



1. DATA SHEET

SB3020PT~SB3060PT

SCHOTTKY BARRIER RECTIFIERS

VOLTAGE 20 to 60 Volts **CURRE** 30.0 Amperes

TO-3P

Unit: inch (mm)

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O. Flame Retardant Epoxy Molding Compound.
- Exceeds environmental standards of MIL-S-19500/228
- Low power loss, high efficiency.
- Low forward voltage, high current capability
- High surge capacity.
- For use in low voltage, high frequency inverters free wheeling, and polarity protection applications.
- Pb free product are available: 99% Sn above can meet Rohs environment substance directive request

MECHANICAL DATA

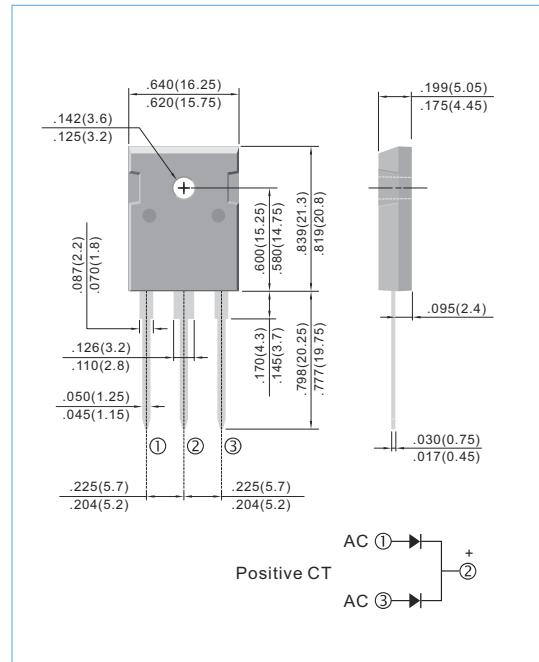
Case: TO-3P Molded plastic

Terminals: Solder plated, solderable per MIL-STD-202G, Method 208

Polarity: As marked.

Standard packaging: Any

Weight: 0.2 ounces, 5.6grams.



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load.

For capacitive load, derate current by 20%

| PARAMETER | SYMBOL | SB30 20PT | SB30 30PT | SB30 35PT | SB30 40PT | SB30 45PT | SB30 50PT | SB30 60PT | UNITS |
|--|----------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------------------|
| Maximum Recurrent Peak Reverse Voltage | V_{RRM} | 20 | 30 | 35 | 40 | 45 | 50 | 60 | V |
| Maximum RMS Voltage | V_{RMS} | 14 | 21 | 24.5 | 28 | 31.5 | 35 | 42 | V |
| Maximum DC Blocking Voltage | V_{DC} | 20 | 30 | 35 | 40 | 45 | 50 | 60 | V |
| Maximum Average Forward Current .375"(9.5mm) lead length at $T_c = 100^\circ\text{C}$ | I_{AV} | 30 | | | | | | | A |
| Peak Forward Surge Current :8.3ms single half sine-wave superimposed on rated load (JEDEC method) | I_{FSM} | 275 | | | | | | | A |
| Maximum Forward Voltage at 15A | V_F | 0.55 | | | | | 0.70 | | V |
| Maximum DC Reverse Current $T_A = 25^\circ\text{C}$ at Rated DC Blocking Voltage $T_A = 100^\circ\text{C}$ | I_R | 1.0 100 | | | | | | | mA |
| Maximum Thermal Resistance | R_{QJC} | 1.5 | | | | | | | $^\circ\text{C}/\text{W}$ |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | - 50 to + 125 | | | | | | | $^\circ\text{C}$ |

NOTES:

Both Bonding and Chip structure are available.



RATING AND CHARACTERISTIC CURVES

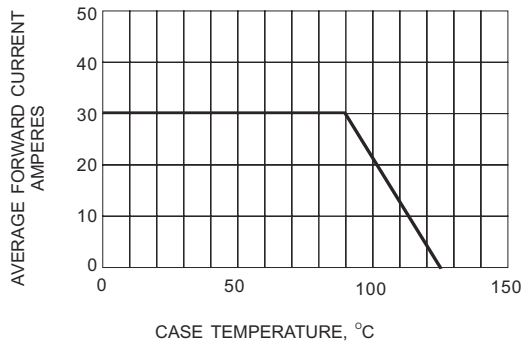


Fig.1- FORWARD CURRENT DERATING CURVE

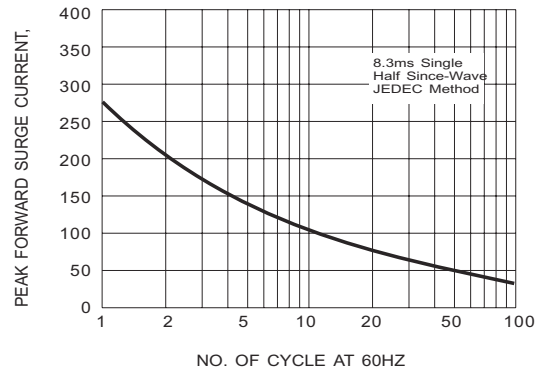


Fig.2- MAXIMUM NON - REPETITIVE SURGE CURRENT

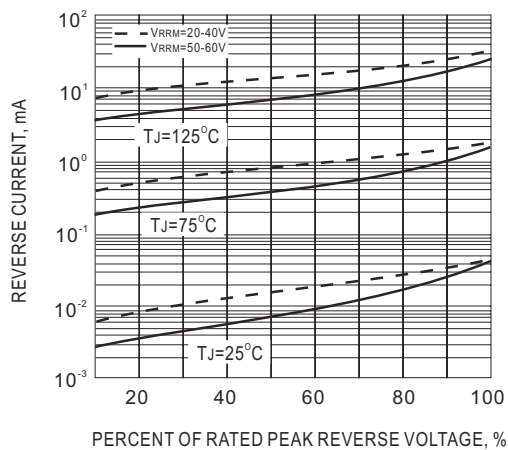


Fig.3- TYPICAL REVERSE CHARACTERISTICS

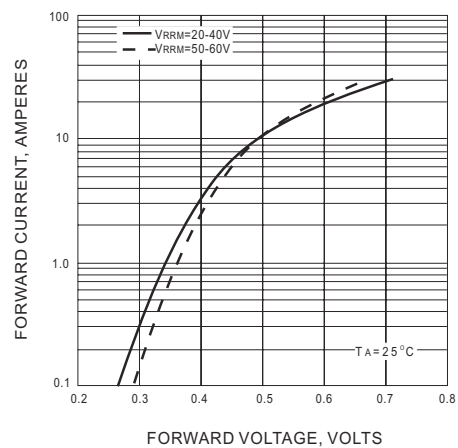
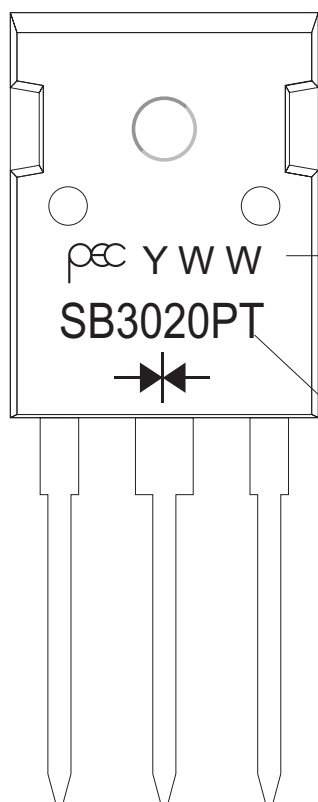


Fig.4- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



2. MARKING



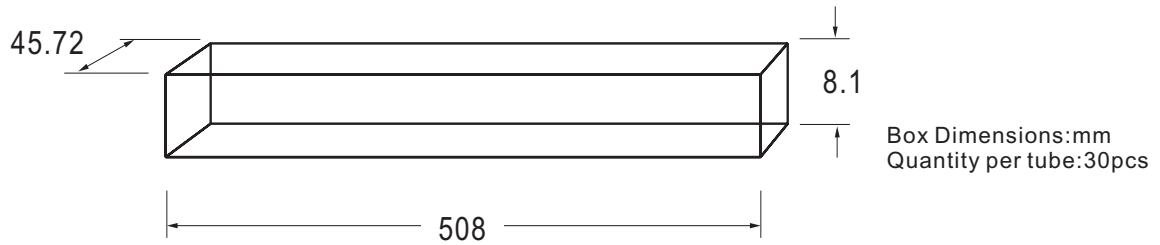
1st line: PCC - PanJit logo
Y- Last digit of calendar year
WW- Weekly

2nd line: Marking code

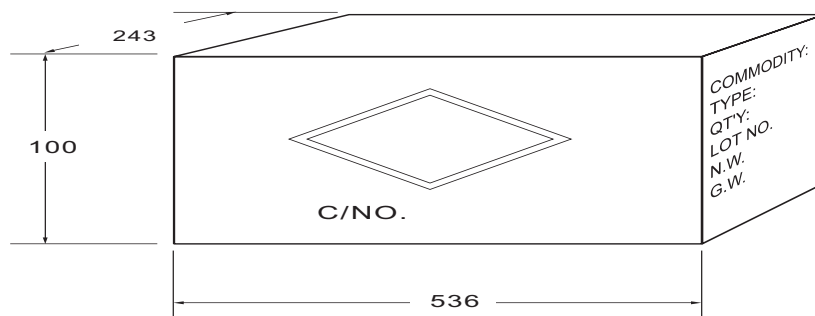


3. PACKING

TUBE

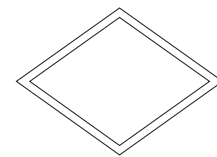


CARTON



Box Dimensions:mm
Quantity per Box:1,500pcs

SHIPPING MARK



C/NO.
MADE IN TAIWAN

SIDE MARK

COMMODITY
TYPE:
QTY:
LOT NO.
N.W.
G.W.
PANJIT
INTERNATIONAL INC.



Bulk Packing

| PACKAGE | INNER SIZE | BOX | CARTON SIZE | CARTON | APPROX. GROSS WEIGHT |
|---------------------------|-----------------|--------|-----------------|---------|----------------------|
| | (m/m) | (EA) | (m/m) | (EA) | (Kg) |
| Bulk Packing | | | | | |
| A-405 | 198 x 84 x 20 | 10,000 | 459 x 214 x 256 | 50,000 | 18.2 |
| AG / RB-20 / WOB | 258x190x77 | 1,000 | 395x270x400 | 10,000 | 17.0 |
| AM | 260 x 190 x 80 | 1,000 | 400 x 273 x 415 | 10,000 | 15 |
| CM / KBPC | 193 x 193 x 46 | 50 | 405 x 210 x 265 | 500 | 18 |
| CMW / KBPC-W | 193 x 193 x 46 | 50 | 405 x 210 x 265 | 500 | 16.5 |
| KBPC-P / CP-15/25/35/50 | 193 x 193 x 46 | 50 | 405 x 210 x 265 | 500 | 14.5 |
| KBPC-PW / CPW-15/25/35/50 | 193 x 193 x 46 | 50 | 405 x 210 x 265 | 500 | 13 |
| CP-3 / 6 | 260 x 190 x 80 | 400 | 400 x 273 x 415 | 4,000 | 8.5 |
| CP-8 / 10 | 260 x 190 x 80 | 250 | 400 x 273 x 415 | 2,500 | 14 |
| DIP | - | - | 495 x 214 x 256 | 12,000 | 8.8 |
| DO-15 | 200 x 85 x 25 | 1,000 | 459 x 214 x 256 | 40,000 | 17 |
| DO-201AD | 200 x 85 x 40 | 500 | 495 x 214 x 256 | 12,500 | 15.8 |
| DO-201AE | 200 x 85 x 40 | 500 | 495 x 214 x 256 | 12,500 | 15.8 |
| DO-34 | 96 x 80 x 42 | 2,000 | 410 x 335 x 265 | 120,000 | 12 |
| DO-35 | 96 x 80 x 42 | 2,000 | 410 x 335 x 265 | 120,000 | 13.8 |
| DO-41 | 240 x 100 x 90 | 5,000 | 410 x 335 x 265 | 60,000 | 20 |
| DO-41G | 96 x 80 x 42 | 1,000 | 410 x 335 x 265 | 60,000 | 20 |
| FL | 270 x 225 x 50 | 500 | 463 x 283 x 185 | 3,000 | 18.2 |
| GBJ | 352 x 337 x 44 | 600 | 375 x 360 x 213 | 2,400 | 25.4 |
| GBL | 350 x 337 x 44 | 960 | 375 x 360 x 213 | 3,840 | 13.1 |
| GBP | 350 x 337 x 44 | 1,120 | 375 x 360 x 213 | 4,480 | 10.7 |
| GBPC | 195 x 195 x 40 | 50 | 460 x 215 x 260 | 500 | 14.5 |
| GBPCW | 195 x 195 x 40 | 50 | 460 x 215 x 260 | 500 | 13 |
| GBU | 350 x 337 x 44 | 800 | 375 x 360 x 213 | 3,200 | 17 |
| GL | 195 x 195 x 40 | 80 | 460 x 215 x 260 | 800 | 11 |
| GPJ | 500 x 150 x 145 | 750 | 572 x 306 x 218 | 1,500 | 17 |
| KBJ | 219 x 177 x 44 | 200 | 367 x 232 x 250 | 2,000 | 16.3 |
| KBPM | 490 x 150 x 110 | 1,200 | 510 x 335 x 240 | 4,800 | 19 |
| KBU | 270 x 225 x 50 | 200 | 463 x 283 x 185 | 1,200 | 10 |
| MDI | 350 x 337 x 44 | 6,000 | 375 x 360 x 390 | 48,000 | 14.4 |
| P-600 | 208 x 90 x 83 | 500 | 495 x 214 x 256 | 5,000 | 11.9 |
| R-1 | 198 x 84 x 20 | 1,000 | 495 x 214 x 256 | 50,000 | 18.2 |
| SDIP | - | - | 495 x 214 x 256 | 24,000 | 16.8 |
| TO / ITO-220 | 555 x 145 x 95 | 2,000 | 572 x 306 x 218 | 8,000 | 19 |
| TO-251AB | 560 x 210 x 79 | 8,400 | 572 x 306 x 218 | 33,600 | 22 |
| TO-247AD | - | - | 536 x 243 x 100 | 1,500 | 13.2 |
| KBP | 258x190x77 | 1,000 | 395x270x400 | 10,000 | 18.0 |
| KBL | 230x147x50 | 200 | 460x245x275 | 3,000 | 17.25 |
| K3 / K6 | 210x115x90 | 200 | 600x235x198 | 2,000 | 7.3/8.8 |
| K8 | 210x115x90 | 200 | 600x235x198 | 2,000 | 13.8 |
| K10/K15/K25/K35/K50M | 193x193x46 | 50 | 405x210x265 | 500 | 17.0 |
| K10/K15/K25/K35/K50P | 193x193x46 | 50 | 405x210x265 | 500 | 17.0 |
| K10/K15/K25/K35/K50W | 193x193x46 | 50 | 405x210x265 | 500 | 17.0 |



Reel Packing

| PACKAGE | REEL | COMPONENT SPACE | TAPE SPACE | REEL DIA | CARTON SIZE | CARTON | APPROX. GROSS WEIGHT |
|---------------------|-----------------------|-----------------|------------|-----------------|---|--------------------------|----------------------|
| | (pcs) | (m/m) | (m/m) | (m/m) | (m/m) | (EA) | (Kg) |
| Reel Packing | | | | | | | |
| A-405 | 5,000 | 5 | 52 | 330 | 340 x 340 x 410 | 25,000 | 11.3 |
| TO-263 | 800 | 16 | 24 | 330 | 375 x360 x 390 | 6,400 | 15 |
| DO-15 | 4,000 | 5 | 52 | 330 | 340 x 340 x 410 | 20,000 | 11 |
| DO-201AD | 1,250 | 10 | 52 | 330 | 340 x 340 x 410 | 6,250 | 9.2 |
| DO-201AE | 1,250 | 10 | 52 | 330 | 340 x 340 x 410 | 6,250 | 9.2 |
| DO-34 | 10,000 | 5 | 52 | 360 | 360 x 360 x 395 | 50,000 | 9.5 |
| DO-35 | 10,000 | 5 | 52 | 360 | 360 x 360 x 395 | 50,000 | 12 |
| DO-41 | 5,000 | 5 | 52 | 330 | 360 x 360 x 395 | 25,000 | 13 |
| DO-41G | 5,000 | 5 | 52 | 360 | 360 x 360 x 395 | 25,000 | 13 |
| TO-252 | 3,000 | 8 | 16 | 330 | 375 x 360 x 390 | 42,000 | 20.2 |
| MDI | 3,000 | 8 | 12 | 330 | 375 x360 x 390 | 48,000 | 14.4 |
| QUADRO-MELF | 2,500 | 4 | - | 178 | 385 x 380 x 260 | 200,000 | 13.5 |
| MELF/DL-41 | 5,000 | 4 | - | 330 | 350 x 350 x 300 | 100,000 | 14 |
| MICRO-MELF | 2,500 | 4 | - | 178 | 385 x 380 x 260 | 200,000 | 13.5 |
| MINI-MELF | 10,000 / 2,500 | 4 | - | 330 / 178 | 360 x 360 x 395 / 385 x 380 x 260 | 200,000 | 14.0 / 13.5 |
| P-600 | 800 | 10 | 52 | 330 | 340 x 340 x 410 | 4,000 | 11 |
| QFN 1.6 x 1.6 | 4,000 | 4 | 8 | 178 | 390 x 240 x 420 | 200,000 | 7.8 |
| R-1 | 5,000 | 5 | 52 | 330 | 340 x 340 x 410 | 25,000 | 6.3 |
| SDIP | 1,500 | 12 | 16 | 330 | 375 x360 x 390 | 21,000 | 16.3 |
| SMA | 7,500 / 1,800 | 4 | 12 | 330 / 178 | 375 x360 x 390 / 390 x 240 x 420 | 120,000 / 72,000 | 17.5 / 10 |
| SMB | 3,000 / 500 | 8 | 12 | 330 / 178 | 375 x360 x 390 / 390 x 240 x 420 | 48,000 / 20,000 | 13.6 / 7.5 |
| SMC | 3,000 / 500 | 12 | 16 | 330 / 178 | 375 x360 x 390 / 390 x 240 x 420 | 42,000 / 15,000 | 6.2 / 7.3 |
| SOD-123 | 10,000 / 3,000 | 4 | 8 | 330 / 178 | 375 x 360 x 213 / 390 x 270 x 400 | 120,000 / 240,000 | 6.4 / 9.4 |
| SOD-123FL | 10,000 / 3,000 | 4 | 8 | 330 / 178 | 375 x 360 x 213 / 390 x 270 x 400 | 120,000 / 240,000 | 6.4 / 9.4 |
| SOD-323 | 12,000 / 5,000 | 4 | 8 | 330 / 178 | 375 x 360 x 213 / 390 x 270 x 400 | 144,000 / 400,000 | 10 / 15.2 |
| SOT-23 | 12,000 / 3,000 | 4 | 8 | 330 / 178 | 375 x 360 x 213 / 390 x 270 x 400 | 144,000 / 240,000 | 6.4 / 9.4 |
| SOT-323 | 12,000 / 3,000 | 4 | 8 | 330 / 178 | 375 x 360 x 213 / 390 x 270 x 400 | 144,000 / 240,000 | 6.4 / 9.4 |
| SOT-363 | 10,000 / 3,000 | 4 | 8 | 330 / 178 | 735 x 365 x 292 / 390 x 240 x 420 | 300,000 / 150,000 | 15.66 / 7.0 |
| SOT-353 | 10,000 / 3,000 | 4 | 8 | 330 / 178 | 735 x 365 x 292 / 390 x 240 x 420 | 300,000 / 150,000 | 15.66 / 7.0 |
| TO-92 | 2,000 | - | - | 335 | 390 x 390 x 280 | 8,000 | 6.067 |
| SOD-523 | 12,000 / 5,000 | 4 | 8 | 330 / 178 | 375 x 360 x 213 / 390 x 270 x 400 | 144,000 / 400,000 | 10 / 15.2 |
| QFN 2.0 x 2.0 | 5,000 / 3,000 / 1,000 | 4 | 8 | 330 / 178 / 178 | 553 x 365 x 358 / 333 x 240 x 257 / 333 x 240 x 257 | 45,000 / 39,000 / 13,000 | 4.5 / 3.0 / 2.5 |
| SOT23-6L | 3,000 / 2,500 / 1,000 | 4 | 8 | 330 / 178 / 178 | 553 x 365 x 358 / 333 x 240 x 257 / 333 x 240 x 257 | 39,000 / 32,500 / 13,000 | 3.0 / 3.0 / 2.5 |
| SOIC-08 | 3,000 / 1,500 / 1,000 | 4 | 8 | 330 / 330 / 178 | 553 x 365 x 358 / 553 x 365 x 358 / 333 x 240 x 257 | 39,000 / 13,500 / 13,000 | 6.5 / 5.0 / 3.5 |



Ammunition Packing

| PACKAGE | AMMO | COMPONENT SPACE | TAPE SPACE | BOX SIZE | CARTON SIZE | CARTON | APPROX. GROSS WEIGHT |
|---------------------------|-------|-----------------|------------|----------------|-----------------|---------|----------------------|
| | (pcs) | (m/m) | (m/m) | (m/m) | (m/m) | (EA) | (Kg) |
| Ammunition Packing | | | | | | | |
| A-405 | 5,000 | 5 | 26 | 255 x 50 x 150 | 339 x 276 x 330 | 60,000 | 16.0 |
| A-405 | 5,000 | 5 | 52 | 255 x 75 x 150 | 339 x 276 x 330 | 40,000 | 16.0 |
| DO-15 | 3,000 | 5 | 52 | 255 x 75 x 150 | 339 x 276 x 330 | 24,000 | 11.9 |
| DO-201AD | 1,250 | 10 | 52 | 255 x 75 x 150 | 339 x 276 x 330 | 10,000 | 14.0 |
| DO-201AE | 1,250 | 10 | 52 | 255 x 75 x 150 | 339 x 276 x 330 | 10,000 | 14.0 |
| DO-34 | 5,000 | 5 | 26 | 248 x 80 x 48 | 410 x 335 x 265 | 150,000 | 15.5 |
| DO-34 | 5,000 | 5 | 52 | 248 x 80 x 75 | 410 x 335 x 265 | 100,000 | 14.1 |
| DO-35 | 5,000 | 5 | 26 | 248 x 80 x 48 | 410 x 335 x 265 | 150,000 | 20.0 |
| DO-35 | 5,000 | 5 | 52 | 248 x 80 x 75 | 410 x 335 x 265 | 100,000 | 15.7 |
| DO-41 | 5,000 | 5 | 52 | 255 x 75 x 150 | 339 x 276 x 330 | 40,000 | 19.1 |
| DO-41G | 2,500 | 5 | 26 | 248 x 80 x 48 | 410 x 335 x 265 | 75,000 | 21.5 |
| DO-41G | 2,500 | 5 | 52 | 248 x 80 x 75 | 410 x 335 x 265 | 50,000 | 19.0 |
| P-600 | 400 | 10 | 52 | 255 x 75 x 150 | 339 x 276 x 330 | 3,200 | 9.0 |
| R-1 | 5,000 | 5 | 26 | 255 x 50 x 150 | 339 x 276 x 330 | 40,000 | 11.0 |
| R-1 | 5,000 | 5 | 52 | 255 x 75 x 150 | 339 x 276 x 330 | 40,000 | 16.0 |



4. HIGH RELIABILITY TESTING SPEC.

| NO | TEST ITEM | TEST CONDITION | REFERENCE DOCUMENT | LOT QUALITY LEVEL | REMARK |
|----|---|---|-------------------------------|---|--------|
| 1 | TEMPERATURE CYCLING (T.C.T) | Ta = -55 + 0, -3 °C 10min Ta = +150 +/- °C 10min FOR 20 CYCLE | MIL-STD-750D METHOD-1051.5 | LTPD 10 S.s. = 22 ACCEPT FOR 0 FAILURE ONLY. | |
| 2 | HIGH TEMPERATURE STORAGE LIFE (H.T.S.L) | Ta = 150 +/- 5 °C TESTING TIME: 168 HRS 250 HRS 500 HRS | MIL-STD-750D METHOD-1031.2 | LTPD10 S.s. = 22 ACCEPT FOR 0 FAILURE ONLY. | |
| 3 | SOLDERABILITY TEST | TEMPERATURE OF SOLDER POT = 245 +/- 5 °C TIME FOR DIPPING FLUX = 5-10 SEC TIME FOR DIPPING IN SOLDER = 5 +/- 0.5 SEC DIPPING DEPTH = 0.05 inch max FOR ONE CYCLE | MIL-STD-750D | METHOD-2026.10 LTPD 7 S.s. = 32 ACCEPT FOR 0 FAILURE ONLY. | |
| 4 | HIGH TEMPERATURE REVERSE BIAS (H.T.R.B) | Ta = 150 +/- 5 °C VR = 80 % VR (CUSTOM SECP) TESTING TIME: 168 HRS 250 HRS 500 HRS | MIL-STD-750D METHOD-1038.3 | LTPD10 S.s. = 22 ACCEPT FOR 0 FAILURE ONLY. | |
| 5 | CONTINUE FORWARD OPERATING LIFE (C.F.O.L) | Ta = 55 °C I = IO +/- 10 % TESTING TIME: 168 HRS 250 HRS 500 HRS | MIL-STD-750D METHOD-1027.3 | LTPD10 S.s. = 22 ACCEPT FOR 0 FAILURE ONLY. | |
| 6 | THERMAL SHOCK (T.S.T) | HOT TANK T = 100 °C + 10 / -2 °C t = 5 min COLD TANK T = 0 °C + 2 / -10 °C t = 5 min 15 CYCLE TIME BETWEEN TRANSFERRING DO'NOT EXCEED 10 SECOND. | MIL-STD-750D METHOD-1056.7 | LTPD10 S.s. = 22 ACCEPT FOR 0 FAILURE ONLY. | |
| 7 | PRESSURE COOKER (P.C.T) | Ta = 121 °C P = 1.2 kg / cm ² TIME = 96 HRS | JEDEC JESD22-A102-C | LTPD10 S.s. = 22 ACCEPT FOR 0 FAILURE ONLY. | |
| 8 | INTERMITTENT FORWARD OPERATING LIFE (I.F.O.L) | I = Io x 1.0 POWER ON : 30 SEC POWER OFF : 50 SEC TESTING TIME: 2000 CYCLES | MIL-STD-750D METHOD 1036.3 | LTPD10 S.s. = 22 ACCEPT FOR 0 FAILURE ONLY. | |
| 9 | FORWARD SURGE CURRENT (I.F.S.M) | SQ WAVE OR SINE WAVE IFSM=DATE SHEET SPEC. TIME = 8.3 Msec T = 1 CYCLE | MIL-STD-750D METHOD 4066.3 | LTPD10 S.s. = 22 ACCEPT FOR 0 FAILURE ONLY. | |
| 10 | HUMIDITY | Ta = 85 °C RH = 85 % TESTING TIME: 168 HRS 250 HRS 500 HRS | MIL-STD-750D METHOD 1021.1 | LTPD10 S.s. = 22 ACCEPT FOR 0 FAILURE ONLY. | |
| 11 | SOLDERABILITY RESISTANCE | TEMPERATURE OF SOLDER POT = 260 +/- 5 °C TIME FOR DIPPING IN SOLDER = 10 + 2 / -0 SEC DIPPING DEPTH = 1.57 +/- 0.79 mm BELOW BODY FOR ONE CYCLE | MIL-STD-750D METHOD 2031.1 | LTPD10 S.s. = 22 ACCEPT FOR 0 FAILURE ONLY. | |

SCHOTTKY PRODUCT TESTING TEMPERATURE 100 °C MAX (NORMAL)