



HOW TO USE INVISIBLE PRODUCTS

SOLDERING

1. Soldering Bath— $260 \pm 5^\circ\text{C}$ within 5 seconds.(Dip depth should under 1/16 inch below seating plane)
2. Soldering Iron—Under 30W within 3 seconds.(Tip temperature: $300 \pm 5^\circ\text{C}$)
3. The neutrality flux be used before soldering

CLEANING

1. Do not use unspecified chemical liquid to clean invisible product. They could harm the invisible product.If cleaning is necessary, wipe the pin out with alcohol, Freon TE or Chlorosen at normal temperature for less Than 1 minute, or wipe the surface with alcohol. When other chemical solutions mot specified is used. It may cause crack or haze on the surface of theInvisible product

PREVENTING OVER CURRENT

1. Do not overcurrent
2. In order to operate BRIGHT INVISIBLE PRODUCTS under stable conditions, place protective resistors in series. resistor values can be determined by supplying voltage or current is in the invisible product. Recommended current is in the range of forward current 50mA

QUALITY CONTROL AND ASSURANCE

RELIABILITY TESTS

| CLASSIFICATION | TEST ITEM | DESCRIPTION AND TEST CONDITION | REFERENCE STANDARD |
|--------------------|---|---|--|
| ENDURANCE TEST | OPERATION LIFE | To evaluate resistance of the device when it operated at electrical stress Ta=under room temperature If=50mA or Ip=1.0A/Duty=1%/Pw=10us Test Time=1000HRS(-24HRS,+72HRS) | MIL-STD-750:1036 MIL-STD-883:1005 JIS C 70021:B-1 |
| | HIGH TEMPERATURE HIGH HUMIDITY STORAGE | To evaluate resistance of the device when it stored for a long term at High temperature and high humidity Ta= $65 \pm 5^\circ\text{C}$ RH=90~95%RH Test Time= 240 ± 2 HRS | MIL-STD-202:103D JIS C 7021:B-11 |
| | HIGH TEMPERATURE HIGH HUMIDITY REVERSE BIAS | To evaluate resistance of leakage current against long term Ta= $65 \pm 5^\circ\text{C}$ RH=90~95%RH VR=8V Test Time=500HRS(-24HRS,+48HRS) | |
| | HIGH TEMPERATURE STORAGE | To evaluate devices durability for long term storage in high temperature Ta= $85 \pm 5^\circ\text{C}$ (COB: Ta= $65 \pm 5^\circ\text{C}$) Test Time=1000HRS(-24HRS,+72HRS) | MIL-STD-883:1008 JIS C 7021:B-10 |
| | LOW TEMPERATURE STORAGE | To evaluate devices durability for long term storage in high temperature Ta= $-35 \pm 5^\circ\text{C}$ Test Time=1000HRS(-24HRS,+72HRS) | JIS C 7021:B-12 |
| ENVIRONMENTAL TEST | TEMPERATURE CYCLING | To evaluate resistance of devices under thermal stress, expansion and contraction $85^\circ\text{C} \sim 25^\circ\text{C} \sim 35^\circ\text{C} \sim 25^\circ\text{C}$ 30min 5min 30min 5min 10cycles(COB:Thot= 65°C ,Tcold= -25°C) | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS C 7021:A-4 |
| | THERMAL SHOCK | To evaluate devices structural and mechanical resistance when suddenly Exposed at serious changes $85 \pm 5^\circ\text{C} \sim -35 \pm 5^\circ\text{C}$ 10min 10min 10cycles(COB:Thot= 65°C ,Tcold= -25°C) | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 |
| | SOLDER RESISTANCE | To evaluate resistance of thermal stress caused by soldering T.sol= $260 \pm 5^\circ\text{C}$ Dwell Time= 5 ± 1 sec | MIL-STD-202:210A MIL-STD-750:2031 JIS C 7021:A-1 |
| | SOLDERABILITY | To evaluate solder ability on leads of device T.sol= $260 \pm 5^\circ\text{C}$ Dwell Time= 5 ± 1 sec | MIL-STD-202:208D MIL-STD-750:2026 MIL-STD-883:2033 JIS C 7021:A-2 |