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UF300 ~ UF3010

ULTRAFAST RECOVERY RECTIFIERS

VOLTAGE 50 to 1000 Volts **CURRENT** 3.0 Amperes

DO-201AD

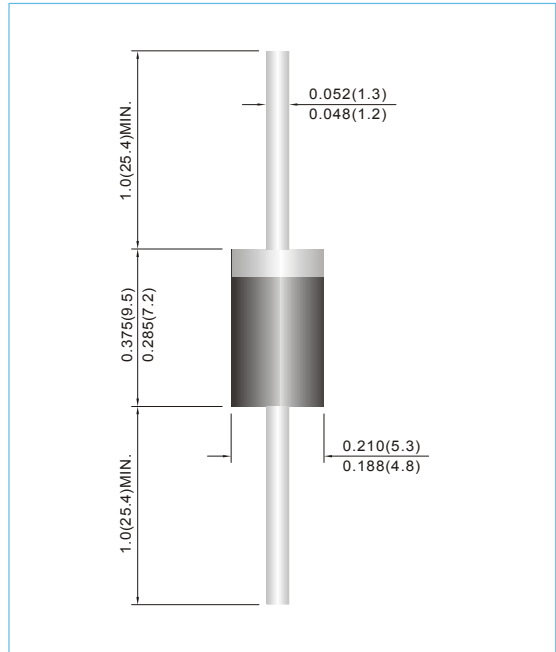
Unit : inch(mm)

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O utilizing Flame Retardant Epoxy Molding Compound
- Exceeds environmental standards of MIL-S-19500/228.
- Ultra Fast switching for high efficiency.
- In compliance with EU RoHS 2002/95/EC directives

MECHANICAL DATA

- Case: Molded plastic, DO-201AD
- Terminals: Axial leads, solderable per MIL-STD-750, Method 2026
- Polarity: Band denotes cathode
- Mounting Position: Any
- Weight: 0.0395 ounce, 1.122 gram



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load, 60Hz.

| PARAMETER | SYMBOL | UF300 | UF301 | UF302 | UF304 | UF306 | UF308 | UF3010 | UNITS |
|---|------------------------------------|--------------|-------|-------|-------|-------------|-------|--------|-----------------------------|
| Maximum Recurrent Peak Reverse Voltage | V_{RRM} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum RMS Voltage | V_{RMS} | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Maximum DC Blocking Voltage | V_{DC} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum Average Forward Current .375"(9.5mm) lead length at $T_A=55^\circ\text{C}$ | $I_{F(AV)}$ | 3.0 | | | | | | | 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 3.0A | V_F | 1.0 | | 1.3 | | 1.7 | | | V |
| Maximum DC Reverse Current at Rated DC Blocking Voltage $T_J=25^\circ\text{C}$ $T_J=100^\circ\text{C}$ | I_R | | | | | 10.0 750 | | | μA |
| Typical Junction Capacitance (Note 1) | C_J | 75 | | | | 50 | | | pF |
| Typical Thermal Resistance (Note 2) | $R_{\theta JA}$ $R_{\theta JC}$ | | | | | 20 12 | | | $^\circ\text{C} / \text{W}$ |
| Maximum Reverse Recovery Time (Note 3) | t_{rr} | 50 | | | | 75 | | | ns |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 to + 150 | | | | | | | $^\circ\text{C}$ |

NOTES:

1. Measured at 1 MHz and applied reverse voltage of 4.0 VDC.
2. Thermal Resistance from Junction to Ambient and from Junction to lead length 0.375"(9.5mm) P.C.B. mounted.
3. Reverse Recovery Time $I_F=.5A$, $I_R=1A$, $I_{rr}=.25A$



UF300 ~ UF3010

RATING AND CHARACTERISTIC CURVES

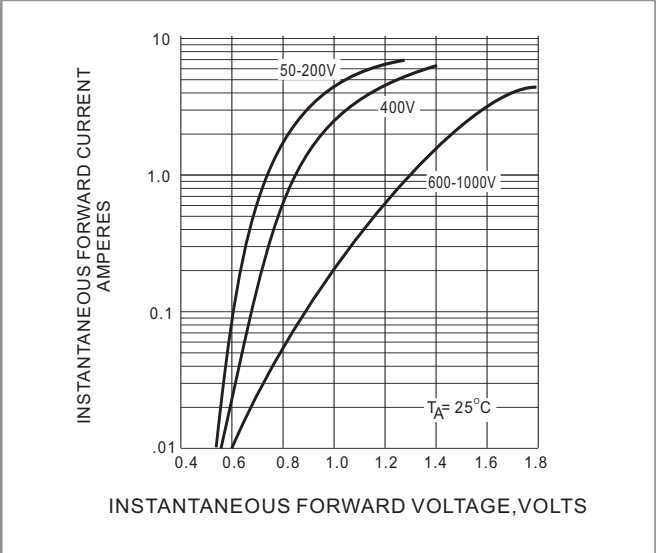


Fig. 1 FORWARD CHARACTERISTICS

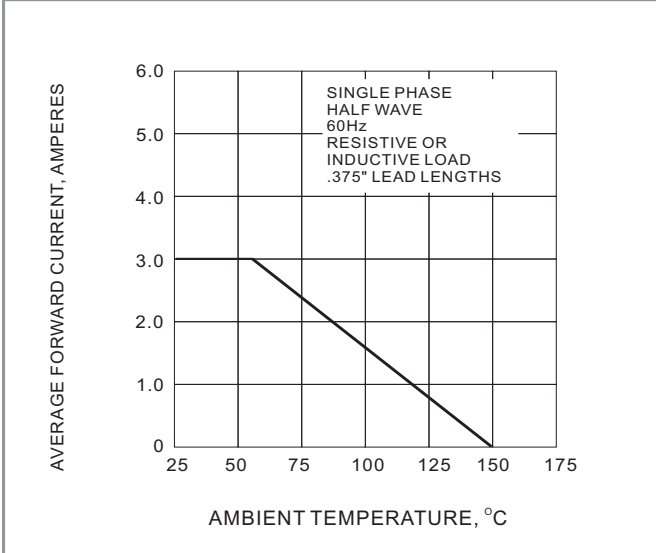


Fig. 2 FORWARD CURRENT DERATING CURVE

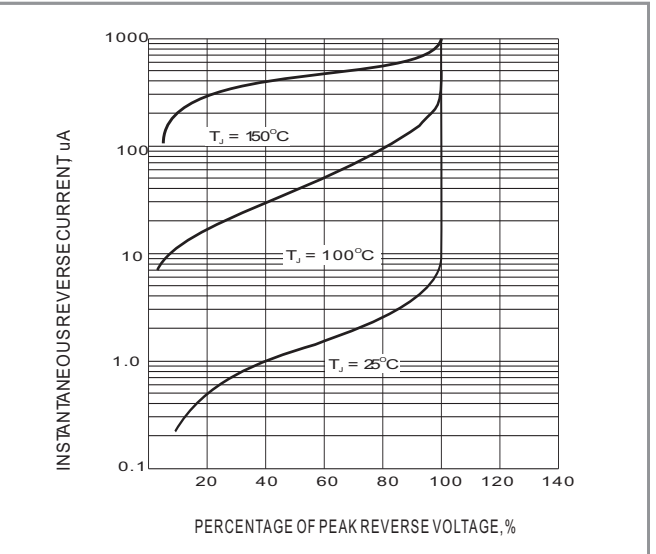


Fig. 3 TYPICAL REVERSE CHARACTERISTIC

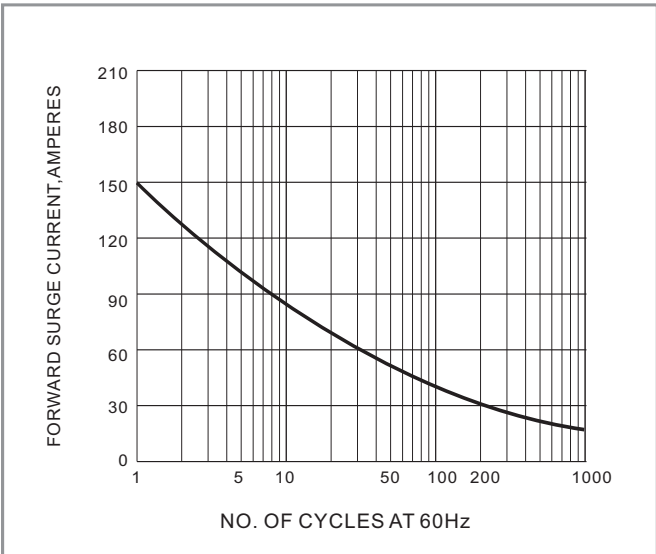
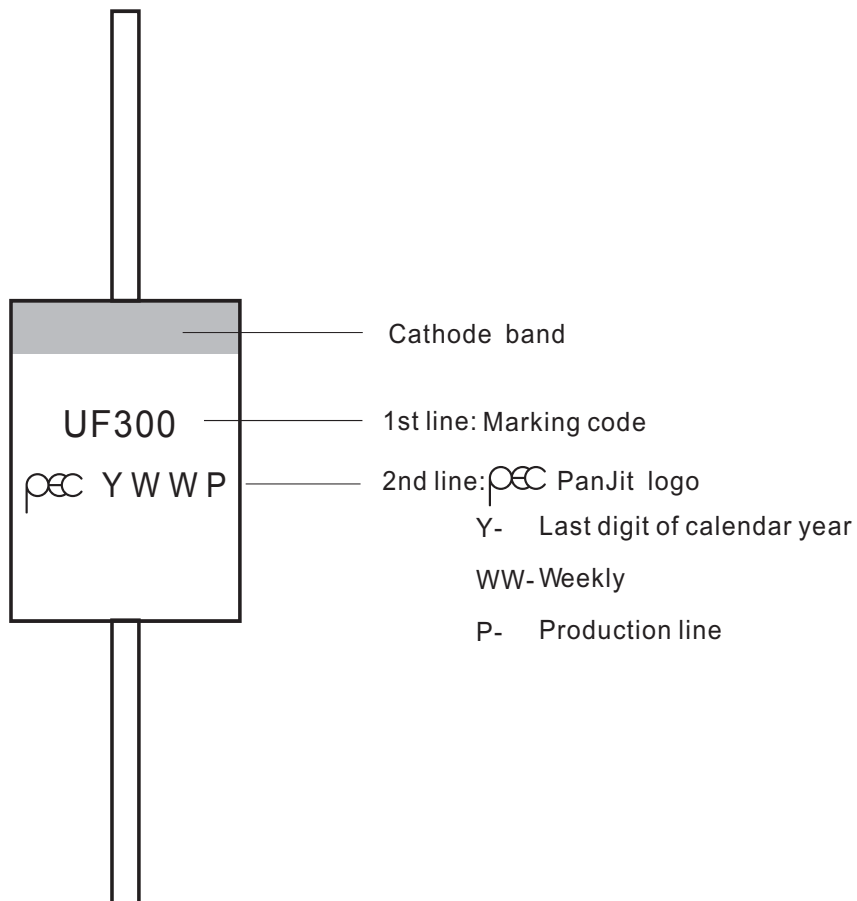


Fig. 4 PEAK FORWARD SURGE CURRENT



2. MARKING

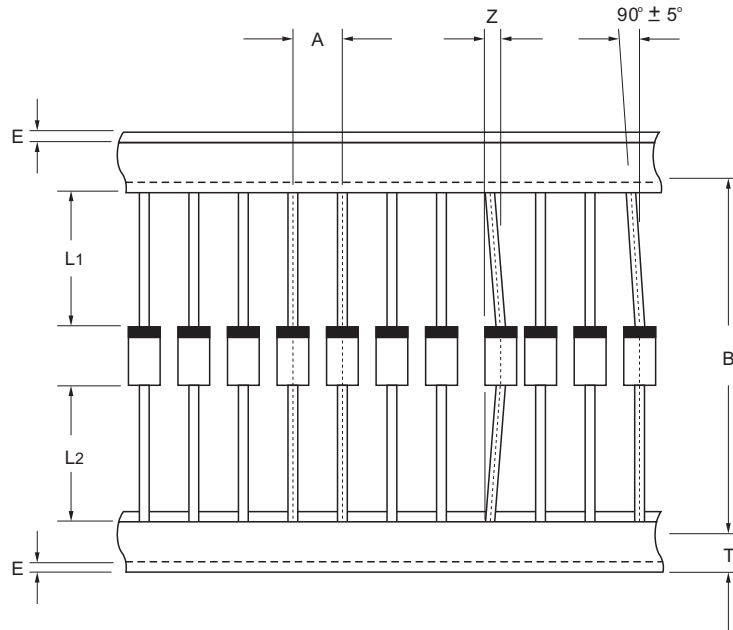




3. TAPING

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 |



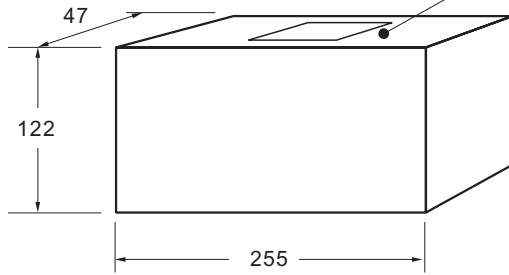
| ITEM | SYMBOL | SPECIFICATIONS(mm) | SPECIFICATIONS(inch) |
|---------------------|--------|--------------------|----------------------|
| Component alignment | Z | 1.2max | 0.048max |
| Tape width | T | 6.0±0.4 | 0.236±0.016 |
| Exposed adhesive | E | 0.8max | 0.032max |
| Body eccentricity | L1-L2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

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

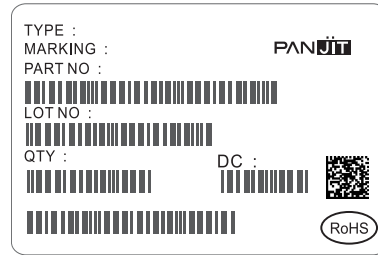


4. PACKING

AMMUNITION PACKING

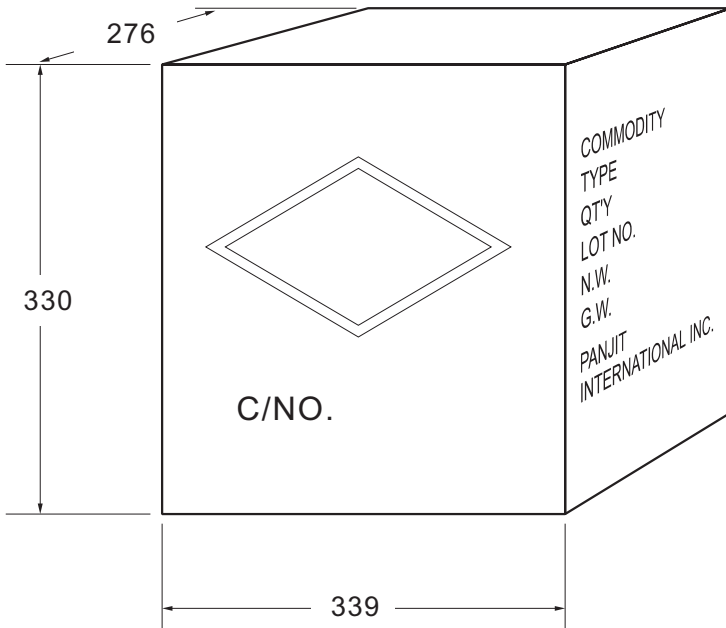


LABEL TYPE

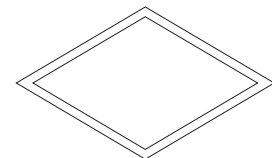


Box Dimensions : mm
Quantity per Box: 1,250 pcs

CARTON



SHIPPING MARK



C/NO.
PRODUCT COUNTRY

SIDE MARK

COMMODITY:
TYPE:
Q'TY:
LOT NO.
N.W.
G.W.
PANJIT
INTERNATIONAL INC.

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



Packing Specifications

| 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 | | | | | | | | |
| DFN 2L | 7 | 8,000 | 2 | 8 | 178 | 390 x 270 x 400 | 640,000 | 8.6 |
| DFN 3L | 7 | 8,000 | 2 | 8 | 178 | 390 x 270 x 400 | 640,000 | 8.6 |
| SOD-123 | 7 | 3,000 | 4 | 8 | 178 | 390 x 270 x 400 | 240,000 | 9.9 |
| | 13 | 10,000 | 4 | 8 | 330 | 375 x 360 x 213 | 120,000 | 6.5 |
| SOD-123FL | 7 | 3,000 | 4 | 8 | 178 | 390 x 270 x 400 | 240,000 | 10.6 |
| | 13 | 10,000 | 4 | 8 | 330 | 375 x 360 x 213 | 120,000 | 7.2 |
| SOD-123HE | 7 | 3,000 | 4 | 8 | 178 | 390 x 270 x 400 | 240,000 | 12.4 |
| | 13 | 10,000 | 4 | 8 | 330 | 375 x 360 x 213 | 120,000 | 8.1 |
| SOD-323 | 7 | 5,000 | 4 | 8 | 178 | 390 x 270 x 400 | 400,000 | 9.4 |
| | 13 | 12,000 | 4 | 8 | 330 | 375 x 360 x 213 | 144,000 | 5.9 |
| SOD-523 | 7 | 5,000 | 4 | 8 | 178 | 390 x 270 x 400 | 400,000 | 9.1 |
| | 13 | 12,000 | 4 | 8 | 330 | 375 x 360 x 213 | 144,000 | 5.4 |
| SOD-723 | 7 | 8,000 | 2 | 8 | 178 | 390 x 270 x 400 | 640,000 | 8.5 |
| SOD-923 | 7 | 8,000 | 2 | 8 | 178 | 390 x 270 x 400 | 640,000 | 7.7 |
| SOT-23 | 7 | 3,000 | 4 | 8 | 178 | 390 x 270 x 400 | 240,000 | 9.8 |
| | 13 | 12,000 | 4 | 8 | 330 | 375 x 360 x 213 | 144,000 | 7 |
| SOT-23 (ESD) | 7 | 3,000 | 4 | 8 | 178 | 455 x 270 x 440 | 240,000 | 9.9 |
| SOT-23 5L | 7 | 3,000 | 4 | 8 | 178 | 390 x 270 x 400 | 240,000 | 14.5 |
| | 13 | 10,000 | 4 | 8 | 330 | 375 x 360 x 213 | 120,000 | 7.9 |
| SOT-23 6L | 7 | 3,000 | 4 | 8 | 178 | 390 x 270 x 400 | 240,000 | 14.5 |
| | 13 | 10,000 | 4 | 8 | 330 | 375 x 360 x 213 | 120,000 | 7.9 |
| SOT-323 | 7 | 3,000 | 4 | 8 | 178 | 390 x 270 x 400 | 240,000 | 7.9 |
| | 13 | 12,000 | 4 | 8 | 330 | 375 x 360 x 213 | 144,000 | 6.1 |
| SOT-323 (ESD) | 7 | 3,000 | 4 | 8 | 178 | 455 x 270 x 440 | 240,000 | 9.4 |
| SOT-353 | 7 | 3,000 | 4 | 8 | 178 | 390 x 270 x 400 | 240,000 | 10 |
| | 13 | 10,000 | 4 | 8 | 330 | 375 x 360 x 213 | 120,000 | 7.2 |
| SOT-363 | 7 | 3,000 | 4 | 8 | 178 | 390 x 270 x 400 | 240,000 | 10.2 |
| | 13 | 10,000 | 4 | 8 | 330 | 375 x 360 x 213 | 120,000 | 7.1 |
| SOT-363 (ESD) | 7 | 3,000 | 4 | 8 | 178 | 455 x 270 x 440 | 240,000 | 10 |
| SOT-523 | 7 | 4,000 | 4 | 8 | 178 | 390 x 270 x 400 | 320,000 | 10 |
| SOT-543 | 7 | 4,000 | 4 | 8 | 178 | 390 x 270 x 400 | 320,000 | 9.4 |
| | 13 | 10,000 | 4 | 8 | 330 | 375 x 360 x 213 | 120,000 | 5.2 |
| SOT-553 | 7 | 4,000 | 4 | 8 | 178 | 390 x 270 x 400 | 320,000 | 9.4 |
| | 13 | 10,000 | 4 | 8 | 330 | 375 x 360 x 213 | 120,000 | 5.2 |
| SOT-563 | 7 | 4,000 | 4 | 8 | 178 | 390 x 270 x 400 | 320,000 | 9.4 |
| | 13 | 10,000 | 4 | 8 | 330 | 375 x 360 x 213 | 120,000 | 5.2 |
| SOIC-08 | 13 | 3,000 | 8 | 12 | 330 | 375 x 360 x 213 | 48,000 | 14.2 |



Packing Specifications

| 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 | | | | | | | | |
| A-405 | - | 5,000 | 5 | 52 | 330 | 340 x 340 x 410 | 25,000 | 7.79 |
| DO-15 | - | 4,000 | 5 | 52 | 330 | 340 x 340 x 410 | 20,000 | 11.4 |
| 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 | 15 | 10,000 | 5 | 52 | 360 | 360 x 360 x 395 | 50,000 | 10.1 |
| DO-35 | 15 | 10,000 | 5 | 52 | 360 | 360 x 360 x 395 | 50,000 | 11.2 |
| DO-41 | - | 5,000 | 5 | 52 | 330 | 340 x 340 x 410 | 25,000 | 10.2 |
| DO-41G | 15 | 5,000 | 5 | 52 | 360 | 360 x 360 x 395 | 25,000 | 10.9 |
| MDI | 13 | 3,000 | 8 | 12 | 330 | 375 x 360 x 390 | 48,000 | 14.7 |
| MELF/DL-41 | 7 | 1,500 | 4 | - | 178 | 385 x 380 x 260 | 84,000 | 18.3 |
| | 13 | 5,000 | 4 | - | 330 | 360 x 360 x 395 | 100,000 | 23.5 |
| MICRO-MELF | 7 | 2,500 | 4 | - | 178 | 385 x 380 x 260 | 200,000 | 9.3 |
| | 13 | 10,000 | 4 | - | 330 | 360 x 360 x 395 | 200,000 | 11.5 |
| MINI-MELF/LL-34 | 7 | 2500 | 4 | - | 178 | 385 x 380 x 260 | 200,000 | 12.7 |
| | 13 | 10,000 | 4 | - | 330 | 360 x 360 x 395 | 200,000 | 14.6 |
| MICRO DIP/TDI | 7 | 1000 | 8 | 12 | 178 | 390 x 240 x 420 | 40,000 | 9.5 |
| | 13 | 4000 | 8 | 12 | 330 | 375 x 360 x 390 | 64,000 | 17 |
| P-600 | - | 800 | 10 | 52 | 330 | 340 x 340 x 410 | 4,000 | 9.9 |
| QUADRO-MELF | 13 | 10,000 | 4 | - | 330 | 360 x 360 x 395 | 200,000 | 14.9 |
| | 7 | 2,500 | 4 | - | 178 | 385 x 380 x 260 | 200,000 | 13.3 |
| R-1 | - | 5,000 | 5 | 52 | 330 | 340 x 340 x 410 | 25,000 | 7.8 |
| SDIP | 13 | 1,500 | 12 | 16 | 330 | 375 x 360 x 390 | 21,000 | 14.3 |
| SMA(W) | 7 | 1,800 | 4 | 12 | 178 | 390 x 240 x 420 | 100,800 | 13 |
| | 13 | 7,500 | 4 | 12 | 330 | 355 x 355 x 400 | 150,000 | 20.4 |
| SMA/DO-214AC | 7 | 1,800 | 4 | 12 | 178 | 390 x 240 x 420 | 72,000 | 10 |
| | 13 | 7,500 | 4 | 12 | 330 | 375 x 360 x 390 | 120,000 | 17.4 |
| SMB/DO-214AA | 7 | 500 | 8 | 12 | 178 | 390 x 240 x 420 | 20,000 | 6.5 |
| | 13 | 3,000 | 8 | 12 | 330 | 375 x 360 x 390 | 48,000 | 13.2 |
| SMC/DO-214AB | 7 | 500 | 8 | 16 | 178 | 390 x 240 x 420 | 15,000 | 8.4 |
| | 13 | 3,000 | 8 | 16 | 330 | 375 x 360 x 390 | 42,000 | 18 |
| TO-252/DPAK | 13 | 3,000 | 8 | 16 | 330 | 375 x 360 x 390 | 42,000 | 18.8 |
| TO-263/D ² PAK | 13 | 800 | 16 | 24 | 330 | 375 x 360 x 390 | 6,400 | 14.5 |



Packing Specifications

| 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 | 12.7 |
| DO-15 | 200 x 85 x 25 | 1,000 | 459 x 214 x 256 | 40,000 | 20.7 |
| DO-201AD | 200 x 85 x 40 | 500 | 459 x 214 x 256 | 12,500 | 16 |
| DO-201AE | 200 x 85 x 40 | 500 | 495 x 214 x 256 | 12,500 | 16 |
| DO-34 | 240 x 100 x 90 | 2,000 | 406 x 335 x 257 | 120,000 | 14.5 |
| DO-35 | 240 x 100 x 90 | 2,000 | 406 x 335 x 257 | 120,000 | 17.1 |
| DO-41 | 198 x 84 x 20 | 1,000 | 459 x 214 x 256 | 50,000 | 19.3 |
| DO-41G | 240 x 100 x 90 | 1,000 | 406 x 335 x 257 | 60,000 | 18.5 |
| DIP | - | - | 459 x 214 x 256 | 12,000 | 6.5 |
| SDIP | - | - | 459 x 214 x 256 | 24,000 | 15.7 |
| R-1 | 198 x 84 x 20 | 1,000 | 459 x 214 x 256 | 50,000 | 12.7 |
| P-600 | 208 x 90 x 83 | 500 | 459 x 214 x 256 | 5,000 | 11.3 |
| ITO-220 | 540 x 145 x 85 | 2,000 | 555 x 306 x 200 | 8,000 | 20.5 |
| TO-220 | 540 x 145 x 85 | 2,000 | 555 x 306 x 200 | 8,000 | 22.9 |
| TO-251AB/DPAK | 540 x 145 x 85 | 8,400 | 555 x 306 x 200 | 33,600 | 22 |
| TO-3P/TO-247AD | - | - | 530 x 243 x 100 | 1,500 | 13.9 |
| TO-3PS/TO-247S | - | - | 511 x 243 x 107 | 1,500 | 12.2 |

| 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 | 13.3 |
| DO-201AD | 1,250 | 10 | 52 | 255 x 47 x 122 | 339 x 276 x 330 | 10,000 | 13.4 |
| DO-201AE | 1,250 | 10 | 52 | 255 x 47 x 122 | 339 x 276 x 330 | 10,000 | 13.4 |
| DO-34 | 5,000 | 5 | 26 | 248 x 80 x 48 | 406 x 335 x 257 | 150,000 | 14.5 |
| DO-34 | 5,000 | 5 | 52 | 248 x 80 x 75 | 406 x 335 x 257 | 100,000 | 12.7 |
| 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 | 15.2 |
| DO-41 | 5,000 | 5 | 52 | 255 x 75 x 150 | 339 x 276 x 330 | 40,000 | 13.5 |
| DO-41G | 2,500 | 5 | 26 | 248 x 80 x 48 | 406 x 335 x 257 | 75,000 | 17.1 |
| DO-41G | 2,500 | 5 | 52 | 248 x 80 x 75 | 406 x 335 x 257 | 50,000 | 15.6 |
| P-600 | 400 | 10 | 52 | 255 x 47 x 122 | 339 x 276 x 330 | 3,200 | 8.1 |
| R-1 | 3,000 | 5 | 26 | 255 x 47 x 73 | 310 x 268 x 170 | 36,000 | 6.3 |
| R-1 | 3,000 | 5 | 52 | 255 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 TEST SPEC (Schottky & Switching & Rectifiers & Bridge)

Date : 2010.07.05 rev.01

| NO. | TEST ITEM | TEST CONDITION | REFERENCED DOCUMENT | LOT QUALITY LEVEL |
|-----|---|---|--|--|
| 1 | TEMPERATURE CYCLING (T.C.T) 溫度循環試驗 | Ta = -55+0°C / -10°C 10min(Min) Ta = +150+15°C / -0°C 10min(Min) FOR 20CYCLES | MIL-STD-750D METHOD-1051.5 Condition G | LTPD 10 S.S=22 ACCEPT FOR 0 FAILURE ONLY. |
| 2 | HIGH TEMPERATURE STORAGE LIFE (H.T.S.L) 高溫儲存壽命試驗 | Ta=Storage Temperature Range (device specified maximum temperature) | MIL-STD-750D METHOD-1032.2 | LTPD 10 S.S=22 ACCEPT FOR 0 FAILURE ONLY. |
| 3 | SOLDERABILITY TEST 錫錫性試驗 | Temperature of Solder TEMPERATURE OF SOLDER POT=245+/-5°C TIME FOR DIPPING IN SOLDER=5+/-0.5 SEC DIPPING DEPTH=0.05inch max from the body 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) 高溫逆向偏壓 | Tj ≤ Tj max VR=0.8VR(CUSTOMER SPEC.) DC supply | MIL-STD-750D METHOD-1038.3 | LTPD 10 S.S=22 ACCEPT FOR 0 FAILURE ONLY. |
| 5 | CONTINUE FORWARD OPERATING LIFE(C.F.O.L) 連續通電 | Ta=25°C I=Io+/-10% DC supply | MIL-STD-750D METHOD 1027.3 | LTPD 10 S.S=22 ACCEPT FOR 0 FAILURE ONLY. |
| 6 | THERMAL SHOCK (T.S.T) 冷熱衝擊試驗 | HOT TANK Ta=100+10/-2°C t= 5min COLD TANK Ta=0+2/-10°C t= 5min 15 CYCLES TIME BETWEEN TRANSFERRING DO NOT EXCEED 10 SEC | MIL-STD-750D METHOD 1056.7 | LTPD 10 S.S=22 ACCEPT FOR 0 FAILURE ONLY. |
| 7 | PRESSURE COOKER (P.C.T) 壓力鍋試驗 | Ta=121°C P=29.7psia / 205kPa or 2.088kg/cm ² Relative Humidity = 100% | JEDEC JESD22-A102-C | LTPD 10 S.S=22 ACCEPT FOR 0 FAILURE ONLY. |
| 8 | INTERMITTENT FORWARD OPERATING LIFE (I.F.O.L) 斷續通電 | I=Io x 1.0 DC supply POWER ON: at least 30 SEC POWER OFF: 50 SEC TESTING CYCLE: 2000CYCLES | MIL-STD-750D METHOD 1036.3 | LTPD 10 S.S=22 ACCEPT FOR 0 FAILURE ONLY. |
| 9 | FORWARD SURGE CURRENT 順向突波電流測試 | SQ WAVE OR SINE WAVE IFSM=DATE SHEET SPEC. TIME=Single half sine wave T=1 CYCLE | MIL-STD-750D METHOD 4066-3 | LTPD 10 S.S=22 ACCEPT FOR 0 FAILURE ONLY. |
| 10 | HUMIDITY 恆溫濕試驗 | Ta=85+/-2°C RH=85+/-5% | EIAJ ED-4701 METHOD 103 | LTPD 10 S.S=22 ACCEPT FOR 0 FAILURE ONLY. |
| 11 | SOLDER RESISTANCE 錫錫耐熱性試驗 | TEMPERATURE OF SOLDER POT=260+/-5°C TIME FOR DIPPING IN SOLDER=10+2/-0 SEC DIPPING DEPTH=1.57+/-0.79mm FROM THE BODY FOR ONE CYCLE | MIL-STD-750D METHOD 2031.2 | LTPD 10 S.S=22 ACCEPT FOR 0 FAILURE ONLY. |