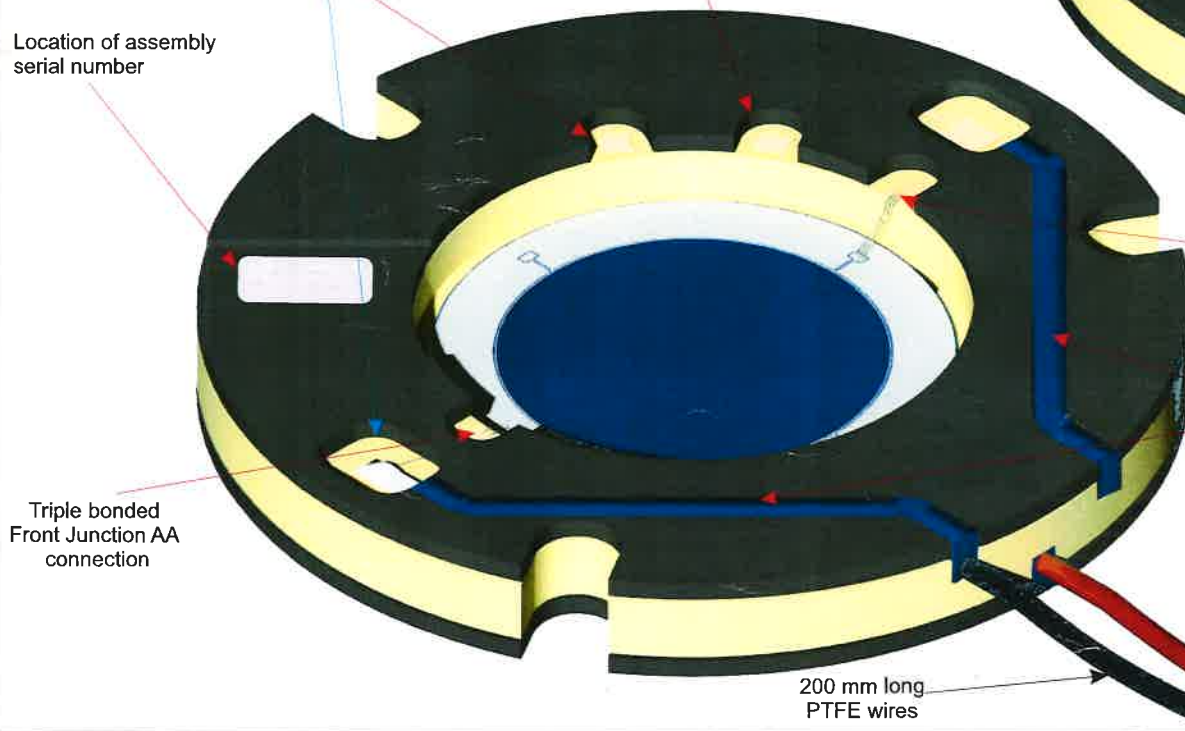
All solder heights to sit below top surface of PCB to enable stacking

Available bond pad for FP connection if required

MGR Bond Pad Not used

Front View

Location of assembly serial number



Triple bonded Front Junction AA connection

Blue epoxy to be made flush with PCB to enable stacking

PCB Dimensions = Ø30.0 mm x 3.47 mm thick  
 Chip Dimensions = Ø16.0 mm  
 Active Area = Ø12.0 mm

Drawn N.W	Checked S.W	Date 22/03/2022	Tolerances Unless Stated x.xx = ± 0.1 mm x.xxx = ± 0.01 mm Angular ± 0.25°	Outputs Via: M22759/11-28-0, M22759/11-28-2 Mating connector: N/A Testing Mating Connector: N/A Substrate Number: A-5285 with A-5429 mod Potted Wire Bonds: No Material Thickness ± 10% Substrate Material: 2.0 mm thick FR4 PCB material with 2 x 0.6 mm thick FR4 spacers Connector Orientation: N/A
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Title.  
**MSD012 Etched Down (SS) 9.5P/7P  
 3D Assembly.  
 Front and Rear View.**



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Scale N/A    Dims In. mm    Drg No A-5558

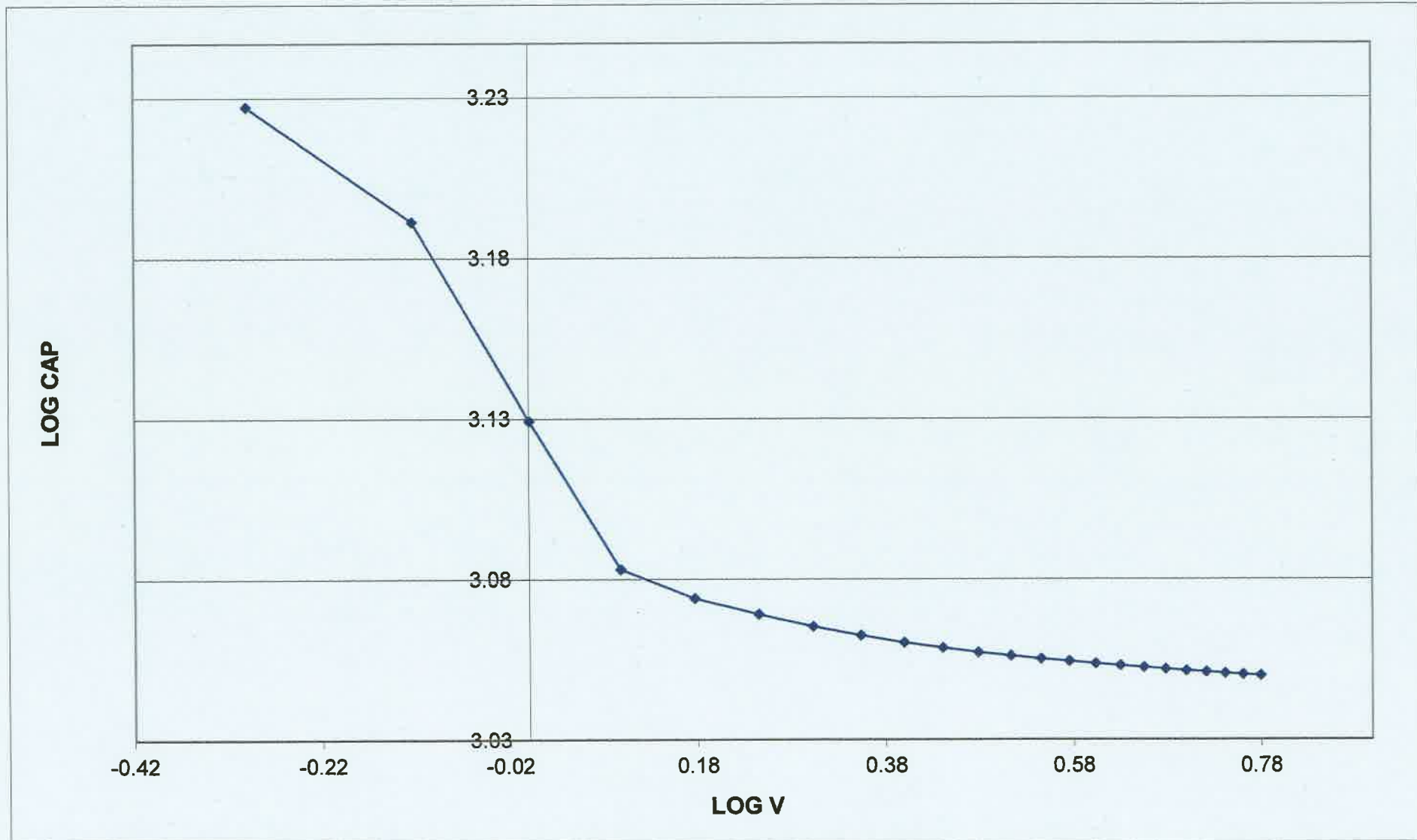
# Depletion Plot

MSD012-10

Wafer No.: 3506-3\_1

Thickness: 12  $\mu\text{m}$

Depletion: 1.5 Volts



**CUSTOMER: MICHIGAN STATE UNIVERSITY (FRIB) NUCLEAR**  
**PURCHASE ORDER NUMBER: C166760**  
**DATE TESTED: 01/11/2022**  
**DEVICE TYPE: MSD012-10 (SS) 9.5P/7P**

**MEASUREMENT DATA IN AIR:**

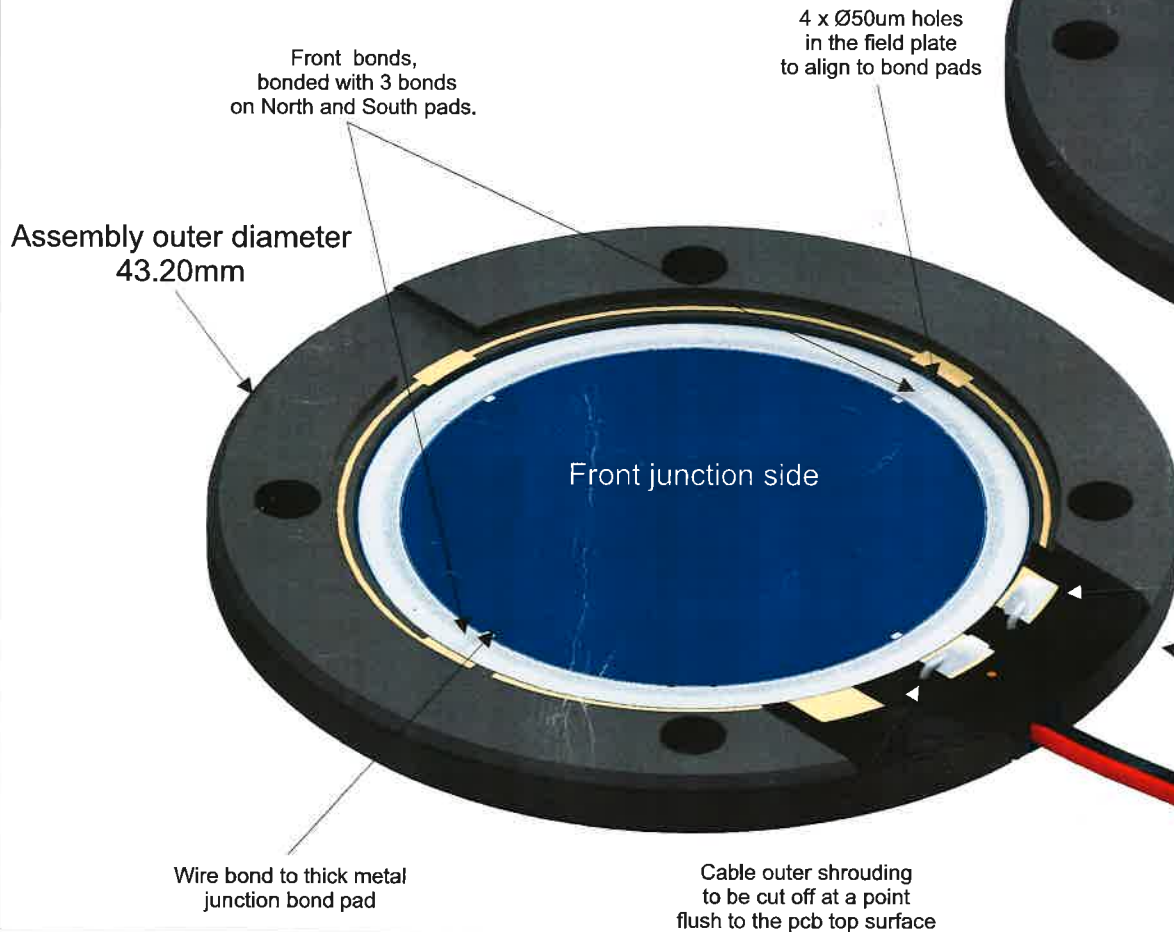
**TEMPERATURE: 19.3°C**  
**HUMIDITY: 45%**

<b>CHIP NUMBER</b>	<b>THICKNESS (μm)</b>	<b>DEPLETION VOLTAGE (V)</b>	<b>IR @ DEP. (nA)</b>	<b>IR @ 2 X DEP. (nA)</b>	<b>VB@10uA (V)</b>	<b>VF@10mA (V)</b>
<b>3506-3-1</b>	<b>12</b>	<b>1.5</b>	<b>&lt;1</b>	<b>&lt;1</b>	<b>&gt;10</b>	<b>0.68</b>

Drg. No **A-5561**

PCB Size = Ø43.2 mm  
 Chip Size = Ø30.0 mm  
 Active Area = Ø26.0 mm

**Front View**



**Rear View**



Outputs via 8 inch long PTFE flying leads

Red = Rear = m22759/11-28-2  
 Black = Front = m22759/11-28-0

Drawn N.W	Checked S.W	Date 23/03/2022	Tolerances Unless Stated		Outputs Via: 8 inch long PTFE flying leads.
			x.xx = ± 0.1 mm	Mating Connector: N/A	
Des. Appd.			x.xxx = ± 0.01 mm		Testing Mating connector: N/A
			Angular ± 0.25°	Substrate Number: A-3289	Potted Wire Bonds: No
Customer			Material Thickness ± 10%		Substrate Material: 3.2mm Thick black FR4 PCB Material
			Connector Orientation: N/A		

Title.  
**MSD026 (SS) 9.5P/2M.  
 3D Assembly.  
 Front and Rear View.**



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Scale N/A      Dims In. mm      Drg No **A-5561**

**CUSTOMER: MICHIGAN STATE UNIVERSITY (FRIB) NUCLEAR**  
**PURCHASE ORDER NUMBER: C166769**  
**DEVICE TYPE: MSD026-1000**  
**DATE TESTED: 21/06/2022**

**MEASUREMENT DATA IN AIR:**

**Measurement data taken in air temperature of 18.6°C**  
**Measurement data taken in RH of 36%**

<b>DEVICE NUMBER</b>	<b>THICKNESS (<math>\mu\text{m}</math>)</b>	<b>DEPLETION VOLTAGE V</b>	<b>IR @ DEP. nA</b>	<b>IR @ DEP. +30V nA</b>	<b>VB @ 10uA</b>	<b>VF @ 10mA</b>
<b>3498-25-2</b>	<b>1000</b>	<b>90</b>	<b>48</b>	<b>50</b>	<b>&gt;200</b>	<b>0.62</b>



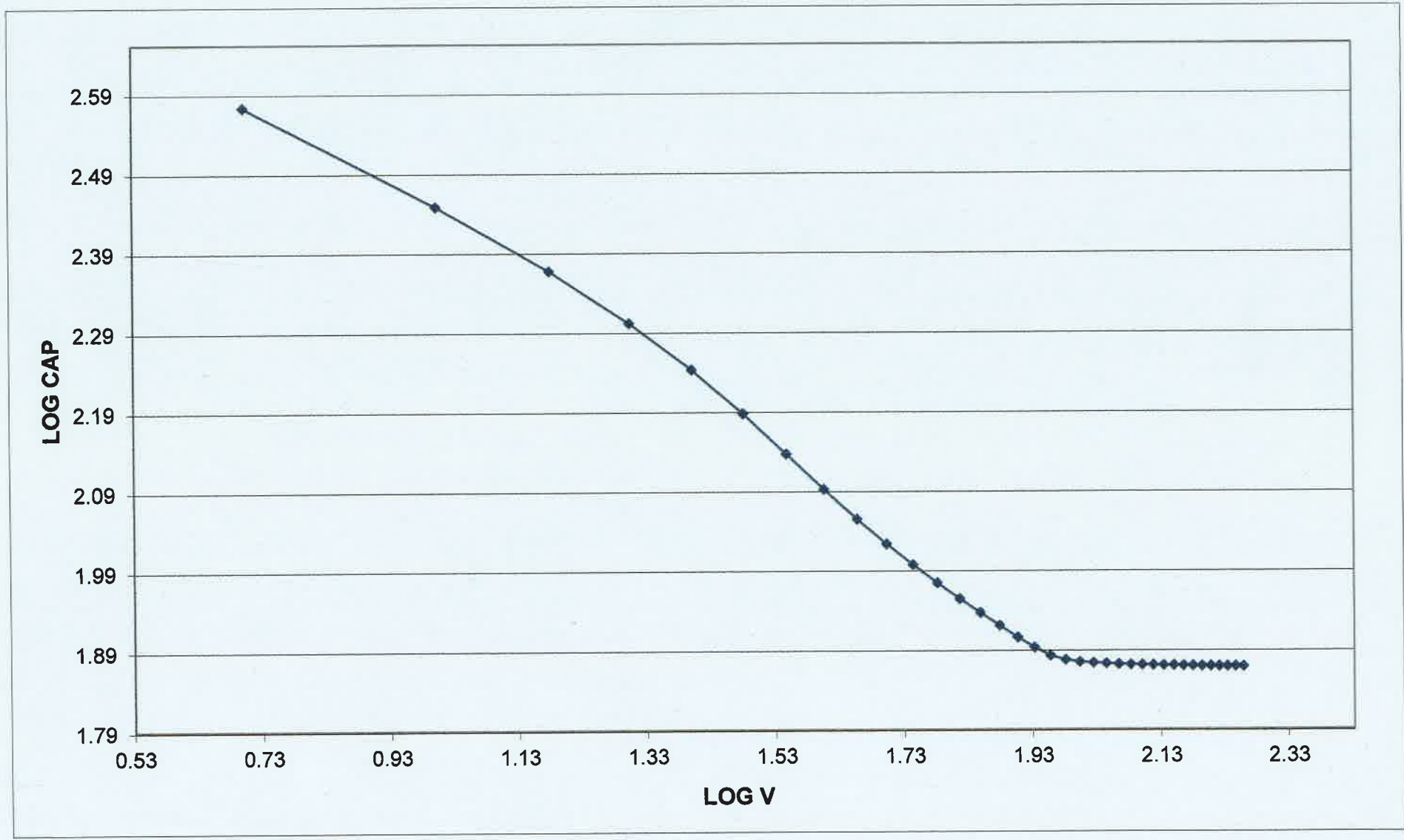
# Depletion Plot

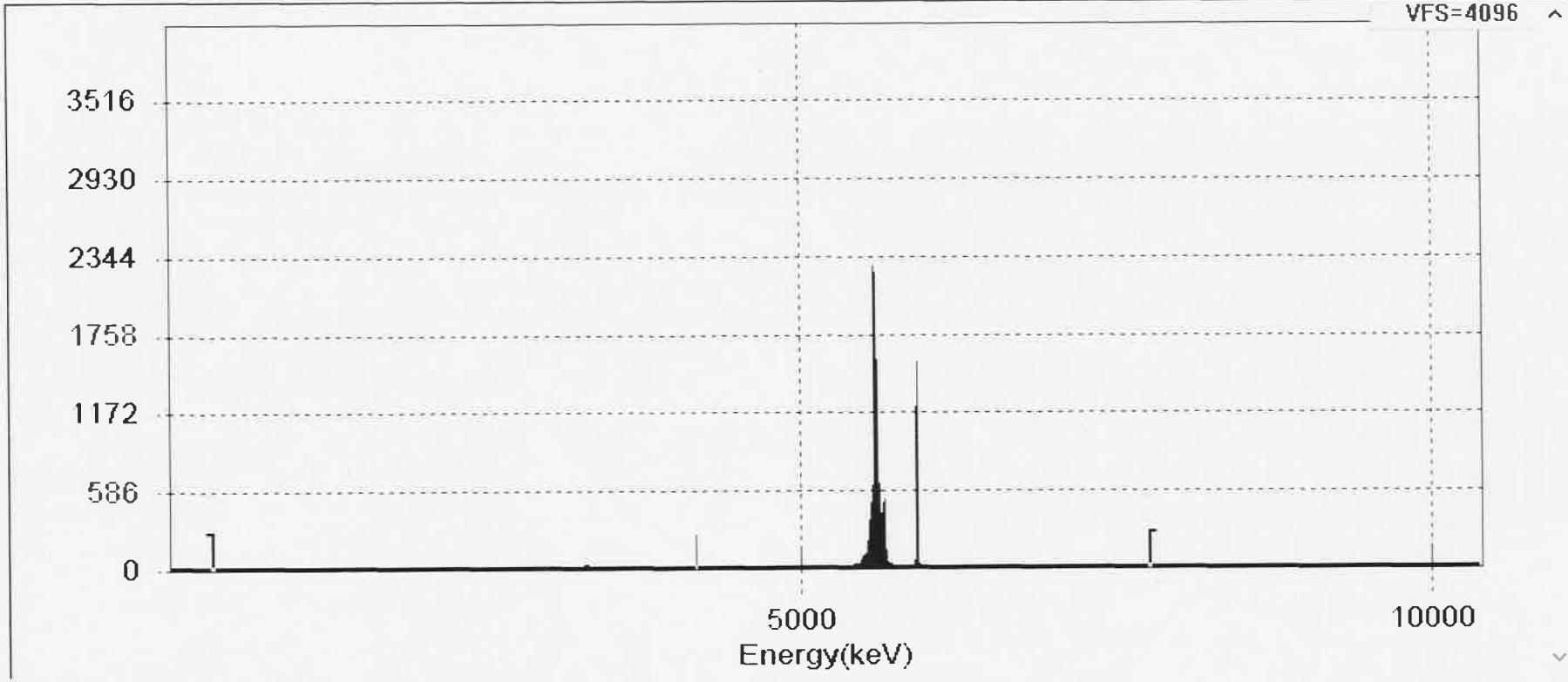
MSD026-1000

Wafer No.: 3498-25\_2

Thickness: 1000 um

Depletion: 90 Volts





MSD026-1000, 3498-25-2, PCB: 92, VBIAS: 130V, IR: 62nA, T: 1000uM, 15/07/2022, 19.0°C, 24%RH

NN+  
DETECTOR LINE – 35.4 Kev  
SYSTEM – 10.8 Kev  
CALCULATED – 33.7 Kev

P+N  
DETECTOR LINE – 26.7 Kev  
SYSTEM – 10.6 Kev  
CALCULATED – 24.5 Kev

AMPLIFIER BIAS: 10MΩ

# DETECTOR HANDLING INSTRUCTIONS

These detectors are fragile and are sensitive to contamination from sodium transferred from fingers and mucous.

1. Always wear a pair of close fitting nitrile gloves and a face mask when handling the detector.
2. Remove the outer bag and discard.
3. Remove any tape carefully (glue from the tape can also contaminate the detector) change gloves if necessary.
4. Remove the nuts or screws from the shipping case carefully ensuring that they do not fall onto the surface of the detector. Be careful not to touch the wire bonds.
5. Hold the detector on the sides of the printed circuit board when taking out of the box.
6. Place in a clean dry area.
7. When plugging in the detector hold the edge of the detector making sure to keep the fingers away from the wire bonds, make sure that the ends of cables do not scratch the chip surface.

Supplies of nitrile gloves can be sourced from Kimtech ([www.kimtech.com](http://www.kimtech.com)) and face masks from Berkshire ([berkshire.com/products/11-face-masks](http://berkshire.com/products/11-face-masks))

Failure to follow these instructions may invalidate your warranty.