AEDR-9940A/9940ERA

3-Channel Reflective Incremental Encoder with Analog or Digital Output (198.4 LPI)

Description

The following cumulative test results have been obtained from testing performed at Broadcom in accordance with AEC-Q100 guidelines and the JEDEC standard. Broadcom tests parts at the absolute maximum rated conditions recommended for the device. The actual performance that 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 Table 1.

Table 1: Life Tests

Test Name	Reference	Test Conditions	Units Tested	Units Failed
High Temperature Operating Life	JESD22-A108	T_A = 125°C for 1000 hours, V_{DD} = 5.0V ± 0.5V	231	0
Temperature Humidity Bias	JESD22-A101	Preconditioning + T_A = 85°C, RH = 85% for 1000 hours, V_{DD} = 5.0V ± 0.5V	231	0
Low Temperature Operating Life	JESD22-A108	T_A = –40°C for 1000 hours, V_{DD} = 5.0V ± 0.5V	30	0
Early Life Failure Rate	AEC-Q100-008	T_A = 125°C for 48 hours, V_{DD} = 5.0V ± 0.5V	2400	0

Table 2: Environmental Tests

Test Name	Reference	Test Conditions	Units Tested	Units Failed
Temperature Cycling	JESD22-A104 JESD22-A113	–55°C to 150°C (Condition H) Preconditioning + 1000 cycles	231	0
High Temperature Storage Life	JESD22-A103	T_A = 150°C for 1000 hours	45	0
Temperature Humidity Without Bias	JESD22-A101	Preconditioning + T_A = 85°C, RH = 85% for 1000 hours	231	0

Table 3: Mechanical Tests

Test Name	Reference	Test Conditions	Units Tested	Units Failed
Vibration Variable Frequency	JESD22-B103	50g, 20 Hz to 2000 kHz, 5 minutes per cycle, 4 cycles per axis	15	0
Mechanical Shock	JESD22-B104	5 shocks, 0.5-ms duration, 1500g peak acceleration	15	0
Solderability	J-STD-002D	8 hours steam aging followed by solder dip (245°C, 5 seconds)	15	0

Table 4: Electrical Tests

Test Name	Reference	Test Conditions	Units Tested	Units Failed
Human Body Model ESD	AEC-Q100-002	±4000V	3	0
Charged Device Model ESD	AEC-Q100-011	±1000V	3	0
Latch-Up	AEC-Q100-004	T_A = 125°C	6	0

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