

ATLAS SCT Module Test Report

MODULE NAME: k3104

DATABASE S/N:

1. COMPONENTS

	Database S/N	Manufacturer S/N	Encapsulant	Comment
Baseboard			Epoxy	Standard TPG baseboard

Detectors	Database S/N	Manufacturer S/N	I <sub>leakage</sub> (nA)	C <sub>interstrip</sub> (pF)	Pin holes	Comment
Top far	Hamamatsu	STX42454-14	208		0	ATLAS98 narrow m, 285
Top near	Hamamatsu	STX37882-6	170		0	ATLAS98 narrow m, 285
<b>Total</b>	-	-	378			-
Bottom far	Hamamatsu	STX42456-6	142		0	ATLAS98 wide poly, 285
Bottom near	Hamamatsu	STX42456-8	141		0	ATLAS98 wide poly, 285
<b>Total</b>	-	-	<b>661</b>		<b>0</b>	200V, 25 °C

	Database S/N	Manufacturer S/N	Comment
Hybrid		k3103	Barrel Cu/Polyimide flex v3

Chips	Database S/N	Batch	Wafer	X	Y	x <sub>eff</sub>	nDead	Non Trim	Gain	Offset
M0		30423	3	3	11	0	0	0	58.5	-6.4
S1		30423	3	2	3	0	0	1	61.9	-16.0
S2		30423	3	2	9	0	0	1	60.8	-5.7
S3		30423	3	2	15	0	0	1	62.3	-21.4
S4		30423	3	2	10	0	0	2	61.1	-8.5
E5		30423	3	2	2	1	1	2	61.2	-16.0
M8		30423	3	1	10	0	0	1	59.6	-3.3
S9		30423	3	0	11	2	2	2	58.5	-9.3
S10		30423	3	3	3	2	2	2	59.6	-13.4
S11		30423	3	2	16	1	1	3	64.2	-11.7
S12		30423	3	2	8	1	1	4	61.4	-8.9
E13		30423	3	3	5	2	2	5	57.1	-7.0
<b>Total</b>	-	-	-	-	-	<b>9</b>	<b>9</b>	<b>24</b>	<60.5>	<-10.6>

Capacitors	#locations	C	Vendor	Part No.	F <sub>Resonance</sub>
HV decoupling	4	10	Murata	Murata GHM1530-B-103-K-630	70
Large LV	4 * 2	330	Murata	Murata GRM42-6-X7R-334-K-25	15
Small LV	7 * 2	100	Murata	Murata GRM39-X7R-104-K-25	26
		nF			MHz

Miscellaneous	Vendor	Part No.	Comment
Temp. Sensors	–	–	not installed

## 2. CONSTRUCTION DETAILS

Adhesives	Vendor	Part No.	Comment
Chip Glue	Ion-chemi	–	Silver-loaded, RT-cure, 50°C 2hr post-cure
Det. Elec. Glue	Ion-chemi	–	Silver-loaded, RT-cure, 50°C 2hr post-cure
Det. Therm. Glue			Araldite2011+BN

Bonding	#locations	# bonds / location	Comment
AG-DG connections	14	5	
Detector Backplane	2	2	Top side only
Strip Bias: detector to fanin	4	2	Top and bottom sides
Strip Bias: fanin to AG	4	2	Top and bottom sides

Were any components changed during production? If so, give brief details here:

### 3. OPERATING CONDITIONS

	<b>Default</b>	<b>Actual</b>	<b>Comment</b>
<b>Vcc</b>	3.5V	3.50	
<b>Vdd</b>	4.0V	4.00	
<b>Vdet</b>	100V	100	
<b>Icc</b>	-	0.93A	
<b>Idd</b>	-	0.5A	
<b>Idet</b>	-	~0.8uA	
<b>Bias Current</b>	267mA	267 uA	
<b>Shaper Current</b>	30mA	30 uA	
<b>Compression Mode</b>	1 (LEVEL XIX)	1	
<b>Edge Detect</b>	0 (OFF)	0	
<b>Box Grounding</b>	AG at PCB	DG at Patch	DG at Patch is done by design
<b>Box Cooling</b>	Fan	Fan	Climate box
<b>Module Temp</b>	< 45C	~25	module in a semi-confined box in above

### 4. TRIMMING

	<b>Default</b>	<b>Actual</b>	<b>Comment</b>
<b>Trim Method</b>	Minimisation of n Non Trim	Manual setting	Alternate: Minimisation of RMS
<b>Trim VCAL</b>		20 mV	
<b>Target Value</b>		200 mV	
<b>n Non Trim (link 0)</b>	-	6	
<b>n Non Trim (link 1)</b>	-	12	
<b>n Non Trim (total)</b>	-	18	
<b>RMS of vt50 distribution after trimming</b>	-	2.76, 3.00 mV	

## 5. RESULTS

	<b>M0</b>	<b>S1</b>	<b>S2</b>	<b>S3</b>	<b>S4</b>	<b>E5</b>	<b>Link 0</b>	
<b>Gain (0,2,3fC lin)</b>	49.1	50.0	52.0	52.3	49.2	48.8	50.2	<b>mV/fC</b>
<b>Noise @2fC</b>	12.0	12.7	12.8	1.28	12.2	12.2	12.5	<b>mV</b>
<b>Noise @2fC</b>	.245	.255	.246	.245	.245	.251	.248	<b>fC</b>
<b>Noise @2fC</b>	1526	1591	1542	1531	1549	1566	1551±40	<b>ENC</b>
<b>Stability point</b>	clean	clean	clean	clean	clean	clean	clean	<b>mV</b>
<b>Offset (by Noise Occupancy)</b>	100.4	100.8	98.0	97.2	100.8	104.0	100.2	<b>mV</b>
<b>RMS of dist. of NO offsets</b>	7.3	7.2	6.8	7.0	7.0	7.0		<b>mV</b>
<b>Stability - Offset</b>	--	--	--	--	--	--	--	<b>mV</b>
<b>Stability - Offset</b>	--	--	--	--	--	--	--	<b>fC</b>
<b>n Non Trim</b>	0	1	1	1	1	2	6	
<b>n Masked</b>	0	0	0	0	0	0		<b>-</b>

	<b>M8</b>	<b>S9</b>	<b>S10</b>	<b>S11</b>	<b>S12</b>	<b>E13</b>	<b>Link 1</b>	<b>Overall</b>	
<b>Gain (0,2,3fC lin)</b>	48.0	45.9	48.1	49.2	53.2	46.7	48.5	49.5	<b>mV/fC</b>
<b>Noise @2fC</b>	11.5	12.1	12.8	12.2	12.7	12.5	12.3	12.4	<b>mV</b>
<b>Noise @2fC</b>	0.240	0.264	0.266	0.247	0.239	0.268	0.254	0.251	<b>fC</b>
<b>Noise @2fC</b>	1497	1648	1664	1546	1495	1673	1587±40	1566	<b>ENC</b>
<b>Stability point</b>	clean	clean	clean	clean	clean	clean	clean	clean	<b>mV</b>
<b>Offset (by Noise Occupancy)</b>	103.2	107.0	106.0	100.2	93.8	105.1	102.6	101.4	<b>mV</b>
<b>RMS of dist. of NO offsets</b>	7.0	7.2	7.0	7.2	7.2	7.0			<b>mV</b>
<b>Stability - Offset</b>	--	--	--	--	--	--	--		<b>mV</b>
<b>Stability - Offset</b>	--	--	--	--	--	--	--		<b>fC</b>
<b>n Non Trim</b>	1	1	1	3	1	5	12	18	
<b>n Masked</b>	0	0	0	0	0	0	0	0	<b>-</b>