ATLAS SCT Module Test Report

MODULE NAME: k3111
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	$I_{leakage}$ (nA)	$C_{interstrip}$ (pF)	Pin holes	Comment
Top far	Hamamatsu	STX42454-6	170		0	ATLAS98 narrow m, 285
Top near	Hamamatsu	STX42454-8	161		0	ATLAS98 narrow m, 285
Total	-	-	331			-
Bottom far	Hamamatsu	STX42454-11	173		0	ATLAS98 narrow m, 285
Bottom near	Hamamatsu	STX424254-12	187		0	ATLAS98 narrow m, 285
Total	-	-	**691**		**0**	200V, 25 ℃

	Database S/N	Manufacturer S/N	Comment
Hybrid		k3111	Barrel Cu/Polyimide flex v3/Polymer-coated bridges

Chips	Database S/N	Batch	Wafer	X	Y	xeff	nDead	Non Trim	Gain	Offset	qfactor
M0		29476	15	2	5	0	0	5	55.4	10.1	7.5
S1		29476	15	6	6	0	0	8	55.4	5.5	5.8
S2		29476	15	2	3	1	1	2	55.8	6.6	8.2
S3		29476	15	2	7	0	0	0	56.2	5.9	5.1
S4		29476	15	6	2	1	1	13	54.9	7.7	8.6
E5		29476	15	5	11	0	0	15	55.8	9.1	5.1
M8		29476	15	0	12	1	1	2	59.3	8.1	7.5
S9		29476	15	1	12	2	2	3	59.1	2.7	5.3
S10		29476	15	1	10	0	0	2	56.8	5.6	7.1
S11		29476	15	1	7	1	1	3	56.9	5.4	7.4
S12		29476	15	6	10	1	1	4	57.4	10.2	4.6
E13		29476	15	5	6	0	0	20	56.5	2.6	7.0
Total	-	-	-	-	-	**7**	**7**	**77**	<56.5>	<6.6>	<6.6>

Capacitors	#locations	C	Vendor	Part No.	$F_{Resonance}$
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	Semitec	103KT1608-1P	

2. CONSTRUCTION DETAILS

Adhesives	Vendor	Part No.	Comment
Chip Glue	Ion-chemi	–	Silver-loaded, RT-cure, 50℃ 2hr post-cure
Det. Elec. Glue	Ion-chemi	–	Silver-loaded, RT-cure, 50℃ 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

	Default	Actual	Comment
Vcc	3.5V	3.50	
Vdd	4.0V	4.00	
Vdet	100V	100	
Icc	-	0.89A	
Idd	-	0.47A	
Idet	-	~0.8uA	
Bias Current	267mA	267 uA	
Shaper Current	30mA	30 uA	
Compression Mode	1 (LEVEL XIX)	1	
Edge Detect	0 (OFF)	0	
Box Grounding	AG at PCB	DG at Patch	DG at Patch is done by design
Box Cooling	Fan	Fan	Climate box
Module Temp	< 45C	~25	module in a semi-confined box in above

4. TRIMMING

	Default	Actual	Comment
Trim Method	Minimisation of n Non Trim	Manual setting	Alternate: Minimisation of RMS
Trim VCAL		20 mV	
Target Value		200 mV	
n Non Trim (link 0)	-	38	
n Non Trim (link 1)	-	37	
n Non Trim (total)	-	75	
RMS of vt50 distribution after trimming	-	2.94, 2.91 mV	

5. RESULTS

	M0	S1	S2	S3	S4	E5	Link 0	
Gain (2,3fC lin)	52.92	54.71	54.43	56.11	51.22	54.42	53.97	**mV/fC**
Noise @2fC	12.03	12.05	12.63	12.05	12.47	12.01	12.2	**mV**
Noise @2fC	0.227	0.22	0.232	0.215	0.243	0.221	0.226	**fC**
Noise @2fC	1420.65	1376.31	1449.89	1341.87	1521.67	1379.1	1415	**ENC**
Gain (0,2,3fC lin)	54.0	51.7	54.2	53.8	51.7	53.3	53.1	**mV/fC**
Noise @2fC	12.0	12.1	12.6	12.1	12.5	12.0	12.2	**mV**
Noise @2fC	0.223	0.233	0.233	0.224	0.241	0.225	0.230	**fC**
Noise @2fC	1392	1457	1455	1400	1509	1408	1437	**ENC**
Stability point	clean	clean	clean	clean	clean	discontinuity	clean	**mV**
Offset (by Noise Occupancy)	86.9	96.7	90.4	90.5	94.0	89.1	91.3	**mV**
RMS of dist. of NO offsets	7.3	6.5	6.5	6.8	7.2	7.3		**mV**
Stability - Offset	–	–	–	–	–	-9	–	**mV**
Stability - Offset	–	–	–	–	–	-0.17	–	**fC**
n Non Trim	4	9	3	1	11	10	38	
n Masked	0	0	0	0	0	0		-

	M8	S9	S10	S11	S12	E13	Link 1	Overall	
Gain (2,3fC lin)	53.83	55.38	52.25	55.32	56.14	51.86	51.86	54.05	**mV/fC**
Noise @2fC	12.22	12.03	11.95	12.23	12.45	12.09	12.16	12.18	**mV**
Noise @2fC	0.227	0.217	0.229	0.221	0.222	0.233	0.225	0.226	**fC**
Noise @2fC	1418.31	1357.33	1429.37	1381.24	1386.25	1456.57	1404.85	1410	**ENC**
Gain (0,2,3fC lin)	56.8	54.7	52.7	54.3	54.3	51.1	54.0	53.6	**mV/fC**
Noise @2fC	12.2	12.0	12.0	12.2	12.5	12.1	12.2	12.2	**mV**
Noise @2fC	0.215	0.220	0.227	0.225	0.230	0.236	0.225	0.228	**fC**
Noise @2fC	1345	1374	1418	1408	1435	1477	1409	1423	**ENC**
Stability point	clean	clean	clean	clean	discontinuity	clean	clean		**mV**
Offset (by Noise Occupancy)	80.0	86.6	88.9	88.2	86.6	92.3	87.1		**mV**
RMS of dist. of NO offsets	6.6	7.1	6.6	7.0	7.3	7.2			**mV**

Stability - Offset	–	–	–	–	-7	–	–		**mV**
Stability - Offset	–	–	–	–	-0.13	–	–		**fC**
n Non Trim	2	2	2	3	9	19	37	75	
n Masked	0	0	0	0	0	0	0	0	-