

References



- AEC-Q101
- JESD22-A113, Pre-conditioning
- JESD22-A108, High Temperature Reverse Bias
- JESD22-A101, High Humidity High Temp. Reverse Bias
- JESD22-A104, Temperature Cycling
- JESD22-A102, Autoclave
- MIL-STD-750 Method 1037, Intermittent Operational Life
- MIL-STD-750 Method 1037, Operating Lift Test
- JESD22-B-106, Resistance to Solder Heat
- J-STD-002, Solder-ability
- MIL-STD-202F METHOD-103B, High-temperature High-humidity storage test
- JESD22-A103, High Temperature Storage
- MIL-STD-750 Method 4066, Forward Surge
- MIL-STD-750 Method 2036, Bending Strength
- MIL-STD-750 Method 2036, Terminal Strength
- AEC-Q101-001/ 002, ESD Characterization

The equipment list



NO.	Test Item	Abrv	Reference	Test Condition	Sample Size	Failure	Noted
1	Pre-conditioning	PC	JESD22A-113	Performed on surface mount devices (SMDs) prior to TC, AC, H3TRB & IOL/PTC stresses only.	308	0	
2	High Temperature Reverse Bias	HTRB	JESD22A-108	TJ:150° C, 80%VR,1000H	77	0	
3	High Humidity High Temp. Reverse Bias	H3TRB	JESD22A-101	85° C, 85%RH, 80%VR,1000H	77	0	
4	Temperature Cycling	TC	JESD22A-104	150°C (+15, -0)/25min, -55°C (+0, -10)/25min, 1000 cycles;	77	0	
5	Autoclave	AC	JESD22A-102	121°C ±5°C, 100%RH, 15 psig, 96H	77	0	
6	Intermittent Operational Life	IOL	MIL-STD-750-1037	Ta=25° C, 2on 2off, ΔTJ ≥ 100° C; 15000 cycles;	22	0	
7	Operating Lift Test	OP/L	MIL-STD-750-1037	25°C ±5°C, 100% IO, 1000H	22	0	
8	Resistance to Solder Heat	RSH	JESD22B-106	Axial: 270±5°C, 7sec(+2, -0) SMD: 260°C(+5,-0), 10sec	30	0	

Procedures and criteria



NO.	Test Item	Abrv	Reference	Test Condition	Sample Size	Failure	Noted
9	Solder-ability	SD	J-STD-002	235°C ± 5°C, 3sec S ≥ 95%	10	0	
10	High-temperature High-humidity storage test	HTHH	MIL-STD-202F METHOD-103B	85 ± 2°C, 85 ± 5%, 1000H	77	0	
11	High Temperature Storage	HTS	JESD22-A103	150°C (+10, -0), 1000H	77	0	
12	Low Temperature storage	LTS	规格书	-55°C, 1000H	22	0	
13	Forward Surge	FS	MIL-STD-750 Method 4066	8.3ms, single, half-wave	22	0	
14	Bending Strength	BS	MIL-STD-750 Method 2036	φ0.6mm/0.78mm W=0.5Kg; φ1.27mm W=2Kg; 90 ± 5°C, 3times	22	0	Applied to axial Diode
15	Terminal Strength	TS	MIL-STD-750 Method 2036	φ0.6mm/φ0.78mm W=1Kg; φ1.27mm W=3Kg; 15sec	22	0	Applied to axial Diode
16	Electrostatic Discharge	ESD	AEC-Q101-001/002	HBM: 100pF, 1500Ω, 2KV MM: 200pF, 0Ω, 200V	22	0	

Reliability Equipment



Pre-conditioning

Bake



Moisture Soak



Reflow



Reference: ESD22A-113;

Test Condition: @Bake: 125° C/24H Moisture Soak: 85° C/85%RH/168H

Reflow 3 times: TP=260° C

Test purposes: 模拟SMD产品在安装回流焊过程中的耐热能力.

Reliability Equipment



High Temperature Reverse Bias TEST

Model: HTRB-80B16C;
Product company: GAO YU;
Reference: JESD22A-108;
Test Condition: TJ:150° C/80%VR 1000H;
Q'TY: 5 Sets

Test purposes: 加速老化测试元器件，去模拟产品在使用状况下反向使用寿命。



Reliability Equipment



High Humidity High Temp. Reverse Bias

Model: HTRB-EL-04KA;
Product company: GAO YU;
Reference: JESD22A-101;
Test Condition: 85°C/85%RH/80%VR
1000H;
Q'TY: 1 Sets

Test purposes: 加速老化测试元器件，去模拟产品在高温高湿状况下反向使用寿命。



Reliability Equipment



Temperature Cycling

Model: CZ-H-80B;
Product company: ZHONG ZHI;
Reference: JESD22A-104;
Test Condition: -55 °C~+150 °C/25mims
1000 cycles;
Q'TY: 1 Sets



Test purposes: 测试元器件满足高低温环境所带来的抗应力的冲击能力.

Reliability Equipment



Autoclave Test

Model: EHL-321;
Product company: JU FU;
Reference: JESD22A-102;
Test Condition: 121 °C, 100%R.H,15psig,
96H
Q'TY: 1 Sets
Test purposes:测试塑封型元器件在高压下的抗湿性能力.



Reliability Equipment



Intermittent Operational Life

Model: ELEC-V01;

Product company: HANG KE;

Reference: MIL-STD-750-1037;

Test Condition: 25°C, 2on2off, $\Delta T_J \geq 100^\circ\text{C}$,
15000cycles ;

Q'TY: 1 Sets

Test purposes:通过元器件重复的开与关以加速老化芯片与安装表面之间所有焊接和界面的应力。



Reliability Equipment



Operating Life Test

Model: ELEC-V01;

Product company: HANG KE;

Reference: MIL-STD-750-1037;

Test Condition: $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$, 100% IO, 1000H;

Q'TY: 1 Sets

Test purposes: 在常温下模拟正常工作状态下的条件，测试长期使用下引起的电性参数退化及寿命能力。



Reliability Equipment



Resistance to Solder Heat TEST

Model: CM141;
Product company: CMEI;
Reference: JESD22B-106;
Test Condition: Axial: $270 \pm 5^{\circ}\text{C}$, 7sec(+2, -0)
SMD: 260°C (+5,-0), 10sec;
Q'TY: 1 Sets
Test purposes: 评估元器件满足耐焊锡热的能力.



Reliability Equipment



Solder-ability

Model: CM141;

Product company: CMEI;

Reference: J-STD-002;

Test Condition: $235^{\circ}\text{C} \pm 5^{\circ}\text{C}$, 3sec ;

Q'TY: 1 Sets

Test purposes: 检验元器件引脚或其它形式的端子在使用时，是否满足焊接浸润性的标准。



Reliability Equipment



High-temperature High-humidity storage test

Model: HTRB-EL-04KA;
Product company: GAO YU;
Reference: MIL-STD-202F METHOD-103B;
Test Condition: 85° C/85%RH,1000H;
Q'TY: 1 Sets
Test purposes:测试产品的封装在高温高湿环境下对水汽的抵抗能力.



Reliability Equipment



High Temperature Storage

Model: 1014-2S;
Product company: DONG QI;
Reference: JESD22-A103;
Test Condition: 150°C (+10, -0) , 1000H;
Q'TY: 2 Sets
Test purposes:测试元器件在无电气的负荷施加下, 高温和时间对材料的影响.



Reliability Equipment



Low Temperature storage

Model: : CZ-H-80B;
Product company: ZHONG ZHI;
Reference: KE HU;
Test Condition: -55°C,1000H;
Q'TY: 1 Sets

Test purposes:测试元器件在无电气的负荷施加下，低温和时间对材料的影响。



Reliability Equipment



Forward Surge

Model: : PIF8000;
Product company: GUAN KUI;
Reference: MIL-STD-750 Method 4066;
Test Condition: 8.3ms,single,half-wave;
Q'TY: 1 Sets
Test purposes:检测元器件能够承受瞬间正向脉冲电流冲击的能力.



Reliability Equipment



Bending Strength

Model: YJ-SB-011;

Product company: YANG JIE;

Reference: MIL-STD-750 Method 2036;

Test Condition: $\varphi 0.6\text{mm}/\varphi 0.78\text{mm}$ $W=0.5\text{KG}$
 $\varphi 1.27\text{mm}$ $W=2\text{Kg}$;

90 ± 5 °C, 3times

Q'TY: 1 Sets

Test purposes: 检测插件产品引线的弯曲能力.



Reliability Equipment



Terminal Strength

Model: YJ-SB-011;
Product company: YANG JIE;
Reference: MIL-STD-750 Method 2036;
Test Condition: $\phi 0.6\text{mm}/\phi 0.78\text{mm}$ W=1KG
 $\phi 1.27\text{mm}$ W=3Kg;
15sec
Q'TY: 1 Sets
Test purposes: 检测插件产品引线的终端牢度.



Reliability Equipment



Electrostatic Discharge Testing-Human Body Model/Machine Model

Model: SKS-0230;

Product company: SHANGHAI SANJI;

Reference: AEC-Q101-001/002;

Test Condition: HBM:C=100PF R=1500Ω,2KV

MM: C=200PF R=0Ω,200V

Q'TY: 1 Sets

Test purposes:模拟操作人员或物体在接触元器件时产生的放电及人或物体相对对邻近物体之放电，以检测被测试元器件抵抗静电放电之干扰能力。

