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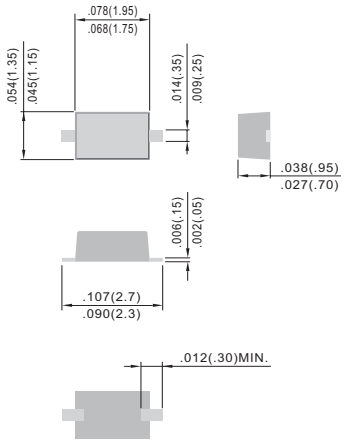
1. DATA SHEET

BZT52-C2V4S SERIES

SURFACE MOUNT SILICON ZENER DIODES

VOLTAGE 2.4 to 39 Volts **POWER** 200 mWatts

SOD-323 Unit: inch (mm)



FEATURES

- Planar Die construction
- 200mW Power Dissipation
- Zener Voltages from 2.4~39V
- Ideally Suited for Automated Assembly Processes
- Both normal and Pb free product are available :

  Normal : 80~95% Sn, 5~20% Pb

  Pb free: 99% Sn above can meet Rohs environment substance directive request

MECHANICAL DATA

- Case: SOD-323, Molded Plastic
- Terminals: Solderable per MIL-STD-202G, Method 208
- Polarity: See Diagram Below
- Approx. Weight: 0.0041 grams
- Mounting Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Value	Units
Maximum Forward Voltage Drop at IF=10mA	V_F	0.9	V
Maximum Power Dissipation (Notes A) at 25°C	P_D	200	mW
Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (JEDEC method) (Notes B)	I_{FSM}	2.0	Amps
Operating Junction and StorageTemperature Range	T_J	-55 to +150	°C

NOTES:

A. Mounted on 5.0mm²(.013mm thick) land areas.

B. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

Part Number	Marking Code	Nominal Zener Voltage			Max. Zener Impedance				Max Reverse Leakage Current	
		Vz @ Izt			Zzt @ Izt		Zzk @ Izk		Ir @ Vr	
		Nom. V	Min. V	Max. V	Ω	mA	Ω	mA	μA	V
200 mWatts Zener Diodes										
BZT52-C2V4S	W1	2.4	2.28	2.52	85	5.0	600	1.00	100	1.0
BZT52-C2V7S	W2	2.7	2.57	2.84	83	5.0	500	1.00	75	1.0
BZT52-C3S	W3	3.0	2.85	3.15	95	5.0	500	1.00	50	1.0
BZT52-C3V3S	W4	3.3	3.14	3.47	95	5.0	500	1.00	25	1.0
BZT52-C3V6S	W5	3.6	3.42	3.78	95	5.0	500	1.00	15	1.0
BZT52-C3V9S	W6	3.9	3.71	4.10	95	5.0	500	1.00	10	1.0
BZT52-C4V3S	W7	4.3	4.09	4.52	95	5.0	500	1.00	5.0	1.0
BZT52-C4V7S	W8	4.7	4.47	4.94	78	5.0	500	1.00	5.0	2.0
BZT52-C5V1S	W9	5.1	4.85	5.36	60	5.0	480	1.00	0.1	0.8
BZT52-C5V6S	WA	5.6	5.32	5.88	40	5.0	400	1.00	0.1	1.0
BZT52-C6V2S	WB	6.2	5.89	6.51	10	5.0	200	1.00	0.1	2.0
BZT52-C6V8S	WC	6.8	6.46	7.14	8	5.0	150	1.00	0.1	3.0
BZT52-C7V5S	WD	7.5	7.13	7.88	7	5.0	50	1.00	0.1	5.0
BZT52-C8V2S	WE	8.2	7.79	8.61	7	5.0	50	1.00	0.1	6.0
BZT52-C9V1S	WF	9.1	8.65	9.56	10	5.0	50	1.00	0.1	7.0
BZT52-C10S	WG	10	9.50	10.50	15	5.0	70	1.00	0.1	7.5
BZT52-C11S	WH	11	10.45	11.55	20	5.0	70	1.00	0.1	8.5
BZT52-C12S	WI	12	11.40	12.60	20	5.0	90	1.00	0.1	9.0
BZT52-C13S	WK	13	12.35	13.65	25	5.0	110	1.00	0.1	10.0
BZT52-C15S	WL	15	14.25	15.75	30	5.0	110	1.00	0.1	11.0
BZT52-C16S	WM	16	15.20	16.80	40	5.0	170	1.00	0.1	12.0
BZT52-C18S	WN	18	17.10	18.90	50	5.0	170	1.00	0.1	14.0
BZT52-C20S	WO	20	19.00	21.00	50	5.0	220	1.00	0.1	15.0
BZT52-C22S	WP	22	20.90	23.10	55	5.0	220	1.00	0.1	17.0
BZT52-C24S	WR	24	22.80	25.20	80	5.0	220	1.00	0.1	18.0
BZT52-C27S	WS	27	25.65	28.35	80	5.0	250	1.00	0.1	20.0
BZT52-C30S	WT	30	28.50	31.50	80	5.0	250	1.00	0.1	22.5
BZT52-C33S	WU	33	31.35	34.65	80	5.0	250	1.00	0.1	25.0
BZT52-C36S	WW	36	34.20	37.80	90	5.0	250	1.00	0.1	27.0
BZT52-C39S	WX	39	37.05	40.95	90	5.0	300	1.00	0.1	29.0

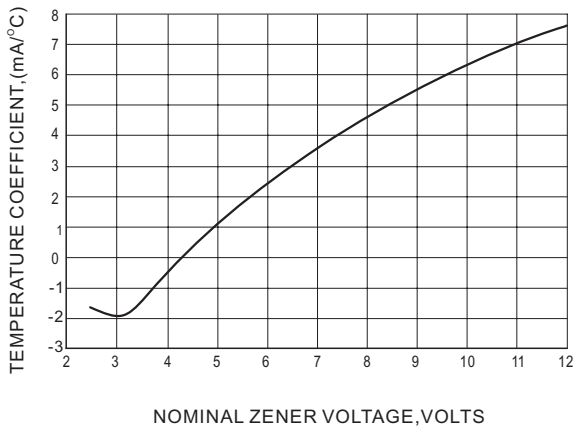


Fig.1 TEMPERATURE COEFFICENTS

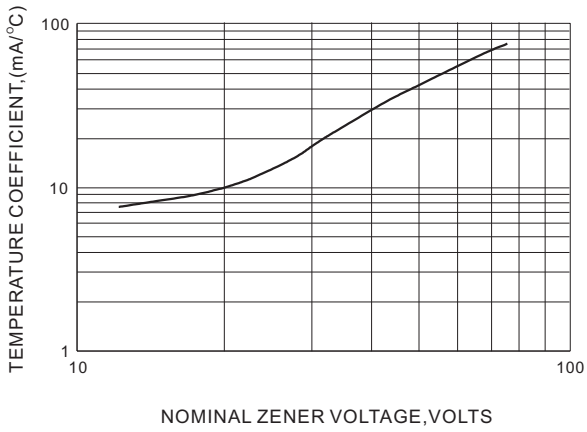


Fig.2 TEMPERATURE COEFFICENTS

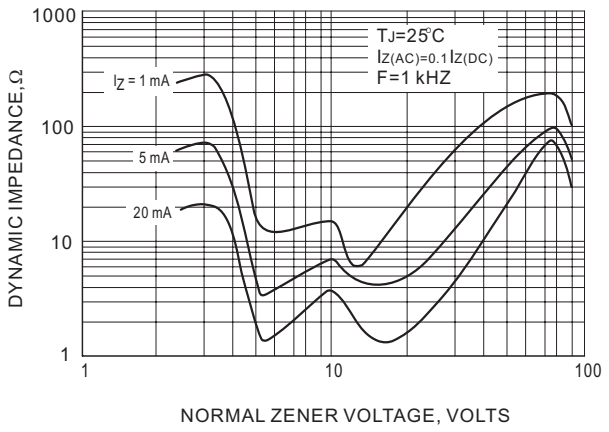


Fig.3 EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

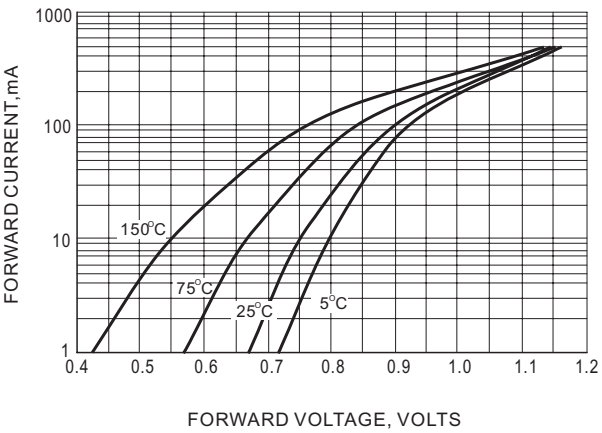


Fig.4 TYPICAL FORWARD VOLTAGE

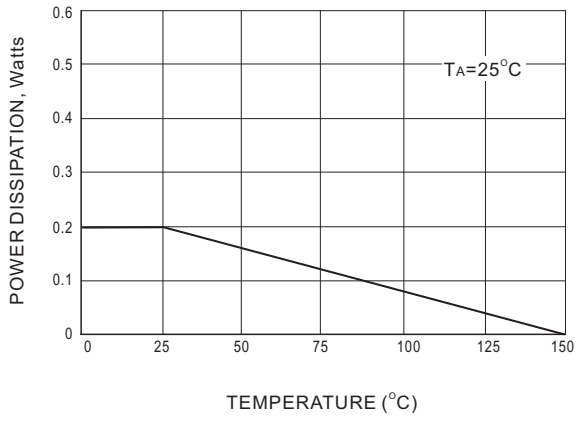


Fig.5 STEADY STATE POWER DERATING

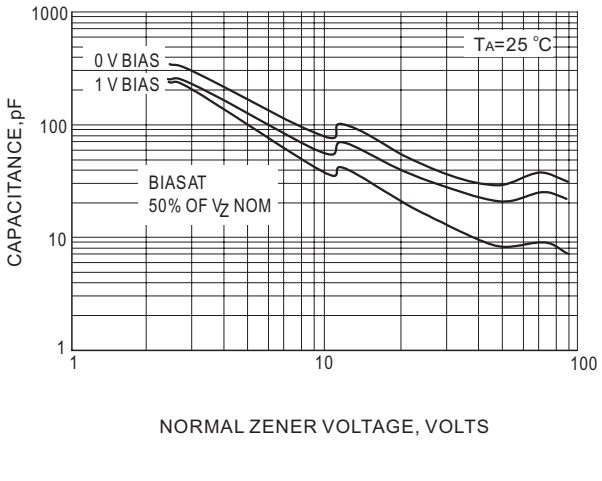


Fig.6 TYPICAL CAPACITANCE

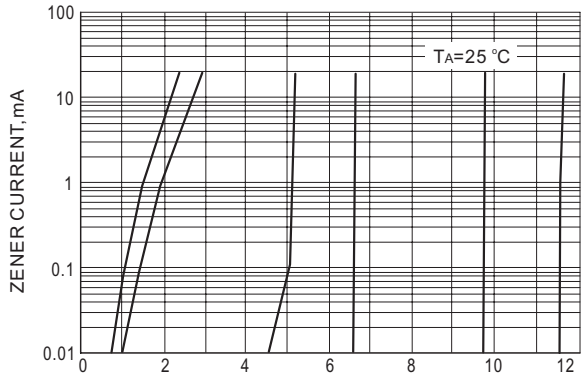


Fig.7 ZENER VOLTAGE VERSUS ZENER CURRENT

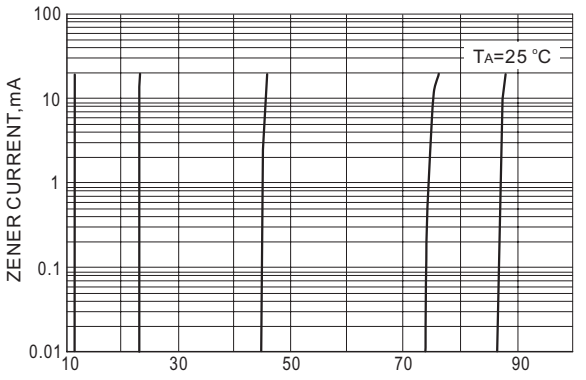


Fig.8 ZENER VOLTAGE VERSUS ZENER CURRENT

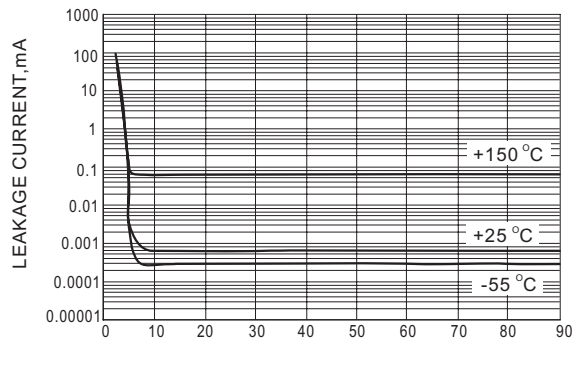
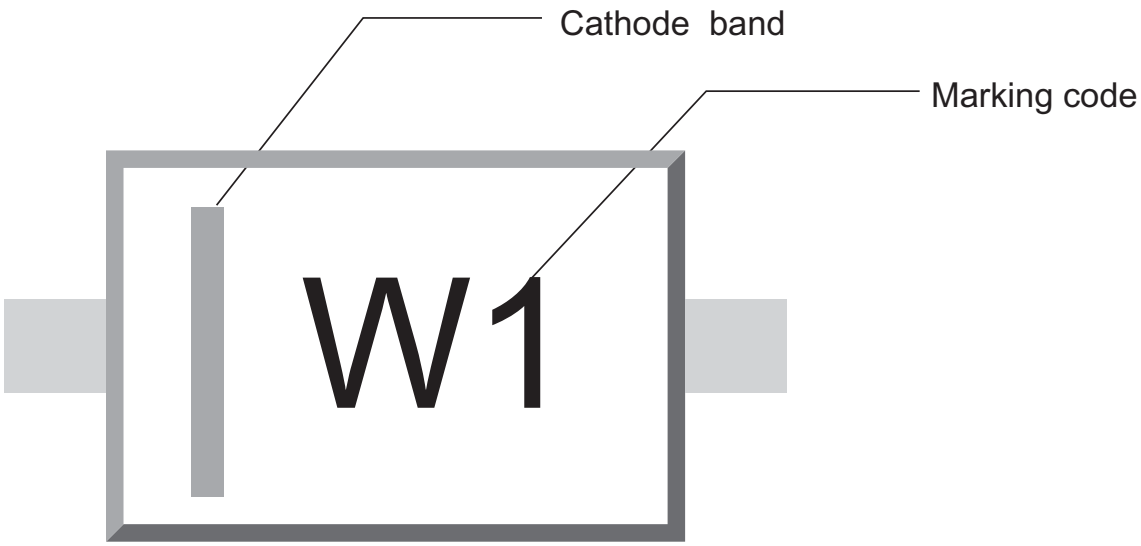
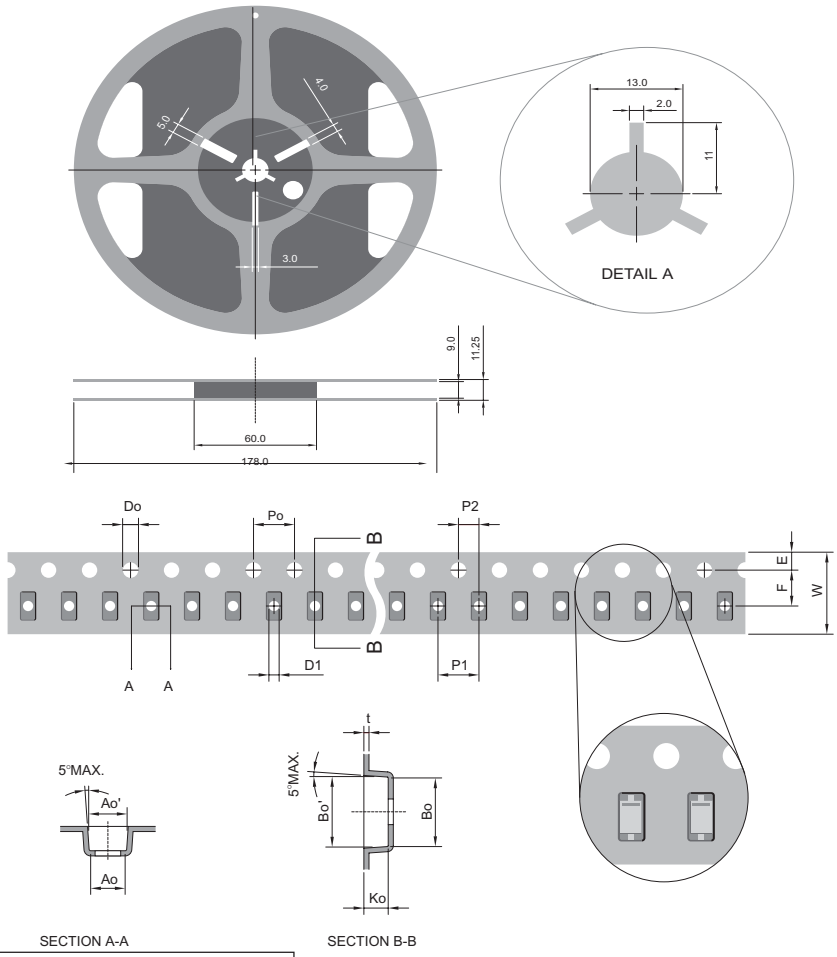


Fig.9 TYPICAL LEAKAGE CURRENT

2.MARKING



3. TAPING



SYMBOL	mm (INCH)
TYPE SIZE	8.00 (0.314)
Ao	1.50 ± 0.10(0.054 ± 0.004)
Bo	2.75 ± 0.10(0.141 ± 0.004)
Do	1.55 ± 0.10(0.061 ± 0.004)
D	560.05
D1	76.30 ± 0.05(3.799 ± 0.002)
E	1.75 ± 0.10(0.069 ± 0.004)
F	3.50 ± 0.05(0.137 ± 0.002)
Ko	0.95 ± 0.10(0.037 ± 0.004)
Po	4.00 ± 0.10(0.157 ± 0.004)
P1	4.00 ± 0.10(0.157 ± 0.004)
P2	2.00 ± 0.05(0.009 ± 0.002)
t	0.20 ± 0.05(0.009 ± 0.002)
W	8.00 ± 0.30(0.314 ± 0.012)
Ao'	1.35 ± 0.15(0.053 ± 0.006)
Bo'	2.65 ± 0.15(0.104 ± 0.006S)

NOTE:

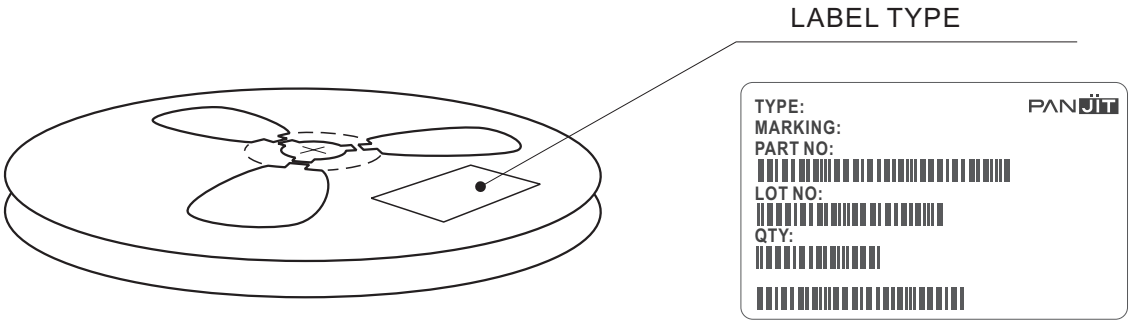
1.There shall be leader of 230 mm minimum which may consist of carrier and or cover tape follower by a minimum of 160 mm of carrier tape sealed with cover tape.

2.There shall e minimum of 160 mm of empty component pockets sealed with cover tape.

3.Devices are packed in accordance whit EIA standard EIA-481-A and specifications given above.

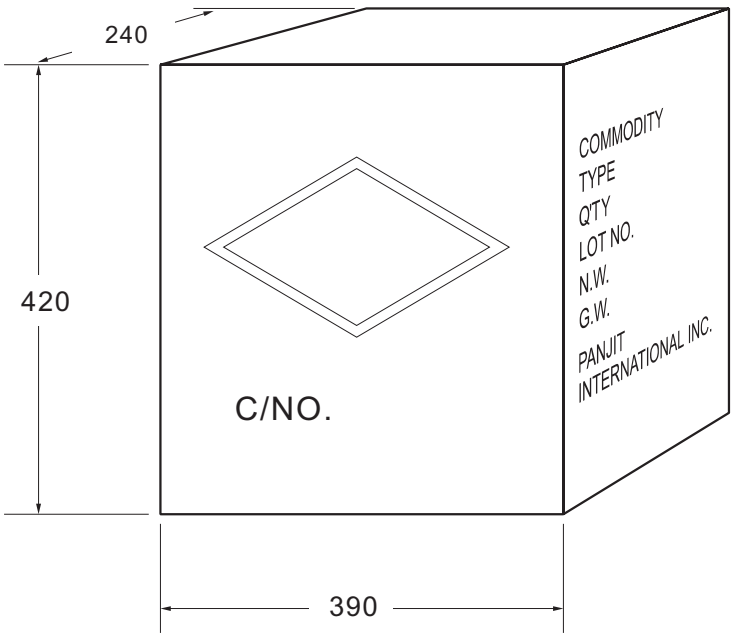
4. PACKING

REEL PACKING



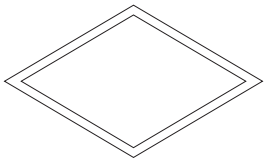
Quantity per Reel: 5,000 pcs

CARTON



Box Dimensions : mm
Quantity per Box: 250,000pcs

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					
R-1	198 x 84 x 20	1,000	459 x 214 x 256	50,000	12.4
A-405	198 x 84 x 20	1,000	459 x 214 x 256	50,000	13.4
DO-35	96 x 80 x 42	10,000	410 x 350 x 275	120,000	21.5
DO-41G	240 x 100 x 100	5,000	410 x 350 x 275	60,000	26.5
DO-41	198 x 84 x 20	1,000	459 x 214 x 256	50,000	19.1
DO-15	200 x 85 x 25	1,000	459 x 214 x 256	40,000	17.5
DO-201AE	200 x 85 x 40	500	459 x 214 x 256	12,500	17.0
DO-201AD	200 x 85 x 40	500	459 x 214 x 256	12,500	17.3
P600	208 x 90 x 83	500	459 x 214 x 256	5,000	11.3
AM	195 x 195 x 40	1,000	400 x 273 x 415	10,000	16.8
DIP	-	-	459 x 214 x 256	12,000	10.2
SDIP	-	-	459 x 214 x 256	24,000	15.5
FL	230 x 230 x 50	500	495 x 245 x 180	3,000	25.0
GBU	350 x 337 x 44	800	510 x 340 x 235	3,200	18.9
ITO/TO-220	555 x 145 x 95	2,000	570 x 306 x 218	8,000	13.4
GL	260 x 190 x 75	72	460 x 215 x 260	864	15.8
KBU	230 x 230 x 50	200	495 x 245 x 180	3,000	21.5
GBJ	352 x 337 x 44	600	375 x 360 x 213	2,400	13.1
TO-251AB	560 x 210 x 79	8,000	577 x 226 x 196	16,000	6.5
GBL	352 x 337 x 44	960	375 x 360 x 213	3,840	13.0
GBP	352 x 337 x 44	1,120	375 x 360 x 213	4,480	11.3
TO-3P	-	-	536 x 243 x 100	1,500	12.7
GBPC/W	195 x 195 x 41	50	460 x 215 x 260	500	9.8 / 8.8

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							
R-1	5,000	5.0	26	255 x 50 x 150	339 x 276 x 330	60,000	12.4
R-1	5,000	5.0	52	255 x 75 x 150	339 x 276 x 330	40,000	12.4
A-405	5,000	5.0	26	255 x 50 x 150	339 x 276 x 330	60,000	13.4
A-405	5,000	5.0	52	255 x 75 x 150	339 x 276 x 330	40,000	13.4
DO-35	5,000	5.0	52	255 x 80 x 80	410 x 350 x 275	100,000	20.0
DO-41G	2,500	5.0	52	255 x 80 x 80	410 x 350 x 275	50,000	22.0
DO-41	5,000	5.0	52	255 x 75 x 150	339 x 276 x 330	40,000	19.1
DO-15	3,000	5.0	52	255 x 75 x 150	339 x 276 x 330	24,000	17.5
DO-201AE	1,250	10.0	52	255 x 75 x 150	339 x 276 x 330	10,000	17.0
DO-201AD	1,250	10.0	52	255 x 75 x 150	339 x 276 x 330	10,000	17.3
P600	400	10.0	52	255 x 75 x 150	339 x 276 x 330	3,200	11.3

Reel Packing

PACKAGE	REEL	COMPONENT SPACE	TAPE SPACE	REEL DIA	CARTON SIZE	CARTON	APPROX. GROSS WEIGHT
	(pcs)	(m/m)	(m/m)	(EA)	(EA)	(EA)	(Kg)
Reel Packing							
R-1	5,000	5.0	52	330	340 x 340 x 410	25,000	9.0
A-405	5,000	5.0	52	330	340 x 340 x 410	25,000	9.1
DO-35	10,000	5.0	52	360	380 x 380 x 420	50,000	13.0
DO-41G	5,000	5.0	52	360	380 x 380 x 420	25,000	14.5
DO-41	5,000	5.0	52	330	340 x 340 x 410	25,000	12.4
DO-15	4,000	5.0	52	330	340 x 340 x 410	20,000	11.8
DO-201AE	1,250	10.0	52	330	340 x 340 x 410	6,250	11.0
DO-201AD	1,250	10.0	52	330	340 x 340 x 410	6,250	11.6
P600	800	10.0	52	330	340 x 340 x 410	4,000	11.4
SMA	7,500 / 1,800	4.0	-	330 / 178	375 x 360 x 390 / 390 x 240 x 420	120,000 / 72,000	17.5 / 8.3
SMB	3,000 / 500	4.0	-	330 / 178	375 x 360 x 390 / 390 x 240 x 420	48,000 / 20,000	13.6 / 7.5
SMC	3,000 / 500	12.0	-	330 / 178	375 x 360 x 390 / 390 x 240 x 420	42,000 / 15,000	16.2 / 7.3
SDIP	1,500	12.0	-	330	375 x 360 x 390	21,000	16.3
MDI	3,000 / 500	8.0	-	330 / 178	375 x 360 x 390	48,000 / 30,000	14.4
D^2PCK	800	16.0	-	330	375 x 360 x 390	6,400	15.6
TO-252	3,000	8.0	-	330 / 178	375 x 360 x 390	42,000	16.5
SOD-123	10,000 / 3,000	4.0	-	330 / 178	375 x 360 x 213 / 390 x 240 x 420	120,000 / 150,000	8.0 / 10.0
SOD-323	12,000 / 5,000	4.0	-	330 / 178	375 x 360 x 213 / 390 x 240 x 420	144,000 / 250,000	9.6 / 10.0
SOT-23	12,000 / 3,000	4.0	-	330 / 178	375 x 360 x 213 / 390 x 240 x 420	144,000 / 150,000	9.6 / 10.0
SOT-323	12,000 / 3,000	4.0	-	330 / 178	375 x 360 x 213 / 390 x 240 x 420	144,000 / 150,000	9.6 / 10.0
SOT-363	3,000	4.0	-	178	438 x 438 x 220	120,000	-
SOT-23-6L	3,000	4.0	-	178	438 x 438 x 220	120,000	-
MICRO-MELF	2,500	4.0	-	178	640 x 405 x 150	200,000	15.7
QUADRO-MELF	2,500	4.0	-	178	640 x 405 x 150	200,000	15.7
MINI-MELF	2,500	4.0	-	178	640 x 405 x 150	200,000	15.7
DL-41	5,000	4.0	-	330	350 x 350 x 350	100,000	22.0

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: 168HRS 250HRS 500HRS	MIL-STD-750D METHOD-1031.2	LTPD10 S.s.=22 ACCEPT FOR 0 FAILURE ONLY.	
3	SOLDERABILITY TEST	TEMPERATURE OF SOLDER POT=260 +/- 5 TIME FOR DIPPING FLUX=5-10SEC TIME FOR DIPPING IN SOLDER=5+/-0.5SEC 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: 48HRS 96HRS 168HRS 250HRS 500HRS	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: 168HRS 250HRS 500HRS	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=5min COLD TANK T=0°C+2/-10°C t=5min 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=1.2kg/cm^2 TIME=96HRS	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 : 30SEC POWER OFF : 50SEC 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=8.3Msec 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: 168HRS 250HRS 500HRS	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 125 °C MAX(NORMAL)