Stretched SO8/SO6

Mechanical and Environmental Testing

Description

The document's reliability data shown includes Broadcom® reliability test data from the reliability tests done on this product family. All of these products use similar processes and materials. The data in Table 1 and Table 2 reflect actual test data for the devices. Before stress, all devices are preconditioned at MSL 1 using a solder reflow process (260°C peak temperature) and 20 temperature cycles (–55°C to +125°C, 15 minutes dwell, 1 minute transfer). This data is taken from testing on Broadcom devices using internal Broadcom processes, material specifications, design standards, and statistical process controls.

This data is not transferable to other manufacturer's similar part types.

Definition of Failure

Abnormal resistance (meaning open or short failure) is the definition of failure in this data sheet. Specifically, failure occurs when the device fails contact resistance either high or low, or both, and/or when the device experiences abnormal leakages, or both.

Reliability Testing

Broadcom subjects the devices to a series of reliability tests (including environmental, mechanical, and electrical tests) to ensure they meet the intended reliability expectation. The following tables show the results of reliability testing conducted by Broadcom over a period of time (as shown in the test conditions).

Table 1: Mechanical Tests (Testing Done on a Constructional Basis)

Test Name	Reference Standard	Test Conditions	Units Tested	Units Failed
Temperature Cycling’	JESD-A104	–55°C to 125°C, Transfer = 1 minute, Dwell = 15 minutes, 1000 cycles	5267	0
Temperature Cycling	JESD-A104	–65°C to 150°C, Transfer = 1 minute, Dwell = 15 minutes, 500 cycles	596	0
Solderability (RoHS condition)	JESD-B102	8 hours steam aging (93°C), followed by solder dip (260°C, 5 seconds)	131	0
Physical Dimensions	JESD-B100	Conformance to data sheet package drawings	20	0
Preconditioning	JESD-020 JESD-A113	As per reference standard (to conform to MSL 1)	19,930	0

Table 2: Environmental Tests (Testing Done on a Constructional Basis)

Test Name	Reference Standard	Test Conditions	Units Tested	Units Failed
Temperature-Humidity-Bias	JESD-A101	T_A = 85°C, RH = 85%, Biased, Time = 1000 hours	118	0
HAST	JESD-A110	T_A = 130°C, RH = 85%, Biased, Time = 96 hours	3157	0
Unbiased HAST	JESD-A118	T_A = 130°C, RH = 85%, Unbiased, Time = 96 hours	2349	0
Autoclave	JESD-A102	T_A = 121ºC, RH = 100%. Unbiased, Time = 96 hours	984	0
High Temperature Bake	JESD-A103	T_A = 150°C, Unbiased, Time = 1000 hours	2830	0

Disclaimer

Broadcom reserves the right to modify the data and is correct at the time of release

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