



宜特科技股份有限公司



Integrated Service Technology Inc.

No.:T1091

TEL : (03) 578-2266

RA No: 9303151-E

FAX : (03) 578-2299

Date : 12/01/2004

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

| | |
|--|-------------------------------------|
| Applicant/Department: Avant Electronics Corporation | |
| Address : 6F , No.56 , Ln.258 Jui Kuang Rd. , Nei Hu District , Taipei , Taiwan | |
| Product : SBN6400G | |
| Testing Item : LATCH-UP | Package/Pin Count: QFP - 100 |
| Application Date : 11/30/2004 | Date Finished : 12/01/2004 |
| Test Condition : JEDEC STANDARD NO.78 MARCH 1997 | |
| Failure Criteria | < 25mA 10mA + I normal |
| | > 25mA 1.4 x I normal |
| Trigger Current : 25mA~200mA(±) , Step : 25mA(±) | |
| V_{supply} OVERVOLTAGE TEST :5V~7.5V(+) , Step : 0.5V(+) | |

Testing Item

Random LATCH-UP Test.....P2

Remark:

Ground pins are not latch-up tested.

The positive or negative current pulse (I-Test) or voltage pulse (V_{supply} overvoltage test) applied to any pin under test in an attempt to induce latch-up.

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

Testing Engineer: Jay Fang

Report Review: Kosa Liu

Laboratory Head: Frank Wu



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LATCH-UP Testing Report

Test Equipment:

KEYTEK ZAPMASTER

Environmental Condition of Laboratory:

Temperature: 25°C±5°C

Humidity: 55%±10% RH

Test Condition:

POSITIVE I

NEGATIVE I

Vsupply OVERVOLTAGE TEST

Test Result:

| TRIGGER MODEL | TEST PIN | SAMPLE SIZE | TRIGGER SOURCE INDUCE LATCH-UP | IT CLASS: <u>3</u> |
|---------------------------------------|----------|-------------|--------------------------------|---|
| +IT | I/O | 3 | PASS | NOTE: CLASS1: +IT:0mA~39mA -IT:0mA~ -39mA CLASS2: +IT: 40mA~+99mA -IT: -40mA~-99mA CLASS3: +IT:>100mA -IT:<-100mA |
| | I/P | | PASS | |
| | O/P | | PASS | |
| -IT | I/O | 3 | PASS | |
| | I/P | | PASS | |
| | O/P | | PASS | |
| V _{supply} OVER VOLTAGE TEST | VCC | 3 | PASS | |

ALL:1-22,24-27,29-33,35,37,39,42-44,46-47,49,50,52
54-57,59-100NC: 34,36,38,41,45,48,51,53
O/P:1-22,43-44,46,59-100

VSS:23,40,58

I/O:29,33,35,47,50,52

I/P: 24-27,30-32,37,39,42,49,54-57

| POSITIVE I | | | | | | | | | |
|------------|-----------------|------|------|------|----------|-----------------|------|------|------|
| (UNIT: mA) | | | | | | | | | |
| Test Pin | TRIGGER CURRENT | #1 | #2 | #3 | Test Pin | TRIGGER CURRENT | #1 | #2 | #3 |
| 1 | | PASS | PASS | PASS | 27 | | PASS | PASS | PASS |
| 2 | | PASS | PASS | PASS | 29 | | PASS | PASS | PASS |
| 3 | | PASS | PASS | PASS | 30 | | PASS | PASS | PASS |
| 4 | | PASS | PASS | PASS | 31 | | PASS | PASS | PASS |
| 5 | | PASS | PASS | PASS | 32 | | PASS | PASS | PASS |
| 6 | | PASS | PASS | PASS | 33 | | PASS | PASS | PASS |
| 7 | | PASS | PASS | PASS | 35 | | PASS | PASS | PASS |
| 8 | | PASS | PASS | PASS | 37 | | PASS | PASS | PASS |
| 9 | | PASS | PASS | PASS | 39 | | PASS | PASS | PASS |
| 10 | | PASS | PASS | PASS | 42 | | PASS | PASS | PASS |
| 11 | | PASS | PASS | PASS | 43 | | PASS | PASS | PASS |
| 12 | | PASS | PASS | PASS | 44 | | PASS | PASS | PASS |
| 13 | | PASS | PASS | PASS | 46 | | PASS | PASS | PASS |
| 14 | | PASS | PASS | PASS | 47 | | PASS | PASS | PASS |
| 15 | | PASS | PASS | PASS | 49 | | PASS | PASS | PASS |
| 16 | | PASS | PASS | PASS | 50 | | PASS | PASS | PASS |
| 17 | | PASS | PASS | PASS | 52 | | PASS | PASS | PASS |
| 18 | | PASS | PASS | PASS | 54 | | PASS | PASS | PASS |
| 19 | | PASS | PASS | PASS | 55 | | PASS | PASS | PASS |
| 20 | | PASS | PASS | PASS | 56 | | PASS | PASS | PASS |
| 21 | | PASS | PASS | PASS | 57 | | PASS | PASS | PASS |
| 22 | | PASS | PASS | PASS | 59 | | PASS | PASS | PASS |
| 24 | | PASS | PASS | PASS | 60 | | PASS | PASS | PASS |
| 25 | | PASS | PASS | PASS | 61 | | PASS | PASS | PASS |
| 26 | | PASS | PASS | PASS | 62 | | PASS | PASS | PASS |

| POSITIVE I | | | | | | | | | |
|------------|-----------------|------|------|------|----------|-----------------|------|------|------|
| (UNIT: mA) | | | | | | | | | |
| Test Pin | TRIGGER CURRENT | #1 | #2 | #3 | Test Pin | TRIGGER CURRENT | #1 | #2 | #3 |
| 63 | | PASS | PASS | PASS | 82 | | PASS | PASS | PASS |
| 64 | | PASS | PASS | PASS | 83 | | PASS | PASS | PASS |
| 65 | | PASS | PASS | PASS | 84 | | PASS | PASS | PASS |
| 66 | | PASS | PASS | PASS | 85 | | PASS | PASS | PASS |
| 67 | | PASS | PASS | PASS | 86 | | PASS | PASS | PASS |
| 68 | | PASS | PASS | PASS | 87 | | PASS | PASS | PASS |
| 69 | | PASS | PASS | PASS | 88 | | PASS | PASS | PASS |
| 70 | | PASS | PASS | PASS | 89 | | PASS | PASS | PASS |
| 71 | | PASS | PASS | PASS | 90 | | PASS | PASS | PASS |
| 72 | | PASS | PASS | PASS | 91 | | PASS | PASS | PASS |
| 73 | | PASS | PASS | PASS | 92 | | PASS | PASS | PASS |
| 74 | | PASS | PASS | PASS | 93 | | PASS | PASS | PASS |
| 75 | | PASS | PASS | PASS | 94 | | PASS | PASS | PASS |
| 76 | | PASS | PASS | PASS | 95 | | PASS | PASS | PASS |
| 77 | | PASS | PASS | PASS | 96 | | PASS | PASS | PASS |
| 78 | | PASS | PASS | PASS | 97 | | PASS | PASS | PASS |
| 79 | | PASS | PASS | PASS | 98 | | PASS | PASS | PASS |
| 80 | | PASS | PASS | PASS | 99 | | PASS | PASS | PASS |
| 81 | | PASS | PASS | PASS | 100 | | PASS | PASS | PASS |

| NEGATIVE I | | | | | | | | | |
|------------|-----------------|------|------|------|----------|-----------------|------|------|------|
| (UNIT: mA) | | | | | | | | | |
| Test Pin | TRIGGER CURRENT | #1 | #2 | #3 | Test Pin | TRIGGER CURRENT | #1 | #2 | #3 |
| 1 | | PASS | PASS | PASS | 27 | | PASS | PASS | PASS |
| 2 | | PASS | PASS | PASS | 29 | | PASS | PASS | PASS |
| 3 | | PASS | PASS | PASS | 30 | | PASS | PASS | PASS |
| 4 | | PASS | PASS | PASS | 31 | | PASS | PASS | PASS |
| 5 | | PASS | PASS | PASS | 32 | | PASS | PASS | PASS |
| 6 | | PASS | PASS | PASS | 33 | | PASS | PASS | PASS |
| 7 | | PASS | PASS | PASS | 35 | | PASS | PASS | PASS |
| 8 | | PASS | PASS | PASS | 37 | | PASS | PASS | PASS |
| 9 | | PASS | PASS | PASS | 39 | | PASS | PASS | PASS |
| 10 | | PASS | PASS | PASS | 42 | | PASS | PASS | PASS |
| 11 | | PASS | PASS | PASS | 43 | | PASS | PASS | PASS |
| 12 | | PASS | PASS | PASS | 44 | | PASS | PASS | PASS |
| 13 | | PASS | PASS | PASS | 46 | | PASS | PASS | PASS |
| 14 | | PASS | PASS | PASS | 47 | | PASS | PASS | PASS |
| 15 | | PASS | PASS | PASS | 49 | | PASS | PASS | PASS |
| 16 | | PASS | PASS | PASS | 50 | | PASS | PASS | PASS |
| 17 | | PASS | PASS | PASS | 52 | | PASS | PASS | PASS |
| 18 | | PASS | PASS | PASS | 54 | | PASS | PASS | PASS |
| 19 | | PASS | PASS | PASS | 55 | | PASS | PASS | PASS |
| 20 | | PASS | PASS | PASS | 56 | | PASS | PASS | PASS |
| 21 | | PASS | PASS | PASS | 57 | | PASS | PASS | PASS |
| 22 | | PASS | PASS | PASS | 59 | | PASS | PASS | PASS |
| 24 | | PASS | PASS | PASS | 60 | | PASS | PASS | PASS |
| 25 | | PASS | PASS | PASS | 61 | | PASS | PASS | PASS |
| 26 | | PASS | PASS | PASS | 62 | | PASS | PASS | PASS |

| NEGATIVE I | | | | | | | | | |
|------------|-----------------|------|------|------|----------|-----------------|------|------|------|
| (UNIT: mA) | | | | | | | | | |
| Test Pin | TRIGGER CURRENT | #1 | #2 | #3 | Test Pin | TRIGGER CURRENT | #1 | #2 | #3 |
| 63 | | PASS | PASS | PASS | 82 | | PASS | PASS | PASS |
| 64 | | PASS | PASS | PASS | 83 | | PASS | PASS | PASS |
| 65 | | PASS | PASS | PASS | 84 | | PASS | PASS | PASS |
| 66 | | PASS | PASS | PASS | 85 | | PASS | PASS | PASS |
| 67 | | PASS | PASS | PASS | 86 | | PASS | PASS | PASS |
| 68 | | PASS | PASS | PASS | 87 | | PASS | PASS | PASS |
| 69 | | PASS | PASS | PASS | 88 | | PASS | PASS | PASS |
| 70 | | PASS | PASS | PASS | 89 | | PASS | PASS | PASS |
| 71 | | PASS | PASS | PASS | 90 | | PASS | PASS | PASS |
| 72 | | PASS | PASS | PASS | 91 | | PASS | PASS | PASS |
| 73 | | PASS | PASS | PASS | 92 | | PASS | PASS | PASS |
| 74 | | PASS | PASS | PASS | 93 | | PASS | PASS | PASS |
| 75 | | PASS | PASS | PASS | 94 | | PASS | PASS | PASS |
| 76 | | PASS | PASS | PASS | 95 | | PASS | PASS | PASS |
| 77 | | PASS | PASS | PASS | 96 | | PASS | PASS | PASS |
| 78 | | PASS | PASS | PASS | 97 | | PASS | PASS | PASS |
| 79 | | PASS | PASS | PASS | 98 | | PASS | PASS | PASS |
| 80 | | PASS | PASS | PASS | 99 | | PASS | PASS | PASS |
| 81 | | PASS | PASS | PASS | 100 | | PASS | PASS | PASS |

| V_{supply} OVERVOLTAGE TEST (UNIT: V) | | | | |
|--|-----------------|------|------|------|
| Test pin | TRIGGER VOLTAGE | #1 | #2 | #3 |
| | 28 | PASS | PASS | PASS |