

## High-Brightness Tricolor PLCC6 Surface-Mount LED

### Reliability Data Sheet

#### Description

The following cumulative test results have been obtained from testing performed at Broadcom® in accordance with JEDEC.

Broadcom tests parts at the absolute maximum rated conditions recommended for the device. The actual performance you obtain from Broadcom parts depends on the electrical and environmental characteristics of your application but will probably be better than performance outlined in the following table.

**Table 1 Environmental Tests and Other Tests**

Test Name	Reference	Test Conditions	Units Tested	Units Failed
Temperature Cycle	JESD22-A104	-40°C/100°C, 30 min. dwell, 5 min. transfer, 100 cycles	989	0
High Temperature Operating Life	JESD22-A108	T <sub>A</sub> = 85°C (3 Chip On) AllInGaP: I <sub>F</sub> = 17 mA for 1000 hours InGaN: I <sub>F</sub> = 10 mA for 1000 hours	56	0
Temperature Humidity Operating Life	JESD22-A101	T <sub>A</sub> = 60°C, 90%RH (3 Chip On) AllInGaP: I <sub>F</sub> = 33 mA for 500 hours InGaN: I <sub>F</sub> = 20mA for 500 hours	56	0
Temperature Humidity Storage Life	JESD22-A103	T <sub>a</sub> = 60°C, 90% RH, for 1000 hours	168	0
Low Temperature Storage	JESD22-A103	T <sub>a</sub> = -40°C for 1000 hours	56	0
High Temperature Storage	JESD22-103	T <sub>a</sub> = 100°C for 1000 hours	56	0
Low Temperature Operating Life	JESD22-A108	T <sub>A</sub> = -40°C (3 Chip On) AllInGaP: I <sub>F</sub> = 50 mA for 1000 hours InGaN: I <sub>F</sub> = 25 mA for 1000 hours	56	0
Pulse Test	JESD22-A108	T <sub>A</sub> = 25°C, Duty factor = 10%, 100 mA, Frequency = 1kHz, 1000 hours	56	0
Ultra Violet	Broadcom Req.	UVA at 340 nm, UV temperature: 70°C, Condensation temperature: 50°C, for 1000 hours	56	0
Mechanical shock	JESD-B104	5 shocks each X1, X2, Y1, Y2, Z1, Z2, 1500G, 0.5-ms pulse	30	0
Vibration	JESD-B103	4 cycles, 4 mins. each X, Y, and Z at 0.06 in. @ 20 Hz to 100 Hz, 50g @ 100 Hz to 2000 Hz	30	0
Solderability	JESD 22-B102	245°C for 5 seconds	56	0

#### NOTE

1. A failure is any LED that is open, shorted or fails to emit light (except solderability test).
2. Each reliability sample was subjected to pre-treatment of moisture soak and reflow in accordance with the JEDEC standard before stress under reliability test listed above.

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