

SMAFJ*** CAseries

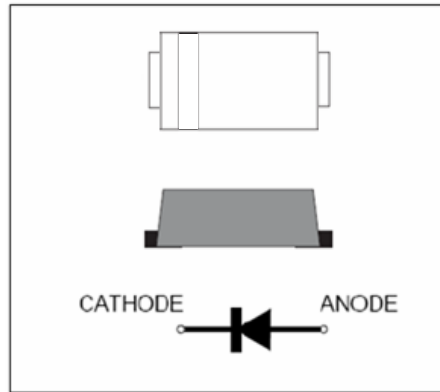
SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE 5.0 TO 250 Volts

400 Watt Peak Pulse Power

FEATURES

- * Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- * For surface mounted applications in order to optimize board space
- * Low profile package
- * Built-in strain relief
- * Glass passivated junction
- * Low inductance
- * Excellent clamping capability
- * Repetition Rate (duty cycle):0.01%
- * Fast response time: typically less than 1.0ps from 0 Volts to V(BR) for unidirectional types
- * Typical IR less than 1mA above 10V
- * High temperature soldering guaranteed:
260°C/10 seconds,



we declare that the material of product is halogen free (green epoxy compound).

MECHANICAL DATA

Case: JEDEC SMA-FL molded plastic

Terminals: Plated leads, solderable per MIL-STD-202, Method 208

Polarity: Whithout Color band denoted cathode except Bipolar

Mounting Position: Any

Weight: 0.066 gram

1.DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA Suffix for types SMBFJ5.0CA thru types SMAFJ250CA

MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

RATING	SYMBOL	VALUE	UNITS
Peak Power Dissipation at $T_A=25^{\circ}\text{C}$, $T_P=1\text{ms}$ (Note 1)	P_{PPM}	Minimum400	Watts
Steady State Power Dissipation at $T_L=75^{\circ}\text{C}$ (Note 2)	$P_{M(AV)}$	1.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load(JECED Method) (Note 3)	I_{FSM}	30	Amps
Operating Temperature Range	T_J	-55 to +150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to +175	$^{\circ}\text{C}$

NOTES:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^{\circ}\text{C}$ per Fig. 2.
2. Mounted on Copper Leaf area of 1.57in²(40mm²).
3. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.

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Bi- Directional Part Number	Device marking code	Reverse Stand-off Voltage VRWM (V)	Breakdown Voltage VBR (V) Min. @IT	Breakdown Voltage VBR (V) Max. @IT	Test Current IT (mA)	Maximum Clamping Voltage @IPP VC (V)	Peak Pulse Current Ipp (A)	Reverse Leakage @VRWM IR (uA)
SMAFJ5.0CA	5.0A	5.00	6.40	7.00	10.00	9.20	43.5	800
SMAFJ6.0CA	6.0A	6.00	6.67	7.37	10.00	10.30	38.8	800
SMAFJ6.5CA	6.5A	6.50	7.22	7.98	10.00	11.20	35.7	500
SMAFJ7.0CA	7.0A	7.00	7.78	8.60	10.00	12.00	33.3	200
SMAFJ7.5CA	7.5A	7.50	8.33	9.21	1.00	12.90	31.0	100
SMAFJ8.0CA	8.0A	8.00	8.89	9.83	1.00	13.60	29.4	50
SMAFJ8.5CA	8.5A	8.50	9.44	10.40	1.00	14.40	27.8	20
SMAFJ9.0CA	9.0A	9.00	10.00	11.10	1.00	15.40	26.0	10
SMAFJ10CA	10A	10.00	11.10	12.30	1.00	17.00	23.5	1
SMAFJ11CA	11A	11.00	12.20	13.50	1.00	18.20	22.0	1
SMAFJ12CA	12A	12.00	13.30	14.70	1.00	19.90	20.1	1
SMAFJ13CA	13A	13.00	14.40	15.90	1.00	21.50	18.6	1
SMAFJ14CA	14A	14.00	15.60	17.20	1.00	23.20	17.2	1
SMAFJ15CA	15A	15.00	16.70	18.50	1.00	24.40	16.4	1
SMAFJ16CA	16A	16.00	17.80	19.70	1.00	26.00	15.4	1
SMAFJ17CA	17A	17.00	18.90	20.90	1.00	27.60	14.5	1
SMAFJ18CA	18A	18.00	20.00	22.10	1.00	29.20	13.7	1
SMAFJ20CA	20A	20.00	22.20	24.50	1.00	32.40	12.3	1
SMAFJ22CA	22A	22.00	24.40	26.90	1.00	35.50	11.3	1
SMAFJ24CA	24A	24.00	26.70	29.50	1.00	38.90	10.3	1
SMAFJ26CA	26A	26.00	28.90	31.90	1.00	42.10	9.5	1
SMAFJ28CA	28A	28.00	31.10	34.40	1.00	45.40	8.8	1
SMAFJ30CA	30A	30.00	33.30	36.80	1.00	48.40	8.3	1
SMAFJ33CA	33A	33.00	36.70	40.60	1.00	53.30	7.5	1
SMAFJ36CA	36A	36.00	40.00	44.20	1.00	58.10	6.9	1
SMAFJ40CA	40A	40.00	44.40	49.10	1.00	64.50	6.2	1
SMAFJ43CA	43A	43.00	47.80	52.80	1.00	69.40	5.8	1
SMAFJ45CA	45A	45.00	50.00	55.30	1.00	72.70	5.5	1
SMAFJ48CA	48A	48.00	53.30	58.90	1.00	77.40	5.2	1
SMAFJ51CA	51A	51.00	56.70	62.70	1.00	82.40	4.9	1
SMAFJ54CA	54A	54.00	60.00	66.30	1.00	87.10	4.6	1
SMAFJ58CA	58A	58.00	64.40	71.20	1.00	93.60	4.3	1
SMAFJ60CA	60A	60.00	66.70	73.70	1.00	96.80	4.1	1
SMAFJ64CA	64A	64.00	71.10	78.60	1.00	103.00	3.9	1
SMAFJ70CA	70A	70.00	77.80	86.00	1.00	113.00	3.5	1
SMAFJ75CA	75A	75.00	83.30	92.10	1.00	121.00	3.3	1
SMAFJ78CA	78A	78.00	86.70	95.80	1.00	126.00	3.2	1
SMAFJ85CA	85A	85.00	94.40	104.00	1.00	137.00	2.9	1
SMAFJ90CA	90A	90.00	100.00	111.00	1.00	146.00	2.7	1
SMAFJ100CA	100A	100.00	111.00	123.00	1.00	162.00	2.5	1
SMAFJ110CA	110A	110.00	122.00	135.00	1.00	177.00	2.3	1
SMAFJ120CA	120A	120.00	133.00	147.00	1.00	193.00	2.1	1
SMAFJ130CA	130A	130.00	144.00	159.00	1.00	209.00	1.9	1
SMAFJ150CA	150A	150.00	167.00	185.00	1.00	243.00	1.6	1
SMAFJ160CA	160A	160.00	178.00	197.00	1.00	259.00	1.5	1
SMAFJ170CA	170A	170.00	189.00	209.00	1.00	275.00	1.5	1
SMAFJ180CA	180A	180.00	198.00	221.00	1.00	291.00	1.4	1
SMAFJ190CA	190A	190.00	209.00	233.00	1.00	307.00	1.3	1
SMAFJ200CA	200A	200.00	220.00	246.00	1.00	324.00	1.2	1
SMAFJ220CA	220A	220.00	246.00	272.00	1.00	356.00	1.1	1
SMAFJ250CA	250A	250.00	279.00	309.00	1.00	405.00	1.0	1

For bidirectional type having Vrwm of 10 volts and less, the IR limit is double.

For parts without A , the VBR is + 10%

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2.Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Fig. 1-Peak Pulse Power Rating Curve

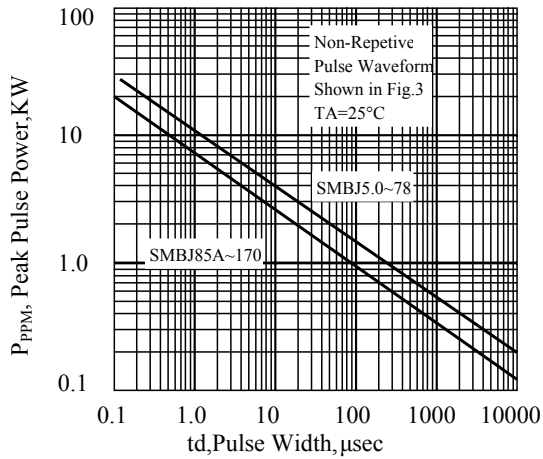


Fig. 2-Pulse Derating Curve

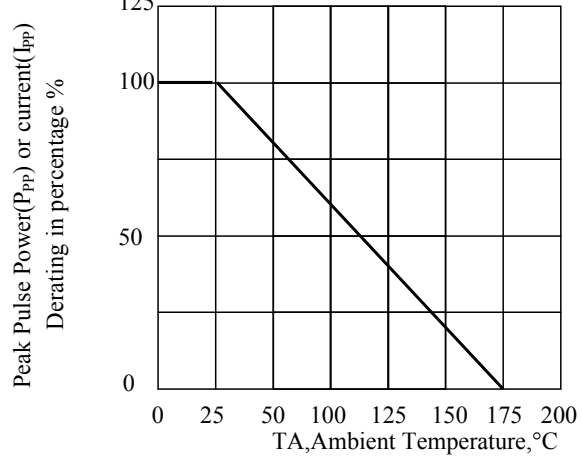


Fig. 3-Pulse Waveform

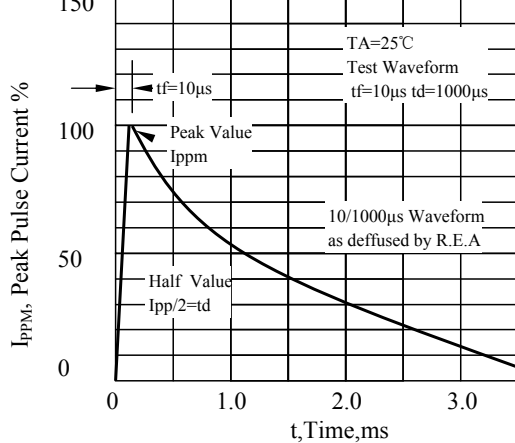


Fig. 4-Typical Junction Capacitance Unidirectional

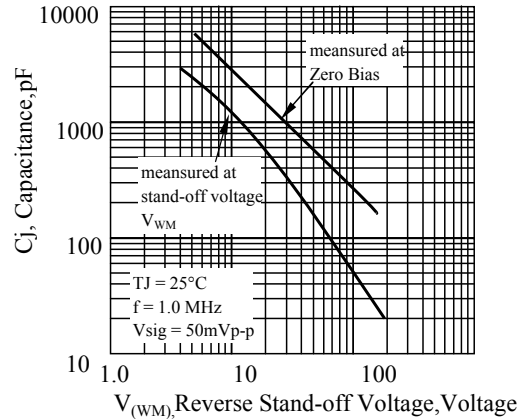


Fig 5. - typical transient thermal impedance

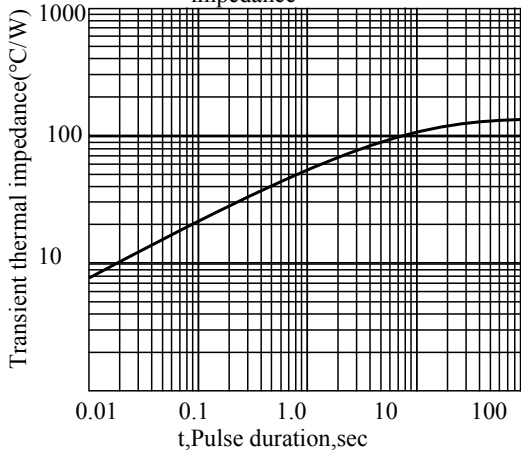
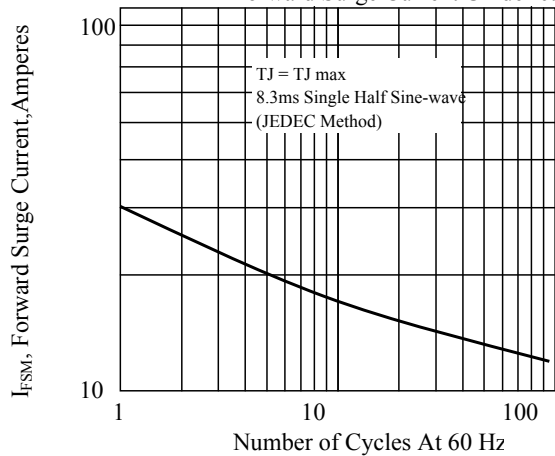


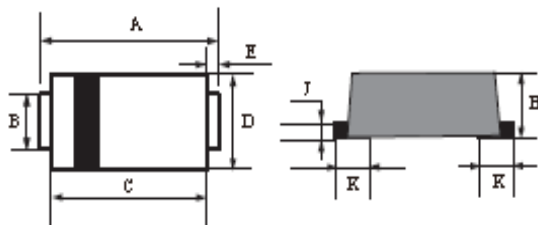
Fig. 6-Maximum Non-Repetitive Peak Forward Surge Current Unidirectional



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3. dimension:

SMA-FL

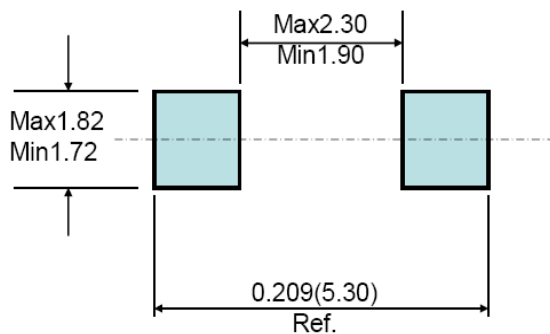


DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.4	4.8	0.173	0.189
B	1.3	1.5	0.051	0.059
C	3.3	3.7	0.130	0.146
D	2.3	2.7	0.091	0.106
E	0.90Typ		0.035Typ	

Suggested solder pad layout

Mounting Pad Layout

SMA-FL

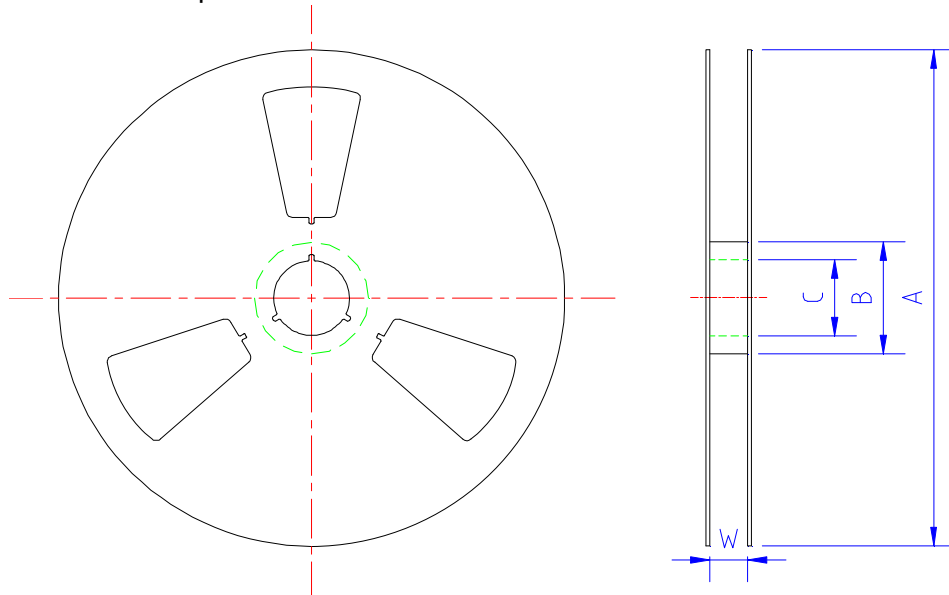


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5.1 、 SMD Packing Reel Spec & Packing Quantity

5.1.1 Reel Packing

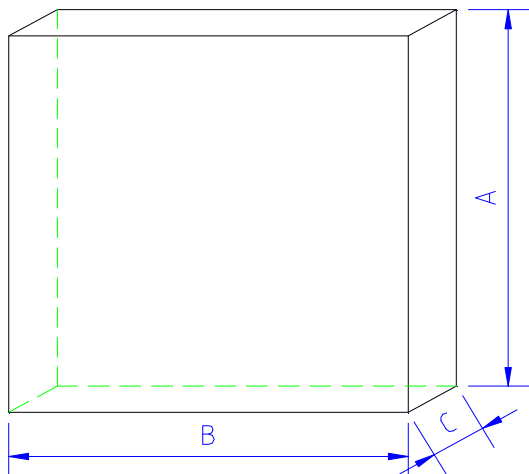
A. Reel Spec



unit: mm

SPEC	A	B	C	W	Quantity/Reel
SMA-FL 7" reel	177.0±2.0	54.0±0.5	13.0±0.5	13.2±0.2	3K
TO277 13" reel	330.0±2.0	75.0±0.5	13.0±0.5	13.2±0.2	5K
SOD123FL 7" reel	177.0±2.0	50.0±0.5	13.0±0.5	9.4±1.5	3K
SOD323HE 7" reel	177.0±2.0	50.0±0.5	13.0±0.5	9.4±1.5	3K
SMB-FL 13" reel	330.0±2.0	75.0±0.5	13.0±0.5	13.2±0.2	5K

B. 13" reel packing box



unit: mm

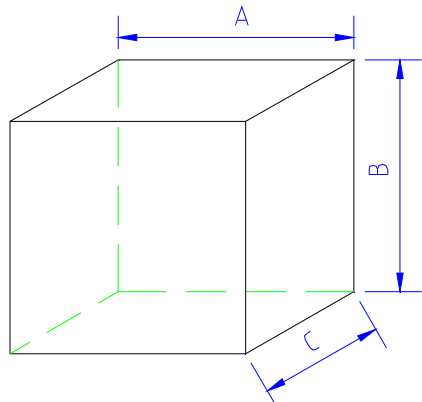
	A	B	C
size	335±5.0	335±2.0	40±1.0

as per above packing

Spec	Q' ty/Box
TO277 13" reel	10K
SMB-FL 13" reel	10K

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C. 7" reel packing box



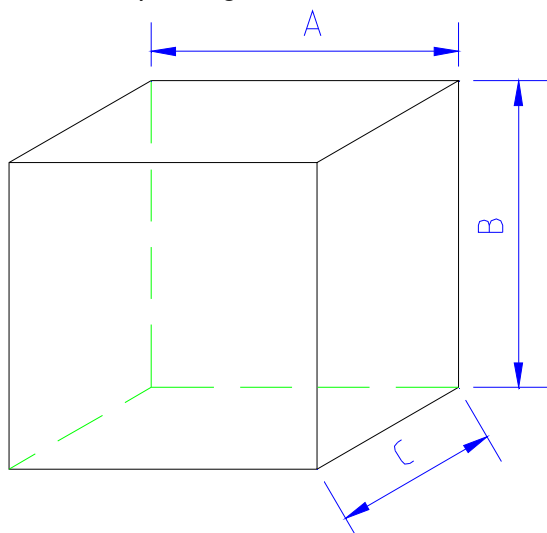
unit: mm

	A	B	C
SMA-FL SOD123FL SOD323HE	186±2.0	139±2.0	185±2.0

as per above packing

	Q' ty/Box
SMA-FL	30K
SOD123FL	30K
SOD323HE	30K

D. reel packing carton



unit: mm

	A	B	C
size	350±2.0	340±2.0	350±2.0

as per above packing

Spec	Q' ty/Carton
TO277 13" reel	80K
SMB-FL 13" reel	80K

unit: mm

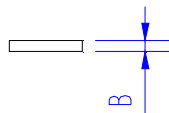
	A	B	C
SMA-FL SOD123FL SOD323HE	455±2.0	400±2.0	410±2.0

as per above packing

Spec	Q' ty/Carton
SMA-FL 7" reel	360K
SOD123-FL 7" reel	360K
SOD323HE 7" reel	360K

5.1.2 Tape Spec

A. Cover Tape

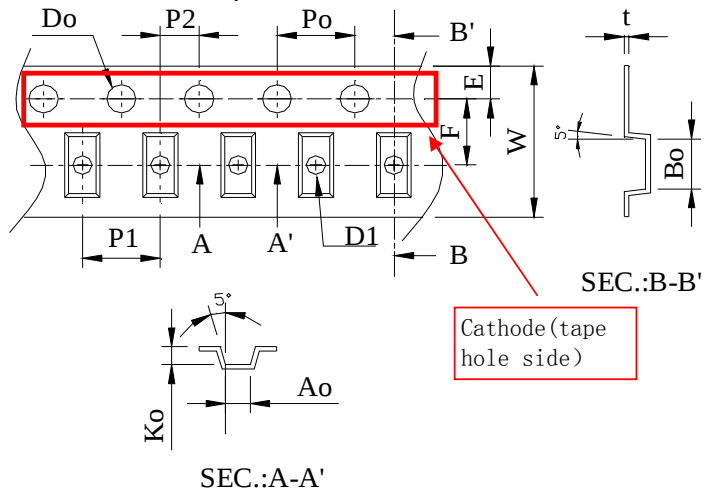


unit: mm

	A	B
SMA-FL SMB-FL TO277	9.5±0.10	0.062±0.007
SOD123FL SOD323HE	5.4±0.10	

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B. Carrier Tape

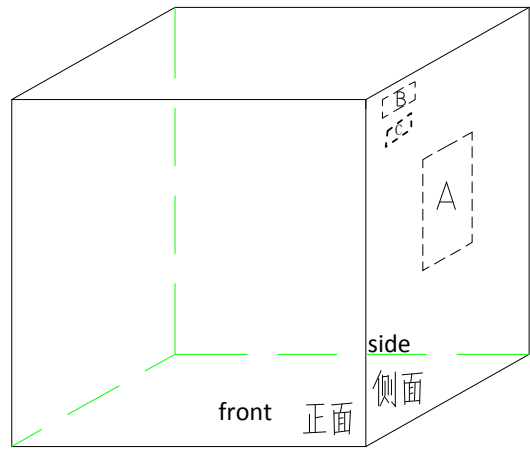
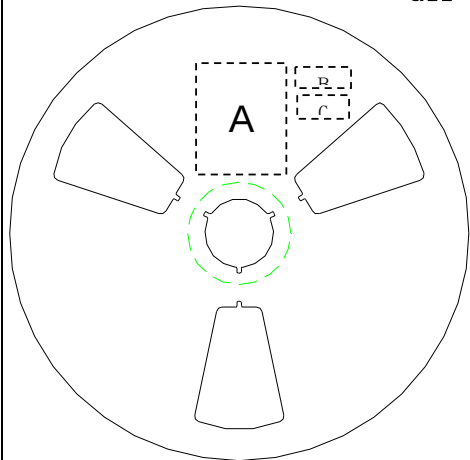


Item	SOD323HE	SOD123FL	SMA-FL	SMB-FL	TO277
W	8±0.3	8±0.3	12±0.3	12±0.3	12±0.3
P1	4±0.1	4±0.1	4±0.1	8±0.1	8±0.1
E	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1
F	3.5±0.05	3.5±0.05	5.5±0.05	5.5±0.05	5.5±0.05
D0	1.55±0.05	1.55±0.05	1.55±0.05	1.55±0.05	1.55±0.05
D1	1.1±0.1	1.1±0.1	1.5±0.1	1.55±0.05	1.5±0.1
P0	4±0.1	4±0.1	4±0.1	4±0.1	4±0.1
P2	2±0.05	2±0.05	2±0.05	2±0.05	2±0.05
10P0	40±0.2	40±0.2	40±0.2	40±0.2	40±0.2
A0	1.45±0.1	1.95±0.1	2.83±0.1	3.8±0.1	4.3±0.1
B0	2.75±0.1	3.95±0.1	4.75±0.1	5.75±0.1	6.8±0.1
K0	0.80±0.1	1.30±0.1	1.42±0.1	1.4±0.1	1.35±0.1
T	0.25±0.05	0.25±0.05	0.25±0.05	0.25±0.05	0.25±0.05

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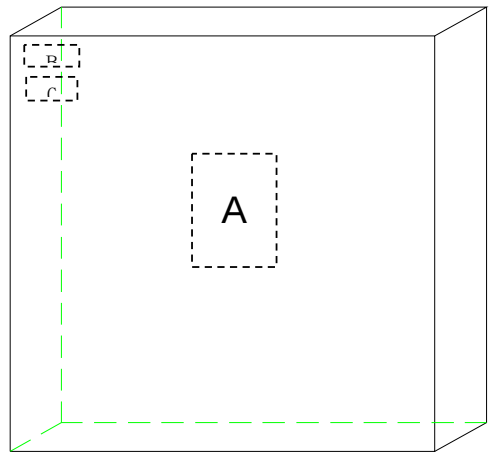
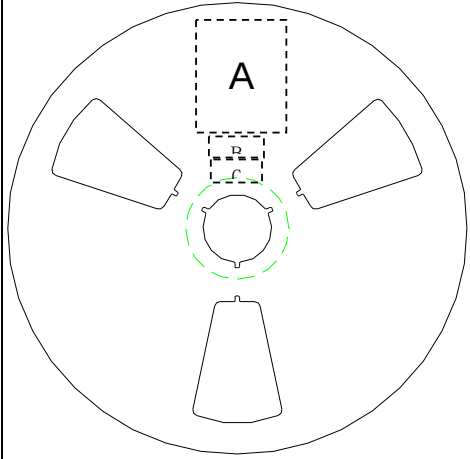
5.2、SMD Power Diode General Packing Spec

A. 7" reel all labels will be at cathode side of reel ;



A:LRC label; B:Environment Label C:Halide free label

B. 13" reel



A:LRC label; B:Environment Labe C:Halide free label

C.Tape lead: face anode side of the reel,upper side is the tape lead position. All labels are at cathode side of the reel.



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C. Label Content : LRC Label P/N → (1P) LPN: SM140A Lot No. → (1T) LOT: 140106049X Date code → (9D) DTE: 1403 Quantity → (Q) QTY: 10000 Two-dimension code Manufacturing Maker LRC lot: 140106049X: 140106---2014/1/6; 049----lot number:49; X: product code Environment Label Halide-free Label	

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4. Update Record

版次	更新记录	更新作者	更新日期
1	第一版	周杰	2014.05.13