

300 mil DIP8 (Black)

Mechanical and Environmental Testing

Description

This document shows Broadcom reliability test data from reliability tests done on the 300 mil DIP8 (Black) product family. These products all share similar processes and materials. The data in [Table 1](#) and [Table 2](#) reflects actual test data for the devices. Before stress, all devices are preconditioned at MSL 1 using a solder reflow process (260°C peak temp.) and 20 temperature cycles (–55°C to +125°C, 15 min. dwell, 1 min. transfer). This data is taken from testing on Broadcom devices using internal Broadcom Ltd processes, material specifications, design standards, and statistical process controls.

They are not transferrable to other manufacturers' similar part types.

Definition of Failure

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

Reliability Testing

Broadcom subjects devices to a series of reliability tests, including environmental, mechanical, and electrical tests, to ensure the product meets the intended reliability expectations. The tables provided in this data sheet show the results of the reliability testing conducted by Broadcom over a period of time (as described 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 min., Dwell = 15 min. 1000 cycles	5890	0
Solderability (RoHS condition)	JESD-B102	8 hrs steam aging (at 93°C), followed by solder dip (260°C, 5 sec.)	90	0
Physical Dimensions	JESD-B100	Conformance to data sheet package drawings	780	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 hrs	1321	0
Unbiased HAST	JESD-A118	T _A = 130°C, RH =85% Unbiased Time = 96 hrs	159	0
Autoclave	JESD-A102	T _A = 121°C, RH =100% Unbiased Time = 96 hrs	1909	0

Broadcom, the pulse logo, Connecting everything, Avago Technologies, Avago, and the A logo are among the trademarks of Broadcom and/or its affiliates in the United States, certain other countries and/or the EU.

Copyright © 2017 by Broadcom. All Rights Reserved.

The term “Broadcom” refers to Broadcom Limited and/or its subsidiaries. For more information, please visit www.broadcom.com.

Broadcom reserves the right to make changes without further notice to any products or data herein to improve reliability, function, or design. Information furnished by Broadcom is believed to be accurate and reliable. However, Broadcom does not assume any liability arising out of the application or use of this information, nor the application or use of any product or circuit described herein, neither does it convey any license under its patent rights nor the rights of others.

