



TABLE OF CONTENTS

1.DATA SHEET

PAGE 1

2.MARKING

PAGE 6

3.TAPING

PAGE 7

4.PACKING

PAGE 8

5.HIGH RELIABILITY TEST SPEC.

PAGE 12

SX33F-AU SERIES

SCHOTTKY BARRIER RECTIFIER

VOLTAGE 30-60 Volt **CURRENT** 3 Ampere

SMAF Unit : inch(mm)

FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- For surface mounted applications in order to optimize board space
- Low power loss,high efficiency
- High surge capacity
- Ultra Thin Profile Package for Space Constrained Utilization
- Package suitable for Automated Handling
- Acquire quality system certificate : TS16949
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2011/65/EU directive.
- Green molding compound as per IEC61249 Std. . (Halogen Free)

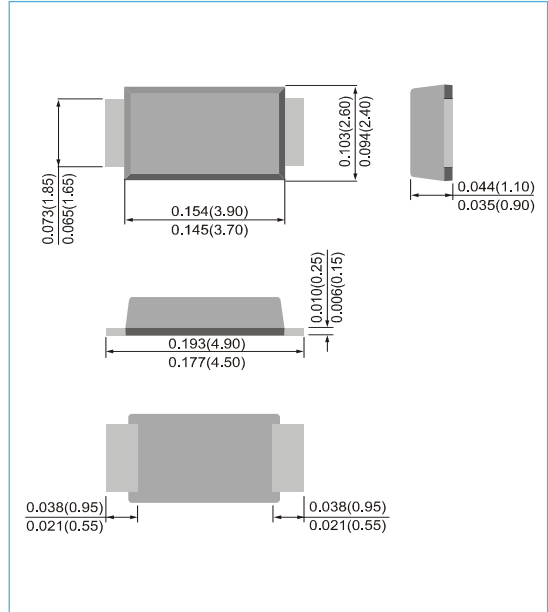
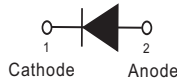
MECHANICAL DATA

Case : SMAF, Plastic

Terminals : Solderable per MIL-STD-750, Method 2026

Polarity: Color band denotes cathode end

Weight: 0.0011 ounces, 0.0328 grams



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	SX33F-AU	SX34F-AU	SX36F-AU	UNITS
Recurrent Peak Reverse Voltage	V _{RRM}	30	40	60	V
RMS Voltage	V _{RMS}	21	28	42	V
DC Blocking Voltage	V _R	30	40	60	V
Average Forward Current	I _{F(AV)}	3			A
Peak Forward Surge Current : 8.3ms single half sine-wave superimposed on rated load	I _{FSM}	80			A
Forward Voltage at 3A	V _F	0.5		0.75	V
DC Reverse Current at Rated DC Blocking Voltage	I _R	100			μA
Typical Junction Capacitance	C _J	485		385	pF
Typical Thermal Resistance ,Junction to Lead (Note 1) Junction to Ambient (Note 2)	R _{θJL} R _{θJA}	20 150			°C / W
Operating Junction Temperature and Storage Temperature Range	T _J , T _{STG}	-55 to +150			°C

NOTES :

1. Mounted on a FR4 PCB, single-sided copper, with 48cm²copper pad area.
2. Mounted on a FR4 PCB, single-sided copper, mini pad.



SX33F-AU SERIES

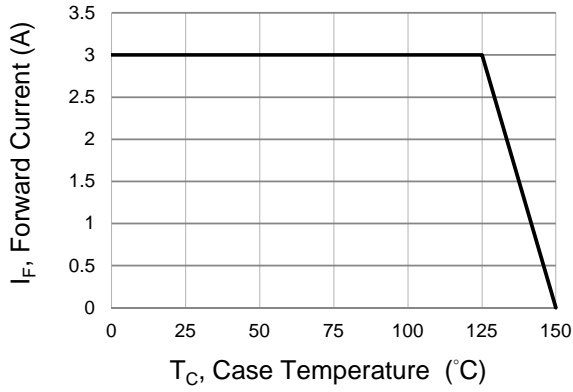


Fig.1 Forward Current Derating Curve

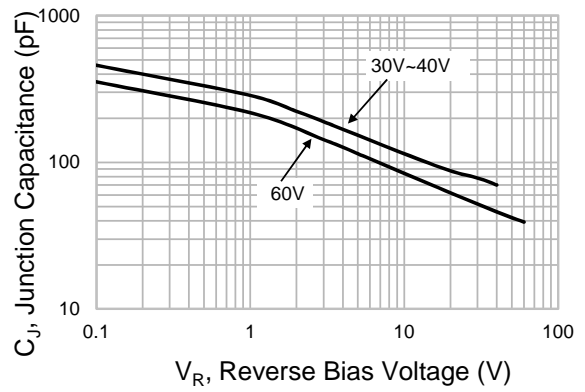


Fig.2 Typical Junction Capacitance

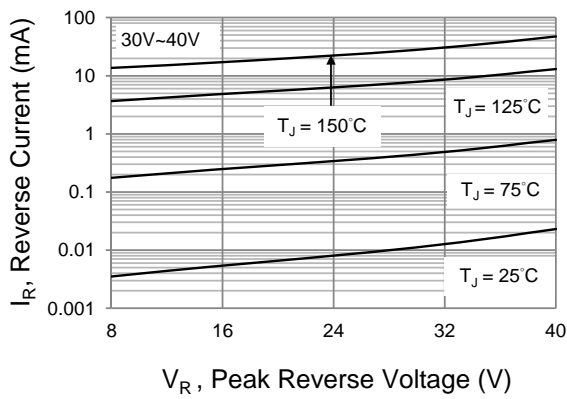


Fig.3 Typical Reverse Characteristics

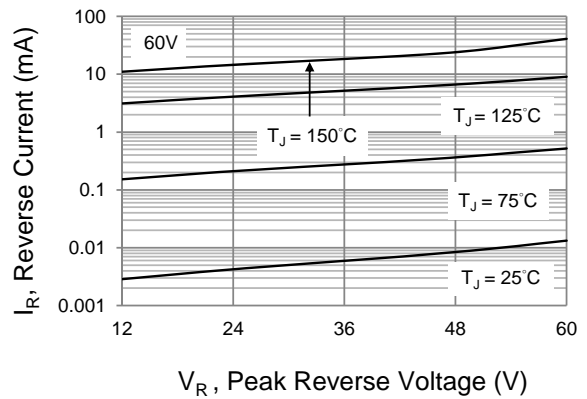


Fig.4 Typical Reverse Characteristics

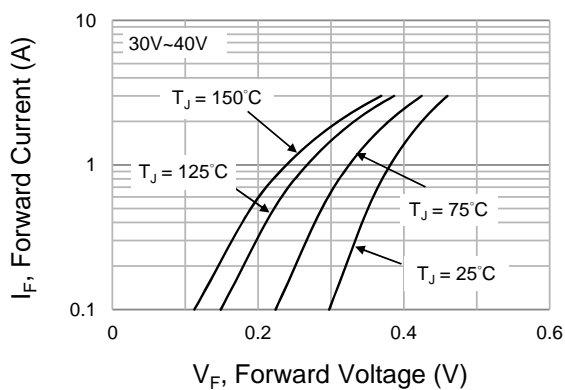


Fig.5 Typical Forward Characteristics

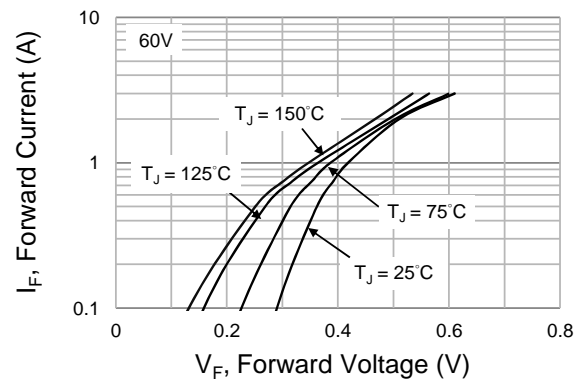
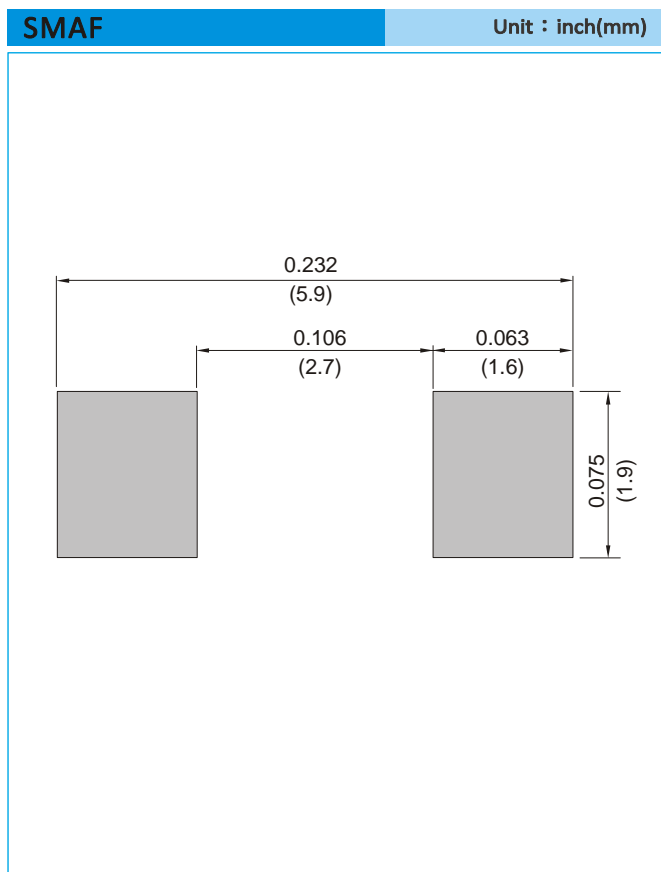


Fig.6 Typical Forward Characteristics



SX33F-AU SERIES

MOUNTING PAD LAYOUT



ORDER INFORMATION

- Packing information
T/R - 10K per 13" plastic Reel
T/R - 3K per 7" plastic Reel



SX33F-AU SERIES

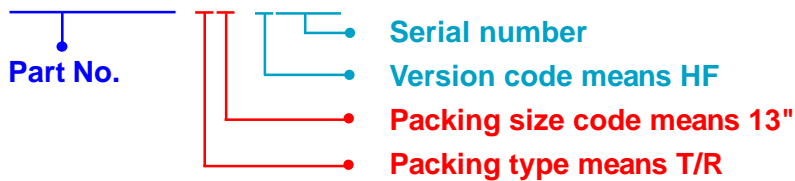
Part No_packing code_Version

SX33F-AU_R1_000A1

SX33F-AU_R2_000A1

For example :

RB500V-40_R2_00001



Packing Code XX				Version Code XXXXX		
Packing type	1 st Code	Packing size code	2 nd Code	HF or RoHS	1 st Code	2 nd ~5 th Code
Tape and Ammunition Box (T/B)	A	N/A	0	HF	0	serial number
Tape and Reel (T/R)	R	7"	1	RoHS	1	serial number
Bulk Packing (B/P)	B	13"	2			
Tube Packing (T/P)	T	26mm	X			
Tape and Reel (Right Oriented) (TRR)	S	52mm	Y			
Tape and Reel (Left Oriented) (TRL)	L	PANASERT T/B CATHODE UP (PBCU)	U			
FORMING	F	PANASERT T/B CATHODE DOWN (PBCD)	D			



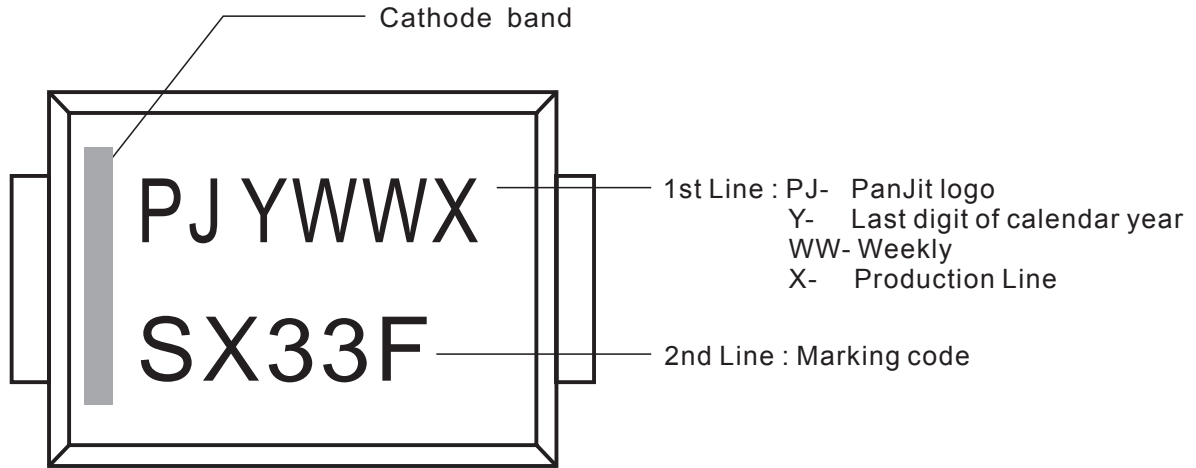
SX33F-AU SERIES

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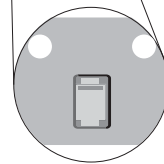
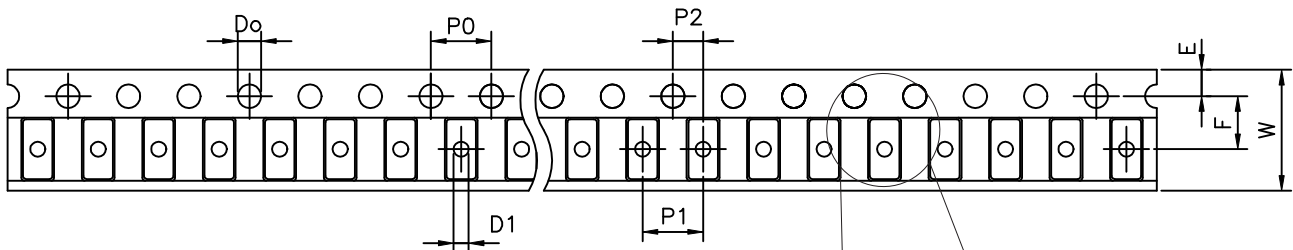
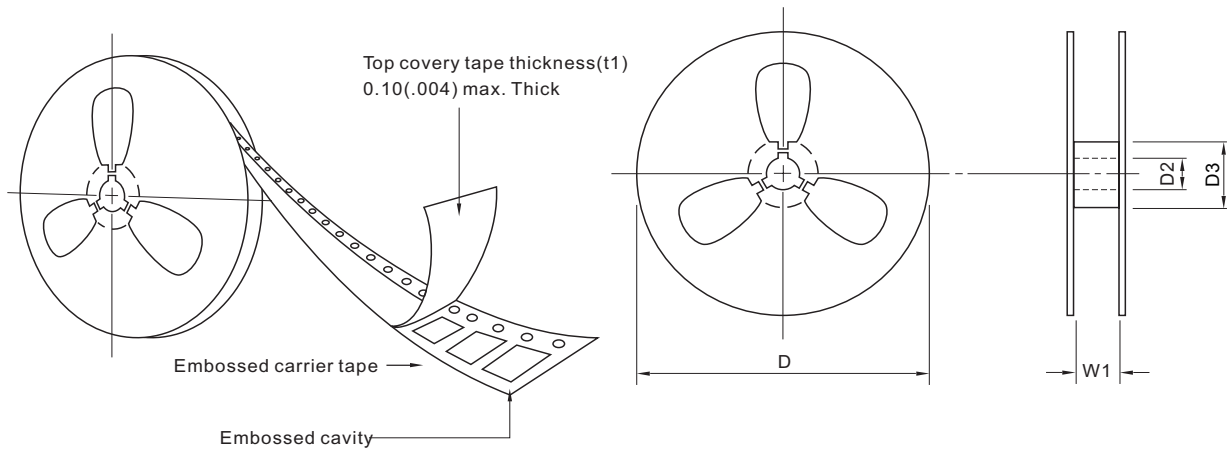


2. MARKING





3. TAPING



SYMBOL	mm (inch)
TYPESIZE	12.00(0.472)
Do	1.50 + 0.10 (0.06 + 0.004)
Do	1.50 - 0 (0.06 - 0)
D1	1.00 ± 0.05 (0.04 ± 0.002)
E	1.75 ± 0.10 (0.069 ± 0.004)
F	5.50 ± 0.05 (0.217 ± 0.002)
Po	4.00 ± 0.10 (0.157 ± 0.004)
P1	4.00 ± 0.10 (0.157 ± 0.004)
P2	2.00 ± 0.05 (0.079 ± 0.002)
W	12.0 + 0.3 (0.472 + 0.012)
W	12.0 - 0.1 (0.472 - 0.004)
D2	13.0 ± 0.2 (0.512 ± 0.008)
D3	100min(3.94)
W1	12.4~18.4 maximum(0.49~0.73)
D	330 ± 2.0 (13.00 ± 0.079)

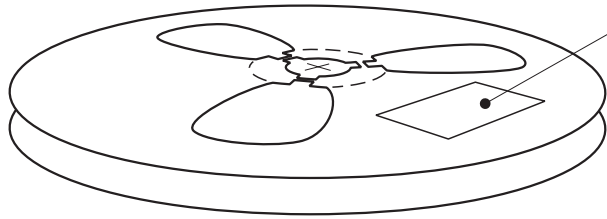
NOTE:

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 be minimum of 160 mm of empty component pockets sealed with cover tape.
3. Devices are packed in accordance with EIA standard EIA-481-A and specifications given above.



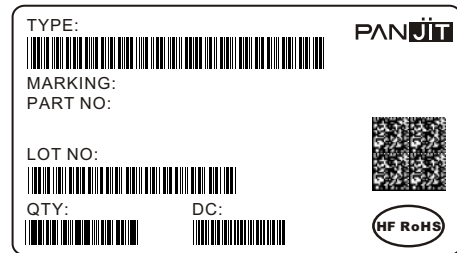
4. PACKING

REEL PACKING

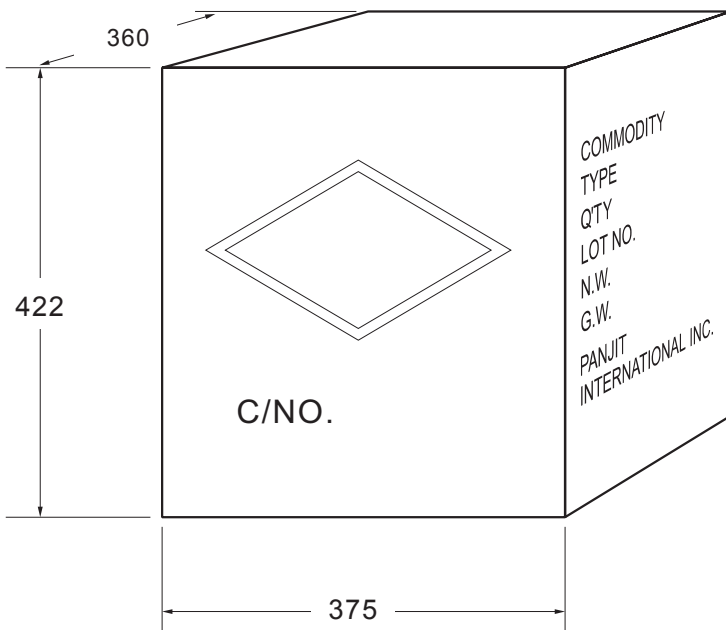


Quantity per Reel: 10,000 pcs

LABEL TYPE

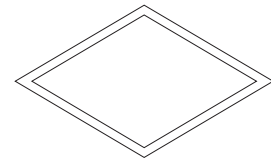


CARTON



Box Dimensions : mm
Quantity per Box: 160,000 pcs

SHIPPING MARK



C/NO.
PRODUCT COUNTRY

SIDE MARK

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



Packing Specifications

Package	Reel Size	Reel	Component Space	Tape Space	Reel Dia	Carton Size	Carton	Approx. Gross Weight
	(inch)	(pcs)	(mm)	(mm)	(mm)	(mm)	(EA)	(kg)
Reel Packing								
DFN0603	7	10,000	2	8	178	390 x 270 x 400	800,000	9
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
	13	12,000	4	8	330	375 x 360 x 230	144,000	7.6
DFN2510-10L	7	5,000	4	8	178	390 x 270 x 400	400,000	10.5
	13	12,000	4	8	330	375 x 360 x 230	144,000	6.4
DFN2020-6L	7	3,000	4	8	178	390 x 270 x 400	240,000	10.1
DFN2020-8L	7	3,000	4	8	178	390 x 270 x 400	240,000	10.1
DFN3030-8L	7	5,000	8	12	330	375 x 360 x 422	70,000	7.3
DFN5060-8L	13	3,000	8	12	330	375 x 360 x 422	42,000	8.5
SOP-8	13	2,500	8	12	330	375 x 360 x 230	20,000	5.7
SOD-923	7	8,000	2	8	178	390 x 270 x 400	640,000	7.7
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 230	144,000	5.4
SOD-323HE	7	5,000	4	8	178	390 x 270 x 400	400,000	11.9
	13	12,000	4	8	178	375 x 360 x 230	144,000	8.3
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 230	144,000	5.9
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 230	120,000	8.1
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 230	120,000	7.2
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 230	120,000	6.5
SOT-723	7	8,000	2	8	178	455 x 270 x 440	640,000	10.5
SOT-563	7	8,000	2	8	178	390 x 270 x 400	640,000	9.4
	13	20,000	2	8	330	375 x 360 x 230	240,000	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 230	120,000	5.2
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 230	120,000	5.2
SOT-523	7	4,000	4	8	178	390 x 270 x 400	320,000	10
SOT-363	7	3,000	4	8	178	390 x 270 x 400	240,000	9.3
	13	10,000	4	8	330	375 x 360 x 230	120,000	7.1
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 230	120,000	7.2
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 230	120,000	7.9
SOT-23 6L-1	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 230	120,000	7.9
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 230	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 230	144,000	6.1
SOT-23-1	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 230	144,000	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 230	144,000	7
SOT-223	13	2,500	4	8	330	375 x 360 x 422	35,000	13.2



Packing Specifications

Package	Reel Size	Reel	Component Space	Tape Space	Reel Dia	Carton Size	Carton	Approx. Gross Weight
	(inch)	(pcs)	(mm)	(mm)	(mm)	(mm)	(EA)	(kg)
Reel Packing								
SMAF	7	3,000	4	12	178	390 x 240 x 420	120,000	10.9
	13	10,000	4	12	330	375 x 360 x 422	160,000	17.1
SMBF	7	1,500	8	12	178	390 x 240 x 420	60,000	9.6
	13	5,000	8	12	330	375 x 360 x 422	80,000	15.6
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
R-1	13	5,000	5	52	330	340 x 340 x 410	25,000	7.8
A-405	13	5,000	5	52	330	340 x 340 x 410	25,000	7.79
DO-41	13	5,000	5	52	330	340 x 340 x 410	25,000	11.1
DO-15	13	4,000	5	52	330	340 x 340 x 410	20,000	11.4
DO-201AD	13	1,250	10	52	330	340 x 340 x 410	6,250	9.2
DO-201AE	13	1,250	10	52	330	340 x 340 x 410	6,250	9.2
P-600	13	800	10	52	330	340 x 340 x 410	4,000	9.9
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-41G	15	5,000	5	52	360	360 x 360 x 395	25,000	10.9
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
QUADRO-MELF	7	2,500	4	-	178	385 x 380 x 260	200,000	13.3
	13	10,000	4	-	330	360 x 360 x 395	200,000	14.9
MINI-MELF/LL-34	7	2,500	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
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
MDI	13	3,000	8	12	330	375 x 360 x 390	48,000	14.7
MICRO DIP/TDI	7	1,000	8	12	178	390 x 240 x 420	40,000	9.5
	13	4,000	8	12	330	375 x 360 x 422	64,000	17
SDIP	13	1,500	12	16	330	375 x 360 x 390	21,000	14.3
TO-277	13	5,000	8	12	330	375 x 360 x 422	80,000	20.6
TO-277B	13	5,000	8	12	330	375 x 360 x 390	80,000	21.8
TO-252	13	3,000	8	16	330	375 x 360 x 422	42,000	18.8
TO-252AA	13	3,000	8	16	330	375 x 360 x 422	42,000	18.8
TO-263/D ² PAK	13	800	16	24	330	375 x 360 x 422	6,400	14.5



Packing Specifications

Package	Inner Box Size	Box	Carton Size	Carton	Approx. Gross Weight
	(mm)	(EA)	(mm)	(EA)	(kg)
Bulk Packing					
R-1	198 x 84 x 20	1,000	459 x 214 x 256	50,000	12.7
A-405	198 x 84 x 20	1,000	459 x 214 x 256	50,000	12.7
DO-41	198 x 84 x 20	1,000	459 x 214 x 256	50,000	19.3
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
P-600	208 x 82 x 40	100	459 x 214 x 256	2,500	11.3
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-41G	240 x 100 x 90	1,000	406 x 335 x 257	60,000	18.5
TO-220AC	540 x 145 x 85	2,000	555 x 306 x 200	8,000	22.9
ITO-220AC	540 x 145 x 85	2,000	555 x 306 x 200	8,000	20.5
TO-220AB	540 x 145 x 85	2,000	555 x 306 x 200	8,000	22.9
ITO-220AB	540 x 145 x 85	2,000	555 x 306 x 200	8,000	20.5
ITO-220AB-F	540 x 145 x 85	2,000	555 x 306 x 200	8,000	20.5
TO-251AA	555 x 145 x 95	8,400	580 x 310 x 220	33,600	22
TO-251AB	555 x 145 x 95	8,400	580 x 310 x 220	33,600	22
TO-92	188 x 188 x 67	5,000	390 x 420 x 240	50,000	13
TO-3PN	-	-	600 x 185 x 230	1,800	16.4
TO-3PL	-	-	530 x 255 x 110	1,500	12.2
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
DIP	-	-	459 x 214 x 256	12,000	6.5
SDIP	-	-	459 x 214 x 256	24,000	15.7

Package	Inner Box Size	Ammo	Component Space	Tape Space	Carton Size	Carton	Approx. Gross Weight
	(mm)	(pcs)	(mm)	(mm)	(mm)	(EA)	(kg)
Ammunition Packing							
R-1	255 x 47 x 73	3,000	5	26	310 x 268 x 170	36,000	6.3
	255 x 73 x 73	3,000	5	52	310 x 268 x 170	24,000	6.3
	255 x 73 x 122	5,000	5	52	339 x 276 x 274	40,000	10.3
A-405	255 x 47 x 150	5,000	5	26	339 x 276 x 330	60,000	12.4
	255 x 75 x 150	5,000	5	52	339 x 276 x 330	40,000	16
DO-41	255 x 75 x 150	5,000	5	52	339 x 276 x 330	40,000	15.9
	255 x 73 x 90	3,000	5	52	333 x 281 x 218	24,000	8.9
DO-15	255 x 75 x 150	3,000	5	52	339 x 276 x 330	24,000	13.3
DO-201AD	255 x 47 x 122	1,250	10	52	339 x 276 x 330	10,000	13.4
DO-201AE	255 x 47 x 122	1,250	10	52	339 x 276 x 330	10,000	13.4
P-600	255 x 47 x 122	400	10	52	339 x 276 x 330	3,200	8.1
DO-34	248 x 80 x 48	5,000	5	26	406 x 335 x 257	150,000	14.5
	248 x 80 x 75	5,000	5	52	406 x 335 x 257	100,000	12.7
DO-35	248 x 80 x 48	5,000	5	26	406 x 335 x 257	150,000	16.7
	248 x 80 x 75	5,000	5	52	406 x 335 x 257	100,000	15.2
DO-41G	248 x 80 x 48	2,500	5	26	406 x 335 x 257	75,000	17.1
	248 x 80 x 75	2,500	5	52	406 x 335 x 257	50,000	15.6

汽車廠測試項目與條件對照表

NO.	TEST ITEM	TEST CONDITION	REFERENCED DOCUMENT	TESTTER	LOT QUALITY LEVEL
1	Pre Condition (PC) SMD Qualification part for TC·AC·H3TRB·IOL· RSH	1. TCT -55~+150 5Cycle 2. Bake 125 +5/-0 °C 24hrs 3. Humidity 85°C /85%RH 168hr 4. Reflow 3 Times	JESD22 A-113	1. TEMPERATURE CYCLE TESTER 2. HIGH TEMPERATURE BAKE BOX 3. HUMIDITY CHAMBER 4. HOT REFLOW TESTER	5 Item Total 338 pcs ACCEPT FOR 0 FAILURE ONLY.
2	HIGH TEMPERATURE REVERSE BIAS (H.T.R.B)	Ta=for data sheet Tj Temperature±5°C VR=100%VR(CUSTOMER SPEC.) DC supply 1,000hrs	JESD22 A-108	1. DC POWER SUPPLY 2. HIGH TEMPERATURE BAKE BOX	S.s=77 ACCEPT FOR 0 FAILURE ONLY.
3	HIGH TEMPERATURE GATE BIAS (H.T.G.B)	Ta=for data sheet Tj Temperature±5°C VR=100%VR(CUSTOMER SPEC.) DC supply 1,000hrs	JESD22 A-108	1. DC POWER SUPPLY 2. HIGH TEMPERATURE BAKE BOX	S.s=77 ACCEPT FOR 0 FAILURE ONLY.
4	TEMPERATURE CYCLING (TCT)	Ta = -55 +0/-10°C 10min(Min) Ta = +150 +15/-0°C 10min(Min) Transfer time less than 1min. The load should reach temp. within 15mins 1,000cycle	JESD22 A-104	TEMPERATURE CYCLE TESTER	S.s=77 ACCEPT FOR 0 FAILURE ONLY.
5	AUTOCLAVE (AC)	Ta = 121°C P = 15psig Relative Humidity = 100% Time : 96hrs	JESD22 A-102	PCT TESTER KSON PCT-A	S.s=77 ACCEPT FOR 0 FAILURE ONLY.
6	HIGH HUMIDITY HIGH TEMP REVERSE BIAS (H3TRB)	Ta=85°C+/-2°C RH=85%+/-5% VR=80%VB(CUSTOMER SPEC.) Max=100V DC supply TIME : 1,000hr	JESD22 A-101	1. HUMIDITY CHAMBER 2. DC POWER SUPPLY	S.s=77 ACCEPT FOR 0 FAILURE ONLY.
7	INTERMITTENT OPERATIONAL LIFE (IOL)	ΔTj ≥ 100°C supply POWER ON: at least 2min POWER OFF: 2min 15,000Cycle	MIL-STD-750 METHOD 1037	1. DC POWER SUPPLY 2. TIMER	S.s=77 ACCEPT FOR 0 FAILURE ONLY.
8	ESD CHARACTERIZATION -HBM	100 pF / 1.5 KΩ +/- 3Cycle	AEC-Q101-001	NOISKEN ESS-6008 TESTER	S.s=30 ACCEPT FOR 0 FAILURE ONLY.
9	ESD CAPACITIVE DISCHARGE MODEL -CDM		AEC-Q101-005	ORYX ORION	S.s=30 ACCEPT FOR 0 FAILURE ONLY.
10	RESISTANCE TO SOLDER HEAT (RSH)	TEMPERATURE OF SOLDER POT = 260±5°C TIME FOR DIPPING IN SOLDER = 10+2/-0 SEC	JESD22 B-106	SOLDER FURNACE TAIYO POT-100C	S.s=30 ACCEPT FOR 0 FAILURE ONLY.
11	SOLDERABILITY (SD)	TEMPERATURE OF SOLDER POT = 245 ±5°C TIME FOR DIPPING IN SOLDER = 5 ±0.5 SEC	J-STD-002	SOLDER FURNACE TAIYO POT-100C	S.s=10 ACCEPT FOR 0 FAILURE ONLY.
12	THERMAL RESISTANCE (TR)		JESD24-3, 24-4, 24-6 as appropriate	PTJ-6002A TESTER	S.s=10 ACCEPT FOR 0 FAILURE ONLY.

Remark :

1. 進行 TC、AC、H3TRB、IOL、RSH 等 5 Item 測試前，必須先進行 Test Item 1 (Pre Condition) 的測試，
Total 338pcs，經測試合格後，將測試後的材料再分別進行 TC、AC、H3TRB、IOL、RSH 等 5
Item 的測試。
2. 其他測試項目不需要先進行 Pre Condition 的測試，直接依據各測試項目所設定的測試條件進行測試。
3. Test Item 3 HIGB 為 MOSFET 特定測試項目，非此產品類別者不需要進行此項目之測試。
4. Test Item 7 IOL 為二極體測試項目，MOSFET、TVS、ZENER、BJT. 等不需進行此項目測試。

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