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SURFACE MOUNT ZENER DIODES

VOLTAGE 2.4 to 47 Volts

POWER 500 mWatts

MINI-MELF/LL-34

Unit : inch (mm)

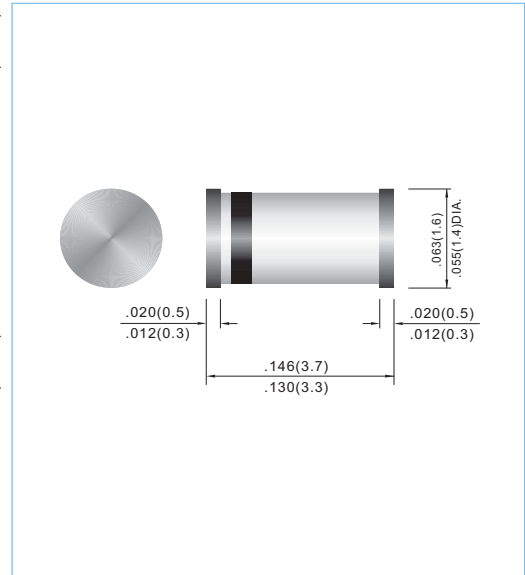
FEATURES

- Planar Die construction
- 500mW Power Dissipation
- Ideally Suited for Automated Assembly Processes
- Pb free product are available : 99% Sn above can meet RoHS environment substance directive request

MECHANICAL DATA

- Case: Molded Glass MINI-MELF
- Terminals: Solderable per MIL-STD-202G, Method 208
- Polarity: See Diagram Below
- Approx. Weight: 0.03 gram
- Mounting Position: Any
- Packing information

T/R - 2.5K per 7" plastic Reel



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Value	Units
Power Dissipation at Tamb = 25 °C	P _{TOT}	500	mW
Junction Temperature	T _J	175	°C
Storage Temperature Range	T _S	-55 to +175	°C

Valid provided that leads at a distance of 8mm from case are kept at ambient temperature.

Parameter	Symbol	Min.	Typ.	Max.	Units
Thermal Resistance Junction to Ambient Air	R _{thA}	—	—	0.3	K/W
Forward Voltage at I _F = 100mA	V _F	—	—	1	V

Valid provided that leads at a distance of 8mm from case are kept at ambient temperature.

Part Number	Nom inal Zener Voltage			Max. Zener Impedance				Max Reverse Leakage Current		Marking code
	Vz @ It			Zzt @ It		Zzk @ Ik		Ir @ Vr		
	Nom. V	Min. V	Max. V	Ω	mA	Ω	mA	uA	V	
ZMM55-C2V4	2.4	2.28	2.56	85	5	600	1.0	50	1.0	C2V4
ZMM55-C2V7	2.7	2.5	2.9	85	5	600	1.0	10	1.0	C2V7
ZMM55-C3V0	3.0	2.8	3.2	85	5	600	1.0	4	1.0	C3V0
ZMM55-C3V3	3.3	3.1	3.5	85	5	600	1.0	2	1.0	C3V3
ZMM55-C3V6	3.6	3.4	3.8	85	5	600	1.0	2	1.0	C3V6
ZMM55-C3V9	3.9	3.7	4.1	85	5	600	1.0	2	1.0	C3V9
ZMM55-C4V3	4.3	4.0	4.6	75	5	600	1.0	1	1.0	C4V3
ZMM55-C4V7	4.7	4.4	5.0	60	5	600	1.0	0.5	1.0	C4V7
ZMM55-C5V1	5.1	4.8	5.4	35	5	550	1.0	0.1	1.0	C5V1
ZMM55-C5V6	5.6	5.2	6.0	25	5	450	1.0	0.1	1.0	C5V6
ZMM55-C6V2	6.2	5.8	6.6	10	5	200	1.0	0.1	2.0	C6V2
ZMM55-C6V8	6.8	6.4	7.2	8	5	150	1.0	0.1	3.0	C6V8
ZMM55-C7V5	7.5	7.0	7.9	7	5	50	1.0	0.1	5.0	C7V5
ZMM55-C8V2	8.2	7.7	8.7	7	5	50	1.0	0.1	6.0	C8V2
ZMM55-C9V1	9.1	8.5	9.6	10	5	50	1.0	0.1	7.0	C9V1
ZMM55-C10	10	9.4	10.6	15	5	70	1.0	0.1	7.5	C10V
ZMM55-C11	11	10.4	11.6	20	5	70	1.0	0.1	8.5	C11V
ZMM55-C12	12	11.4	12.7	20	5	90	1.0	0.1	9.0	C12V
ZMM55-C13	13	12.4	14.1	26	5	110	1.0	0.1	10	C13V
ZMM55-C15	15	13.8	15.6	30	5	110	1.0	0.1	11	C15V
ZMM55-C16	16	15.3	17.1	40	5	170	1.0	0.1	12	C16V
ZMM55-C18	18	16.8	19.1	50	5	170	1.0	0.1	14	C18V
ZMM55-C20	20	18.8	21.2	55	5	220	1.0	0.1	15	C20V
ZMM55-C22	22	20.8	23.3	55	5	220	1.0	0.1	17	C22V
ZMM55-C24	24	22.8	25.6	80	5	220	1.0	0.1	18	C24V
ZMM55-C27	27	25.1	28.9	80	5	220	1.0	0.1	20	C27V
ZMM55-C30	30	28	32	80	5	220	1.0	0.1	22	C30V
ZMM55-C33	33	31	35	80	5	220	1.0	0.1	24	C33V
ZMM55-C36	36	34	38	80	5	220	1.0	0.1	27	C36V
ZMM55-C39	39	37	41	90	2.5	500	1.0	0.1	30	C39V
ZMM55-C43	43	40	46	90	2.5	600	1.0	0.1	33	C43V
ZMM55-C47	47	44	50	110	2.5	700	1.0	0.1	36	C47V

Typical Characteristics ($T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

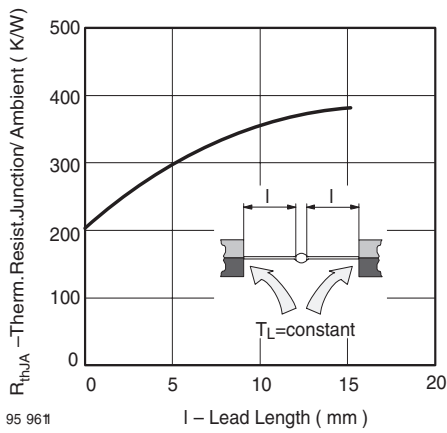


Fig. 1 Thermal Resistance vs. Lead Length

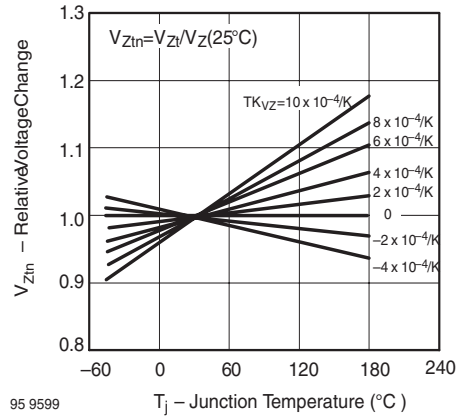


Fig. 4 Typical Change of Working Voltage vs. Junction Temperature

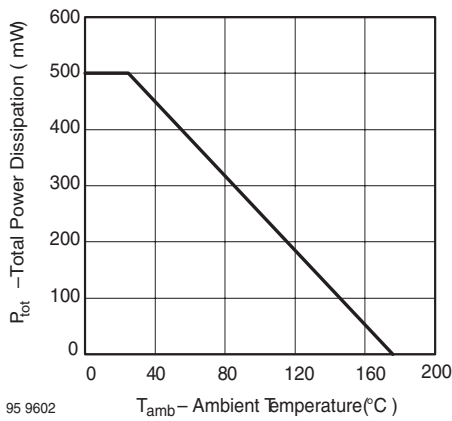


Fig. 2 Total Power Dissipation vs. Ambient Temperature

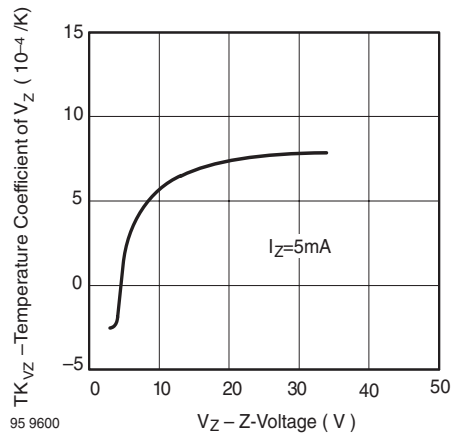


Fig. 5 Temperature Coefficient of V_Z vs. Z-Voltage

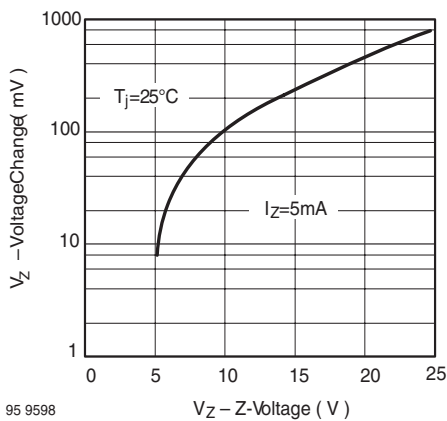


Fig. 3 Typical Change of Working Voltage under Operating Conditions at $T_{amb}=25\text{ }^{\circ}\text{C}$

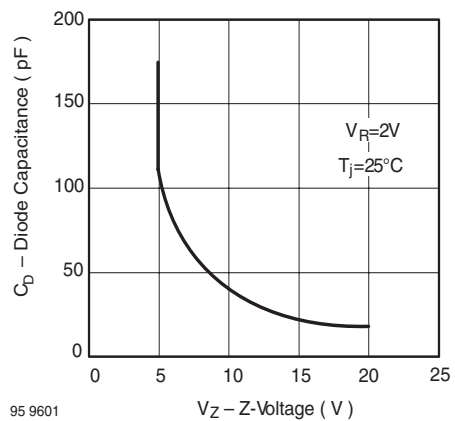


Fig. 6 Diode Capacitance vs. Z-Voltage

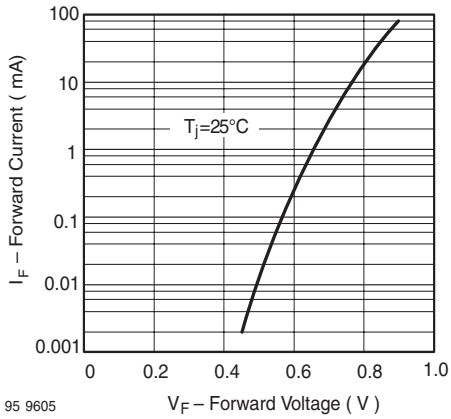


Fig. 7 Forward Current vs. Forward Voltage

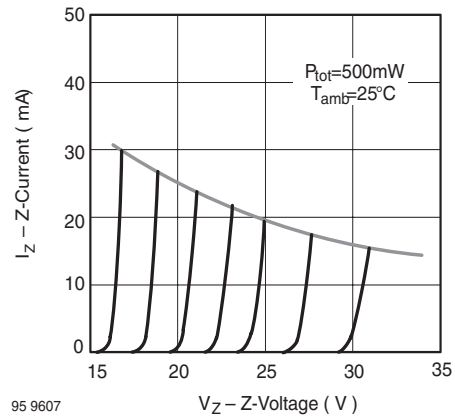


Fig. 9 Z-Current vs. Z-Voltage

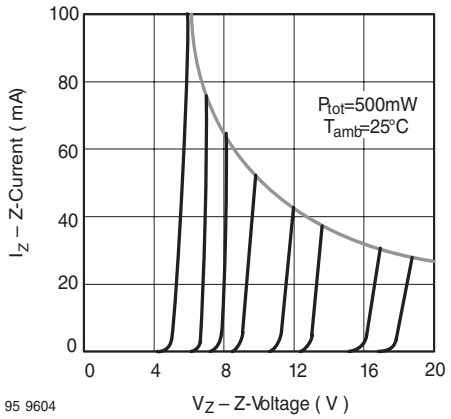


Fig. 8 Z-Current vs. Z-Voltage

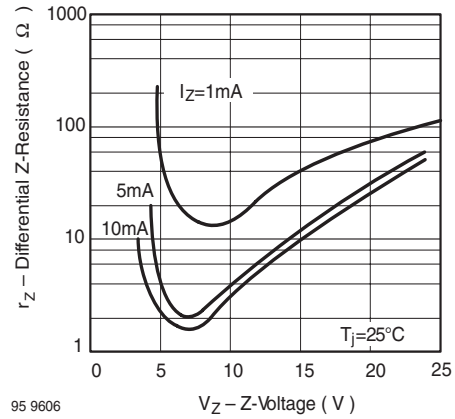


Fig. 10 Differential Z-Resistance vs. Z-Voltage

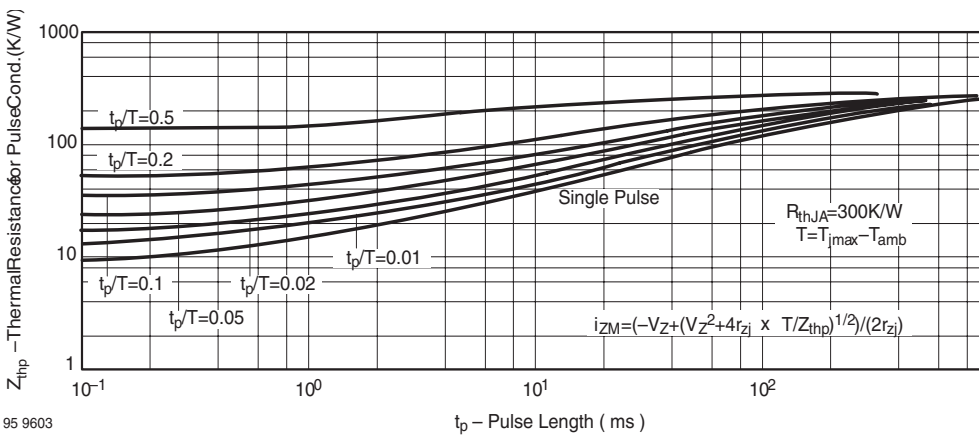
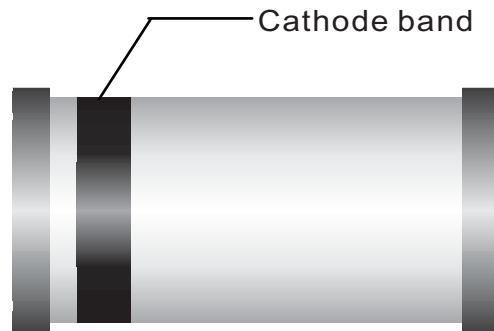
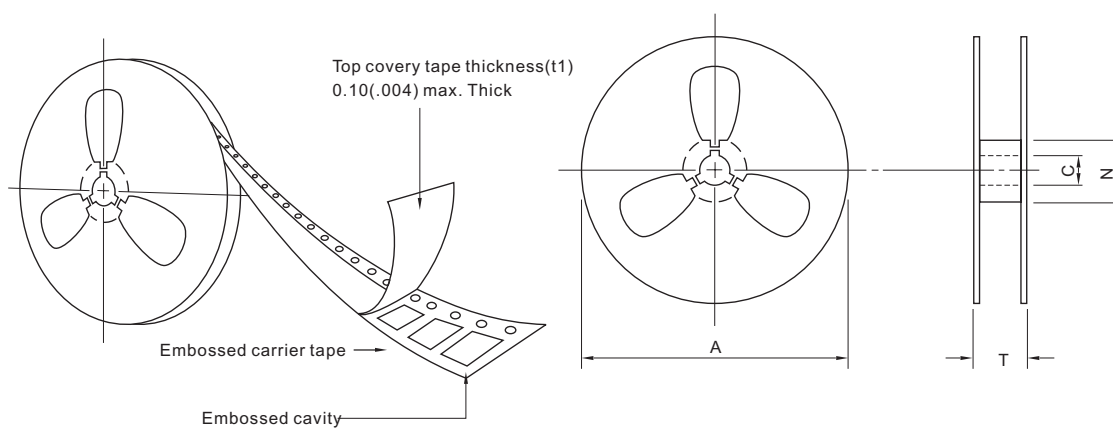
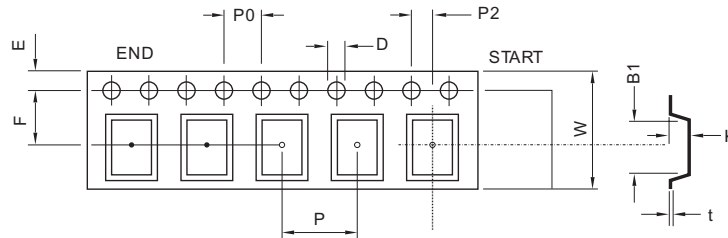


Fig. 11 Thermal Response

2. MARKING



3. TAPING



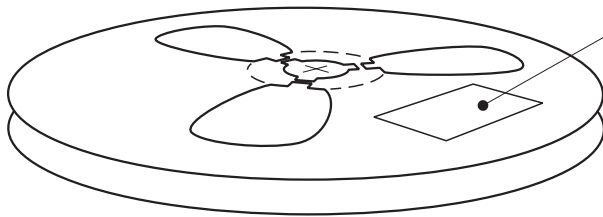
SYMBOL	mm(inch)
TYPE SIZE	8.00 (0.314)
B1	3.70 (0.146) max.
D	1.50 ± 0.10 (0.059 ± 0.004)
A	180.0 (7.0) max.
N	60.0 (2.362) min.
C	13.0 ± 0.5 (0.51 ± 0.02)
E	1.75 ± 0.10 (0.068 ± 0.003)
F	3.50 ± 0.05 (0.138 ± 0.002)
K	1.80 (0.017) max.
P	4.00 ± 0.10 (0.157 ± 0.003)
Po	4.00 ± 0.10 (0.157 ± 0.003)
P2	2.00 ± 0.10 (0.079 ± 0.003)
t	0.20 (0.008) max.
W	8.00 ± 0.30 (0.315 ± 0.012)
T	14.90 (0.587) max.

Note:

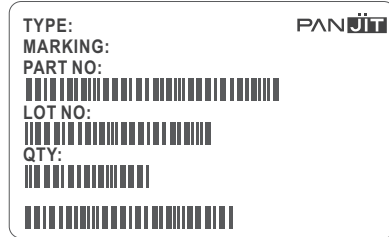
1. A_o, B_o, K_o are determined by component size. The clearance between the component and The component and the cavity must be with in 0.05mm (0.002") min. to 0.65mm (0.025") max. For 12mm tape, 0.05mm (0.002") min. To 0.90mm (0.035") max. For 16mm tape.
2. In addition, the components cannot rotate more than 20° within the determined cavity, see sketch a below.

4. PACKING

REEL PACKING

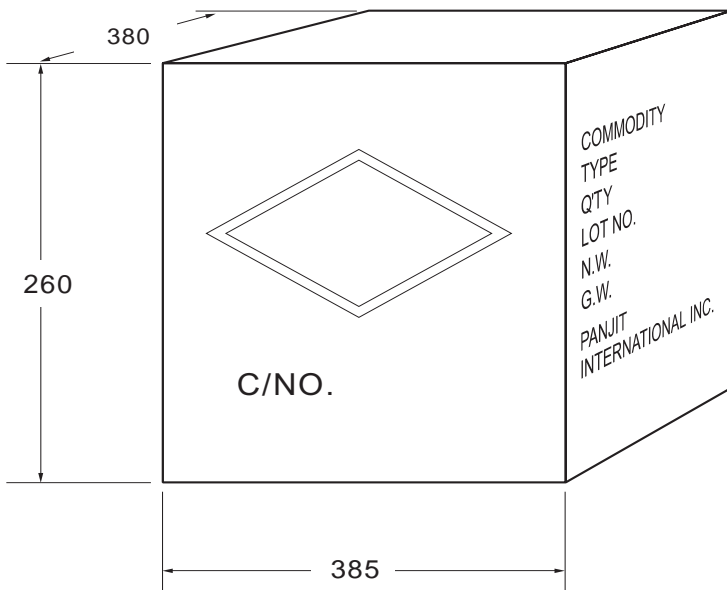


LABEL TYPE



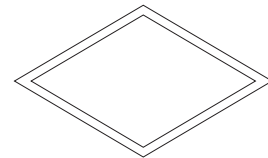
Quantity per Reel: 2,500 pcs

CARTON



Box Dimensions : mm
Quantity per Box: 200,000pcs

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-34	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-34	5,000	5.0	26	248 x 80 x 48	410 x 335 x 265	150,000	15.5
DO-34	5,000	5.0	52	248 x 80 x 75	410 x 335 x 265	5,000	14.1
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

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							
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-34	10,000	5.0	52	360	360 x 360 x 395	50,000	9.5
DO-35	10,000	5.0	52	360	360 x 360 x 395	50,000	12.0
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	360 x 360 x 395	25,000	13.0
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 ² PCK	800	16.0	-	330	375 x 360 x 390	6,400	15.6
TO-252	3,000	8.0	-	330	375 x 360 x 390	42,000	16.5
QFN 1.6 x 1.6	12,000 / 4,000	4.0	8	330/178	375 x 360 x 213 / 390 x 240 x 420	144,000 / 200,000	9.2 / 9.6
SOD-123	10,000 / 3,000	4.0	8	330 / 178	375 x 360 x 213 / 390 x 240 x 420	120,000 / 150,000	8.0 / 10.0
SOD-123FL	10,000 / 3,000	4.0	8	330 / 178	375 x 360 x 213 / 390 x 240 x 420	120,000 / 150,000	10.4 / 11.0
SOD-323	12,000 / 5,000	4.0	8	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	8	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	8	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	385 x 380 x 260	25,000	13.5
QUADRO-MELF	2,500	4.0	-	178	640 x 405 x 150	200,000	15.7
MNH-MELF	2,500	4.0	-	178	385 x 380 x 260	25,000	13.5
DL-41	1,500 / 5,000	4.0	-	330	385 x 380 x 260 / 360 x 360 x 395	100,000	14.0