



可靠性考核标准 (消费级)

Item	Conditions	Criteria	Reference
MSL3	Bake: 125°C 24H Moisture Soak : 30°C 60%RH 192H Reflow: 260°C 3Cycle	0 fail	JESD020D
HTRB	$V_{DS}=80\%BV_{DSS}$, $V_{GS}=0V$, 150°C, 1000H	1/77	JESD22-A108
HTGB	$V_{GS}=100\%V_{GS}$, $V_{DS}=0V$, 150°C, 1000H	1/77	JESD22-A108
H3TRB	$V_{DS}=80\%BV_{DSS}$ (max100V), $V_{GS}=0V$, 85°C 85%R.H, 1000H	1/77	JESD22-A101
HAST	$V_{DS}=80\%BV_{DSS}$ (max42V), $V_{GS}=0V$, 130°C 85%R.H 33.3 psia, 96H	1/77	JESD22-A-110
PCT	$T_a=121^\circ C$ 100%R.H. 29.7psia, 96H	1/77	JESD22-A-102
UHASt	130°C 85%R.H 33.3psia, 96H	1/77	JESD22-A-118
TCT	$T_A=-65^\circ C \sim 150^\circ C$, 15min each, 500Cycle	1/77	JESD22-A104
IOL	$\Delta T=100^\circ C$, on time=2min, off time=2min, 15000Cycle	1/77	MIL-STD750 /Meth.1037
HTST	$T_A=150^\circ C$, 1000H	1/77	JESD22-A103
THT	$T_A=85^\circ C$ 85%RH, 1000H	1/77	JESD22-A101
ESD	HBM: 23 $\pm 5^\circ C$,: 55% $\pm 10\%$ (RH) G TO S (\pm) V=100V~Fail Step :100V MM: 23 $\pm 5^\circ C$,: 55% $\pm 10\%$ (RH) G TO S (\pm) V=100V~Fail Step :100V CDM: 23 $\pm 5^\circ C$,: 55% $\pm 10\%$ (RH) V=100V~Fail Step :100V	-/10	AEC Q101-001



可靠性考核标准 (工业级)

Item	Conditions	Criteria	Reference
MSL1	Bake: 125°C 24H Moisture Soak : 30°C 60%RH 192H Reflow: 260°C 3Cycle	0 fail	JESD020D
HTRB	$V_{DS}=100\%BV_{DSS}$, $V_{GS}=0V$, 150°C, 1000H	0/77	JESD22-A108
HTGB	$V_{GS}=100\%V_{GS}$, $V_{DS}=0V$, 150°C, 1000H	0/77	JESD22-A108
H3TRB	$V_{DS}=80\%BV_{DSS}$ (max100V), $V_{GS}=0V$, 85°C 85%R.H, 1000H	0/77	JESD22-A101
HAST	$V_{DS}=80\%BV_{DSS}$ (max42V), $V_{GS}=0V$, 130°C 85%R.H 33.3 psia, 96H	0/77	JESD22-A-110
PCT	$T_a=121^\circ C$ 100%R.H. 29.7psia, 96H	0/77	JESD22-A-102
UHASt	130°C 85%R.H 33.3psia, 96H	0/77	JESD22-A-118
TCT	$T_A=-65^\circ C \sim 150^\circ C$, 15min each, 500Cycle	0/77	JESD22-A104
IOL	$\Delta T=100^\circ C$, on time=2min, off time=2min, 15000Cycle	0/77	MIL-STD750 /Meth.1037
HTST	$T_A=150^\circ C$, 1000H	0/77	JESD22-A103
THT	$T_A=85^\circ C$ 85%RH, 1000H	0/77	JESD22-A101
ESD	HBM: 23 ±5°C, : 55% ±10% (RH) G TO S (±) V=100V~Fail Step :100V MM: 23±5°C, : 55% ±10% (RH) G TO S (±) V=100V~Fail Step :100V CDM: 23±5°C, : 55% ±10% (RH) V=100V~Fail Step :100V	-/10	AEC Q101-001



可靠性考核标准 (汽车级)

Item	Conditions	Criteria	Reference
MSL1	Bake: 125°C 24H Soak: 85°C 85%RH Reflow: 168H 260°C 3Cycle	0 fail	JESD020C JESD22-A113
HAST	$V_{DS}=80\%BV_{DSS}(\max 42V), V_{GS}=0V,$ 130°C 85%R.H 33.3 psia96H	0/77	JESD22-A-110
H3TRB	$V_{DS}=80\%BV_{DSS}(\max 100V), V_{GS}=0V,$ 85°C85%R.H, 1000H	0/77	JESD22-A-101
UHAST	130°C 85%R.H 33.3psia 96H	0/77	JESD22-A-118 or A101
AC	$T_A=121^\circ C, 100\%R.H, 15psig$ 96h	0/77	JESD22-A-102
TC	$T_A=-55^\circ C \sim 150^\circ C,$ 1000Cycle	0/77	JESD22-A-104
TCHT	125°C TEST after TC using PV-determined limits at hot, followed by decap and wire pull on all wires from 5 devices for parts with internal bond wire sizes 5 mil diameter and less.	0/77	JESD22-A-104
TCDT	100% AM inspection after TC, followed by decap, inspection or wire pull on all wires from 5 parts for 5 highest delaminated parts. If AM shows no delaminating, no decap, inspection and wire pull is required.	0/77	JESD22-A-104 J-STD-035



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IOL	$\Delta T \geq 100^{\circ}\text{C}$, 15000Cycle	0/77	MIL-STD-750 Method 1037
PTC	$\Delta T \geq 100^{\circ}\text{C}$, 15000Cycle	0/77	JESD22-A-105
HTRB	$V_{DS}=100\%BV_{DSS}, V_{GS}=0V, 150^{\circ}\text{C}, 1000\text{H}$	0/77	JESD22-A108
HTGB	$V_{GS}=100\%V_{GS}, V_{DS}=0V, 150^{\circ}\text{C}, 1000\text{H}$	0/77	JESD22-A108
DPA	Random sample of parts that have successfully completed H3TRB or HAST, and TC. The devices shall be examined under a magnification of up to 50X.	0/2	AEC-Q101-004 Section 4
PD	Verify physical dimensions to the applicable user part packaging specification for dimensions and tolerances.	0/30	JESD22-B-100
WBP	-	0/10	MIL-STD-750-2 Method 2037
WBS	-	0/10	AEC Q101-003 JESD22 B116
DS	-	0/5	MIL-STD-750-2 Method 2017
TS	-	0/30	MIL-STD-750-2 Method 2036



RSH	Temperature of solder pot=260°C Time for dipping in solder=10sec	0/30	JEDEC JESD22-A- 111 (SMD), or B-106 (PTH)
TR	-	0/10	JESD24-3, 24-4, 24-6
SD	T _A =93°C 8H Temperature of solder=245°C Time for dipping in solder=3sec.	-	J-STD-002
WG	-55 °C to 85 ° C, air to air; 10 minute soak; ~3cycles/h, 1500h 30°C and 60% RH, 4000h 55°C and 85%RH, 4000h	-	AEC-Q005
DI	Temperature: 23 ± 5 °C Relative humidity : 55%± 10% (RH) , Test gate-sourcevoltage: 0V~Fail Step (max):1V	0/5	AEC-Q101-004 Section 3
EV	All qualification parts submitted for testing	0 fail	JESD22-B101
TEST	All qualification parts tested per the requirements of the appropriate part specification.	0 fail	User specification or suppliers standard specification



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PV	Test all parameters according to user specification over the part temperature range to insure specification compliance.	-/25	Individual AEC user specification
ESDH	Temperature: 23 ± 5 °C Relative humidity : $55\% \pm 10\%$ (RH) G TO S (\pm) Test Voltage:100V~Fail Step :100V	-/30	AEC-Q101-001
ESDC	Temperature: 23 ± 5 °C Relative humidity : $55\% \pm 10\%$ (RH) G TO S (\pm) Test Voltage:100V~Fail Step :100V	-/30	AEC-Q101-005
UIS	Temperature: 23 ± 5 °C Relative humidity : $55\% \pm 10\%$ (RH) Test drain-sourcecurrent: 0A~Fail Step (max):1A	0/5	AEC-Q101-004 Section 2