

ESTEC Contract No. 13528/99/NL/MV, COO-16

- Hirex Engineering SAS
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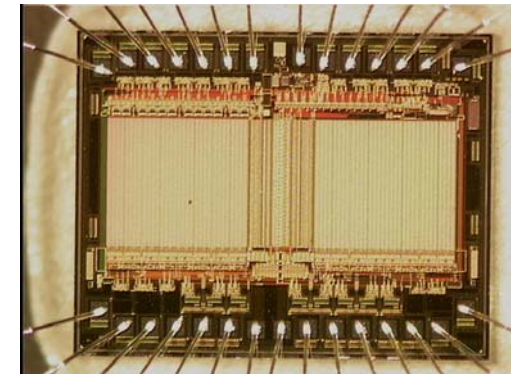
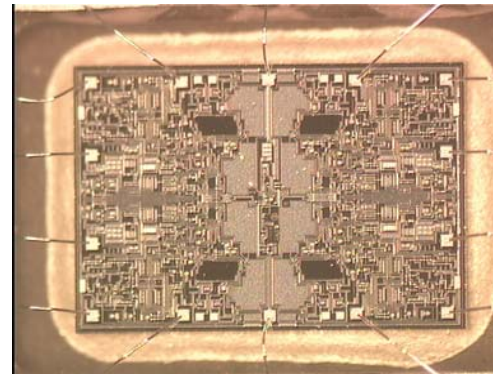
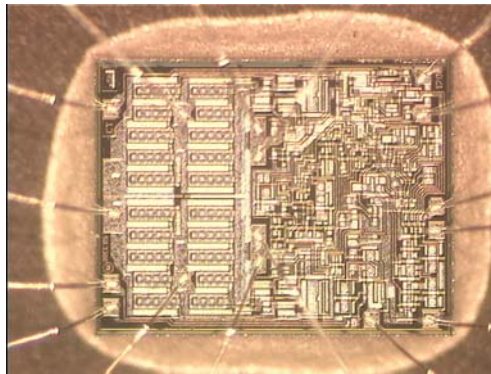
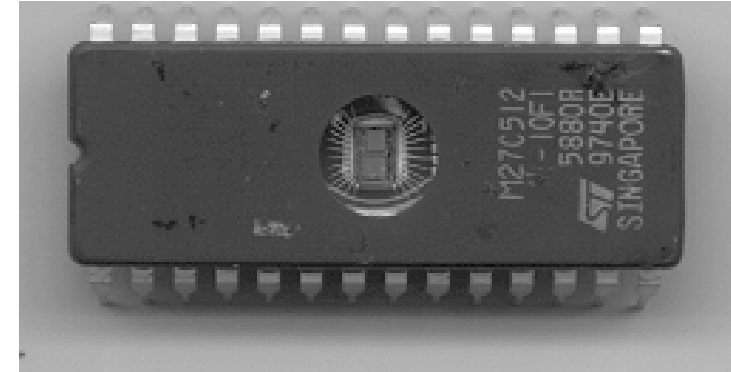
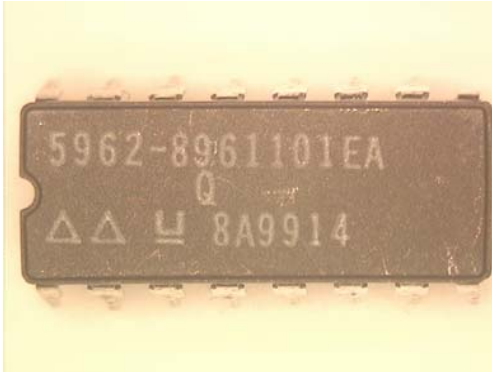
Test reports

- | | |
|-----------|----------------|
| – UC1706 | ESA_QCA0413S_C |
| – OP400Y | ESA_QCA0412S_C |
| – M27C512 | ESA_QCA0414S_C |

D/TEC-QCA Final Presentation Day - May 25th, 2005

SEE Characterization of Parts for the ATV Project:

UC1706 Dual Output Driver, OP400Y Operational Amplifier, M27C512 UV EPROM



Type	UC1706	OP400Y	M27C512
Manufacturer	Texas Instruments	Analog Devices	STMicroelectronics
Package	16-Pin Cerdip	14-Pin Cerdip	28-Pin Cerdip
Date Code	9914	0028A	9740E
Quality Level	Hi-Rel	Hi-Rel	flight samples
Dimensions (mm)	2.1 x 2.7	3.1 x 4.6	3.2 x 2.5

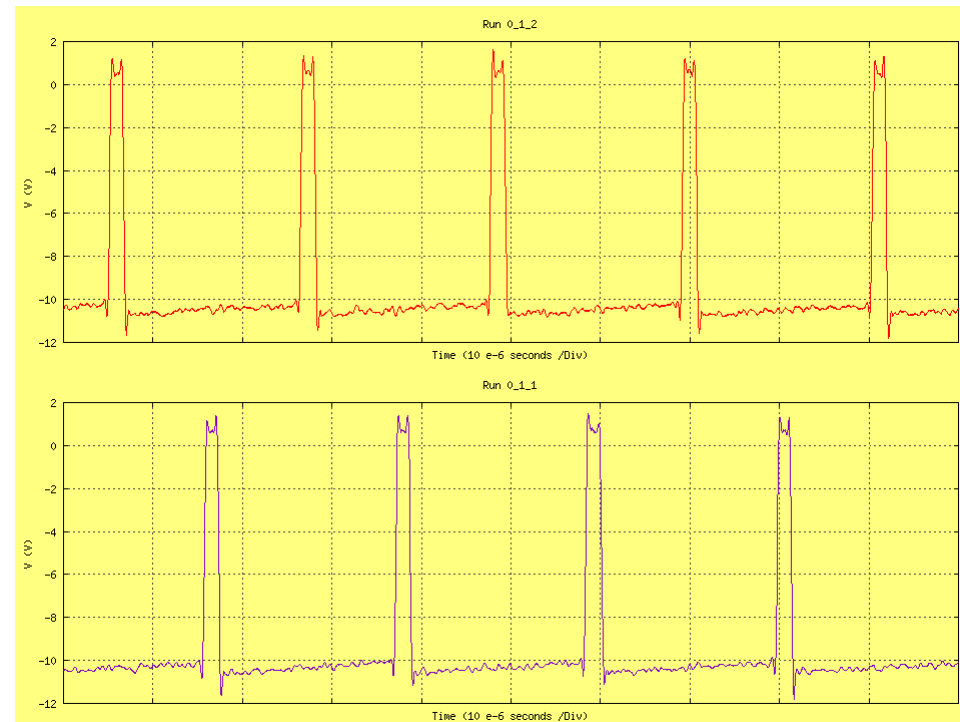
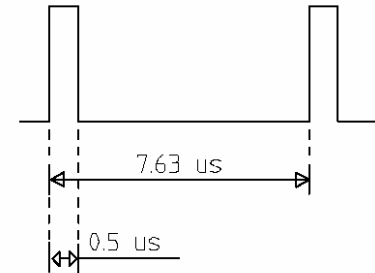
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UC1706 test condition: Annex1 of
ATV/MMS/EPG/FX/026.04 dated
13/02/0-4

- TTL signal on non-invert input
- MOS Equivalent gate-source capacitance on Output A and B

nominal waveforms at A and
B output



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Accelerator HIF (UCL Cyclotron)

Ion	Energy (MeV)	LET (MeV.cm ² /mg)	Range (Si) μm
20Ne4	78	5.85	45
40Ar8	150	14.1	42
84Kr17	316	34	43

Trigger condition pulse width at mid height on the selected output

Results

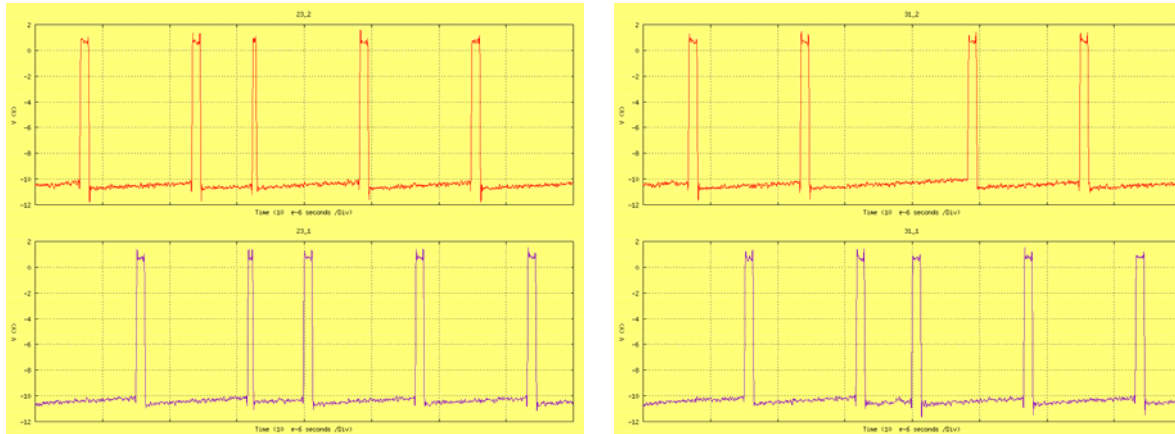
SEE LET threshold	- between 8 to 14MeV/cm ² /mg
Asymptotic X-section	- 1 to 5 E-05 cm ² per device

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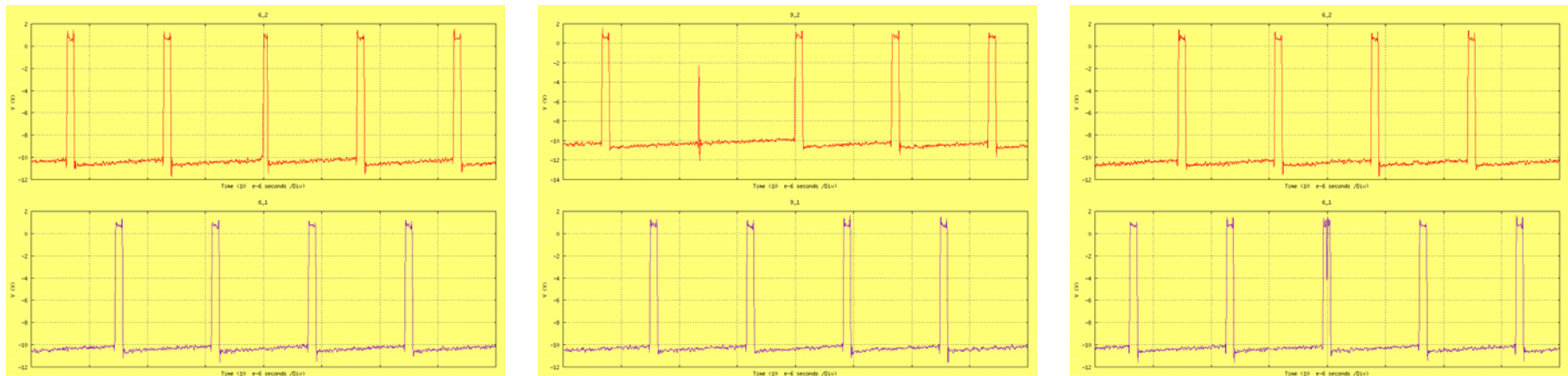
SEE affecting the 2 outputs

(Run82 #31 and #23)



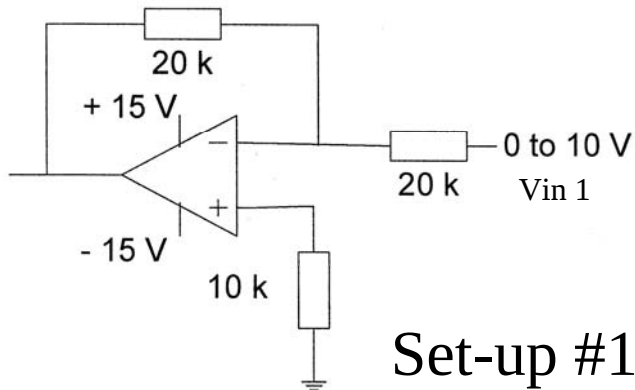
SEE affecting 1 output

(Run84 #09 and #06, Run82 #06)

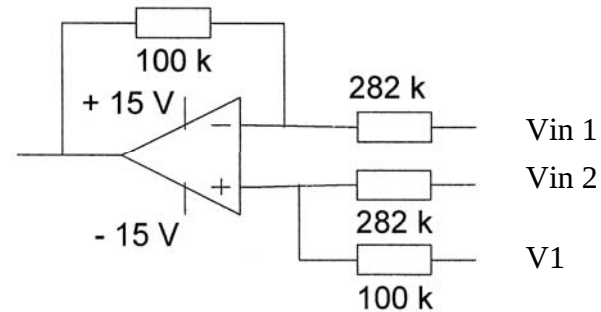


OP400Y test condition:

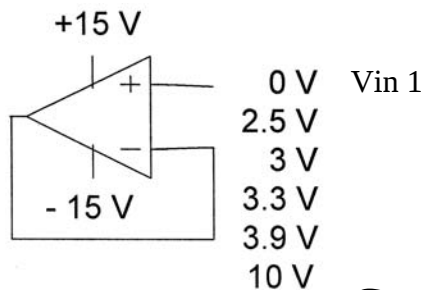
- Annex1 of ATV/MMS/EPG/FX/026.04 dated 13/02/0-4



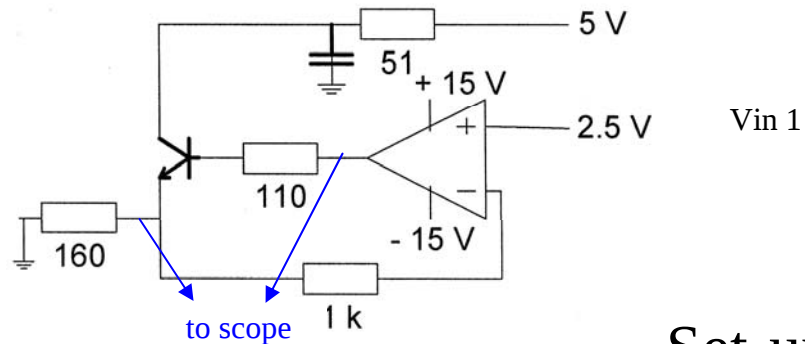
Set-up #1



Set-up #2



Set-up #3



Set-up #4

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UC1706 Dual Output Driver, OP400Y Operational Amplifier, M27C512 UV EPROM

Accelerator		HIF (UCL Cyclotron)	
Ion	Energy (MeV)	LET (MeV.cm²/mg)	Range (Si) μm

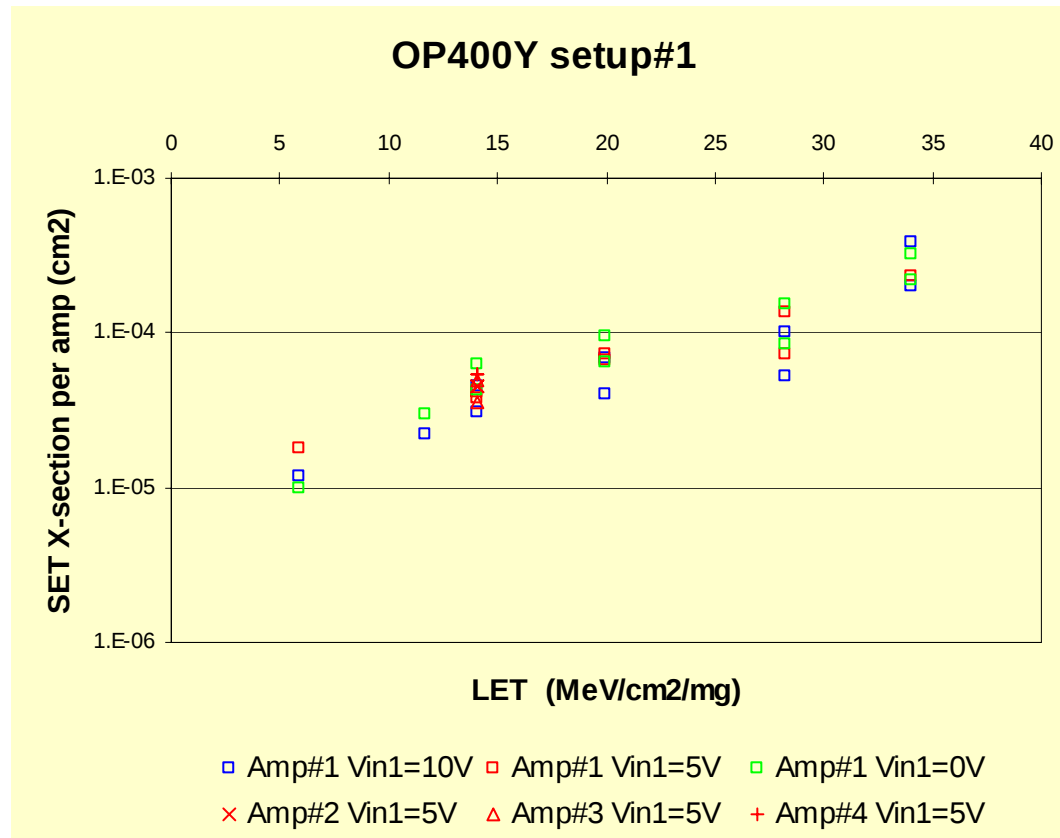
20Ne4	78	5.85	45
40Ar8	150	14.1	42
84Kr17	316	34	43

Test condition	1 amplifier (out of the 4) considered per test run
Trigger condition	(+ /- 25MV)

	Vin1 (V)	Vin2 (V)	V1 (V)	SET X-Section 28 MeV/cm²/mg	LET Threshold (MeV/cm²/mg)
set-up1	0, 5, 10	-	-	0.5E-4 to 1.5E-4	5.8< Threshold <11.7
set-up2	0, 5	0, 5	0, 2.56, 3.9	1E-4 to 3.5E-4	5.8< Threshold <11.8
set-up3	0, 2.5, 3.9, 10			0.8E-4 to 1.5E-4	5.8< Threshold <11.9
set-up4	2.5			-	Threshold >34

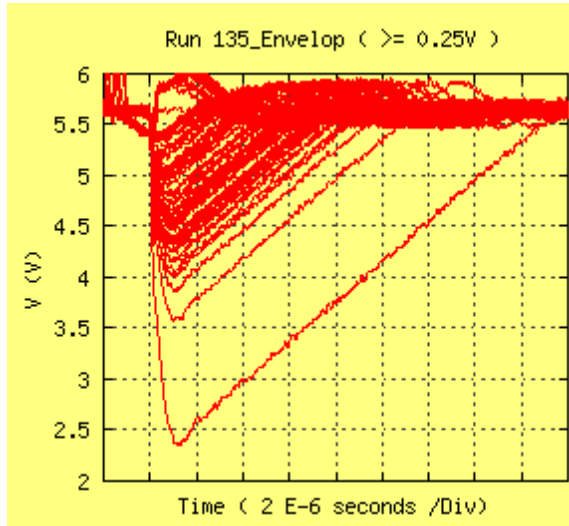
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Run135

Set-up 2-1

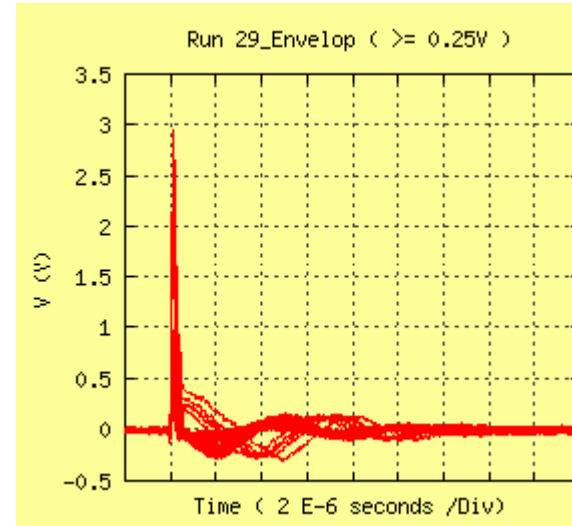
V1 =3.9V; Vin1=0V

Vin2=5V

Trig= 5.45V

LET 34

Fluence 1 E+05



Run29

Set-up 2-1

V1 =0V

Vin1=Vin2=0V

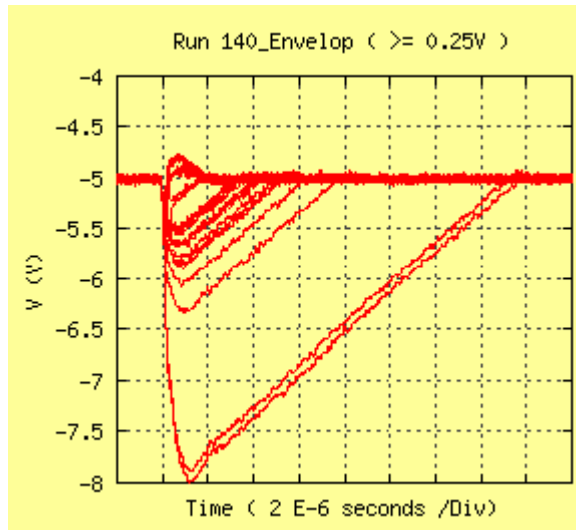
Trig= +0.25V

LET 28.2

Fluence 5 E+05

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Run140

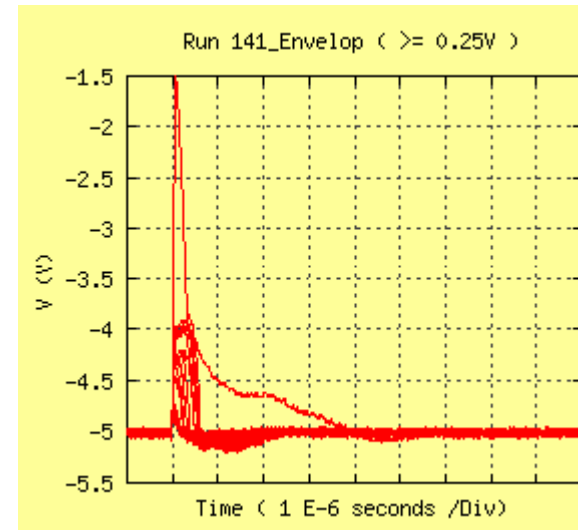
Set-up 1-1

Vin 5V

Trig -5.25V

LET 34

Fluence 1 E+05



Run141

Set-up 1-1

Vin 5V

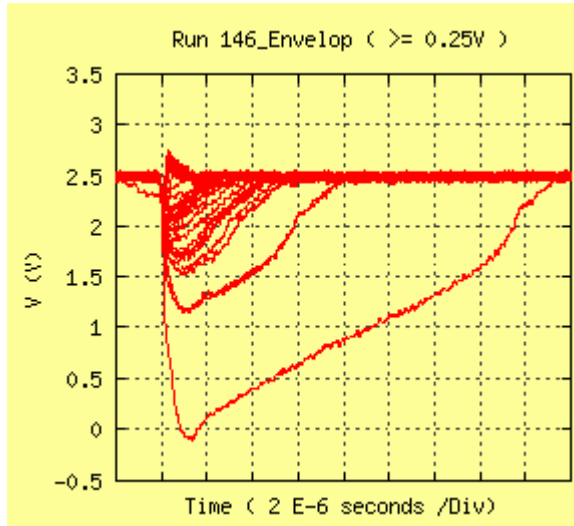
Trig -4.75V

LET 34

Fluence 1 E+05

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Run146

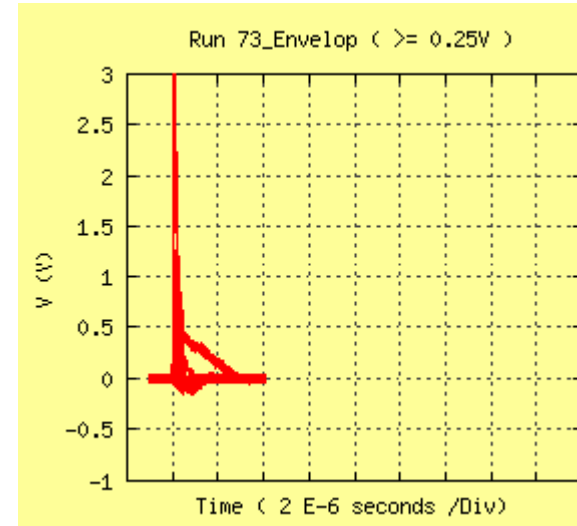
Set-up 3-1

Vin1=2.5V

Trig= 2.25

LET 34

Fluence 1 E+05



Run73

Set-up 3-1

Vin1=0V

Trig= +0.25

LET 28.2

Fluence 5 E+05

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UC1706 Dual Output Driver, OP400Y Operational Amplifier, M27C512 UV EPROM

M27C512 test condition Device is biased in a standby mode with CS and OE tied to the 5V DUT power supply with pull-up resistors of 10 kOhms. DUT supply current is monitored to detect any SEL occurrence.

Accelerator HIF (UCL Cyclotron)

Ion	Energy (MeV)	LET (MeV.cm ² /mg)	Range (Si) μm
132Xe26+	459	55.9	43

Run #	S/N	Tilt deg	LETeff MeV/cm ² /mg	Fluence #/cm ²	SEL
Run1	1	0	55.9	1 E+06	0
Run2	1	60	111.8	1 E+06	0
Run3	2	60	111.8	1 E+06	0