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UF1000~UF1006

ULTRAFAST RECOVERY RECTIFIERS

VOLTAGE 50 to 600 Volts **CURRENT** 10.0 Amperes

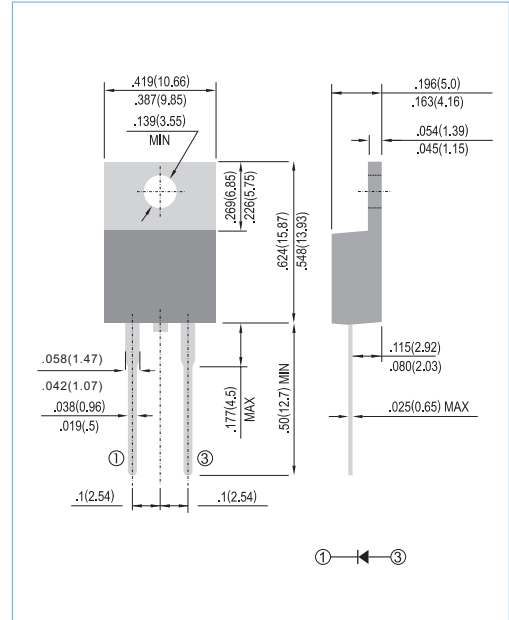
TO-220AC Unit: inch (mm)

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O utilizing Flame Retardant Epoxy Molding Compound.
- Exceeds environmental standards of MIL-S-19500/228
- Low power loss, high efficiency.
- Low forward voltage, high current capability
- High surge capacity.
- Ultra fast recovery time, high voltage.
- In compliance with EU RoHS 2002/95/EC directives

MECHANICAL DATA

- Case: TO-220AC molded plastic package
- Terminals: Lead solderable per MIL-STD-750, Method 2026
- Polarity: As marked.
- Standard packaging: Any
- Weight: 0.0655 ounces, 1.859 grams.



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	UF1000	UF1001	UF1002	UF1003	UF1004	UF1006	UNITS
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	300	400	600	V
Maximum RMS Voltage	V_{RMS}	35	70	140	210	280	420	V
Maximum DC Blocking Voltage	V_{DC}	50	100	200	300	400	600	V
Maximum Average Forward Current at $T_C = 100^\circ\text{C}$	$I_{F(AV)}$	10						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 10.0A	V_F	1.0		1.30		1.70		V
Maximum DC Reverse Current $T_J=25^\circ\text{C}$ at Rated DC Blocking Voltage $T_J=125^\circ\text{C}$	I_R	1.0 500						μA
Typical Junction Capacitance (Note 1)	C_J	80				50		pF
Maximum Reverse Recovery Time (Note 2)	t_{rr}	50				100		ns
Typical Thermal Resistance (Note 3)	R_{BJC}	2						$^\circ\text{C} / \text{W}$
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. Reverse Recovery Test Conditions: $I_F=.5\text{A}$, $I_R=1\text{A}$, $I_{rr}=25\text{A}$.
3. Thermal resistance from Junction to case.
4. Both Bonding and Chip structure are available.



UF1000~UF1006

RATING AND CHARACTERISTIC CURVES

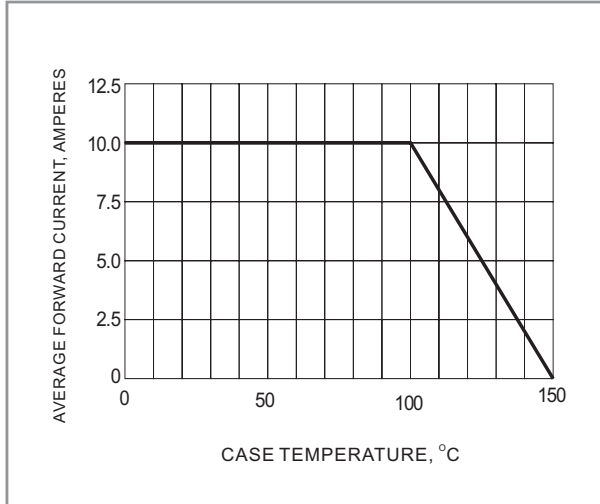


Fig.1 FORWARD CURRENT DERATING CURVE

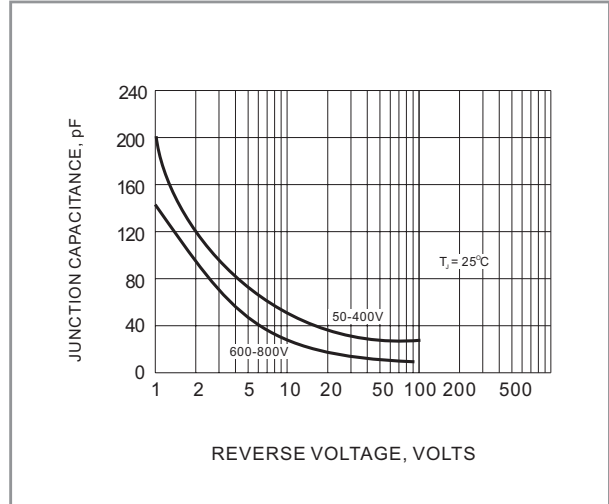


Fig.2 TYPICAL JUNCTION CAPACITANCES

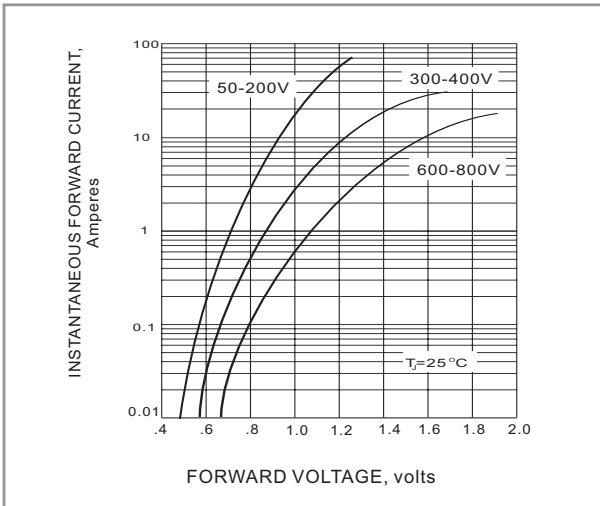


Fig.3 FORWARD CHARACTERISTICS

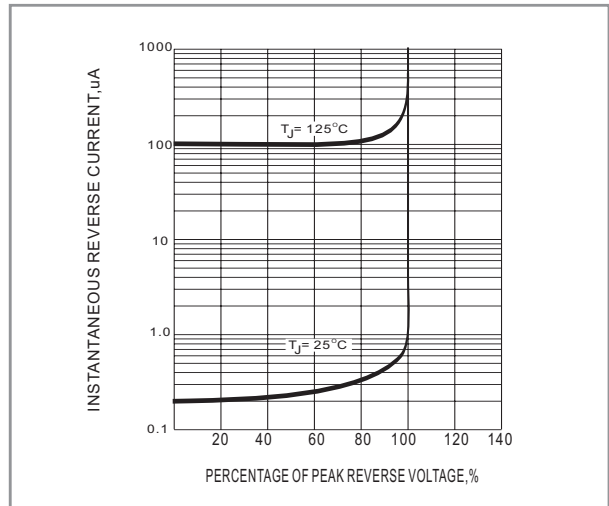


Fig.4 TYPICAL REVERSE CHARACTERISTICS

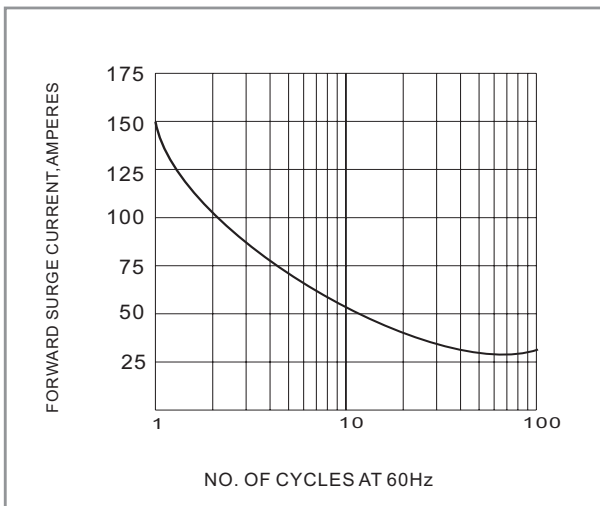
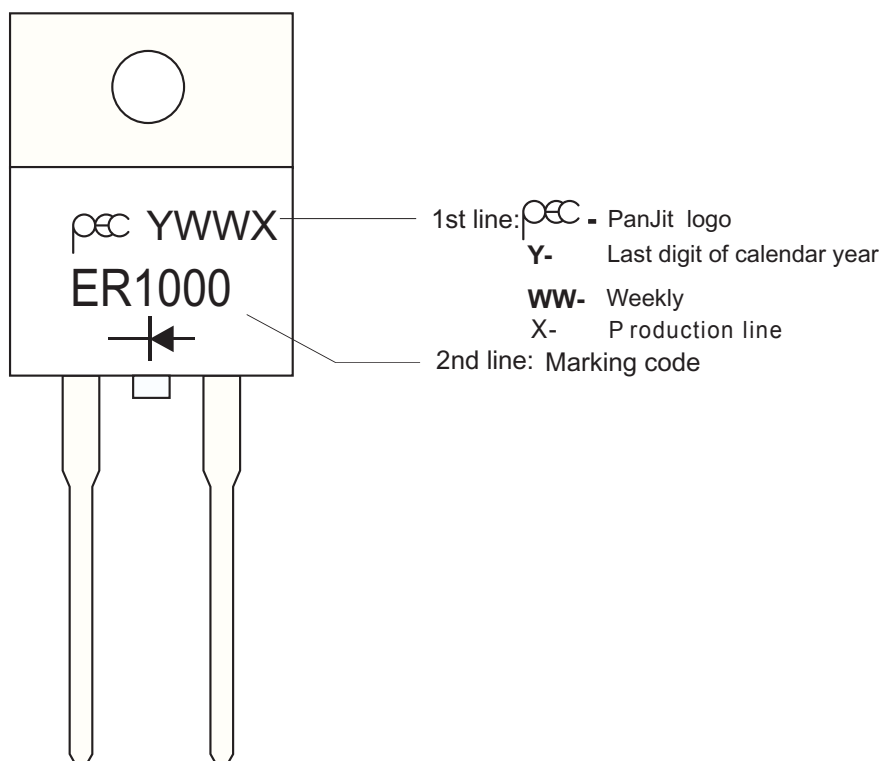


Fig.5 PEAK FORWARD SURGE CURRENT



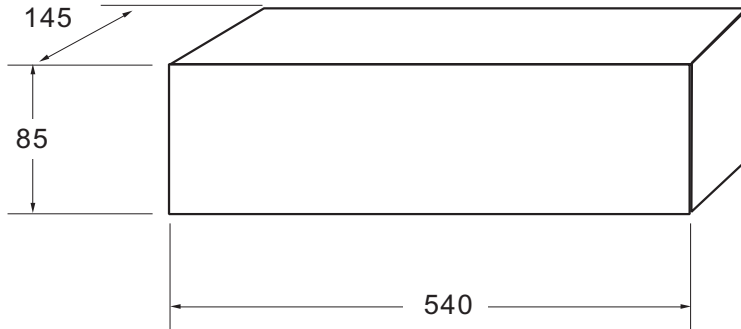
2. MARKING





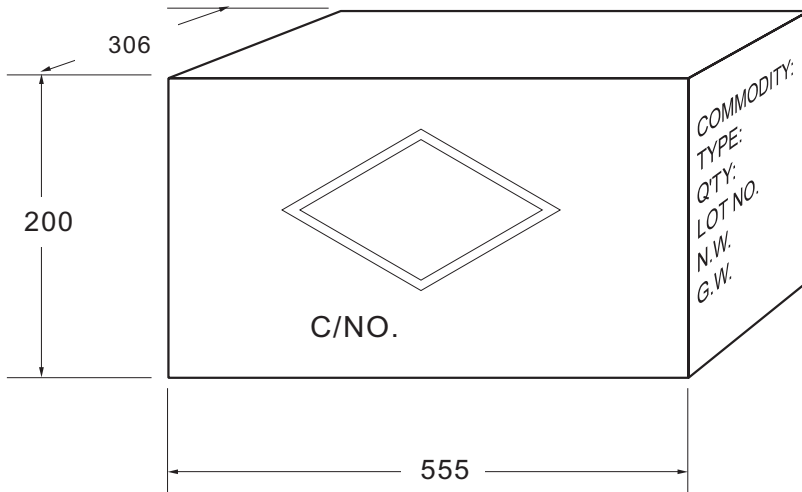
3. PACKING

INNER BOX



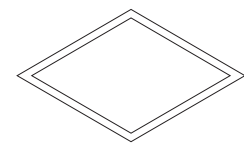
Box Dimensions : mm
Quantity per Carton: 2,000 pcs

CARTON



Box Dimensions : mm
Quantity per Box:8,000 pcs

SHIPPING MARK



C/NO.
PRODUCT COUNTRY

SIDE MARK

COMMODITY:
TYPE:
Q'TY:
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	1,000	459 x 214 x 256	50,000	12.7
AG / RB-10 (WOB)	258 x 190 x 77	1,000	395 x 270 x 400	10,000	15
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	50	405 x 210 x 265	500	17
KBPC-P /CP	193 x 193 x 46	50	405 x 210 x 265	500	9.5
KBPC-PW /CPW	193 x 193 x 46	50	405 x 210 x 265	500	9.5
CP-3 / 6 (K-3 / K-6)	219 x 115 x 90	200	600 x 235 x 198	2,000	7.3/8.8
CP-8 / 10 (K-8)	219 x 115 x 90	200	600 x 235 x 198	2,000	13.8
DIP	-	-	459 x 214 x 256	12,000	6.5
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	459 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 265	50,000	19.3
DO-41G	240 x 100 x 90	1,000	406 x 335 x 257	60,000	18.5
FL	230 x 230 x 50	500	495 x 245 x 180	3,000	18.4
GBJ (TUBE)	556 x 150 x 100	800	578 x 340 x 235	3,200	25.5
GBJ (BOX)	350 x 337 x 44	600	375 x 360 x 213	2,400	14.3
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	10.6
GBPC	193 x 193 x 46	50	405 x 210 x 265	500	17
GBPCW	193 x 193 x 46	50	405 x 210 x 265	500	17
GBU (TUBE)	488 x 150 x 100	800	510 x 310 x 235	3,200	22.6
GBU (BOX)	350 x 337 x 44	800	375 x 360 x 213	3,200	15.2
KBJ	220 x 176 x 45	200	375 x 230 x 260	2,000	15
KBPF	242 x 208 x 35	500	426 x 252 x 365	10,000	19.2
KBU	276 x 158 x 59	200	493 x 287 x 320	3,000	24
P-600	208 x 90 x 83	500	459 x 214 x 256	5,000	11.3
R-1	198 x 84 x 20	1,000	459 x 214 x 256	50,000	12.7
TO-220	540 x 145 x 85	2,000	555 x 306 x 200	8,000	20.5
ITO-220	540 x 145 x 85	2,000	555 x 306 x 200	8,000	22.9
TO-251AB	555 x 145 x 85	8,400	555 x 306 x 200	33,600	22
TO-3P / TO-247AD	-	-	536 x 243 x 100	1,500	13.9
TO-3PS / TO-247S	-	-	511 x 243 x 107	1,500	12.2



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	7.8
A-405	-	5,000	5.0	52	330	340 x 340 x 410	25,000	11
DO-15	-	4,000	5.0	52	330	340 x 340 x 410	20,000	11.4
DO-201AD	-	1,250	10.0	52	330	340 x 340 x 410	6,250	9.2
DO-201AE	-	1,250	10.0	52	330	340 x 340 x 410	6,250	9.2
DO-34	15	10,000	5.0	52	360	360 x 360 x 395	50,000	10.1
DO-35	15	10,000	5.0	52	360	360 x 360 x 395	50,000	11.2
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	10.9
P-600	-	800	10.0	52	330	340 x 340 x 410	4,000	9.8
DPAK/TO-252	13	3,000	8.0	16	330	375 x 360 x 390	42,000	18.8
D2PAK/TO-263	13	800	16.0	24	330	375 x 360 x 390	6,400	14.4
MDI	13	3,000	8.0	12	330	375 x 360 x 390	48,000	14.7
SDIP	13	1,500	12.0	16	330	375 x 360 x 390	21,000	14.3
QUADRO-MELF	13	10,000	4.0	-	330	360 x 360 x 395	200,000	14.9
QUADRO-MELF	7	2,500	4.0	-	178	385 x 380 x 260	200,000	13.3
MELF/DL-41	13	5,000	4.0	-	330	360 x 360 x 395	100,000	23.5
MELF/DL-41	7	1,500	4.0	-	178	385 x 380 x 260	84,000	18.3
MICRO-MELF	13	10,000	4.0	-	330	360 x 360 x 395	200,000	11.5
MICRO-MELF	7	2,500	4.0	-	178	385 x 380 x 260	200,000	9.3
MINI-MELF	13	10,000	4.0	-	330	360 x 360 x 395	200,000	14.6
MINI-MELF	7	2500	4.0	-	178	385 x 380 x 260	200,000	12.7
SMA	13	7,500	4.0	12	330	375 x 360 x 390	120,000	17.3
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	13.2
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
SMC	7	500	8.0	16	178	390 x 240 x 420	15,000	8.3
SOD-123	13	10,000	4.0	8	330	375 x 360 x 213	120,000	6.5
SOD-123	7	3,000	4.0	8	178	390 x 270 x 400	240,000	9.9
SOD-123FL	13	10,000	4.0	8	330	375 x 360 x 213	120,000	7.2
SOD-123FL	7	3,000	4.0	8	178	390 x 270 x 400	240,000	10.6



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								
SOD-323	13	12,000	4.0	8	330	375 x 360 x 213	144,000	5.9
SOD-323	7	5,000	4.0	8	178	390 x 270 x 400	400,000	9.4
SOD-523	13	12,000	4.0	8	330	375 x 360 x 213	144,000	5.4
SOD-523	7	5,000	4.0	8	178	390 x 270 x 400	400,000	9.1
SOD-723	7	8,000	2.0	8	178	390 x 270 x 400	640,000	8.5
SOD-923	7	8,000	2.0	8	178	390 x 270 x 400	640,000	7.7
SOT-23	13	12,000	4.0	8	330	375 x 360 x 213	144,000	7
SOT-23	7	3,000	4.0	8	178	390 x 270 x 400	240,000	8.3
SOT-323	13	12,000	4.0	8	330	375 x 360 x 213	144,000	6.1
SOT-323	7	3,000	4.0	8	178	390 x 270 x 400	240,000	7.9
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-23 (ESD)	7	3,000	4.0	8	178	455 x 270 x 440	240,000	9.5
SOT-323 (ESD)	7	3,000	4.0	8	178	455 x 270 x 440	240,000	9.1
SOT-363 (ESD)	7	3,000	4.0	8	178	455 x 270 x 440	240,000	10
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
SOT-553	13	10,000	4.0	8	330	375 x 360 x 213	120,000	5.2
SOT-553	7	4,000	4.0	8	178	390 x 270 x 400	320,000	9.4
SOT-563	13	10,000	4.0	8	330	375 x 360 x 213	120,000	5.2
SOT-563	7	4,000	4.0	8	178	390 x 270 x 400	320,000	9.4
SOT23-5L	13	10,000	4.0	8	330	375 x 360 x 213	120,000	7.9
SOT23-5L	7	3,000	4.0	8	178	390 x 270 x 400	240,000	14.5
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
SOIC-08	13	3,000	8.0	12	330	375 x 360 x 213	48,000	14.2
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



Ammunition Packing

PACKAGE	AMMO	COMPONENT SPACE	TAPE SPACE	BOX SIZE	CARTON	CARTON	APPROX. GROSS WEIGHT
	(PCS)	(m/m)	(m/m)	(m/m)	(m/m)	(E/A)	(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	14.6
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	16
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	15.7
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	256 x 73 x 73	310 x 268 x 170	24,000	6.4
R-1	5,000	5	52	255 x 73 x 122	339 x 276 x 274	40,000	10.3



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	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 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 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 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 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 +/- 5°C MAX(NORMAL)