Reliability Test Specification

Automotive Grade (Based on AEC-Q200 Rev.D)

No.	Test Item	Reference spec.	Test Conditions	Criteria of Acceptance
1	High Temperature Storage	MIL-STD-202G Method 108	1.Temperature:125℃ 2.Time:1000 hours.	1.No mechanical or electrical damage. 2.Inductance and DC resistance shall not change more than ±10%. 3.Measurement at 24±4 hours after test conclusion.
2	Temperature Cycling	JESD22-A104E	1.Temperature: -40℃ ~125℃ 2.Number of cycles:1000 cycles 3.Dwell time:30 minutes	1.No mechanical or electrical damage. 2.Inductance and DC resistance shall not change more than ±10%. 3.Measurement at 24±4 hours after test conclusion.
3	Biased Humidity	MIL-STD-202G Method 103	1.Temperature:85±5℃ 2.Humidity:85±5% RH. 3.Time:1000 hours.	1.No mechanical or electrical damage. 2.Inductance and DC resistance shall not change more than ±10%. 3.Measurement at 24±4 hours after test conclusion.
4	Operational Life	MIL-PRF-27F & User Spec.	1.Temperature:125℃ 2.Time:1000 hours. 3.Apply rated current.	1.No mechanical or electrical damage. 2.Inductance and DC resistance shall not change more than ±10%. 3.Measurement at 24±4 hours after test conclusion.
5	External Visual	MIL-STD-883G Method 2009	Inspect product constructions, marking and workmanship.	1.No pollution on the surface of products. 2.Clear marking. 3.No crack.
6	Physical Dimension	JESD22-B100B	Verify physical dimensions to the applicable device detail specification.	Per product specification standard
7	Resistance to Solvents	MIL-STD-202G Method 215	Brushed 10 times after 3minute immersion in isopropyl alcohol.	No body deformation change in appearance or obliteration of marking.
8	Mechanical Shock	MIL-STD-202G Method 213	1.Peak acceleration: 100g`s 2.Duration of pulse: 6ms 3.Waveform: Half-sine 4.Velocity change: 12.3ft/sec 5.Direction:X,Y,Z, 6 times(a total 18 shocks)	1.No mechanical or electrical damage. 2.Inductance and DC resistance shall not change more than ±10%.
9	Vibration	MIL-STD-202G Method 204	1.Frequency and amplitude: 10~2000~10Hz 2.Sweep time: 20 min 3.Acceleration: 5g 4.Direction: X, Y, Z 5.Number of sweep: 12 times/axis	1.No mechanical or electrical damage. 2.Inductance and DC resistance shall not change more than ±10%.

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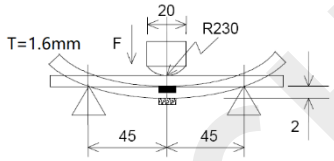
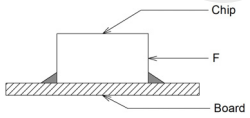
No.	Test Item	Reference spec.	Test Conditions	Criteria of Acceptance
10	Resistance to Soldering Heat	MIL-STD-202G Method 210F	a. The SMD: 1.Peak temperature: 250±5℃ 2.Peak time: 30±5 sec. 3.Time above: 183°C 90 to 120 sec. 4.Ramp rate: 1 °C/s to 4 °C/s 5. Number of times: 3 times. b. The DIP: 1.Peak temperature: 260±5℃ 2.Peak time: 10±1 sec. 3.Number of times: 1 time.	1.No mechanical or electrical damage. 2.Inductance and DC resistance shall not change more than ±10%. 3.Measurement at 24±4 hours after test conclusion.
11	ESD	AEC-Q200-002	1.Discharge method: HBM (Direct Contact discharge) 2.Discharge capacitor: 150pF 3.Discharge resistor: 2000Ω 4.Discharge voltage: 6kV	1.No mechanical or electrical damage. 2.Inductance and DC resistance shall not change more than ±10%.
12	Solderability	J-STD-002D	1.Steam aging: 8 hours. 2.Solder temperature: 245±5℃. 3.Immersion time: 5±1 sec. 4.Solder composition: Sn/3.0Ag/0.5Cu 5.Flux: Methanol solution containing rosin 25%.	More than 95% of the terminal electrode was covered with solder.
13	Electrical Characterization	User Spec.	Test at -40°C, +25°C, +125°C.	Inductance shall not change more than ±20%.
14	Flammability	UL-94	V-0 or V-1 acceptable	Not applicable
15	Board Flex	AEC-Q200-005	1.Deflection speed: 1mm/sec. 2.Amount of deflection: 2mm. 3.Span: 90mm. 4.Direction for test: Bottom of PCB. 5.Holding time: 60 sec. 	1.No mechanical or electrical damage. 2.Inductance and DC resistance shall not change more than ±10%.
16	Terminal Strength (SMD)	AEC-Q200-006	Force of 1.8 kg (17.7 N) for 60 sec. 	1.No mechanical or electrical damage. 2.Inductance and DC resistance shall not change more than ±10%.

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