

RD50 Test Sensors

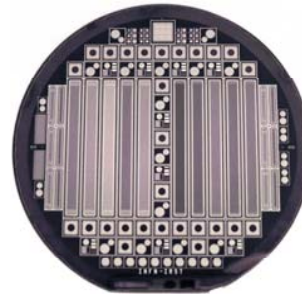
4" : Micron



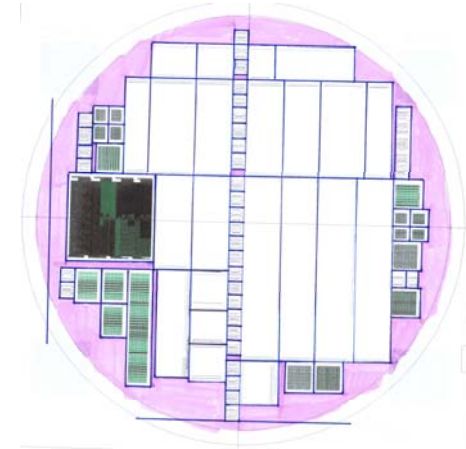
CNM



IRST



6" : Micron



RD50 Common Project with Micron (6")

Fab'd of (total)

Diameter	Type	Orientation	Silicon	Ohm-cm	Thickness (μm)	No. Of wafers	Structure
6 inch	P-Type	<100>	FZ	11000	300	1 (36)	N - P
6 inch	P-Type	<100>	MCZ	1000	300	1 (25)	N - P
6 inch	N-Type	<100>	MCZ	500	300	(20)	P - N
6 inch	N - Type	<100>	FZ	3000	300	(5)	P - N
6 inch	N - Type	<100>	MCZ	500	300	1 (5)	N - N
6 inch	N - Type	<100>	FZ	3000	300	1 (5)	N - N

RD50 6" Common Project

**Special devices to Brookhaven, Liverpool, PSI and Syracuse.
(1off each wafer FZ N on P, FZ N on N, MCZ N on P and MCZ N on N).**

**5off Batch 2551(FZ) N on P
1off Batch 2535(FZ) N on N
5off Batch 2553(MCZ) N on N
1off Batch 2552(MCZ) N on P**

The following wafers are in production to be finished in several months.

**4off Batch 2535 P on N
6off Batch 2553 P on N
6off Batch 2552 N on P**

RD50 6" Common Project

First batch received

1 n-on-p MCz, 1 n-on-p FZ 1 n-on-n (to Liverpool and UCSC)
Special devices to Brookhaven, Liverpool, PSI and Syracuse. .
Acceptance Testing of Common Devices:
C-V uniform, i-V low,
testing of R_{int} and C_{int} good results
CCE measurements at UCSC and Freiburg
(1 n-on-n needs irradiation to function).

Neutron and Proton and Pion (Aug. '07)irradiation of SSD and Diodes

Liverpool, Glasgow: CCE with SSD and diodes, n-on-n devices
UCSC: CCE with SSD, both p-type and n-type
Ljubljana: CCE with Diodes

“Availability of parts from the Common RD50 run on MICRON 6" wafers” (3/23/07)

Helsinki : Thermal Treatment (thermal donor generation) in MCz
Barcelona: electrical characterization (i-V)

RD50 6" Common Project

RD50 6" Micron fabrication

~1-2 k Ω -cm MCz, expect Depletion Voltage 500-1000V

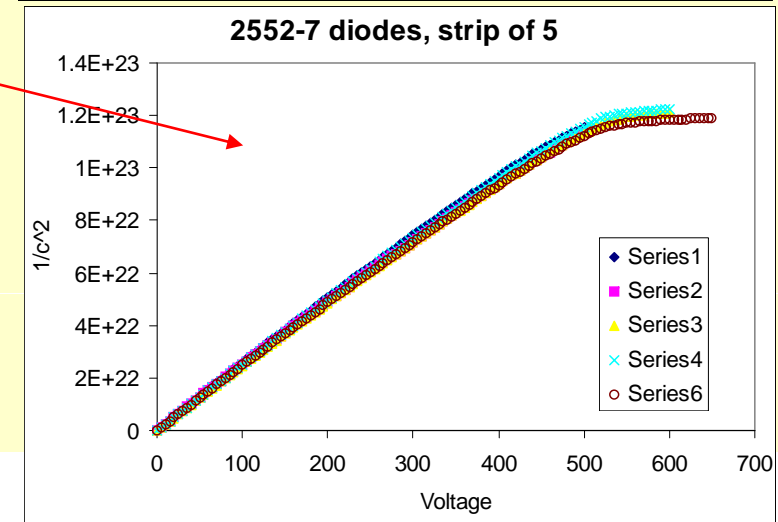
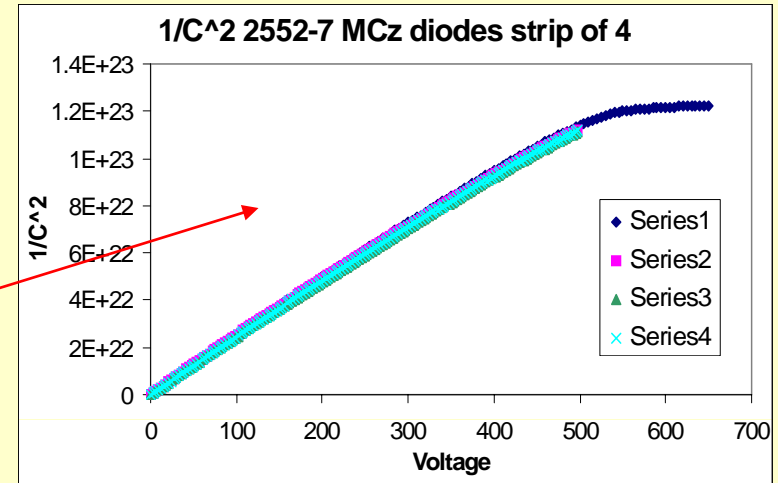
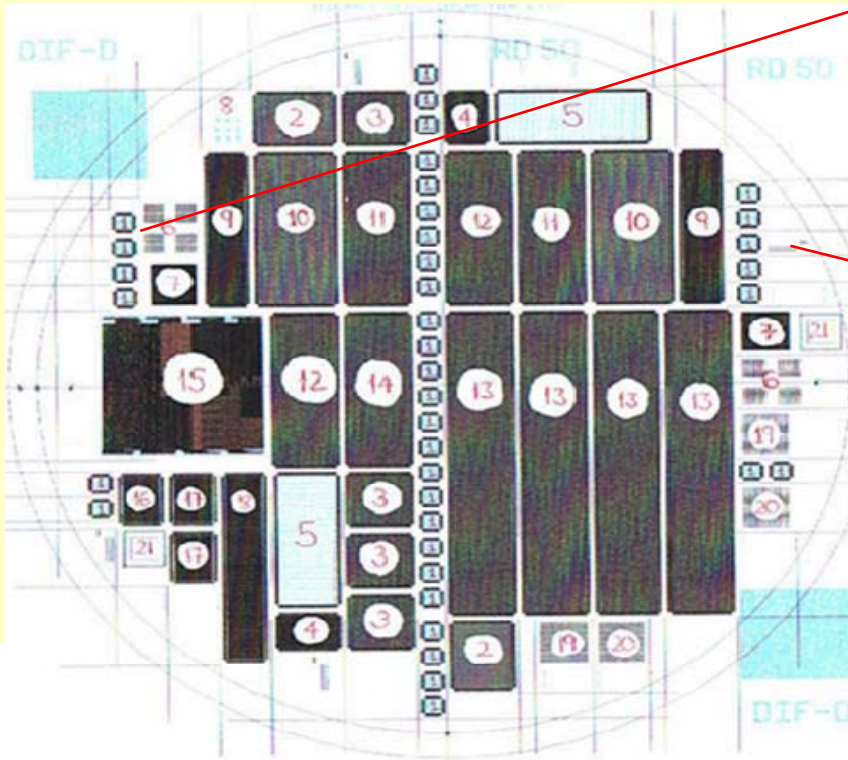
Observe very uniform depletion at about 550V:

~1.7 k Ω -cm

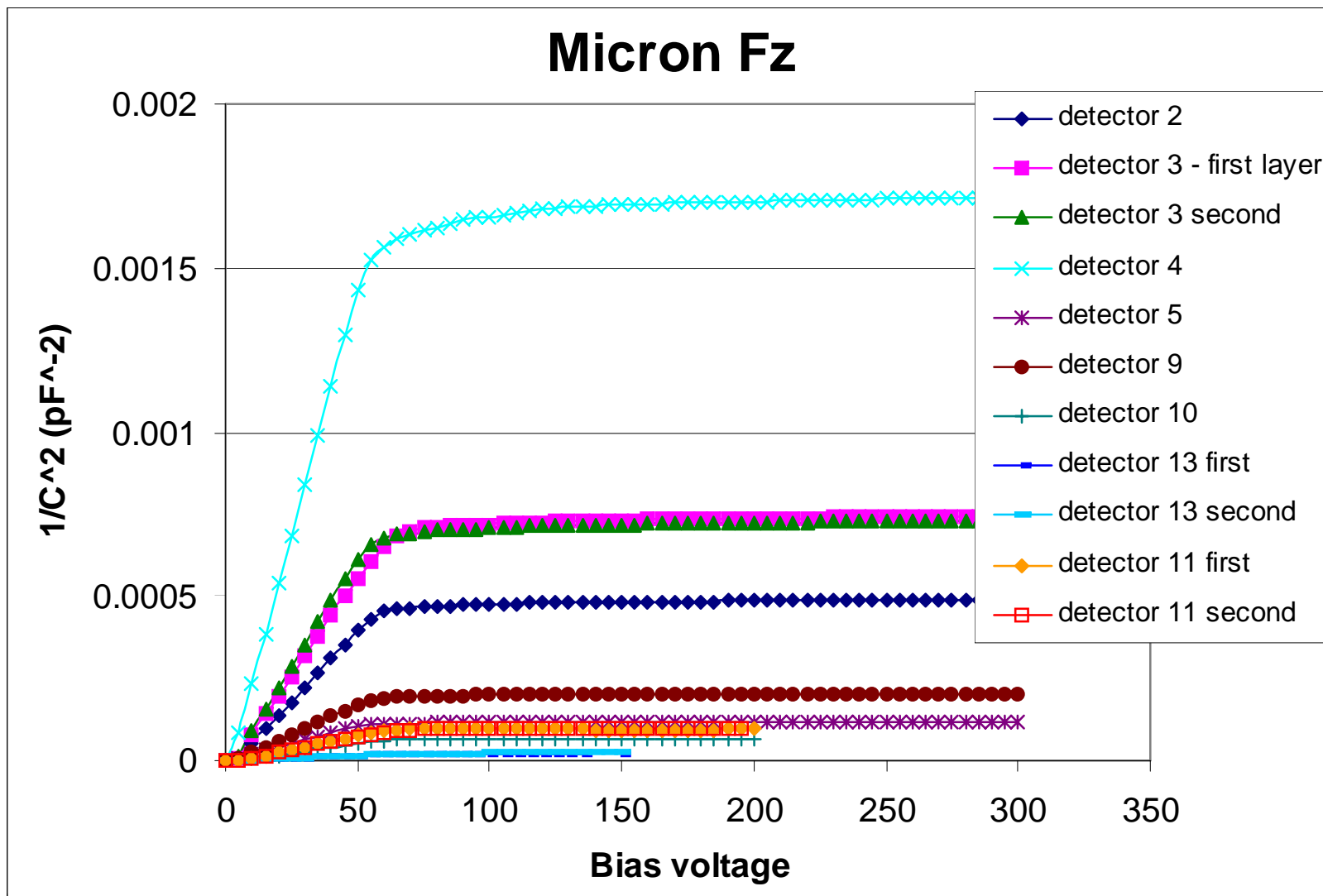
No thermal donor activation

No non-uniformity

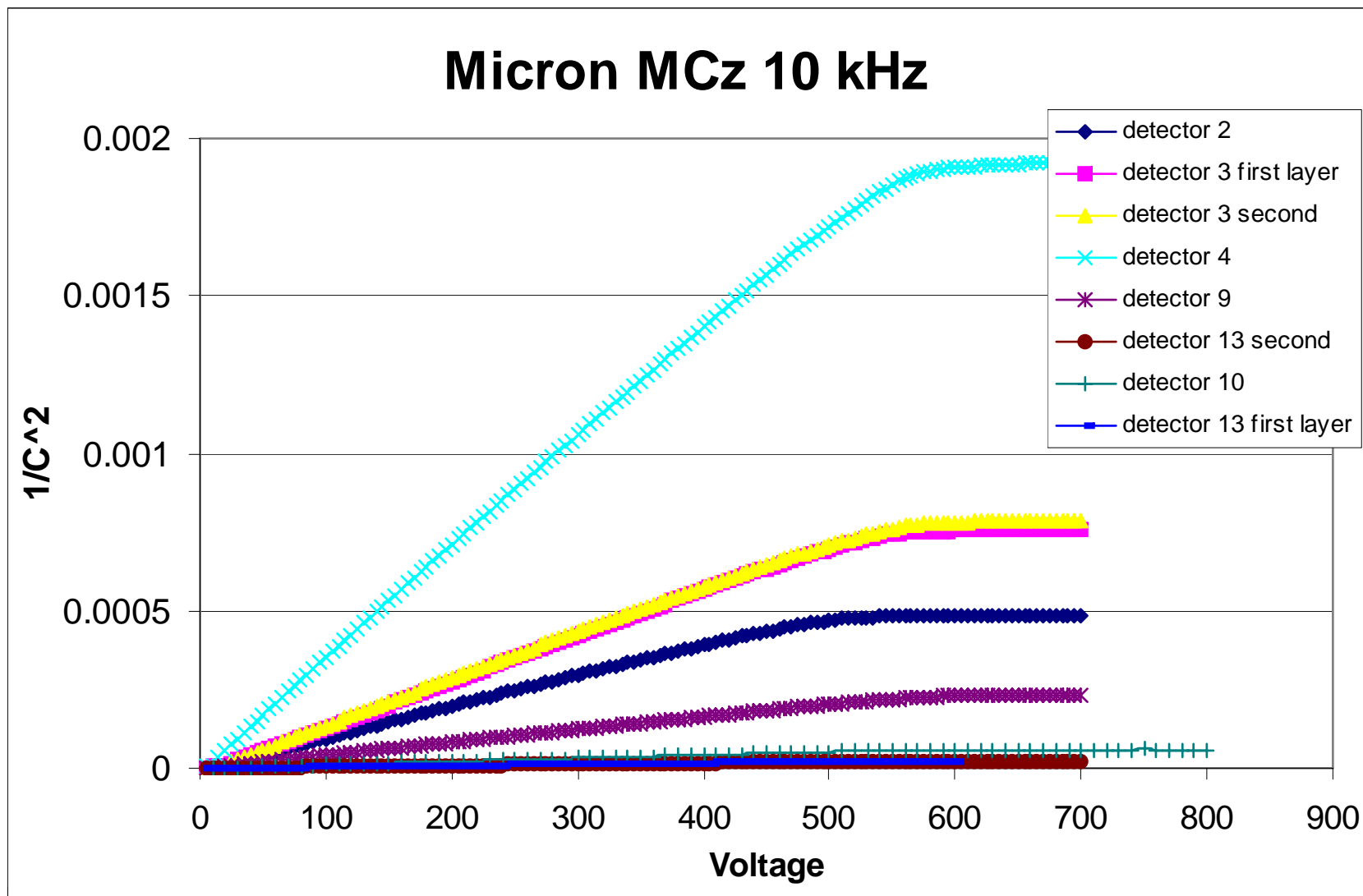
M. Petterson et al



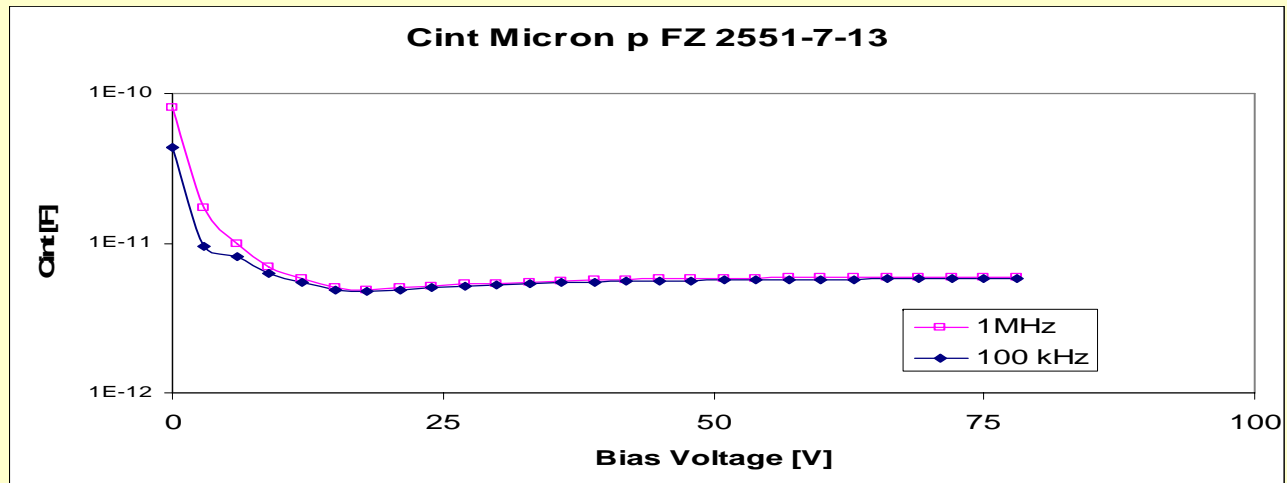
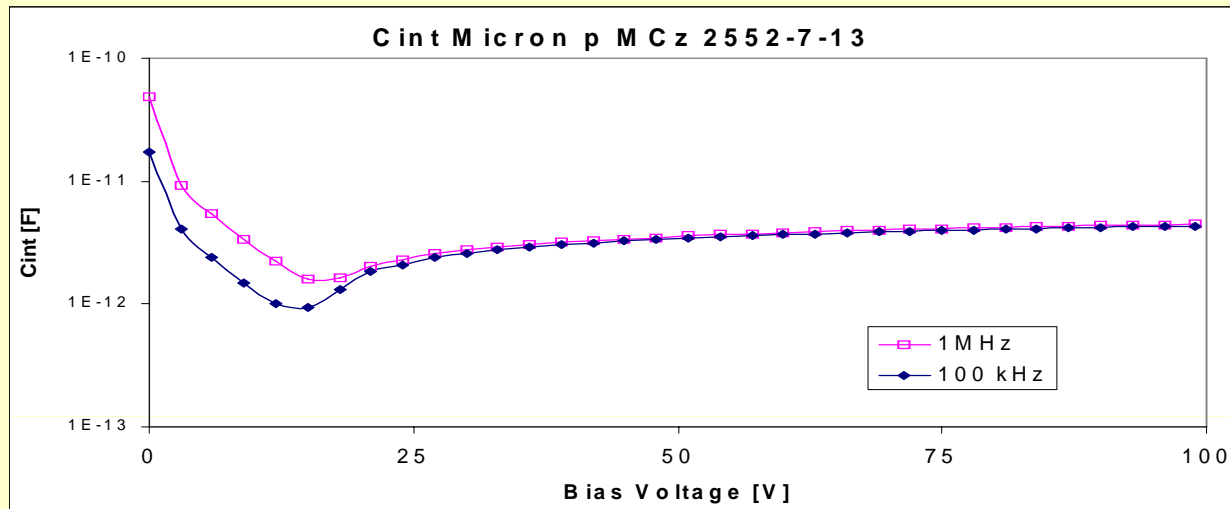
C-V Micron FZ



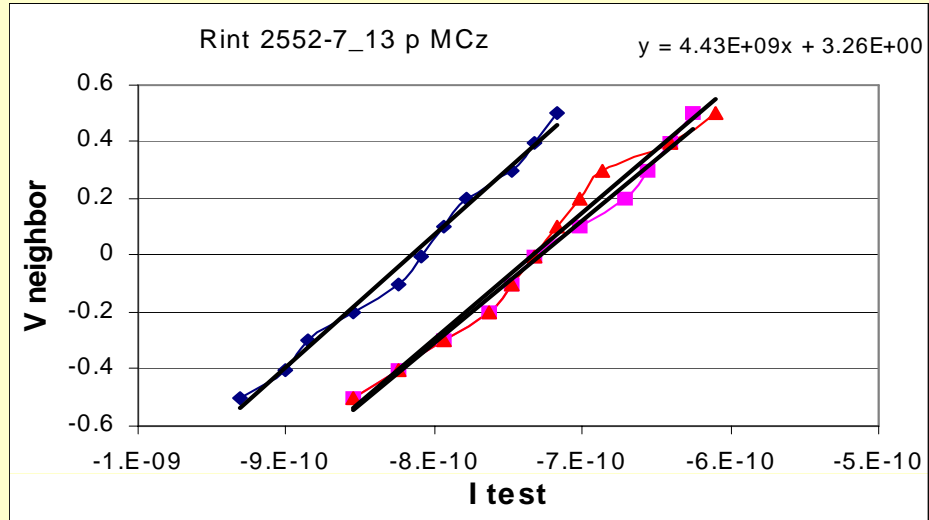
C-V Micron MCz



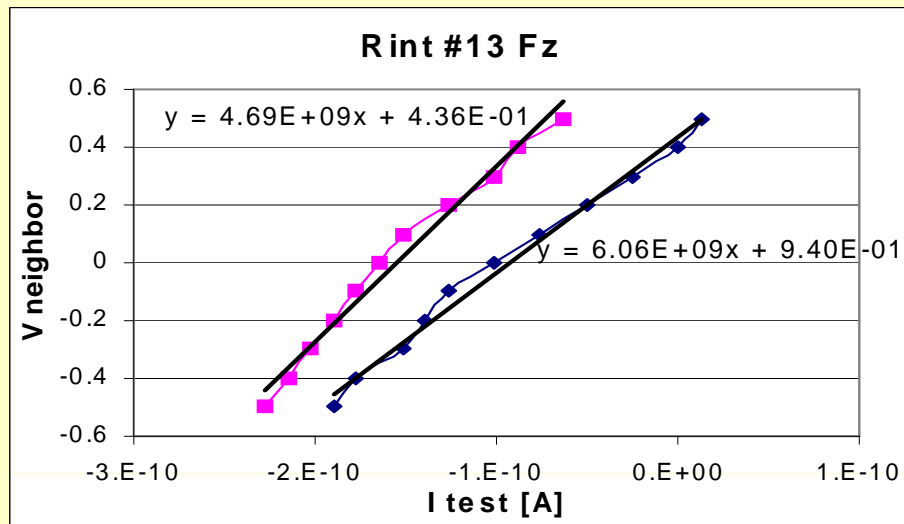
Interstrip Capacitance



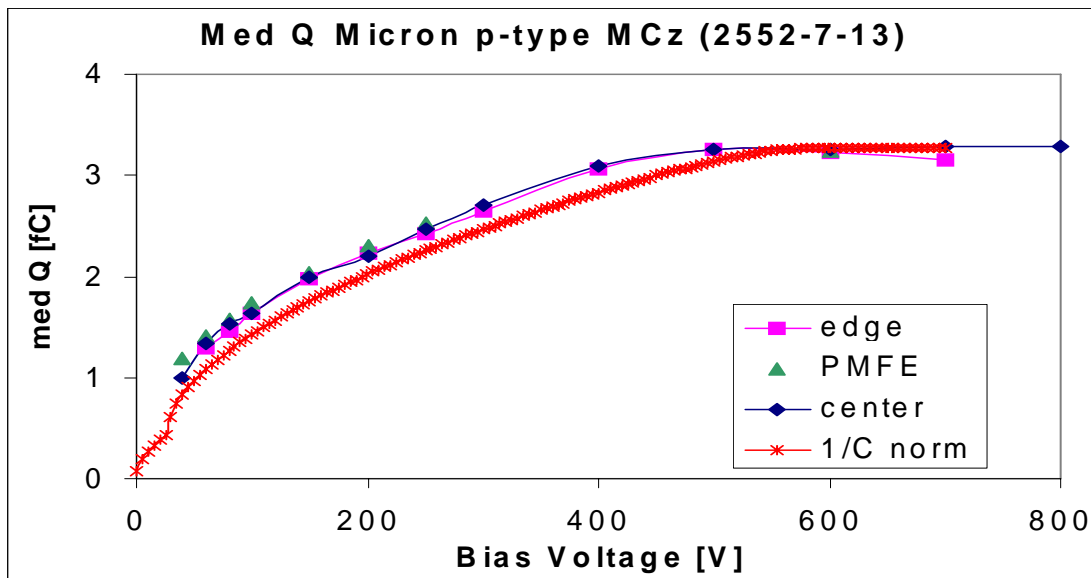
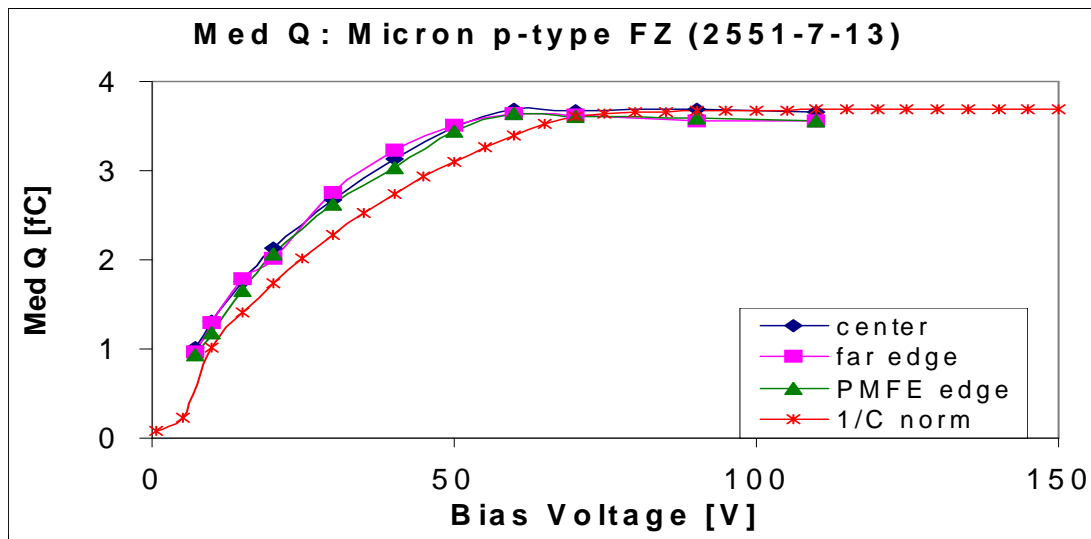
Interstrip Resistance



Very Good Isolation: Rint = 4-6*10⁹

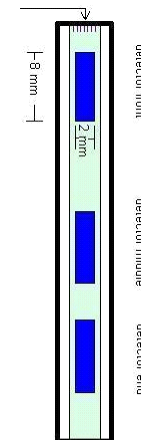


MCz Wafer Uniformity with CCE: Micron



Charge collection at 3 positions along strips:

Micron:
6 cm long



Micron has excellent uniformity along strips and across the wafer