

# Reliability Test Result

Product Bipolar Transistor Package SOT-346(SMT3)
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TEST ITEM	1. TEST RESULT					
280±5°C, 109ec, Reflow method 3times   22			CONDITION	STANDARD		
245±5°C Jase., Reflew method  245±5°C Jase., Solder-bath  JESD22-B102  22  0  Imprerature cycle  -55±5°C —150±5°C 200cycles  JESD22-A104  22  0  -55±5°C —150±5°C 200cycles  JESD22-A101  22  0  -65±5°C Jase., Reflew method  JESD22-A104  22  0  -75±5°C —150±5°C 200cycles  JESD22-A101  22  0  -75±5°C —150±5°C 200cycles  JESD22-A101  22  0  -75±5°C —150±5°C 200cycles  JESD22-A102  22  0  -75±5°C —150±5°C 200cycles  JESD22-A102  22  0  -75±5°C —150±5°C 200cycles  JESD22-A108  22  0  -75±5°C —150±5°C 200		260±5°C , 30sec. , Reflow met	260±5°C , 30sec. , Reflow method 3times			
245±5°C ,3sec., Reflow method	Soldering heat resistance	260±5°C , 10sec. , Solder-batt	260±5°C , 10sec. , Solder∸bath		22	0
245±5°C   3sec   Solder-bath   JESD22-B102   22   0		350±10°C , 3sec. , Hand solde	350±10°C , 3sec. , Hand soldering		22	0
245±5°C , 3sec. , Solder-bath  JESD22-B102  22  0  Temperature cycle  -58±5°C → 150±5°C 200cycles  JESD22-A104  22  0  dight temp. high humidity reverse bias  B5±2°C , 85±596RM, specified bias , 1000hours  JESD22-A101  22  0  dight temp. high humidity reverse bias  B5±2°C , 85±596RM, specified bias , 1000hours  JESD22-A102  22  0  dight temperature reverse bias  Tj max., specified bias , 1000hours  JESD22-A102  22  0  dight temperature gate bias  Tj max., specified bias , 1000hours  JESD22-A108  22  0  dight temperature gate bias  Tj max. VGSS(max) , 1000hours  JESD22-A108  22  0  dight temperature gate bias  Tj max. VGSS(max) , 1000hours  JESD22-A108  22  0  dight temperature gate bias  Tj max. VGSS(max) , 1000hours  JESD22-A108  22  0  dight temperature gate bias  Tj max. VGSS(max) , 1000hours  JESD22-A108  22  0  dight temperature gate bias  Tj max. VGSS(max) , 1000hours  JESD22-A108  22  0  dight temperature gate bias  Tj max. VGSS(max) , 1000hours  JESD22-A108  22  0  dight temperature gate bias  Tj max. Specified bias , 1000hours  JESD22-A108  22  0  dight temperature gate bias  Tj max. Specified bias , 1000hours  JESD22-A108  22  0  dight temperature gate bias  Tj max. Specified bias , 1000hours  JESD22-A108  22  0  dight temperature gate bias  Tj max. Specified bias , 1000hours  JESD22-A108  22  0  dight temperature gate bias  Tj max. Specified bias , 1000hours  JESD22-A108  22  0  dight temperature gate bias dight temperatur	Saldarability	245±5°C ,3sec. , Reflow meth	245±5°C ,3sec. , Reflow method		22	0
High temp. high humidity reverse bias   85±2°C, 85±596RH, specified bias ,1000hours   JESD22-A101   22   0     Pressure cooker test   121±2°C , 10094RH , 203kPa , 100hours   JESD22-A102   22   0     High temperature reverse bias   Tj max. specified bias , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj max. VGSS(max) , 1000hours   JESD22-A108   22   0     High temperature gate bias   Tj	Solderability	245±5°C , 3sec. , Solder−bath	245±5°C , 3sec. , Solder-bath		22	0
Pressure cooker test    121±2°C , 10096RH , 203kPa , 100hours   JESD22-A102   22   0	Temperature cycle	-55±5°C←→150±5°C 200c	-55±5°C←→150±5°C 200cycles		22	0
High temperature reverse bias  Tj max., specified bias., 1000hours  JESD22–A108  22  0  Itigh temperature gate bias  Tj max, VGSS(max), 1000hours  JESD22–A108  22  0  Itigh temperature gate bias  Tj max, VGSS(max), 1000hours  JESD22–A108  22  0  Itigh temperature gate bias  Tj max, VGSS(max), 1000hours  JESD22–A108  22  0  Itigh temperature gate bias  Tj max, VGSS(max), 1000hours  JESD22–A108  22  0  Itigh temperature gate bias  Tj max, VGSS(max), 1000hours  JESD22–A108  22  0  Itigh temperature gate bias  Tj max, VGSS(max), 1000hours  JESD22–A108  22  0  Itigh temperature gate bias  JESD22–A108  Itigh temperature gate bias  JESD22–A108  Itigh temperature gate bias  Itigh gate gate gate gate gate gate gate gate	High temp. high humidity reverse bias 85±2°C, 85±5%RH, specif		d bias ,1000hours	JESD22-A101	22	0
Tight temperature gate bias  Tight max, VGSS(max), 1000hours  Tight temperature gate bias  Tight max, VGSS(max), 1000hours  Tight max, VGSS(max, 1000hours)  Tight max, VGSS(max), 1000hours  Tight max, VGSS(max, 1000hours)  Tight max, VGSS(max, 1000hours)  Tight max, VGSS(max, 1000hours)  Tight m	Pressure cooker test	121±2℃,100%RH,203kPa,	121±2°C,100%RH,203kPa,100hours		22	0
Ta=25±5°C, ∠Tj≥100°C, ON 120s/OFF 120s per cycle Duration: 15000cycles  Ta=-40(+0/-10)°C ~+85(+10/-0)°C, ON 300s/OFF 300s per cycle Duration: 6000cycles  Lead strength (lead pull)  Sample body fixed, pulling lead axis direction , 2.5N , 10±1sec.  JESD22 A=105  Lead strength (lead pull)  Sample body fixed, pulling lead axis direction , 2.5N , 10±1sec.  JETTA ED-4701/400 Test Method 401  22  0  Z. MEASUREMENT ITEM & CRITERIA  TIEM  CONDITION  Cutoff current : ICBO  Per specification  Cutoff current : IEBO  Per specification  Cutoff current in hFE  Per specification  Cutoff current gain : hFE  Per specification  Physical  Visual check  Reflow Soldering  Immersed surfase, other than the end of pin as cut-surface, must be covered by solder.	High temperature reverse bias	Tj max., specified bias , 1000hc	Tj max., specified bias , 1000hours		22	0
Intermittent Operation Life Intermittent Operation Life ON 120s/OFF 120s per cycle Duration: 15000cycles  Ta = -40(+0/-10)°C ~+85(+10/-0)°C, ON 300s/OFF 300s per cycle Duration: 6000cycles  Lead strength (lead pull)  Sample body fixed, pulling lead axis direction , 2.5N , 10±1sec.  JEITA ED-4701/400 Test Method 401  22  0  Z. MEASUREMENT ITEM & CRITERIA  ITEM  CONDITION  CRITERIA  Cutoff current : ICBO Per specification Cutoff current : IEBO Per specification  Cutoff current in hFE Per specification  Physical  Visual check  Reflow Soldering  Immersed surfase, other than the end of pin as cut-surface, must be covered by solder.	High temperature gate bias	Tj max, VGSS(max), , 1000hour	Tj max, VGSS(max), , 1000hours		22	0
2. MEASUREMENT ITEM & CRITERIA  ITEM  CONDITION  CRITERIA  Cutoff current : ICBO  Per specification  Cutoff current gain : hFE  Per specification  Physical  Visual check  No outstanding change in physical.  Reflow Soldering  Immersed surfase, other than the end of pin as cut-surface, must be covered by solder.	Intermittent Operation Life or Power and Temperature Cycle	ON 120s/OFF 120s per cycle Duration: 15000cycles Ta=-40(+0/-10)°C ~+85(+10 ON 300s/OFF 300s per cycle	ON 120s/OFF 120s per cycle Duration: 15000cycles  Ta=-40(+0/-10)°C ~+85(+10/-0)°C, ON 300s/OFF 300s per cycle		22	0
TIEM CONDITION CRITERIA  Cutoff current : ICBO Per specification Cutoff current : IEBO Per specification Cutoff current : IEBO Per specification Cutoff current gain : hFE Per specification Cutoff current : IEBO Per specification Cutof	Lead strength (lead pull)	Sample body fixed, pulling lead	Sample body fixed, pulling lead axis direction , 2.5N , $10\pm1$ sec.		22	0
TIEM CONDITION CRITERIA  Cutoff current : ICBO Per specification Cutoff current : IEBO Per specification Cutoff current : IEBO Per specification Cutoff current gain : hFE Per specification Cutoff current : IEBO Per specification Cutof		•				
Cutoff current : ICBO Per specification Cutoff current : IEBO Per specification Cutoff				COITEDIA		
Cutoff current : IEBO Per specification According to the electrical characteristics specified by the specification  OC current gain : hFE Per specification  Physical Visual check No outstanding change in physical.  Reflow Soldering Immersed surfase, other than the end of pin as cut-surface, must be covered by solder.		<b>-</b>				
OC current gain : hFE Per specification  Physical Visual check No outstanding change in physical.  Reflow Soldering Immersed surfase, other than the end of pin as cut-surface, must be covered by solder.						
Physical Visual check No outstanding change in physical.  Reflow Soldering Immersed surfase, other than the end of pin as cut-surface, must be covered by solder.	DC current gain : hFE					
Solderability  Visual check  must be covered by solder.	Physical	·	No outstanding change in physical.			
Solder-bath More than 95% of the electrode must be covered with solder.	Solderability	Visual check	Reflow Soldering			
			Solder-bath	More than 95% of the electrode must be covered with solder.		

### 3. JUDGEMENT

No failure is observed from each test item.

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