

UESD55B
Rev.01

Reliability Report
FOR
UESD55B

December 28, 2006

UNION SEMICONDUCTOR, INC.

Written by

Liming Ge
Quality Assurance Engineer

Approved by

Tina Liu
Quality Assurance Manager

Conclusion

The UESD55B successfully meets the quality and reliability standards required of all Union products. In addition, Union's continuous reliability monitoring program ensures that all outgoing product will continue to meet Union's quality and reliability standards.

Table of Contents

- I.Device Description
- II.Manufacturing Information
- III.Packaging Information
- IV.Die Information
- V. Reliability Evaluation

I. Device Description

A. General

The UESD55B of TVS diode array is designed to protect sensitive electronics from damage or latch-up due to ESD, for use in applications where board space is at a premium. It is unidirectional device and may be used on lines where the signal polarities are above ground, each device will protect up to four lines.

The UESD55B may be used to meet the immunity requirements of IEC 61000-4-2, level 4.

B. Absolute Maximum Ratings

Peak Pulse Power ($t_p = 8/20\mu s$) (P_{pk})	150 Watts
Thermal Resistance, Junction to Ambient ($R_{\theta JA}$)	370 °C/W
Lead Soldering Temperature (T_L)	260°C (10 sec.)
Operating Temperature (T_A)	-55 to +125 °C
Storage Temperature (T_{STG})	-55 to +150 °C
Maximum Junction Temperature T_{JMAX}	150 °C

II. Manufacturing Information

- A. Process: Bipolar
- B. Wafer Type: TVS35A
- C. Fabrication Location: P.R.China
- D. Assembly Location: P.R.China

III. Packaging Information

- A. Package Type: SC89-6/ SOT563/SOT666
- B. Lead Frame: Copper
- C. Lead Finish: Solder Plate
- D. Die Attach: N/A
- E. Bondwire: Gold (1.0 mil dia.)
- F. Mold Material: Epoxy with silica filler
- G. Flammability Rating: Class UL94-V0
- I. Classification of Moisture Sensitivity per JEDEC standard JESD22-A113: Level 1

IV. Die Information

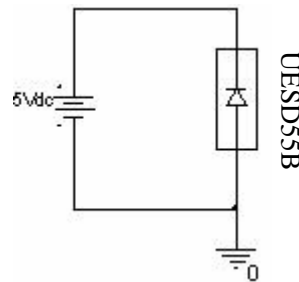
- A. Dimensions: 0.59 x 0.59 mm²
- B. Passivation: Si₃N₄/SiO₂ (Silicon nitride/ Silicon dioxide)
- C. Interconnect: Al/Si/Cu
- D. Backside Metallization: Au
- E. Minimum Metal Width: Metal 1 .2microns
- F. Minimum Metal Spacing: Metal 1 .2 microns
- G. Bondpad Dimensions: 170x170 mm²
- H. Isolation Dielectric: SiO₂
- I. Die Separation Method: Wafer Saw

V. Reliability Evaluation

A. Accelerated Life Test

Sample Size	Conditions	Pass	Failure
80	T _j =125°C,168hr	80	0

Test Circuit



B. Reliability evaluation test

Test Item	Test Condition	Failure Identifi-cation	Package	Sample Size	Number of Failure
Precondition JESD22-A113-D	-65-150° C,Dewell=15Min, 5 Cycle; 125° C,24h; 85° C/85%RH, 168h; 240° C, 3 Times	Electrical parameters & functionality	SC89-6	100	0
TEMP. Cycle JESD22-A104-B	-65-150° C,Dewell=15Min, 5 Cycle, 1000 Cycles	Electrical parameters & functionality	SC89-6	25	0
Pressure Cooker JESD22-A102-C	121° C, 100%RH, 2atm, 336h	Electrical parameters & functionality	SC89-6	25	0
Temp. & Humi. JESD22-A101-B	85° C/85%RH, 1000h	Electrical parameters & functionality	SC89-6	25	0
High Temp. Storage	150° C, 1000h	Electrical	SC89-6	25	0

JESD22-A103-B		parameters & functionality			
---------------	--	----------------------------	--	--	--

C. ESD

The UESD55B die type has been found to have all pins able to withstand a transient pulse of $\pm 15\text{KV}$ (Air) and 8 KV (Contact), per IEC 61000-4-2, level 4. (reference following ESD Test Circuit).

Terminal A: Each pin individually connected to terminal A except Pin 2 with the other pins floating.

Terminal B: Pin 2 connected to terminal B.

