

TG 3 forthcoming activities

C. Cattadori on behalf of TG3

C. Cattadori, GERDA meeting,
Cracow 18-20 February 2008

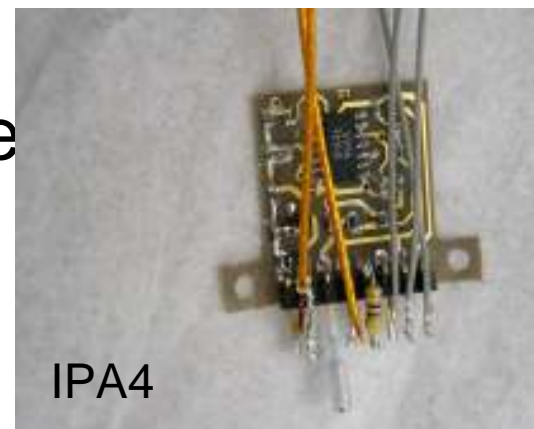
Status of FE circuits

(nothing changed since Nov 2007)

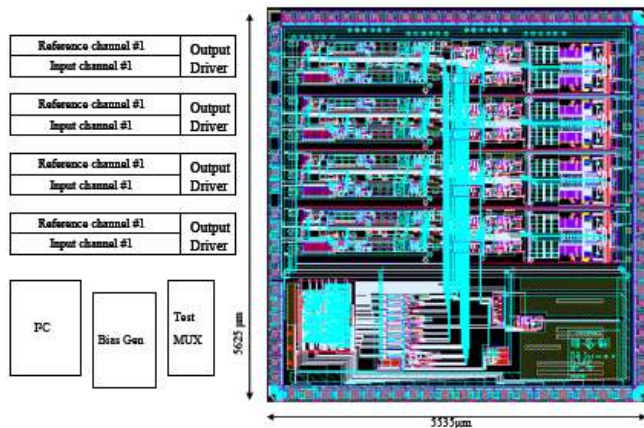
	T [ns] Range[MeV]	ENC rms [e-]	R with crystal [keV]	Output
F-CSA104 Fully integrated	20 ns 0-11 MeV	270 @ LN (20 μ s) 310 @ 20 C	5.4	Diff.
PZ -0 (holes readout) AMS HV 0.8 mm CZX FE FET not integrated Rf, Cf not integrated	15 ns 0-6 MeV	110 @ LN (10 μ s)	No test availab le	Singl. Ended
PZ-1 (e-,h+ readout) AMS HV 0.8 mm CZX FE FET integrated Rf not integrated Active reset	12 ns 0-6 MeV	160 @LN (12 μ s) 150 @LN (DPLMS)	No test availab le	Diff Singl. ended
CSA77 IPA4 (e ⁻ ,h ⁺) Monolithic JFET Rf,Cf and polarizing components not integrated	100 ns 40 ns 0- 5 MeV	100 @ LAr (3 μ s) 100 @ LN (6 μ s)	3.6 3.9 keV Crystal high LC	Singl. end

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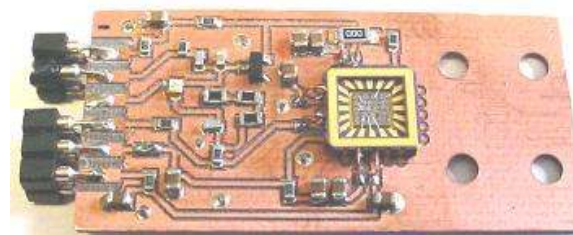
How do they look like



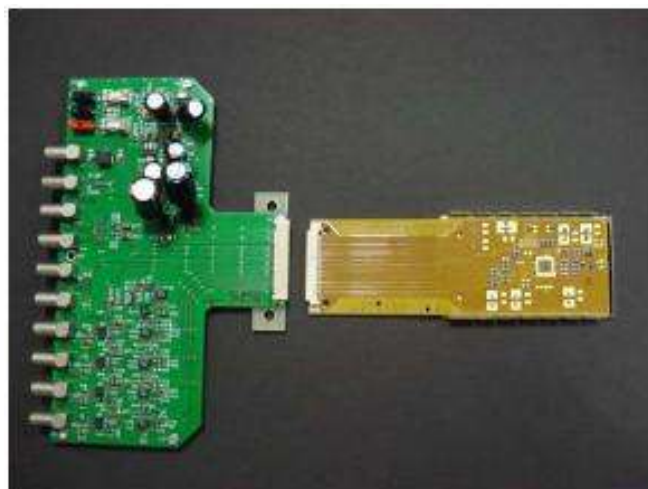
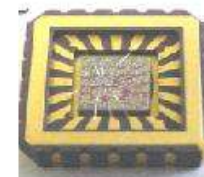
IPA4



F-CSA104



PZ-0



PZ-1

adori, GERDA meeting
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Discrete components

CSA77: Test with SUB @ MPIK. *See D. Budjas talk*

Monolithic JFET with external polarizing components

IPA4: Test with Gerdella @ LNGS (5 keV res. Noise dominated, see A. D'Andragora talk)

Tested with Prototype crystal at GDL in 2006 (4 keV res.)

ASIC

PZ.0 waiting to be tested in 1-fold PCB

PZ.0 already produced in 3-fold chips (november 2007, chips already delivered, need to be bonded and tested)

F-CSA104: R&D and test program for moment in standby.

TDB: 1st priority

- Test CSAs candidates (giving priority to ASIC) with detectors in single and 3-fold configuration.
 - PZ.0 optimized for holes readout → Test in 2nd week March 2008
 - PZ.1 e⁻ and h⁺ readout
 - IPA4 “ “
 - CSA77 “ “

This experimental program is stopped since 1 year.

Cause: Crystal not available.

Now available

SUB at MPIK (see D. Budjas talk) (more optimized)

Gerdella at LNGS (see A. D'Andragora talk) (under optimization)

Test of HV and LV modules, Pulser (already purchased)

- Chosen: CAEN NG471. Under test at Gerdella
- LV: Custom made (INFN-PD Design): Under test at GERDELLA.
- HP Pulser: 5ns leading edge, for full analog line transfer function study purposes.
- MFA insulated RG178 (1.9 mm diam) HV coaxial cable (1000 m will be delivered 28 february).

Forthcoming activities

Study of R and S/N vs crystal-CSA distance

Study of R and S/N vs CSA crystal connection scheme

PCB final design (for 3-fold channels CSA)

Design and test of CSA-PCB to POGO pins matrix connection

Design of CSA-PCB connection for LARGE (Integration with TG1 activities).

Continue the TG3/TG9 integrating activities to test/debug the full processing chain

SAMI S.p.A.	SPECIAL CABLE TECHNICAL SPECIFICATION		
CUSTOMER			
Customer Code	To be defined	SAMI Code	Q0CA3D09

1. REFERENCE SPECIFICATION

MIL -C- 17/93C

2. CABLE DESCRIPTION

2.1 Conductor

material: Silver covered, annealed copper covered steel
stranding: 7 x 0.10 mm

2.2 Insulation

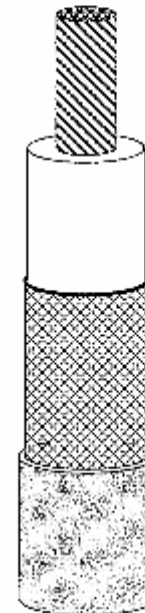
material: MFA
diameter: 0.86 ± 0.05 mm
colour: natural (transparent)

2.3 Shield

type: braid
material: silver covered copper
strands diameter: 0.10 mm
carriers: 16
ends: 3
picks/inch: 25 ± 10 %

2.4 Overall jacket*

material: FEP
thickness: 0.18 mm min.
diameter: 1.90 mm max.
colour: light brown
identification: "RG 178 - MIL -C- 17" ink-jet printed on the jacket



3. ACCEPTANCE TESTS

Visual and dimensional examination

Dielectric test: 2000 V conductor/shield

Jacket impulse dielectric test: 6500 V (100 %)

Characteristics impedance: 50 ± 5 Ohm (Calculated by the capacitance measurement and the dielectric constant of the insulation material)

4. CHARACTERISTICS

- Temperature range: - 55 / + 200°C
- Voltage rating: - 600 V