



# 宜特科技股份有限公司



No.: T1091

## Integrated Service Technology Inc.

TEL : (03) 578-2266

RA No: 9400277-E

FAX : (03) 578-2299

Date : 02/02/2005

Email: esd@isti.com.tw

Test Site Address: 1F, No.22, Pu-ding Rd., Hsin-chu, Taiwan, R.O.C.

### 可靠度測試報告

#### RELIABILITY TEST REPORT

<b>Applicant/Department:</b> Avant Electronics Corporation	
<b>Address</b> : 6F , No.56 , Ln.258 Jui Kuang Rd. , Nei Hu District , Taipei , Taiwan	
<b>Product</b> : SBN1661G_M18	
<b>Testing Item</b> : ESD-HBM	Package/Pin Count: QFP / 100
<b>Application Date</b> : 02/01/2005	Date Finished : 02/02/2005
<b>Test Equipment</b> : KEYTEK ZAPMASTER	
<b>Test Condition</b> : MIL-STD-883D Method 3015.7	
<b>Failure Criteria</b> : For V Change at 1 $\mu$ A $\pm$ 30%	
<b>Test Voltage</b> : 500V ~ 4000V ( $\pm$ ), Step : 500V ( $\pm$ )	

#### Testing Item

Random ESD-HBM Test.....P2

#### Remark:

This report refers only to the specimen submitted to testing, and be invalid as separately used.

Testing Engineer: **Jan Fang**

Report Review: **Kosa Liu**

Laboratory Head: **Frank Wu**



# 宜特科技股份有限公司



**Integrated Service Technology Inc.** No.:T1091

TEL : (03) 578-2266

RA No: 9400277-E

FAX : (03) 578-2299

Date : 02/02/2005

Email: [esd@isti.com.tw](mailto:esd@isti.com.tw)

Test Site Address: 1F, No.22, Pu-Ding Rd., Hsin-chu, Taiwan, R.O.C.

## ESD-HBM Testing Report

### Test Equipment:

KEYTEK ZAPMASTER

### Environmental Condition of Laboratory:

Temperature: 25°C±5°C

Humidity: 55%±10% R

### Test Condition:

TEST-VSS (+)

TEST-VSS (-)

TEST-VDD(+)

TEST-VDD (-)

VDD-VSS(+)

VDD-VSS(-)

Test Result			
MODEL: HBM	ESD SENSITIVITY PASS : <u>+4000 V</u>		V CLASS : <u>3</u>
PIN COMBINATION	SAMPLE SIZE	PASSED VOLTS	<b>NOTE:</b> FOR MIL-STD CLASS1: 0V-1999V CLASS2: 2000V-3999V CLASS3: 4000V-TO ABOVE
VSS (+)	3	<b>+4000 V</b>	
VSS (-)	3	<b>- 4000 V</b>	
VDD (+)	3	<b>+4000 V</b>	
VDD (-)	3	<b>- 4000 V</b>	
VDD – VSS (+)	3	<b>+4000 V</b>	
VDD – VSS (-)	3	<b>- 4000 V</b>	

GND : 78,90  
 I/O: 79-86  
 I/P : 73-77,88-89,91-95  
 O/P : 1-72,96-100

V5 : 90  
 VDD : 87  
 VSS : 78

VSS (+)									(UNIT: V)
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
1		PASS	PASS	PASS	26		PASS	PASS	PASS
2		PASS	PASS	PASS	27		PASS	PASS	PASS
3		PASS	PASS	PASS	28		PASS	PASS	PASS
4		PASS	PASS	PASS	29		PASS	PASS	PASS
5		PASS	PASS	PASS	30		PASS	PASS	PASS
6		PASS	PASS	PASS	31		PASS	PASS	PASS
7		PASS	PASS	PASS	32		PASS	PASS	PASS
8		PASS	PASS	PASS	33		PASS	PASS	PASS
9		PASS	PASS	PASS	34		PASS	PASS	PASS
10		PASS	PASS	PASS	35		PASS	PASS	PASS
11		PASS	PASS	PASS	36		PASS	PASS	PASS
12		PASS	PASS	PASS	37		PASS	PASS	PASS
13		PASS	PASS	PASS	38		PASS	PASS	PASS
14		PASS	PASS	PASS	39		PASS	PASS	PASS
15		PASS	PASS	PASS	40		PASS	PASS	PASS
16		PASS	PASS	PASS	41		PASS	PASS	PASS
17		PASS	PASS	PASS	42		PASS	PASS	PASS
18		PASS	PASS	PASS	43		PASS	PASS	PASS
19		PASS	PASS	PASS	44		PASS	PASS	PASS
20		PASS	PASS	PASS	45		PASS	PASS	PASS
21		PASS	PASS	PASS	46		PASS	PASS	PASS
22		PASS	PASS	PASS	47		PASS	PASS	PASS
23		PASS	PASS	PASS	48		PASS	PASS	PASS
24		PASS	PASS	PASS	49		PASS	PASS	PASS
25		PASS	PASS	PASS	50		PASS	PASS	PASS

VSS (+) (UNIT: V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
51		PASS	PASS	PASS	76		PASS	PASS	PASS
52		PASS	PASS	PASS	77		PASS	PASS	PASS
53		PASS	PASS	PASS	78		VSS	VSS	VSS
54		PASS	PASS	PASS	79		PASS	PASS	PASS
55		PASS	PASS	PASS	80		PASS	PASS	PASS
56		PASS	PASS	PASS	81		PASS	PASS	PASS
57		PASS	PASS	PASS	82		PASS	PASS	PASS
58		PASS	PASS	PASS	83		PASS	PASS	PASS
59		PASS	PASS	PASS	84		PASS	PASS	PASS
60		PASS	PASS	PASS	85		PASS	PASS	PASS
61		PASS	PASS	PASS	86		PASS	PASS	PASS
62		PASS	PASS	PASS	87		VDD	VDD	VDD
63		PASS	PASS	PASS	88		PASS	PASS	PASS
64		PASS	PASS	PASS	89		PASS	PASS	PASS
65		PASS	PASS	PASS	90		V5	V5	V5
66		PASS	PASS	PASS	91		PASS	PASS	PASS
67		PASS	PASS	PASS	92		PASS	PASS	PASS
68		PASS	PASS	PASS	93		PASS	PASS	PASS
69		PASS	PASS	PASS	94		PASS	PASS	PASS
70		PASS	PASS	PASS	95		PASS	PASS	PASS
71		PASS	PASS	PASS	96		PASS	PASS	PASS
72		PASS	PASS	PASS	97		PASS	PASS	PASS
73		PASS	PASS	PASS	98		PASS	PASS	PASS
74		PASS	PASS	PASS	99		PASS	PASS	PASS
75		PASS	PASS	PASS	100		PASS	PASS	PASS

VSS (-)									
(UNIT: V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
1		PASS	PASS	PASS	26		PASS	PASS	PASS
2		PASS	PASS	PASS	27		PASS	PASS	PASS
3		PASS	PASS	PASS	28		PASS	PASS	PASS
4		PASS	PASS	PASS	29		PASS	PASS	PASS
5		PASS	PASS	PASS	30		PASS	PASS	PASS
6		PASS	PASS	PASS	31		PASS	PASS	PASS
7		PASS	PASS	PASS	32		PASS	PASS	PASS
8		PASS	PASS	PASS	33		PASS	PASS	PASS
9		PASS	PASS	PASS	34		PASS	PASS	PASS
10		PASS	PASS	PASS	35		PASS	PASS	PASS
11		PASS	PASS	PASS	36		PASS	PASS	PASS
12		PASS	PASS	PASS	37		PASS	PASS	PASS
13		PASS	PASS	PASS	38		PASS	PASS	PASS
14		PASS	PASS	PASS	39		PASS	PASS	PASS
15		PASS	PASS	PASS	40		PASS	PASS	PASS
16		PASS	PASS	PASS	41		PASS	PASS	PASS
17		PASS	PASS	PASS	42		PASS	PASS	PASS
18		PASS	PASS	PASS	43		PASS	PASS	PASS
19		PASS	PASS	PASS	44		PASS	PASS	PASS
20		PASS	PASS	PASS	45		PASS	PASS	PASS
21		PASS	PASS	PASS	46		PASS	PASS	PASS
22		PASS	PASS	PASS	47		PASS	PASS	PASS
23		PASS	PASS	PASS	48		PASS	PASS	PASS
24		PASS	PASS	PASS	49		PASS	PASS	PASS
25		PASS	PASS	PASS	50		PASS	PASS	PASS

VSS (-) (UNIT: V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
51		PASS	PASS	PASS	76		PASS	PASS	PASS
52		PASS	PASS	PASS	77		PASS	PASS	PASS
53		PASS	PASS	PASS	78		VSS	VSS	VSS
54		PASS	PASS	PASS	79		PASS	PASS	PASS
55		PASS	PASS	PASS	80		PASS	PASS	PASS
56		PASS	PASS	PASS	81		PASS	PASS	PASS
57		PASS	PASS	PASS	82		PASS	PASS	PASS
58		PASS	PASS	PASS	83		PASS	PASS	PASS
59		PASS	PASS	PASS	84		PASS	PASS	PASS
60		PASS	PASS	PASS	85		PASS	PASS	PASS
61		PASS	PASS	PASS	86		PASS	PASS	PASS
62		PASS	PASS	PASS	87		VDD	VDD	VDD
63		PASS	PASS	PASS	88		PASS	PASS	PASS
64		PASS	PASS	PASS	89		PASS	PASS	PASS
65		PASS	PASS	PASS	90		V5	V5	V5
66		PASS	PASS	PASS	91		PASS	PASS	PASS
67		PASS	PASS	PASS	92		PASS	PASS	PASS
68		PASS	PASS	PASS	93		PASS	PASS	PASS
69		PASS	PASS	PASS	94		PASS	PASS	PASS
70		PASS	PASS	PASS	95		PASS	PASS	PASS
71		PASS	PASS	PASS	96		PASS	PASS	PASS
72		PASS	PASS	PASS	97		PASS	PASS	PASS
73		PASS	PASS	PASS	98		PASS	PASS	PASS
74		PASS	PASS	PASS	99		PASS	PASS	PASS
75		PASS	PASS	PASS	100		PASS	PASS	PASS

VCC (+)									
(UNIT: V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
1		PASS	PASS	PASS	26		PASS	PASS	PASS
2		PASS	PASS	PASS	27		PASS	PASS	PASS
3		PASS	PASS	PASS	28		PASS	PASS	PASS
4		PASS	PASS	PASS	29		PASS	PASS	PASS
5		PASS	PASS	PASS	30		PASS	PASS	PASS
6		PASS	PASS	PASS	31		PASS	PASS	PASS
7		PASS	PASS	PASS	32		PASS	PASS	PASS
8		PASS	PASS	PASS	33		PASS	PASS	PASS
9		PASS	PASS	PASS	34		PASS	PASS	PASS
10		PASS	PASS	PASS	35		PASS	PASS	PASS
11		PASS	PASS	PASS	36		PASS	PASS	PASS
12		PASS	PASS	PASS	37		PASS	PASS	PASS
13		PASS	PASS	PASS	38		PASS	PASS	PASS
14		PASS	PASS	PASS	39		PASS	PASS	PASS
15		PASS	PASS	PASS	40		PASS	PASS	PASS
16		PASS	PASS	PASS	41		PASS	PASS	PASS
17		PASS	PASS	PASS	42		PASS	PASS	PASS
18		PASS	PASS	PASS	43		PASS	PASS	PASS
19		PASS	PASS	PASS	44		PASS	PASS	PASS
20		PASS	PASS	PASS	45		PASS	PASS	PASS
21		PASS	PASS	PASS	46		PASS	PASS	PASS
22		PASS	PASS	PASS	47		PASS	PASS	PASS
23		PASS	PASS	PASS	48		PASS	PASS	PASS
24		PASS	PASS	PASS	49		PASS	PASS	PASS
25		PASS	PASS	PASS	50		PASS	PASS	PASS

VCC (+)									
(UNIT: V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
51		PASS	PASS	PASS	76		PASS	PASS	PASS
52		PASS	PASS	PASS	77		PASS	PASS	PASS
53		PASS	PASS	PASS	78		VSS	VSS	VSS
54		PASS	PASS	PASS	79		PASS	PASS	PASS
55		PASS	PASS	PASS	80		PASS	PASS	PASS
56		PASS	PASS	PASS	81		PASS	PASS	PASS
57		PASS	PASS	PASS	82		PASS	PASS	PASS
58		PASS	PASS	PASS	83		PASS	PASS	PASS
59		PASS	PASS	PASS	84		PASS	PASS	PASS
60		PASS	PASS	PASS	85		PASS	PASS	PASS
61		PASS	PASS	PASS	86		PASS	PASS	PASS
62		PASS	PASS	PASS	87		VDD	VDD	VDD
63		PASS	PASS	PASS	88		PASS	PASS	PASS
64		PASS	PASS	PASS	89		PASS	PASS	PASS
65		PASS	PASS	PASS	90		V5	V5	V5
66		PASS	PASS	PASS	91		PASS	PASS	PASS
67		PASS	PASS	PASS	92		PASS	PASS	PASS
68		PASS	PASS	PASS	93		PASS	PASS	PASS
69		PASS	PASS	PASS	94		PASS	PASS	PASS
70		PASS	PASS	PASS	95		PASS	PASS	PASS
71		PASS	PASS	PASS	96		PASS	PASS	PASS
72		PASS	PASS	PASS	97		PASS	PASS	PASS
73		PASS	PASS	PASS	98		PASS	PASS	PASS
74		PASS	PASS	PASS	99		PASS	PASS	PASS
75		PASS	PASS	PASS	100		PASS	PASS	PASS



VCC (-)									(UNIT: V)
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
1		PASS	PASS	PASS	26		PASS	PASS	PASS
2		PASS	PASS	PASS	27		PASS	PASS	PASS
3		PASS	PASS	PASS	28		PASS	PASS	PASS
4		PASS	PASS	PASS	29		PASS	PASS	PASS
5		PASS	PASS	PASS	30		PASS	PASS	PASS
6		PASS	PASS	PASS	31		PASS	PASS	PASS
7		PASS	PASS	PASS	32		PASS	PASS	PASS
8		PASS	PASS	PASS	33		PASS	PASS	PASS
9		PASS	PASS	PASS	34		PASS	PASS	PASS
10		PASS	PASS	PASS	35		PASS	PASS	PASS
11		PASS	PASS	PASS	36		PASS	PASS	PASS
12		PASS	PASS	PASS	37		PASS	PASS	PASS
13		PASS	PASS	PASS	38		PASS	PASS	PASS
14		PASS	PASS	PASS	39		PASS	PASS	PASS
15		PASS	PASS	PASS	40		PASS	PASS	PASS
16		PASS	PASS	PASS	41		PASS	PASS	PASS
17		PASS	PASS	PASS	42		PASS	PASS	PASS
18		PASS	PASS	PASS	43		PASS	PASS	PASS
19		PASS	PASS	PASS	44		PASS	PASS	PASS
20		PASS	PASS	PASS	45		PASS	PASS	PASS
21		PASS	PASS	PASS	46		PASS	PASS	PASS
22		PASS	PASS	PASS	47		PASS	PASS	PASS
23		PASS	PASS	PASS	48		PASS	PASS	PASS
24		PASS	PASS	PASS	49		PASS	PASS	PASS
25		PASS	PASS	PASS	50		PASS	PASS	PASS

VCC (-) (UNIT: V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
51		PASS	PASS	PASS	76		PASS	PASS	PASS
52		PASS	PASS	PASS	77		PASS	PASS	PASS
53		PASS	PASS	PASS	78		VSS	VSS	VSS
54		PASS	PASS	PASS	79		PASS	PASS	PASS
55		PASS	PASS	PASS	80		PASS	PASS	PASS
56		PASS	PASS	PASS	81		PASS	PASS	PASS
57		PASS	PASS	PASS	82		PASS	PASS	PASS
58		PASS	PASS	PASS	83		PASS	PASS	PASS
59		PASS	PASS	PASS	84		PASS	PASS	PASS
60		PASS	PASS	PASS	85		PASS	PASS	PASS
61		PASS	PASS	PASS	86		PASS	PASS	PASS
62		PASS	PASS	PASS	87		VDD	VDD	VDD
63		PASS	PASS	PASS	88		PASS	PASS	PASS
64		PASS	PASS	PASS	89		PASS	PASS	PASS
65		PASS	PASS	PASS	90		V5	V5	V5
66		PASS	PASS	PASS	91		PASS	PASS	PASS
67		PASS	PASS	PASS	92		PASS	PASS	PASS
68		PASS	PASS	PASS	93		PASS	PASS	PASS
69		PASS	PASS	PASS	94		PASS	PASS	PASS
70		PASS	PASS	PASS	95		PASS	PASS	PASS
71		PASS	PASS	PASS	96		PASS	PASS	PASS
72		PASS	PASS	PASS	97		PASS	PASS	PASS
73		PASS	PASS	PASS	98		PASS	PASS	PASS
74		PASS	PASS	PASS	99		PASS	PASS	PASS
75		PASS	PASS	PASS	100		PASS	PASS	PASS

VCC – VSS (+)				(UNIT: V)
Test Pin	FAIL VOLTAGE	#1	#2	#3
87		PASS	PASS	PASS

VCC – VSS (-)				(UNIT: V)
Test Pin	FAIL VOLTAGE	#1	#2	#3
87		PASS	PASS	PASS