

ATLAS SCT Module Test Report

MODULE NAME: k3112

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	20220900200126	SRN39255-126	155		0	ATLAS98 wide m 100, 287um
Top near	20220900200127	SRN39255-127	158		0	ATLAS98 wide m 100, 287um
Total	-	-	303			-
Bottom far	20220900200131	SRN39255-131	178		6*	ATLAS98 wide m 100, 287um
Bottom near	20220900200129	SRN39255-129	152		0	ATLAS98 wide m 100, 287um
Total	-	-	633		0	350V, 27 °C

6*: strip#32-#37 metal short

	Database S/N	Manufacturer S/N	Comment
Hybrid		k3112	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	8		2	3	55.8	0.0	6.7
S1		29476	15	3	12		0	8	56.7	-1.2	5.8
S2		29476	15	2	6		0	3	57.0	5.4	8.2
S3		29476	15	2	12		0	2	57.3	2.3	6.1
S4		29476	15	3	9		0	13	56.0	-0.4	6.0
E5		29476	15	5	5		0	15	56.2	5.7	5.3
M8		29476	15	5	18		0	9	59.4	9.3	7.4
S9		29476	15	5	13		1	10	56.9	-1.4	5.1
S10		29476	15	2	17		0	2	58.1	5.9	6.0
S11		29476	15	1	9		0	2	58.3	4.1	6.6
S12		29476	15	6	11		1	14	57.3	7.0	5.6
E13		29476	15	5	12		0	22	56.3	8.4	5.5
Total	-	-	-	-	-		4	103	<57.1>	<3.8>	<6.2>

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°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

	Default	Actual	Comment
Vcc	3.5V	3.50	
Vdd	4.0V	4.00	
Vdet	100V	100	
Icc	-	0.90A	
Idd	-	0.46A	
Idet	-	~0.6uA	
Bias Current	267mA	267 uA	
Shaper Current	30mA	30 uA	
Compression Mode	1 (LEVEL XIX)	0	
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)	-	40	
n Non Trim (link 1)	-	53	
n Non Trim (total)	-	93	
RMS of vt50 distribution after trimming	-	2.98, 3.19 mV	

5. RESULTS

	M0	S1	S2	S3	S4	E5	Link 0	
Gain (0,2,3fC lin)	53.6	54.0	57.5	55.4	53.2	55.3	54.8	mV/fC
Noise @2fC	12.5	112.6	12.6	12.8	12.7	12.7	12.6	mV
Noise @2fC	0.233	0.233	0.220	0.231	0.238	0.229	0.231	fC
Noise @2fC	1455	1458	1373	1446	1487	1433	1442	ENC
Stability point	clean	clean	clean	clean	clean	*disconti ~80mV	clean	mV
Offset (by Noise Occupancy)	96.8	95.0	85.8	92.4	98.4	94.7	93.8	mV
RMS of dist. of NO offsets	6.9	7.1	6.9	7.2	6.9	6.8		mV
Stability - Offset	--	--	--	--	--	-15	--	mV
Stability - Offset	--	--	--	--	--	-0.27	--	fC
n Non Trim	6	7	3	3	9	12	40	
n Masked	0	0	0	0	0	0		-

*discontinuity: also observed in standalone hybrid

	M8	S9	S10	S11	S12	E13	Link 1	Overall	
Gain (0,2,3fC lin)	59.7	51.3	57.3	57.3	56.2	55.0	56.1	55.5	mV/fC
Noise @2fC	13.0	12.8	12.8	13.0	13.1	12.9	12.9	12.8	mV
Noise @2fC	0.218	0.249	0.223	0.227	0.232	0.234	0.231	0.231	fC
Noise @2fC	1365	1557	1393	1419	1452	1462	1441	1442	ENC
Stability point	clean	clean	clean	clean	clean	clean	clean		mV
Offset (by Noise Occupancy)	81.4	99.9	84.6	86.5	90.3	90.6	88.9	91.4	mV
RMS of dist. of NO offsets	7.5	7.3	7.4	7.8	4.3	7.8			mV
Stability - Offset	--	--	--	--	--	--	--		mV
Stability - Offset	--	--	--	--	--	--	--		fC
n Non Trim	8	8	1	2	17	17	53	93	
n Masked	0	0	0	0	0	0	0	0	-