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Technical Notes

Reliability Tests

SunLED products undergo a full range of stringent tests to ensure reliability standards are met. SMD LEDs, LED Lamps, and Displays are subject to tests which conform to engineering standards. Refer to below tables for details.

SMD LEDs

Test Criteria	Test Conditions		Description	Engineering Standard
Continuous operating	IF=Max RH=75%RH	Ta=25°C T=1000hrs	To determine the resistance of the device when operating under electrical stress	EIAJ ED-4701 100 101
High temperature storage	Ta=100°C	T=1000hrs	To evaluate the product durability after long-term storage in high temperature	EIAJ ED-4701 200 201
Low temperature storage	Ta=-40°C	T=1000hrs	To evaluate the product durability after long-term storage in low temperature	EIAJ ED-4701 200 202
High temperature & humidity storage	Ta=60°C RH=90%RH	T=1000hrs	To evaluate the product durability under long-term high temperature and high humidity storage	EIAJ ED-4701 100 103
High temperature & humidity operating	IF=Max Ta=60°C	RH=90%RH T=1000hrs	To determine the resistance of the device under electrical and thermal stress	EIAJ ED-4701 100 102
Solderability	Ta=245°C	T=5sec	To evaluate solderability on leads of the device	EIAJ ED-4701 300 303
Soldering resistance	Ta=260°C	T=10sec	To determine the thermal resistance characteristics of the device to sudden exposures at extreme changes in temperature during Tin-dipping	EIAJ ED-4701 300 302
Temperature cycling	Ta=-40 to 25 to 100 to 25°C T=(30~5~30~5min) x 10 cycles		To determine the resistance of the device for storage under extreme temperature for hours	EIAJ ED-4701 100 105
Temperature cycling operating	Ta=-40 to 25 to 100 to 25°C T=(30~5~30~5min) x 10 cycles IF=Max		To determine the resistance of the device under extreme temperature for hours	/
Thermal shock	Ta=0 to 100°C T=(5~5min) x 100 cycles		To determine the resistance of the device to sudden extreme changes in high and low temperature	EIAJ ED-4701 300 307

LED Lamps

Test Criteria	Test Conditions		Description	Engineering Standard
Continuous operating	IF=Max RH=75%RH	Ta=25°C T=1000hrs	To determine the resistance of the device when operating under electrical stress	EIAJ ED-4701 100 101
High temperature storage	Ta=100°C	T=1000hrs	To evaluate the product durability after long-term storage in high temperature	EIAJ ED-4701 200 201
Low temperature storage	Ta=-40°C	T=1000hrs	To evaluate the product durability after long-term storage in low temperature	EIAJ ED-4701 200 202
High temperature & humidity storage	Ta=60°C RH=90%RH	T=1000hrs	To evaluate the product durability after long-term high temperature and high humidity storage	EIAJ ED-4701 100 103
High temperature & humidity operating	IF=Max Ta=60°C	RH=90RH T=1000hrs	To determine the resistance of the device under electrical and thermal stress	EIAJ ED-4701 100 102
Lead frame bending	T=3 Cycles	T=Bend 90°	To evaluate the product durability against mechanical stress applied to the leads	/
Lead frame pulling	T=30sec	W=1kg	To evaluate the product durability against mechanical stress	/
Solderability	Ta=245°C	T=5sec	To evaluate solderability on leads of device	EIAJ ED-4701 300 303
Soldering resistance	Ta=260°C	T=10sec	To determine the thermal resistance characteristics of the device to sudden exposures at extreme changes in temperature during Tin-dipping	EIAJ ED-4701 300 302
Temperature cycling	Ta=-40 to 25 to 100 to 25°C T=(30~5~30~5min) x 10 cycles		To determine the resistance of the device for storage under extreme temperature for hours	EIAJ ED-4701 100 105
Temperature cycling operating	Ta=-40 to 25 to 100 to 25°C T=(30~5~30~5min) x 10 cycles IF=Max		To determine the resistance of the device under extreme temperature for hours	/
Thermal shock	Ta=0 to 100°C T=(5~5min) x 100 cycles		To determine the resistance of the device to sudden extreme changes in high and low temperature	EIAJ ED-4701 300 307

LED Displays

Test Criteria	Test Conditions		Description	Engineering Standard
Continuous operating	IF=Max RH=75%RH	Ta=25°C T=1000hrs	To determine the resistance of the device when operating under electrical stress	EIAJ ED-4701 100 101
High temperature storage	Ta=100°C	T=1000hrs	To evaluate the product durability after long-term storage in high temperature	EIAJ ED-4701 200 201
Low temperature storage	Ta=-40°C	T=1000hrs	To evaluate the product durability after long-term storage in low temperature	EIAJ ED-4701 200 202
High temperature & humidity storage	Ta=60°C RH=90%RH	T=1000hrs	To evaluate the product durability after long-term high temperature and high humidity storage	EIAJ ED-4701 100 103
Solderability	Ta=245°C	T=5sec	To evaluate solderability on leads of device	EIAJ ED-4701 300 303
Soldering resistance	Ta=260°C	T=10sec	To determine the thermal resistance characteristics of the device to sudden exposures at extreme changes in temperature during Tin-dipping	EIAJ ED-4701 300 302
Temperature cycling	Ta=-40 to 25 to 100 to 25°C T=(30~5~30~5min) x 10 cycles		To determine the resistance of the device for storage under extreme temperature for hours	EIAJ ED-4701 100 105
Thermal shock	Ta=0 to 100°C T=(5~5min) x 100 cycles		To determine the resistance of the device to sudden extreme changes in high and low temperature	EIAJ ED-4701 300 307