

# **Total Dose Test of Low Power PWM** **UCC1801 and UCC1806**

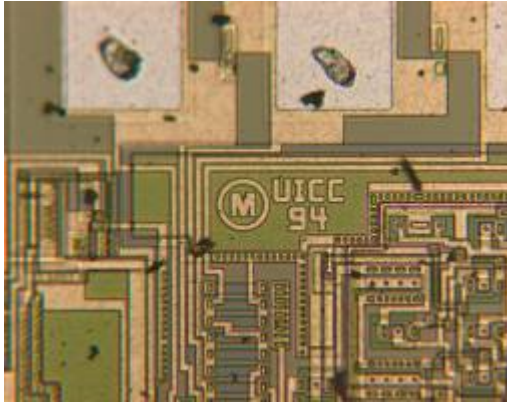
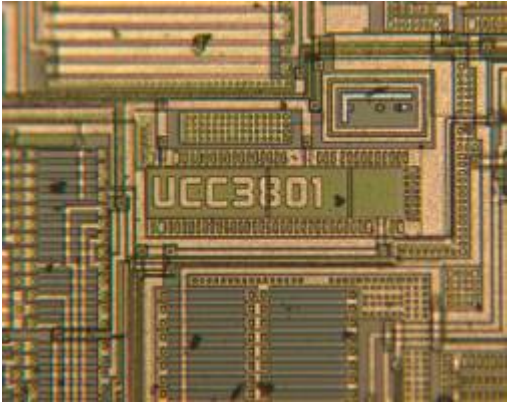
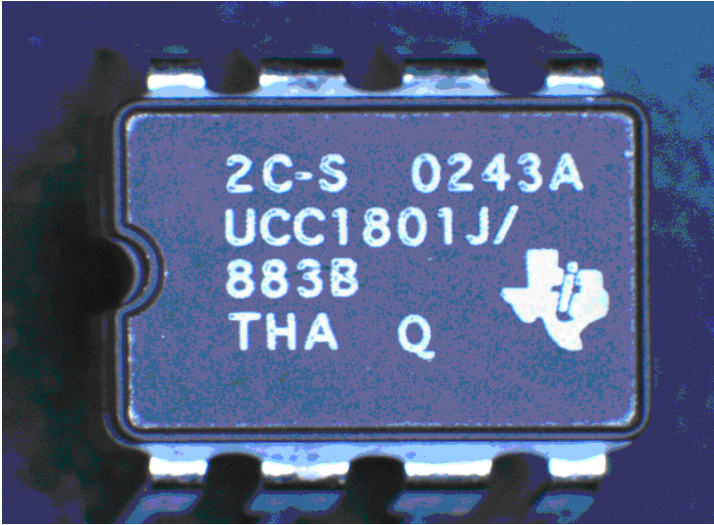
**Sture Larsson**  
**Stanley Mattsson**

**RUAG Aerospace AB, Göteborg Sweden**

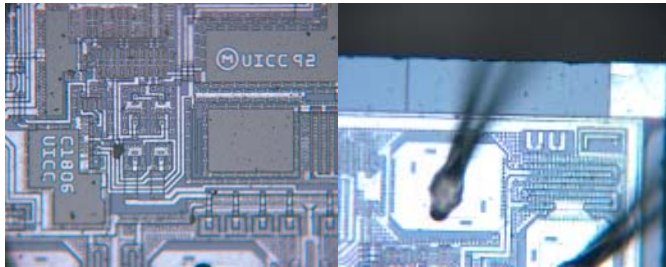
Final Presentation of ESTEC Contract 11407/95/NL. COO10

Report Reference: ESA\_QCA0823S\_C

Sherman

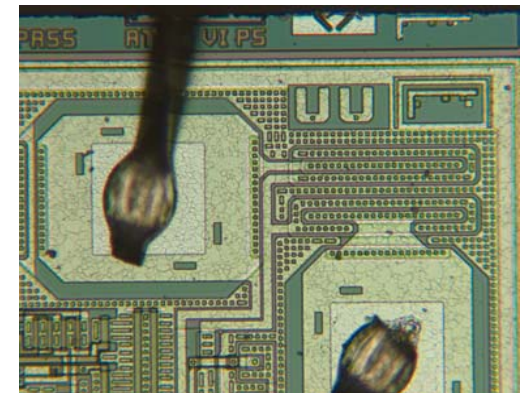
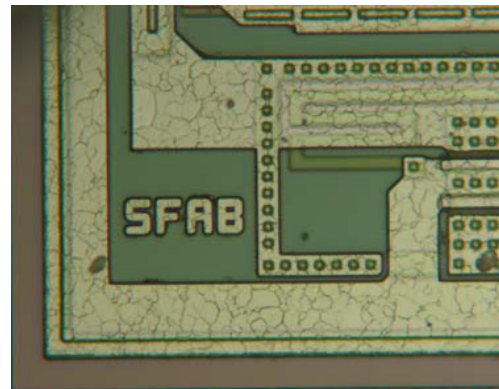
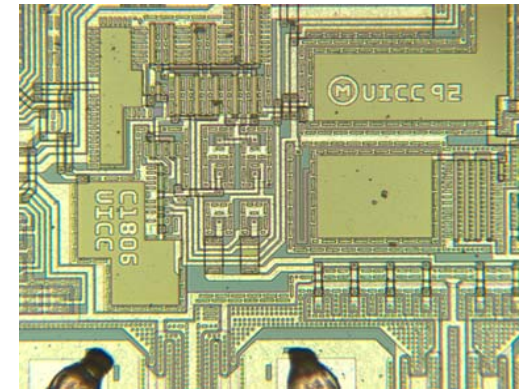


## Merrimac



Batch: 401173ALP Fab Lot:142524

## Sherman



## Multiple Irradiation Steps

<b>STEP</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>7</b>	<b>8</b>
<b>TOTAL DOSE (kRad(Si))</b>	<b>Pre rad</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>Anneal. room temp</b>	<b>Anneal. 100°C</b>
<b>Test points</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>Not Performed</b>	<b>Not Performed</b>
<b>DOSE RATE (Rad(Si)/h)</b>	<b>-</b>	<b>321</b>	<b>339</b>	<b>297</b>	<b>304</b>	<b>-</b>	<b>-</b>
<b>EXPOSURE TIME (h)</b>	<b>-</b>	<b>15.6</b>	<b>14.8</b>	<b>16.8</b>	<b>16.5</b>	<b>-</b>	<b>-</b>

22 Electrical Parameters	
Vref	A Output High I=-18mA
Vref Load Regulation	A Output High I=-180mA
Vref Line Regulation	A Output Low I=18mA
Oscillator Frequency	A Output Low I=180mA
Output Maximum Duty Cycle	
Oscillator Amplitude Peak-to-Peak	
Supply Current	
Error Amplifier, Input Bias Current	
Error Amplifier, Input Voltage	
Error Amplifier, Open Loop Gain	
Current Sense, Comp to CS Offset	
Current Sense, Maximum Input Signal	
Current Sense, Over-Current Threshold	
Current Limit Adjust, Input Bias Current	
Startup Current	
Vcc Start Threshold Voltage	
Vcc Stop Threshold Voltage	
Start to Stop Hysteresis	

## 18 Electrical Parameters

Vref

Vref Load Regulation

Oscillator Frequency

Oscillator SYNC, Output High

Oscillator SYNC, Output Low

Supply Current

Error Amplifier Input Offset Voltage

Error Amplifier Input High Voltage

Error Amplifier Input Low Voltage

Current Sense Amplifier Gain

Current Limit Adjust Current Limit Offset

Current Limit Adjust Input Bias Current

Shutdown Terminal Threshold Voltage

Start up Threshold Voltage

A Output High Isrc=-16mA

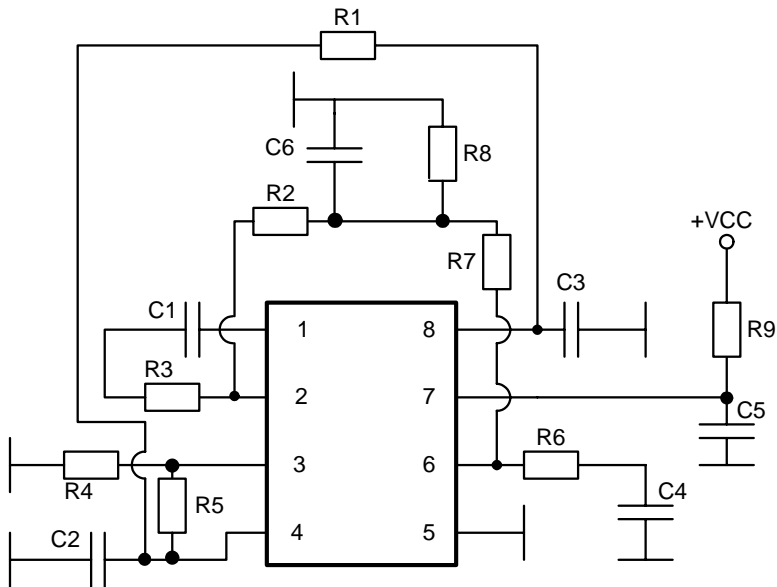
A Output High Isrc=-80mA

A Output Low Isink=16mA

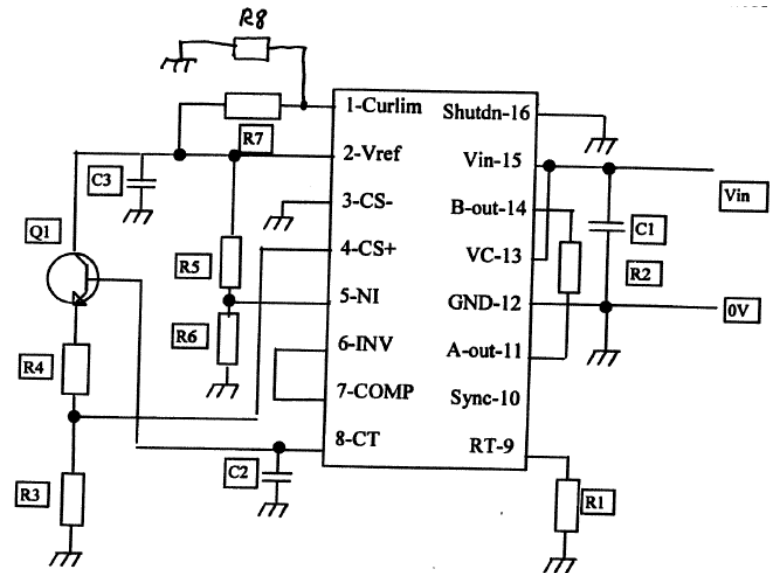
A Output Low Isink=80mA

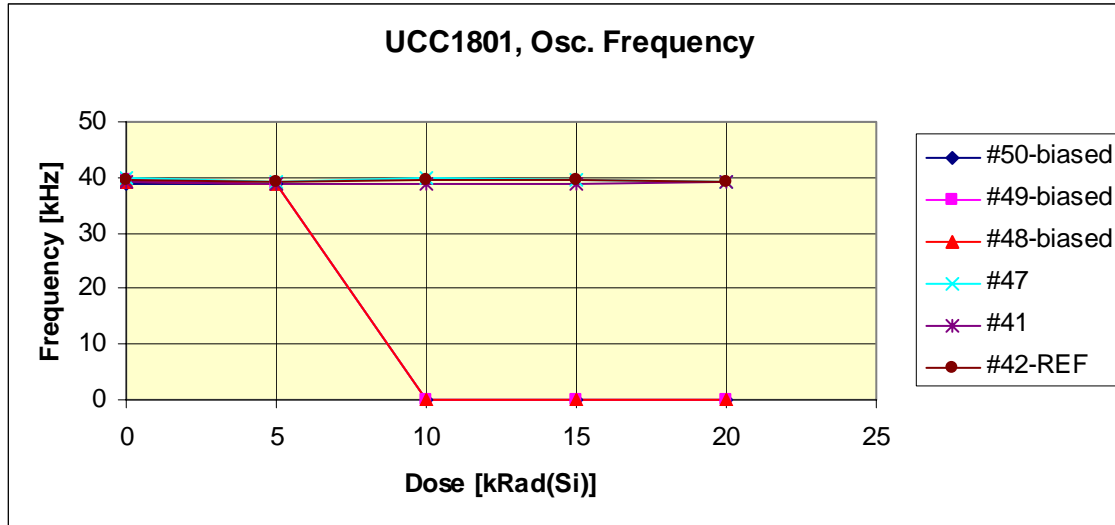
# Drawings of the biased samples

UCC1801



UCC1806

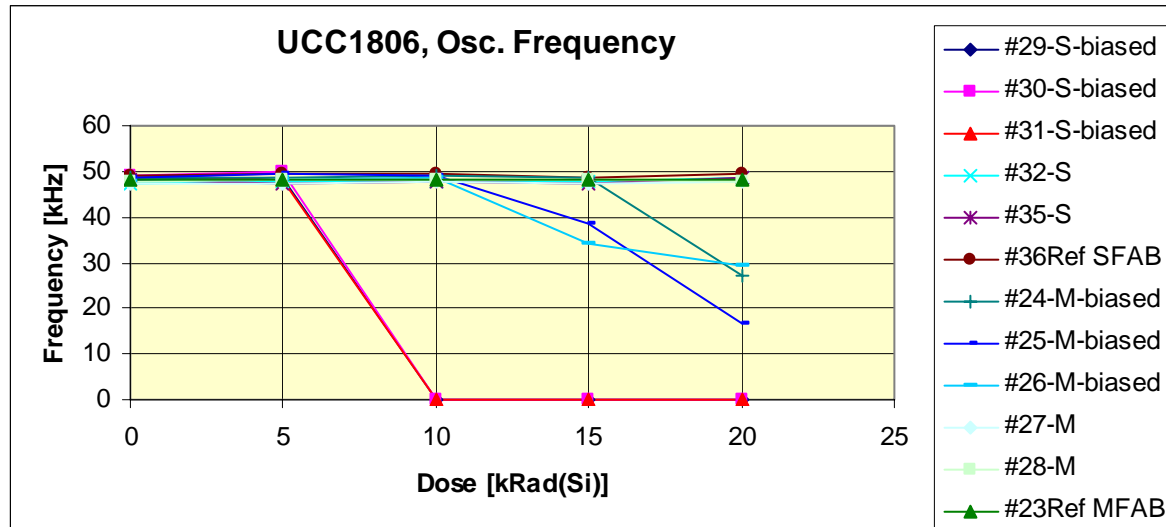




All biased samples failed between 5 and 10kRad

Both unbiased samples operate up to at least 20kRad



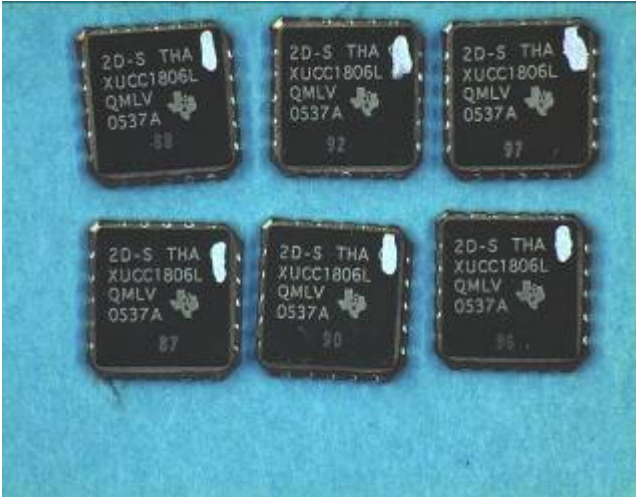


SFAB: All biased samples failed between 5 and 10kRad

MFAB: Two of the biased samples failed between 10 and 15kRad and the third between 15 and 20kRad.

All unbiased samples operate up to at least 20kRad

# Additional info, tests done in the autumn of 2005



4 + 1 ref. EQM samples



5 + 1 ref.

**All failed between 10 and 20 kRad**