



MICRON SEMICONDUCTOR LIMITED

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3366 TAMU
College Station
Texas, TX 77843-3366
United States of America
Attention: Jerry W Deason; Tel: 979-845-1411

23rd March 2011

INVOICE NO: 13162
VAT No: GB 376 8710-14

REF: PURCHASE ORDER NO P003844

Supply:-

Quantity 2, **BB1(DS)-300** SILICON DETECTORS
Type 2M in Custom PCB with Readout
Serial Nos: 2552-15 (297 μ m) & 2852-19 (290 μ m)

UNIT PRICE: \$5,500 \$11,000

TOTAL INVOICE VALUE: \$11,000

BALANCE OF ORDER: Quantity 2, **BB1(DS)-300** Detectors
& NRE (Non-Recurring Engineering)

Detectors sent to: Jerry W Deason

Prices: US Dollars, FOB College Station

US Tariff Code: 8541-10-0080 - DIODE: Other NSPF (Not PHOTSN), Rated: 0%

Payment Terms: Net 30 days

Payment: US\$ cheque to above address OR wire transfer to:

Barclays Bank plc, 139-142 North Street, BRIGHTON, BN1 1RU, UK

Sort Code: 20-12-75; Account No: 82949877

IBAN No: GB90 BARC20127582949877; SWIFT BIC: BARCGB22

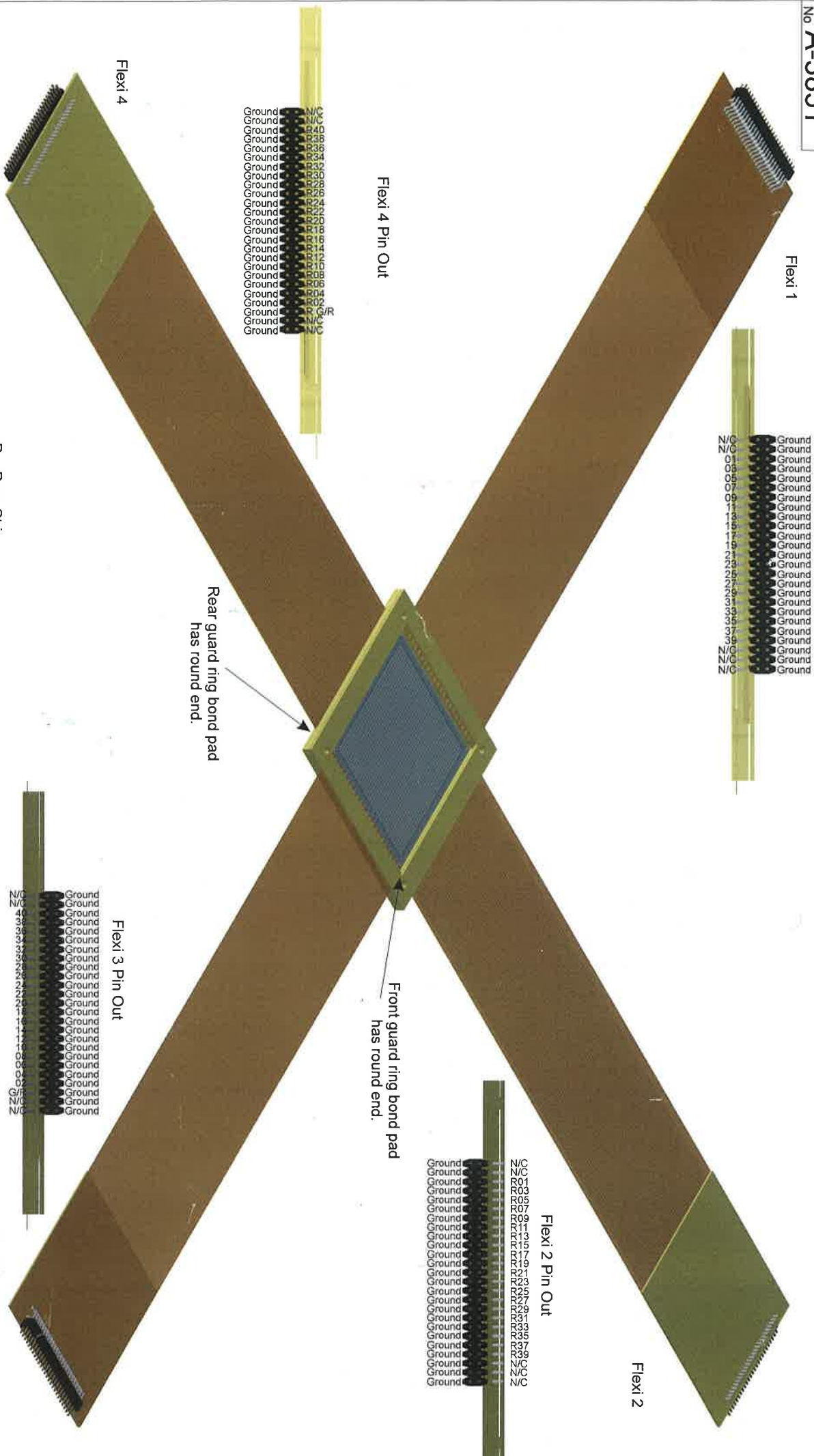
Warranty: 12 months manufacturing/specification defects attributed to Micron Semiconductor Limited from INVOICE DATE.

Origin: These detectors were manufactured wholly in the UK (EEC) at Micron Semiconductor Works, Lancing, England, UK.

COLIN D WILBURN, DIRECTOR



· Silicon Solid State Detectors ·
Astrophysics · High Energy Physics · Nuclear Physics
Electro Optics · Radioactive Beam Physics



PCB Dimensions
Chip Dimensions
Active Area

R = Rear Strip
G/R = Guard Ring
R G/R = Rear Guard Ring
N/C = Not Connected

For strip numbers see C-2217

Drawn	Checked	Date	Tolerances Unless Stated	Outputs Var. 4 x Samtec FTSH-125-02-F-MT
N.W	S.W	31/08/2010	Package O/D ± 0.1 mm	Mating connector: Samtec FSD-25-S Series
Des.			Package Hole ± 0.05 mm	Potted Wire Bonds: No
Appd.			Package Hole Pos'n ± 0.1 mm	Substrate Number: A-3822
customer			Detector O/D ± 20.0 µm	Substrate Material: FR4 PCB material and Kapton Flexi Material
				Connector Orientation: 2 x Exiting front and 2 x exiting rear

Title:

BB1 in 2010 Flexi Rigid Package.
3D Assembly.
Front View.



MICRON SEMICONDUCTOR LIMITED

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graphics@micronsemiconductor.co.uk

Scale N/A

Dims In. mm

Dwg No A-3851

Front Side Data

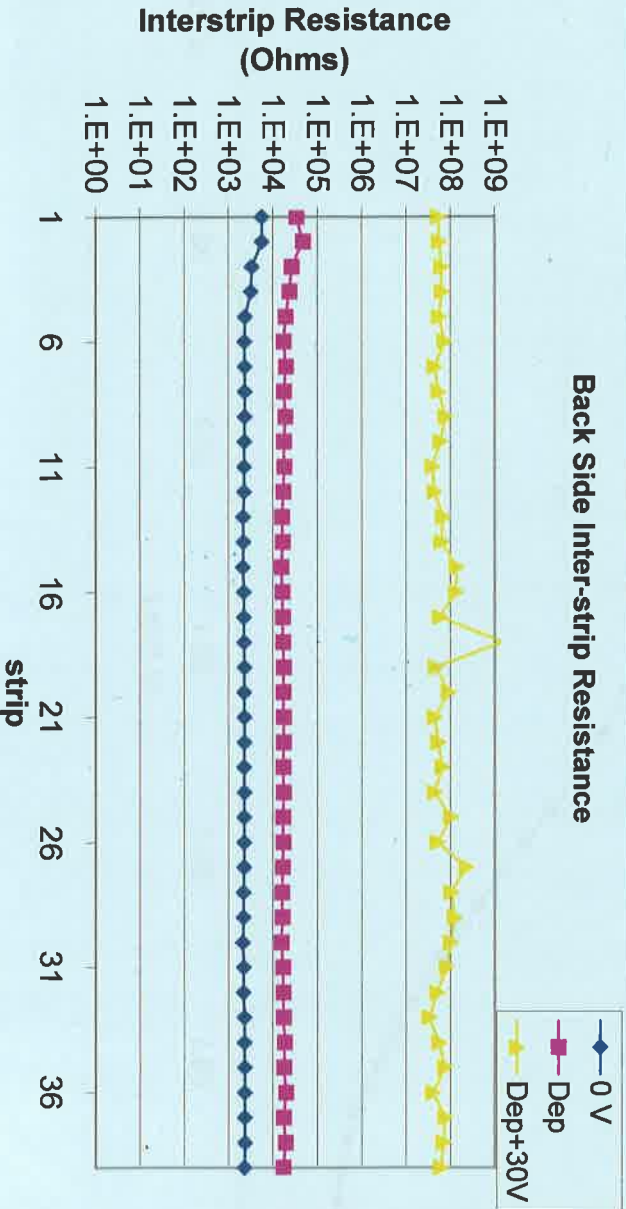
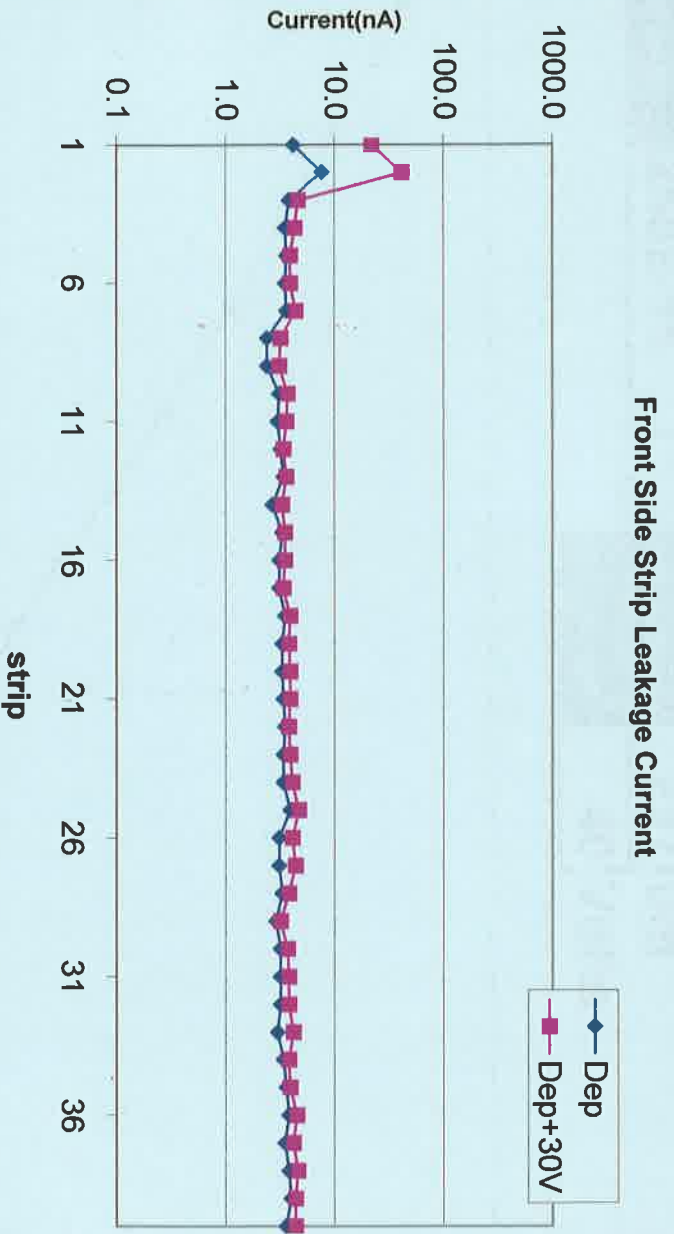
Wafer No.: 2552-15

Thickness: 297 μm

Depletion: 40 Volts

Back Side Data

Strip	Current(nA)	DEP	DEP+30V
1	4.20	21.90	
2	7.80	41.50	
3	3.80	4.60	
4	3.50	4.30	
5	3.60	3.90	
6	3.50	3.90	
7	3.60	4.40	
8	2.40	3.20	
9	2.40	3.10	
10	3.10	3.70	
11	3.00	3.60	
12	3.20	3.40	
13	3.40	3.60	
14	2.70	3.30	
15	3.30	3.50	
16	3.10	3.50	
17	3.10	3.40	
18	3.50	3.90	
19	3.30	3.80	
20	3.30	3.90	
21	3.40	3.90	
22	3.50	3.80	
23	3.40	3.90	
24	3.40	4.10	
25	3.90	4.70	
26	3.10	4.10	
27	3.10	4.40	
28	3.30	3.80	
29	2.90	3.20	
30	3.20	3.70	
31	3.20	3.80	
32	3.20	3.80	
33	3.00	4.20	
34	3.40	3.80	
35	3.60	3.90	
36	3.80	4.50	
37	3.50	4.20	
38	3.80	4.60	
39	4.00	4.40	
40	3.60	4.40	



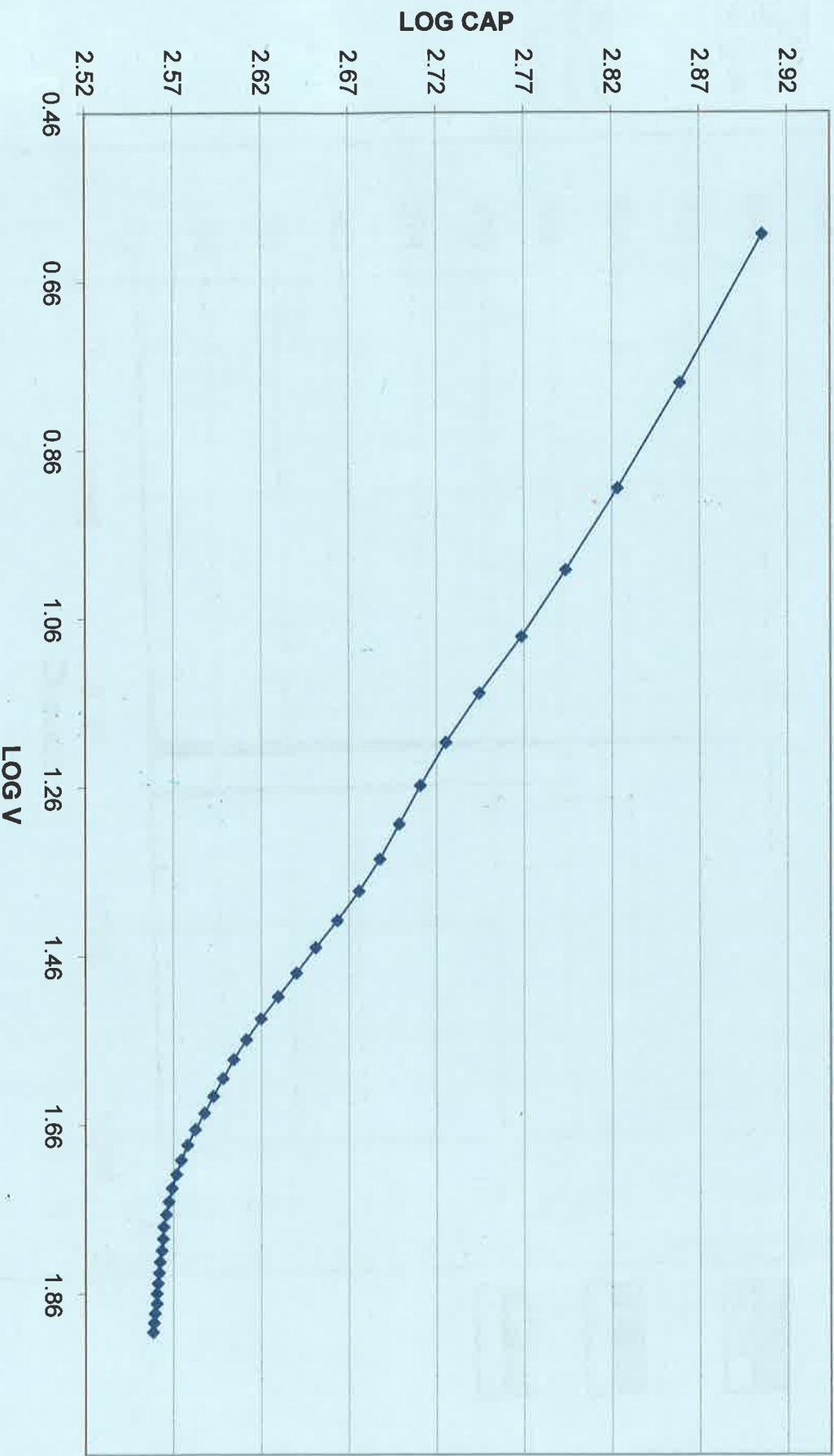
Strip	Back Resistance (Ohms)	0V	DEP	DEP+30V
1	5.6E+03	3.4E+04	5.3E+07	
2	5.6E+03	4.7E+04	5.6E+07	
3	3.3E+03	2.6E+04	6.2E+07	
4	3.2E+03	2.4E+04	6.4E+07	
5	2.4E+03	1.9E+04	5.6E+07	
6	2.3E+03	1.7E+04	7.4E+07	
7	2.3E+03	2.0E+04	4.5E+07	
8	2.3E+03	1.8E+04	5.4E+07	
9	2.3E+03	1.9E+04	7.8E+07	
10	2.3E+03	1.8E+04	6.0E+07	
11	2.2E+03	1.8E+04	3.9E+07	
12	2.2E+03	1.7E+04	4.5E+07	
13	2.1E+03	1.6E+04	6.8E+07	
14	2.2E+03	1.7E+04	6.3E+07	
15	2.1E+03	1.6E+04	1.4E+08	
16	2.2E+03	1.6E+04	1.4E+08	
17	2.2E+03	1.7E+04	5.7E+07	
18	2.2E+03	1.7E+04	1.5E+09	
19	2.3E+03	1.7E+04	4.6E+07	
20	2.3E+03	1.7E+04	9.2E+07	
21	2.3E+03	1.8E+04	4.5E+07	
22	2.3E+03	1.7E+04	5.3E+07	
23	2.3E+03	1.7E+04	6.6E+07	
24	2.3E+03	1.8E+04	4.4E+07	
25	2.3E+03	1.7E+04	1.0E+08	
26	2.3E+03	1.7E+04	5.1E+07	
27	2.2E+03	1.7E+04	2.3E+08	
28	2.2E+03	1.6E+04	1.1E+08	
29	2.2E+03	1.6E+04	1.3E+08	
30	2.1E+03	1.6E+04	1.0E+08	
31	2.2E+03	1.7E+04	8.4E+07	
32	2.2E+03	1.7E+04	5.1E+07	
33	2.3E+03	1.7E+04	3.4E+07	
34	2.3E+03	1.8E+04	5.6E+07	
35	2.3E+03	1.8E+04	7.6E+07	
36	2.3E+03	2.0E+04	4.1E+07	
37	2.3E+03	1.8E+04	7.6E+07	
38	2.4E+03	1.9E+04	6.9E+07	
39	2.3E+03	1.7E+04	6.1E+07	

Depletion Plot

BB1-300

Wafer No.: **2552-15**

Thickness: **297** μm
Depletion: **40** Volts



Resolution Plot

DESIGN BB1 AGOR

Wafer No.: **2552-15**

Thickness: **297** μm

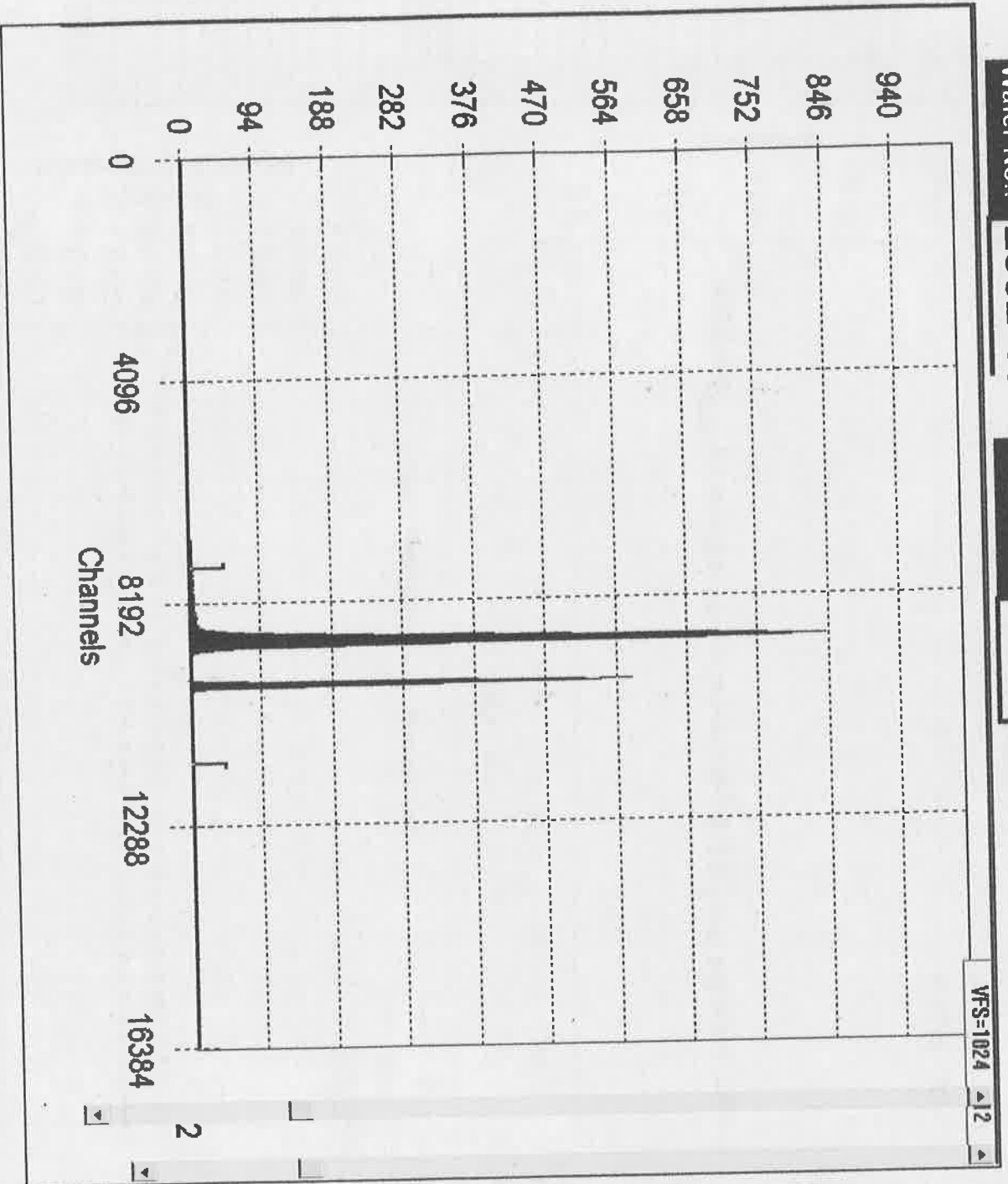
VFS-1024 Δ 12 Δ

JUNCTION

DET LINE: **77.4** KeV
SYSTEM: **36.3** KeV
CAL: **68.3** KeV

OHMIC

DET LINE: **81.1** KeV
SYSTEM: **35.9** KeV
CALC: **72.7** KeV



Source
Am 241

Rise Time
1

Flat Top
0

BIAS VOLTS= V Leakage nA

Front Side Data

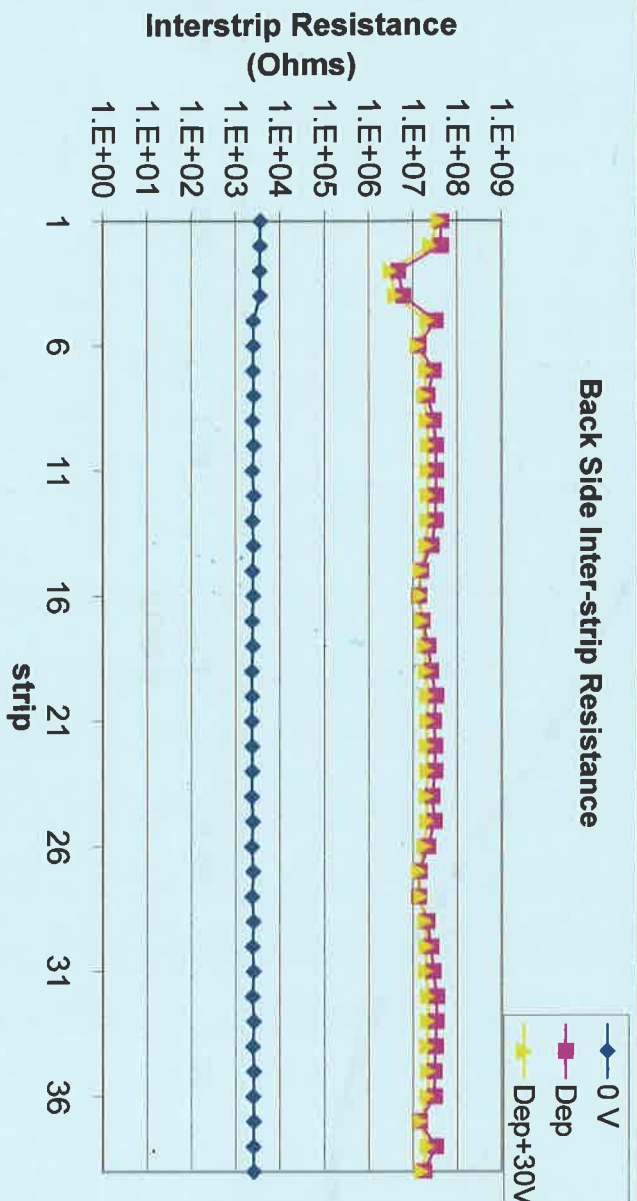
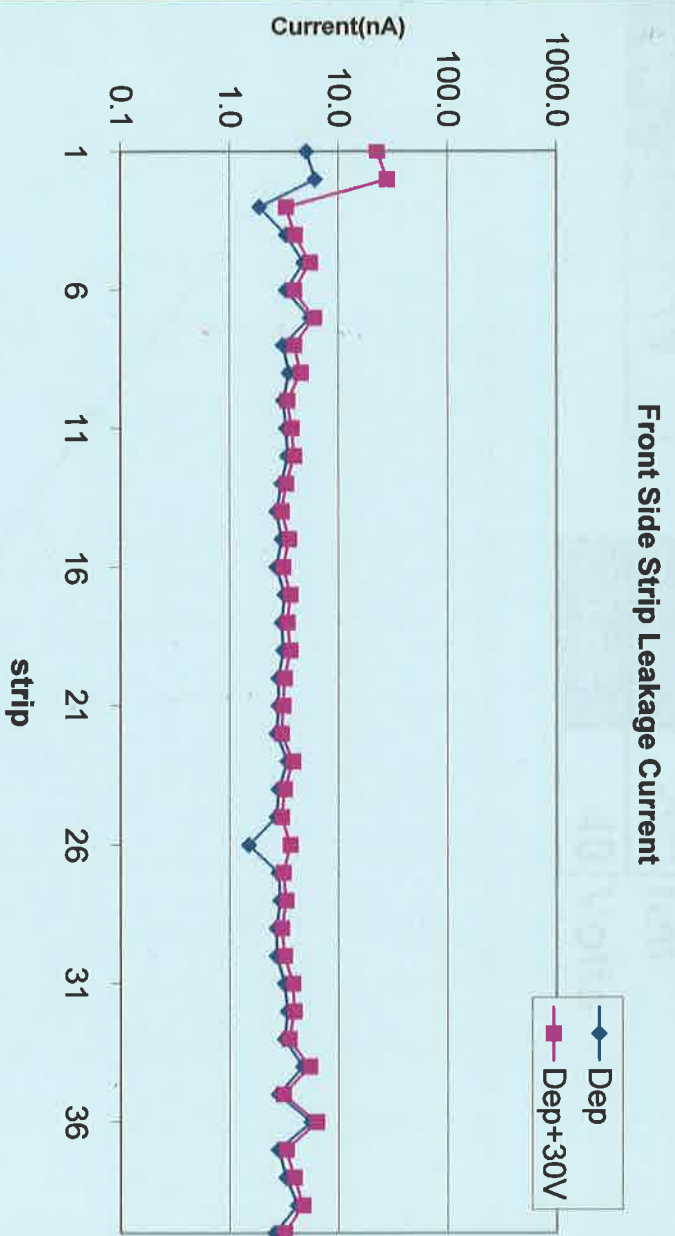
Wafer No.: 2852-19

Thickness: 290 um

Depletion: 40 Volts

Back Side Data

Strip	Current(nA)	
	DEP	Dep+30V
1	5.10	22.50
2	6.10	27.50
3	1.90	3.30
4	3.30	4.00
5	4.80	5.50
6	3.30	3.90
7	5.50	6.00
8	3.10	3.90
9	3.50	4.50
10	3.10	3.40
11	3.30	3.70
12	3.40	3.90
13	3.00	3.30
14	2.70	3.00
15	3.00	3.50
16	2.70	3.10
17	3.20	3.60
18	3.00	3.40
19	3.10	3.60
20	2.80	3.20
21	2.80	3.10
22	2.70	3.00
23	3.40	3.80
24	2.80	3.20
25	2.70	3.00
26	1.50	3.60
27	2.80	3.10
28	2.90	3.30
29	2.70	3.00
30	2.70	3.20
31	3.20	3.80
32	3.40	3.90
33	3.20	3.50
34	4.70	5.40
35	2.80	3.10
36	5.60	6.30
37	2.80	3.30
38	3.30	3.90
39	4.20	4.70
40	2.60	3.20



Strip	Back Side Resistance (Ω)		
	0V	DEP	Dep+30V
1	3.7E+03	4.4E+07	3.8E+07
2	3.6E+03	4.4E+07	2.5E+07
3	3.5E+03	4.6E+06	3.1E+06
4	3.6E+03	6.1E+06	4.0E+06
5	2.5E+03	3.3E+07	2.2E+07
6	2.5E+03	1.4E+07	1.3E+07
7	2.5E+03	2.9E+07	2.1E+07
8	2.6E+03	2.2E+07	1.8E+07
9	2.5E+03	3.0E+07	2.1E+07
10	2.6E+03	3.4E+07	2.2E+07
11	2.4E+03	3.3E+07	2.2E+07
12	2.6E+03	3.3E+07	2.2E+07
13	2.4E+03	3.3E+07	2.2E+07
14	2.5E+03	2.6E+07	2.0E+07
15	2.4E+03	1.5E+07	1.5E+07
16	2.5E+03	1.4E+07	1.4E+07
17	2.4E+03	1.6E+07	1.6E+07
18	2.5E+03	2.2E+07	1.9E+07
19	2.3E+03	2.5E+07	1.9E+07
20	2.4E+03	3.3E+07	2.1E+07
21	2.3E+03	3.0E+07	2.1E+07
22	2.4E+03	3.2E+07	2.0E+07
23	2.4E+03	3.2E+07	2.1E+07
24	2.3E+03	2.7E+07	2.0E+07
25	2.4E+03	3.0E+07	2.1E+07
26	2.3E+03	2.1E+07	1.8E+07
27	2.5E+03	1.4E+07	1.4E+07
28	2.4E+03	1.4E+07	1.5E+07
29	2.5E+03	2.1E+07	1.9E+07
30	2.4E+03	2.6E+07	2.0E+07
31	2.6E+03	2.8E+07	1.9E+07
32	2.4E+03	3.4E+07	2.2E+07
33	2.6E+03	3.3E+07	2.2E+07
34	2.4E+03	3.2E+07	2.1E+07
35	2.6E+03	3.0E+07	2.2E+07
36	2.5E+03	3.1E+07	2.1E+07
37	2.6E+03	1.4E+07	1.4E+07
38	2.5E+03	3.2E+07	2.1E+07
39	2.6E+03	1.8E+07	1.6E+07

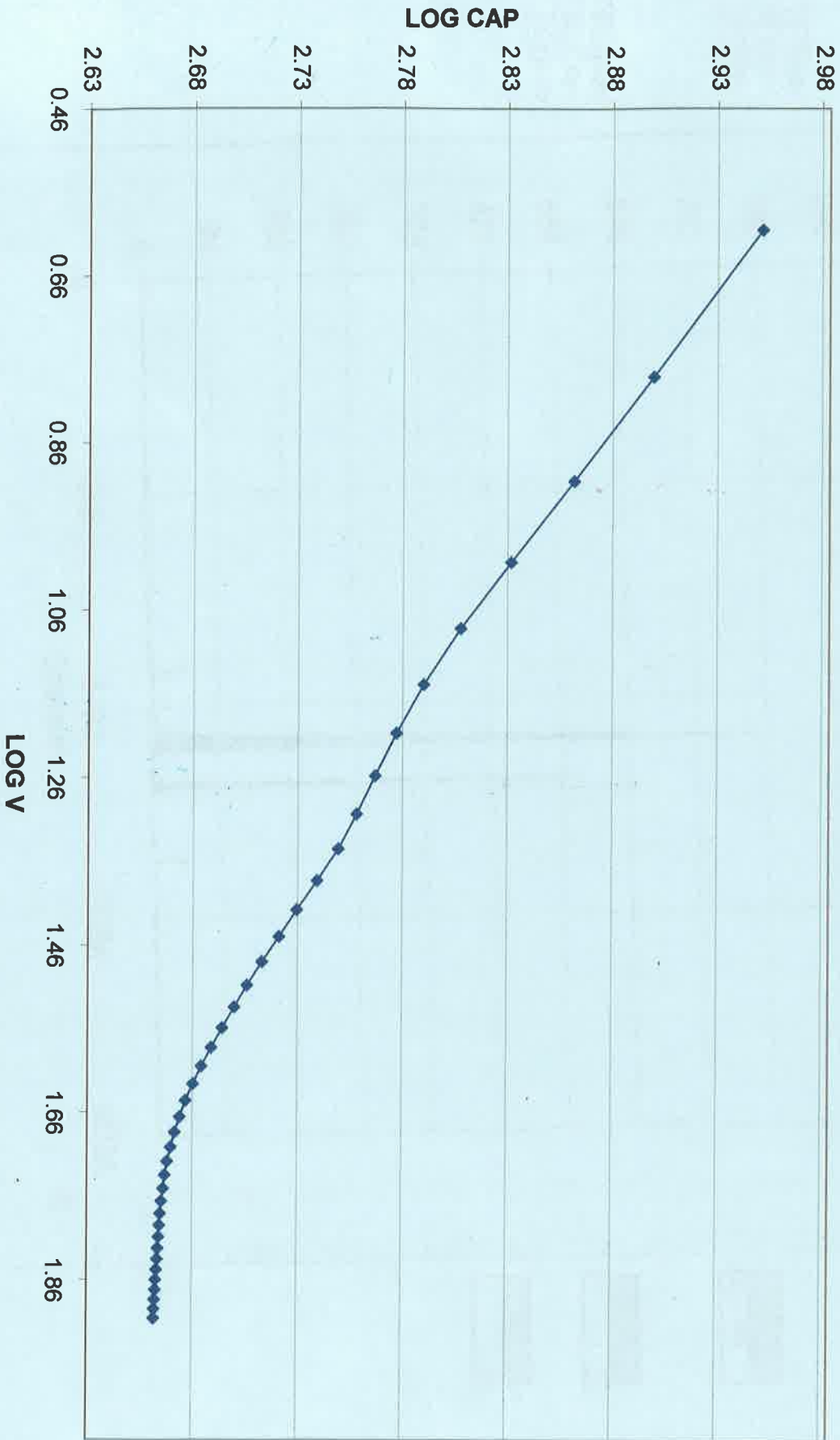
Depletion Plot

BB1-300

Wafer No.: 2852-19

Thickness: 290 μm

Depletion: 40 Volts



Resolution Plot

DESIGN BB1 AGOR - 300

Wafer No.: **2852-19**

Thickness: **290** μm

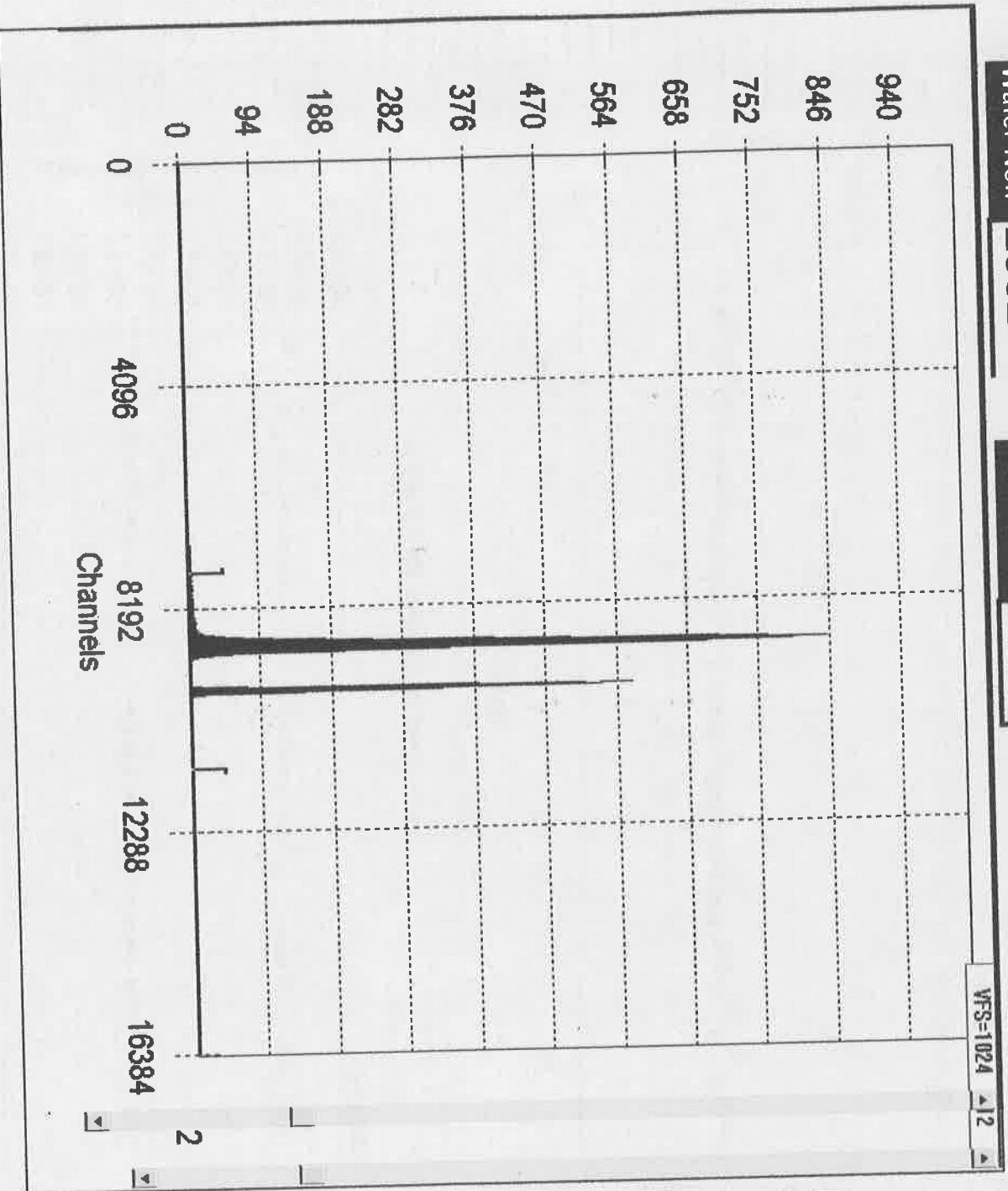
VFS=1024 Δ 12 Δ

JUNCTION

DET LINE: **76.3** KeV
SYSTEM: **35.6** KeV
CAL: **67.5** KeV

OHMIC

DET LINE: **80.4** KeV
SYSTEM: **36.1** KeV
CALC: **71.8** KeV



Source
Am 241

Rise Time
1

Flat Top
0

BIAS VOLTS = **80** V

Leakage **210** nA