



TABLE OF CONTENTS

1.DATA SHEET PAGE 1

2.MARKING PAGE 3

3.TAPING PAGE 4

4.PACKING PAGE 5

5.HIGH RELIABILITY TESTING SPEC. PAGE 9



1.DATA SHEET

SB520E~SB560E

SCHOTTKY BARRIER RECTIFIERS

VOLTAGE 20 to 60 Volts **CURRENT** 5 Amperes

DO-201AD

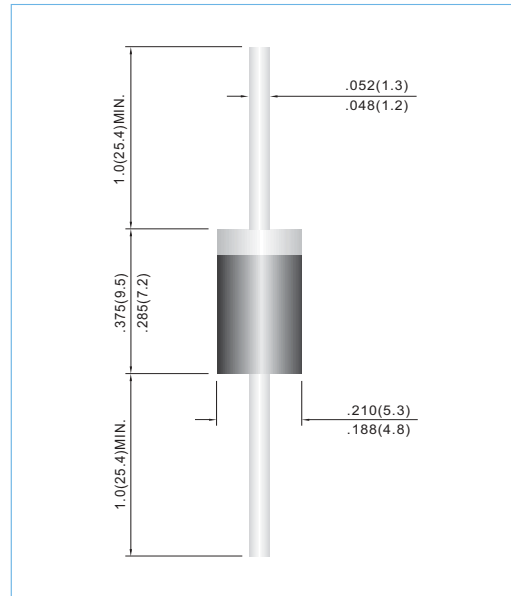
Unit: inch(mm)

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O utilizing Flame Retardant Epoxy Molding Compound.
- Exceeds environmental standards of MIL-S-19500/228
- 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
- ESD Passed devices : Air mode 15KV ,human body mode 8KV

MECHANICALDATA

Case: DO-201AD Molded plastic
 Terminals: Axial leads, solderable per MIL-STD-750,Method 2026
 Polarity: Color band denotes cathode
 Mounting Position: Any
 Weight: 0.04 ounces, 1.1 grams



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

| PARAMETER | SYMBOL | SB520E | SB530E | SB540E | SB550E | SB560E | UNITS |
|--|-----------------|-------------|--------|--------|--------|--------|----------------|
| Maximum Recurrent Peak Reverse Voltage | V_{RRM} | 20 | 30 | 40 | 50 | 60 | V |
| Maximum RMS Voltage | V_{RMS} | 14 | 21 | 28 | 35 | 42 | V |
| Maximum DC Blocking Voltage | V_{DC} | 20 | 30 | 40 | 50 | 60 | V |
| Maximum Average Forward Rectified Current .375" (9.5mm) lead length at $T_L = 60^\circ C$ | I_{AV} | 5 | | | | | A |
| Peak Forward Surge Current :8.3ms single half sine-wave superimposed on rated load(JEDEC method) | I_{FSM} | 150 | | | | | A |
| Maximum Forward Voltage at 5.0A | V_F | 0.55 | | | 0.70 | | V |
| Maximum DC Reverse Current $T_A=25^\circ C$ at Rated DC Blocking Voltage $T_A=100^\circ C$ | I_R | 0.5 | | | 50 | | mA |
| Maximum Thermal Resistance | $R_{\theta JL}$ | 15 | | | 10 | | $^\circ C / W$ |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -50 to +125 | | | | | $^\circ C$ |

NOTES:

1. Thermal Resistance Junction to Lead Vertical PC Board Mounting .375" (9.5mm) Lead Lengths.



RATING AND CHARACTERISTIC CURVES

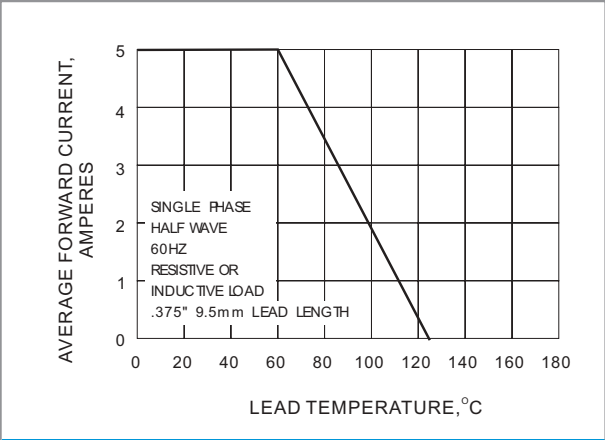


Fig. 1- FORWARD CURRENT DERATING CURVE

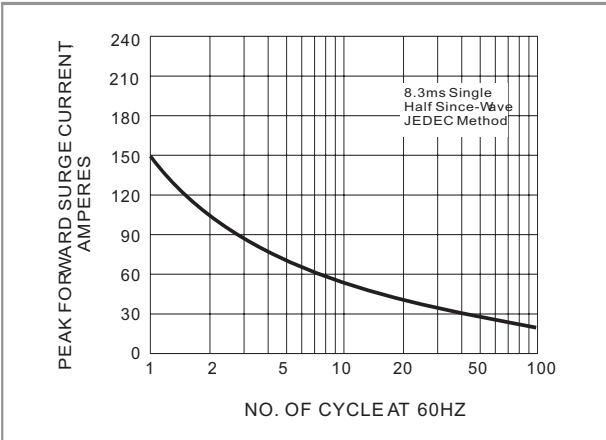


Fig. 2- TMAXIMUM NON - REPETITIVE SURGE CURRENT

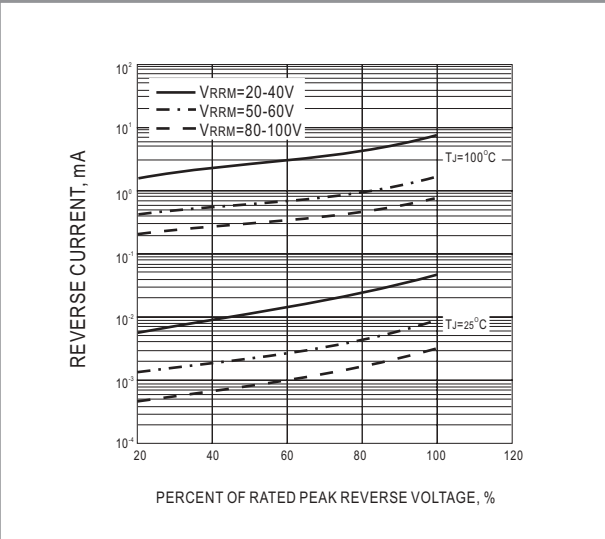


Fig. 3- TYPICAL REVERSE CHARACTERISTIC

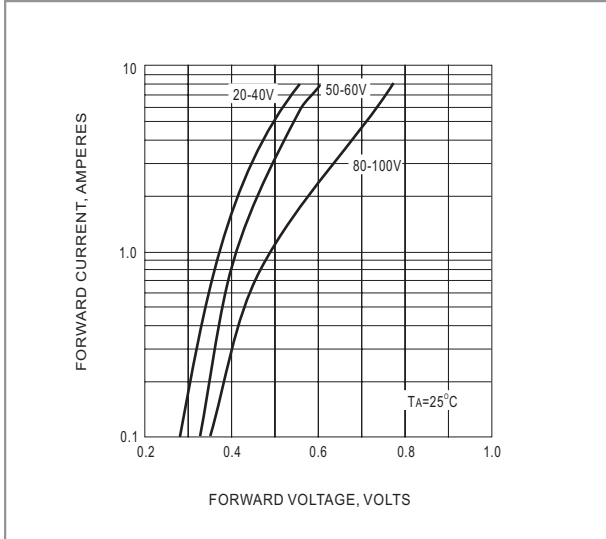
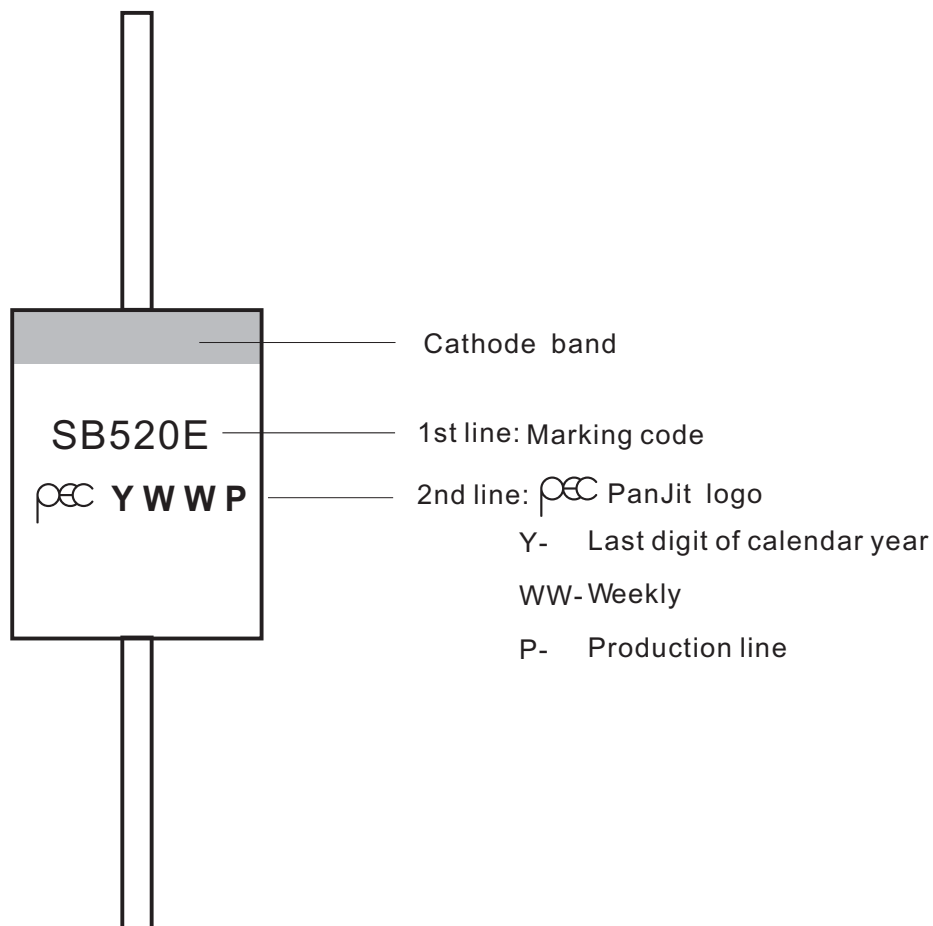


Fig. 4- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTIC



2. MARKING

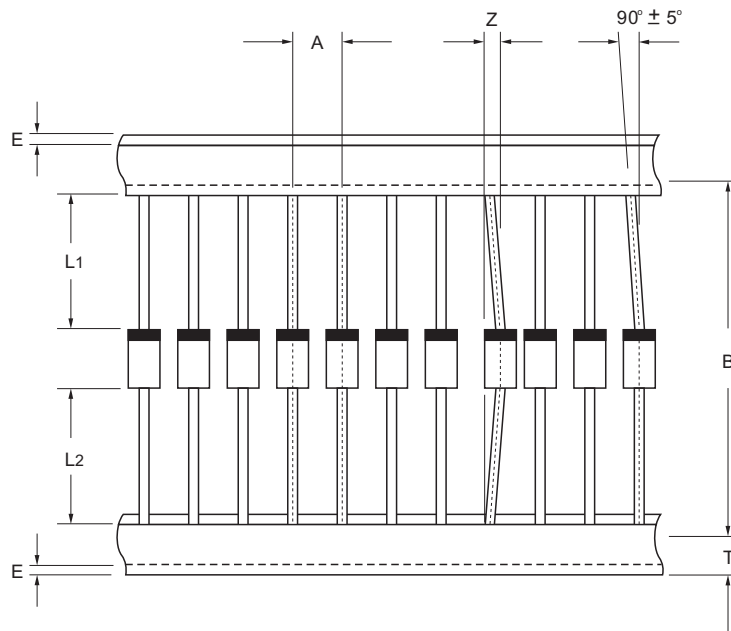




3. TAPING

Axial lead devices are packed in accordance with EIA standard RS-296-E and specifications given below.

| COMPONENT OUTLINE | COMPONENT PITCH A ± 0.5mm | INTER TAPE PITCH B ± 1.0mm | CUMULATIVE PITCH TOLERANCE |
|-------------------|------------------------------|-------------------------------|-------------------------------|
| DO-201AD | 10.0mm | 52.0mm | 1.0mm/20pitch |



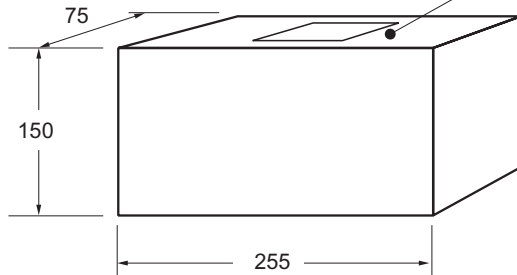
| ITEM | SYMBOL | SPECIFICATIONS(mm) | SPECIFICATIONS(inch) |
|---------------------|--------|--------------------|----------------------|
| Component alignment | Z | 1.2max | 0.048max |
| Tape width | T | 6.0±0.4 | 0.236±0.016 |
| Exposed adhesive | E | 0.8max | 0.032max |
| Body eccentricity | L1-L2 | 1.0max | 0.040max |

NOTES: Each component lead shall be sandwiched between tapes for a minimum of 3.2mm (0.126")

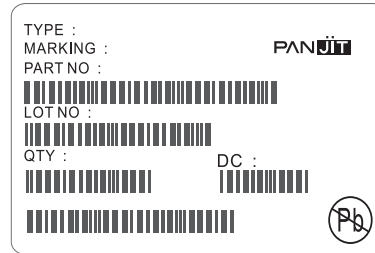


4. PACKING

AMMUNTION PACKING

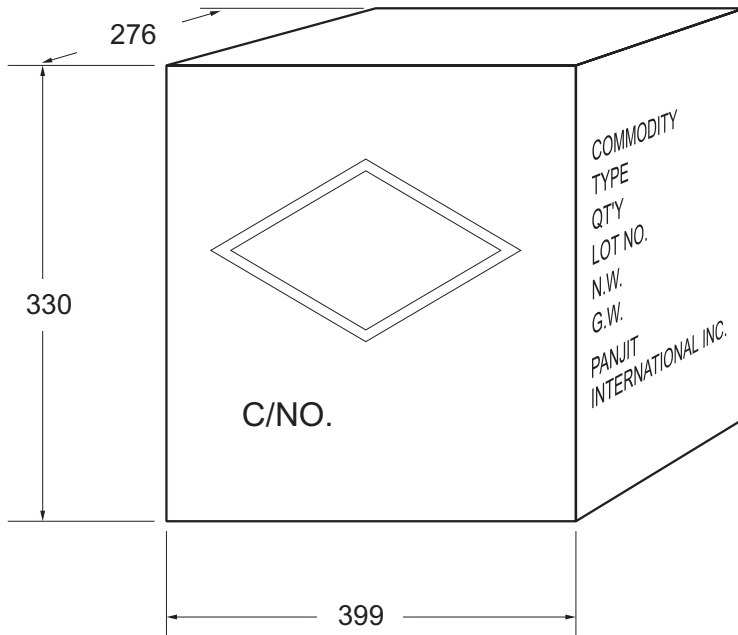


LABEL TYPE



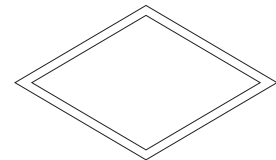
Box Dimensions : mm
Quantity per Box: 1,250 pcs

CARTON



Box Dimensions : mm
Quantity per Box: 10,000 pcs

SHIPPING MARK



C/NO.
PRODUCT COUNTRY

SIDE MARK

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



Bulk Packing

| PACKAGE | INNER BOX SIZE | BOX | CARTON SIZE | CARTON | APPROX. GROSS WEIGHT |
|--------------------------------|-----------------|-------|-----------------|---------|----------------------|
| | (m/m) | (EA) | (m/m) | (EA) | (Kg) |
| Bulk Packing | | | | | |
| A-405 | 198 x 84 x 20 | 1,000 | 459 x 214 x 256 | 50,000 | 18.2 |
| AG / RB-20 / WOB | 258 x 190 x 77 | 1,000 | 395 x 270 x 400 | 10,000 | 17 |
| AM | 258 x 190 x 77 | 1,000 | 395 x 270 x 400 | 10,000 | 15 |
| CM / KBPC | 193 x 193 x 46 | 50 | 405 x 210 x 265 | 500 | 17 |
| CMW / KBPC-W | 193 x 193 x 46 | 25 | 405 x 210 x 265 | 250 | 8.5 |
| KBPC-P /CP-15 / 25 / 35 / 50 | 193 x 193 x 46 | 50 | 405 x 210 x 265 | 500 | 12 |
| KBPC-PW /CPW-15 / 25 / 35 / 50 | 193 x 193 x 46 | 25 | 405 x 210 x 265 | 250 | 6 |
| CP-3 / 6 | 219 x 115 x 90 | 200 | 600 x 235 x 198 | 2,000 | 7.3/8.8 |
| CP-8 / 10 | 219 x 115 x 90 | 200 | 600 x 235 x 198 | 2,000 | 13.8 |
| DIP | - | - | 495 x 214 x 256 | 12,000 | 9 |
| DO-15 | 200 x 85 x 25 | 1,000 | 459 x 214 x 256 | 40,000 | 20.2 |
| 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 | 15.9 |
| DO-34 | 96 x 80 x 42 | 2,000 | 410 x 335 x 265 | 120,000 | 14.4 |
| DO-35 | 96 x 80 x 42 | 2,000 | 410 x 335 x 265 | 120,000 | 17.4 |
| DO-41 | 198 x 84 x 20 | 1,000 | 459 x 214 x 265 | 50,000 | 19.4 |
| DO-41G | 96 x 80 x 42 | 1,000 | 410 x 335 x 265 | 60,000 | 18 |
| FL | 230 x 230 x 50 | 500 | 495 x 245 x 180 | 3,000 | 18.4 |
| FI | 488 x 150 x 100 | 1,200 | 510 x 340 x 235 | 24,000 | 18 |
| GBJ (TUBE) | 556 x 150 x 100 | 800 | 578 x 340 x 235 | 3,200 | 25.4 |
| GBJ (BOX) | 350 x 337 x 44 | 600 | 375 x 360 x 213 | 2,400 | 14.4 |
| 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 | 10.9 |
| GBPC | 193 x 193 x 46 | 50 | 405 x 210 x 265 | 500 | 17 |
| GBPCW | 193 x 193 x 46 | 25 | 405 x 210 x 265 | 250 | 8.5 |
| GBU (TUBE) | 488 x 150 x 100 | 800 | 510 x 310 x 235 | 3,200 | 23.2 |
| GBU (BOX) | 350 x 337 x 44 | 800 | 375 x 360 x 213 | 3,200 | 16.9 |
| 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 | 221 x 176 x 45 | 200 | 376 x 263 x 241 | 2,000 | 15 |
| KBPF | 207 x 240 x 25 | 500 | 425 x 250 x 385 | 150,000 | 19.2 |
| KBU | 276 x 158 x 59 | 200 | 493 x 287 x 320 | 3,000 | 24 |
| 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 | 459 x 214 x 256 | 5,000 | 12.1 |
| R-1 | 198 x 84 x 20 | 1,000 | 459 x 214 x 256 | 50,000 | 11.8 |
| SDIP | - | - | 495 x 214 x 256 | 24,000 | 12.4 |
| TO-220 | 540 x 145 x 82 | 2,000 | 555 x 306 x 188 | 8,000 | 22 |
| ITO-220 | 540 x 145 x 82 | 2,000 | 555 x 306 x 188 | 8,000 | 19.6 |
| TO-251AB | 555 x 145 x 95 | 8,400 | 572 x 306 x 218 | 33,600 | 22 |
| TO-3P / TO-247AD | - | - | 536 x 243 x 100 | 1,500 | 13 |
| KBL | 230 x 147 x 50 | 200 | 460 x 245 x 275 | 3,000 | 17.25 |
| K3 / K6 | 219 x 115 x 90 | 200 | 600 x 235 x 198 | 2,000 | 7.3/8.8 |
| K8 | 210 x 115 x 90 | 200 | 600 x 235 x 198 | 2,000 | 13.8 |



Reel Packing

| PACKAGE | REEL SIZE | REEL | COMPONENT SPACE | TAPE SPACE | REEL DIA | CARTON SIZE | CARTON | APPROX. GROSS WEIGHT |
|---------------------|-----------|--------|-----------------|------------|----------|-----------------|---------|----------------------|
| | (inch) | (pcs) | (m/m) | (m/m) | (m/m) | (m/m) | (EA) | (Kg) |
| Reel Packing | | | | | | | | |
| R-1 | - | 5,000 | 5.0 | 52 | 330 | 340 x 340 x 410 | 25,000 | 7.9 |
| A-405 | - | 5,000 | 5.0 | 52 | 330 | 340 x 340 x 410 | 25,000 | 11.3 |
| DO-15 | - | 4,000 | 5.0 | 52 | 330 | 340 x 340 x 410 | 20,000 | 11 |
| DO-201AD | - | 1,250 | 10.0 | 52 | 330 | 340 x 340 x 410 | 6,250 | 9.6 |
| DO-201AE | - | 1,250 | 10.0 | 52 | 330 | 340 x 340 x 410 | 6,250 | 9.6 |
| DO-34 | 15 | 10,000 | 5.0 | 52 | 360 | 360 x 360 x 395 | 50,000 | 9.5 |
| DO-35 | 15 | 10,000 | 5.0 | 52 | 360 | 360 x 360 x 395 | 50,000 | 11.4 |
| DO-41 | - | 5,000 | 5.0 | 52 | 330 | 340 x 340 x 410 | 25,000 | 11.8 |
| DO-41G | 15 | 5,000 | 5.0 | 52 | 360 | 360 x 360 x 395 | 25,000 | 11.3 |
| P-600 | - | 800 | 10.0 | 52 | 330 | 340 x 340 x 410 | 4,000 | 10 |
| DDPAK/TO-252 | 13 | 3,000 | 8.0 | 16 | 330 | 375 x 360 x 390 | 42,000 | 20.1 |
| D2PAK/TO-263 | 13 | 800 | 16.0 | 24 | 330 | 375 x 360 x 390 | 6,400 | 14.7 |
| MDI | 13 | 3,000 | 8.0 | 12 | 330 | 375 x 360 x 390 | 48,000 | 14.6 |
| SDIP | 13 | 1,500 | 12.0 | 16 | 330 | 375 x 360 x 390 | 21,000 | 14.9 |
| QUADRO-MELF | 7 | 2,500 | 4.0 | - | 178 | 385 x 380 x 260 | 200,000 | 13.5 |
| MELF/DL-41 | 13 | 5,000 | 4.0 | - | 330 | 360 x 360 x 395 | 200,000 | 23.4 |
| MICRO-MELF | 7 | 2,500 | 4.0 | - | 178 | 385 x 380 x 260 | 200,000 | 9.1 |
| MINI-MELF | 13 | 10,000 | 4.0 | - | 330 | 360 x 360 x 395 | 200,000 | 14.8 |
| MINI-MELF | 7 | 2500 | 4.0 | - | 178 | 385 x 380 x 260 | 120,000 | 13 |
| SMA | 13 | 7,500 | 4.0 | 12 | 330 | 375 x 360 x 390 | 120,000 | 17.5 |
| SMA | 7 | 1,800 | 4.0 | 12 | 178 | 390 x 240 x 420 | 72,000 | 10 |
| SMB | 13 | 3,000 | 8.0 | 12 | 330 | 375 x 360 x 390 | 48,000 | 13.6 |
| SMB | 7 | 500 | 8.0 | 12 | 178 | 390 x 240 x 420 | 20,000 | 6.5 |
| SMC | 13 | 3,000 | 8.0 | 16 | 330 | 375 x 360 x 390 | 42,000 | 18.4 |
| SMC | 7 | 500 | 8.0 | 16 | 178 | 390 x 240 x 420 | 15,000 | 8.5 |
| SOD-123 | 13 | 10,000 | 4.0 | 8 | 330 | 375 x 360 x 213 | 120,000 | 6.4 |
| SOD-123 | 7 | 3,000 | 4.0 | 8 | 178 | 390 x 270 x 400 | 240,000 | 9.4 |
| SOD-123FL | 13 | 10,000 | 4.0 | 8 | 330 | 375 x 360 x 213 | 120,000 | 6.4 |
| SOD-123FL | 7 | 3,000 | 4.0 | 8 | 178 | 390 x 270 x 400 | 240,000 | 9.4 |
| SOD-323 | 13 | 12,000 | 4.0 | 8 | 330 | 375 x 360 x 213 | 144,000 | 10 |
| SOD-323 | 7 | 5,000 | 4.0 | 8 | 178 | 390 x 270 x 400 | 400,000 | 15.2 |
| SOD-523 | 13 | 12,000 | 4.0 | 8 | 330 | 375 x 360 x 213 | 144,000 | 10 |
| SOD-523 | 7 | 5,000 | 4.0 | 8 | 178 | 390 x 270 x 400 | 400,000 | 15.2 |
| SOT-23 | 13 | 12,000 | 4.0 | 8 | 330 | 375 x 360 x 213 | 144,000 | 6.4 |
| SOT-23 | 7 | 3,000 | 4.0 | 8 | 178 | 390 x 270 x 400 | 240,000 | 9.4 |
| SOT-323 | 13 | 12,000 | 4.0 | 8 | 330 | 375 x 360 x 213 | 144,000 | 6.4 |
| SOT-323 | 7 | 3,000 | 4.0 | 8 | 178 | 390 x 270 x 400 | 240,000 | 9.4 |
| SOT-363 | 13 | 10,000 | 4.0 | 8 | 330 | 375 x 360 x 213 | 120,000 | 7.1 |
| SOT-363 | 7 | 3,000 | 4.0 | 8 | 178 | 390 x 270 x 400 | 240,000 | 10.2 |
| SOT-353 | 13 | 10,000 | 4.0 | 8 | 330 | 375 x 360 x 213 | 120,000 | 7.2 |
| SOT-353 | 7 | 3,000 | 4.0 | 8 | 178 | 390 x 270 x 400 | 240,000 | 10 |
| SOT23-6L | 13 | 10,000 | 4.0 | 8 | 330 | 375 x 360 x 213 | 120,000 | 7.9 |
| SOT23-6L | 7 | 3,000 | 4.0 | 8 | 178 | 390 x 270 x 400 | 240,000 | 14.5 |
| SOT-143 | 13 | 10,000 | 4.0 | 8 | 330 | 375 x 360 x 213 | 120,000 | 7 |
| SOT-143 | 7 | 3,000 | 4.0 | 8 | 178 | 390 x 270 x 400 | 240,000 | 12.8 |
| QFN 1.2 x 1.5 | 7 | 3,000 | 4.0 | 8 | 178 | 390 x 270 x 400 | 240,000 | 7.1 |
| QFN 1.6 x 1.6 | 7 | 4,000 | 4.0 | 8 | 178 | 390 x 240 x 420 | 200,000 | 7.8 |
| QFN 2.0 x 2.0 | 7 | 3,000 | 4.0 | 8 | 178 | 390 x 270 x 400 | 240,000 | 7.1 |
| SOIC-08 | 13 | 3,000 | 8.0 | 12 | 330 | 375 x 360 x 390 | 48,000 | 14.2 |



Ammunition Packing

| PACKAGE | AMMO | COMPONENT SPACE | TAPE SPACE | INNER 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 47 x 150 | 339 x 276 x 330 | 60,000 | 12.4 |
| A-405 | 5,000 | 5 | 52 | 255 x 75 x 150 | 339 x 276 x 330 | 40,000 | 16 |
| DO-15 | 3,000 | 5 | 52 | 255 x 75 x 150 | 339 x 276 x 330 | 24,000 | 12.9 |
| DO-201AD | 1,250 | 10 | 52 | 255 x 47 x 122 | 339 x 276 x 330 | 10,000 | 13.3 |
| DO-201AE | 1,250 | 10 | 52 | 255 x 47 x 122 | 339 x 276 x 330 | 10,000 | 13.3 |
| DO-34 | 5,000 | 5 | 26 | 248 x 80 x 48 | 406 x 335 x 257 | 150,000 | 14.7 |
| DO-34 | 5,000 | 5 | 52 | 248 x 80 x 75 | 406 x 335 x 257 | 100,000 | 12.4 |
| DO-35 | 5,000 | 5 | 26 | 248 x 80 x 48 | 406 x 335 x 257 | 150,000 | 16.7 |
| DO-35 | 5,000 | 5 | 52 | 248 x 80 x 75 | 406 x 335 x 257 | 100,000 | 15 |
| DO-41 | 5,000 | 5 | 52 | 255 x 75 x 150 | 339 x 276 x 330 | 40,000 | 16.6 |
| DO-41G | 2,500 | 5 | 26 | 248 x 80 x 48 | 406 x 335 x 257 | 75,000 | 22.7 |
| DO-41G | 2,500 | 5 | 52 | 248 x 80 x 75 | 406 x 335 x 257 | 50,000 | 15.7 |
| P-600 | 400 | 10 | 52 | 255 x 47 x 122 | 339 x 276 x 330 | 3,200 | 7.8 |
| R-1 | 3,000 | 5 | 26 | 255 x 47 x 73 | 310 x 268 x 170 | 36,000 | 6.8 |
| R-1 | 3,000 | 5 | 52 | 256 x 73 x 73 | 310 x 268 x 170 | 24,000 | 6.2 |
| R-1 | 5,000 | 5 | 52 | 255 x 73 x 122 | 339 x 276 x 274 | 40,000 | 10.1 |



5. 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 | LTPD10 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 = 260 +/- 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)