

**HLMF-K200/K205/K300/K305/K400**  
**HLMF-K405/K500/K505/KG02/KL05**  
**HLMP-N205/N305/N405/N505/NG05**  
**HLMP- NG07/NH04/NJ01/NL05/NL06**



Auto Insertable T-1 (3-mm) GaP and AlInGaP Lamps

## 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 the performance outlined in below tables.

**Table 1 Environmental Tests**

Test Name	Reference	Test Conditions	Units Tested	Units Failed
Temperature Cycle	JESDA104	-40°C/85°C, 15 min dwell, 5 min transfer, 100 cycles	612	0
High Temperature Operating Life	JESDA108	HER, Orange, Green: Ta = 55°C, If = 30 mA, 1000 hrs	224	0
		Yellow: Ta = 55°C, If = 20 mA, 1000 hrs	112	0
		Amber, Red Orange, Red: Ta = 55°C, If = 30 mA, 1000 hrs	336	0
Temperature Humidity Operating Life	Broadcom Requirement	Ta = 85°C, RH = 85%RH, If = 13 mA, 500 hrs	896	0
Temperature Humidity Storage Life	Broadcom Requirement	Ta = 85°C, RH = 85%RH, 1000 hrs	560	0

**Table 2 Other Tests**

Test Name	Reference	Test Conditions	Units Tested	Units Failed
Mechanical shock	JESDB104	5 shocks each X1, X2, Y1, Y2, Z1, Z2, 1500G, 0.5 ms pulse	60	0
Vibration	JESDB103	4 cycles, 4 mins each X, Y and Z at 0.06 inch at 20 Hz to 100 Hz, 50g @ 100 Hz to 2000 Hz	60	0
Resistance to Solder heat	JESDB106	260 ± 5°C, 10 ± 1 second	100	0
Solderability	JESDB102	8 hrs Steam Age, 245°C for 5 seconds	100	0

**NOTE** A failure is any LED that is open, shorted, or failed to emit light (except solderability test).

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