

# SMBFJ\*\*\* CA Series

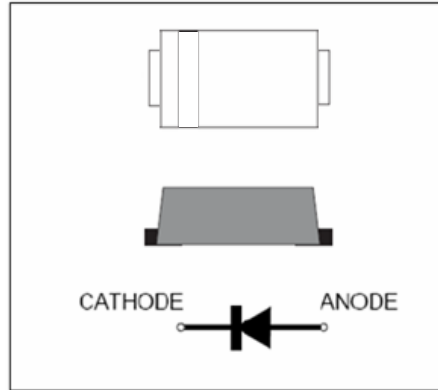
## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

### VOLTAGE 5.0 TO 250 Volts

### 600 Watt Peak Pulse Power

#### FEATURES

- \* Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- \* 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 SMB-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 SMBFJ250CA

Electrical characteristics apply in both directions.marking code is all type.

#### 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)	$P_{PPM}$	Minimum600	Watts
Steady State Power Dissipation at $T_L=75^\circ\text{C}$ (Note 2)	$P_{M(AV)}$	3.0	Watts
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load(JECED Method)(Note 3)	$I_{FSM}$	100	Amps
Operating Temperature Range	$T_J$	-55 to +150	°C
Storage Temperature Range	$T_{STG}$	-55 to +175	°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 1.57in<sup>2</sup>(40mm<sup>2</sup>).
3. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.

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Uni- 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)
SMBFJ5.0CA	SMBFJ5.0CA	5.00	6.40	7.00	10.00	9.20	65.30	800
SMBFJ6.0CA	SMBFJ6.0CA	6.00	6.67	7.37	10.00	10.30	58.30	800
SMBFJ6.5CA	SMBFJ6.5CA	6.50	7.22	7.98	10.00	11.20	53.60	500
SMBFJ7.0CA	SMBFJ7.0CA	7.00	7.78	8.60	10.00	12.00	50.00	200
SMBFJ7.5CA	SMBFJ7.5CA	7.50	8.33	9.21	1.00	12.90	46.60	100
SMBFJ8.0CA	SMBFJ8.0CA	8.00	8.89	9.83	1.00	13.60	44.20	50
SMBFJ8.5CA	SMBFJ8.5CA	8.50	9.44	10.40	1.00	14.40	41.70	20
SMBFJ9.0CA	SMBFJ9.0CA	9.00	10.00	11.10	1.00	15.40	39.00	10
SMBFJ10CA	SMBFJ10CA	10.00	11.10	12.30	1.00	17.00	35.30	1
SMBFJ11CA	SMBFJ11CA	11.00	12.20	13.50	1.00	18.20	33.00	1
SMBFJ12CA	SMBFJ12CA	12.00	13.30	14.70	1.00	19.90	30.20	1
SMBFJ13CA	SMBFJ13CA	13.00	14.40	15.90	1.00	21.50	28.00	1
SMBFJ14CA	SMBFJ14CA	14.00	15.60	17.20	1.00	23.20	25.90	1
SMBFJ15CA	SMBFJ15CA	15.00	16.70	18.50	1.00	24.40	24.60	1
SMBFJ16CA	SMBFJ16CA	16.00	17.80	19.70	1.00	26.00	23.10	1
SMBFJ17CA	SMBFJ17CA	17.00	18.90	20.90	1.00	27.60	21.80	1
SMBFJ18CA	SMBFJ18CA	18.00	20.00	22.10	1.00	29.20	20.60	1
SMBFJ20CA	SMBFJ20CA	20.00	22.20	24.50	1.00	32.40	18.60	1
SMBFJ22CA	SMBFJ22CA	22.00	24.40	26.90	1.00	35.50	16.90	1
SMBFJ24CA	SMBFJ24CA	24.00	26.70	29.50	1.00	38.90	15.50	1
SMBFJ26CA	SMBFJ26CA	26.00	28.90	31.90	1.00	42.10	14.30	1
SMBFJ28CA	SMBFJ28CA	28.00	31.10	34.40	1.00	45.40	13.30	1
SMBFJ30CA	SMBFJ30CA	30.00	33.30	36.80	1.00	48.40	12.40	1
SMBFJ33CA	SMBFJ33CA	33.00	36.70	40.60	1.00	53.30	11.30	1
SMBFJ36CA	SMBFJ36CA	36.00	40.00	44.20	1.00	58.10	10.40	1
SMBFJ40CA	SMBFJ40CA	40.00	44.40	49.10	1.00	64.50	9.30	1
SMBFJ43CA	SMBFJ43CA	43.00	47.80	52.80	1.00	69.40	8.70	1
SMBFJ45CA	SMBFJ45CA	45.00	50.00	55.30	1.00	72.70	8.30	1
SMBFJ48CA	SMBFJ48CA	48.00	53.30	58.90	1.00	77.40	7.80	1
SMBFJ51CA	SMBFJ51CA	51.00	56.70	62.70	1.00	82.40	7.30	1
SMBFJ54CA	SMBFJ54CA	54.00	60.00	66.30	1.00	87.10	6.90	1
SMBFJ58CA	SMBFJ58CA	58.00	64.40	71.20	1.00	93.60	6.50	1
SMBFJ60CA	SMBFJ60CA	60.00	66.70	73.70	1.00	96.80	6.20	1
SMBFJ64CA	SMBFJ64CA	64.00	71.10	78.60	1.00	103.00	5.90	1
SMBFJ70CA	SMBFJ70CA	70.00	77.80	86.00	1.00	113.00	5.30	1
SMBFJ75CA	SMBFJ75CA	75.00	83.30	92.10	1.00	121.00	5.00	1
SMBFJ78CA	SMBFJ78CA	78.00	86.70	95.80	1.00	126.00	4.80	1
SMBFJ85CA	SMBFJ85CA	85.00	94.40	104.00	1.00	137.00	4.40	1
SMBFJ90CA	SMBFJ90CA	90.00	100.00	111.00	1.00	146.00	4.10	1
SMBFJ100CA	SMBFJ100CA	100.00	111.00	123.00	1.00	162.00	3.70	1
SMBFJ110CA	SMBFJ110CA	110.00	122.00	135.00	1.00	177.00	3.40	1
SMBFJ120CA	SMBFJ120CA	120.00	133.00	147.00	1.00	193.00	3.10	1
SMBFJ130CA	SMBFJ130CA	130.00	144.00	159.00	1.00	209.00	2.90	1
SMBFJ150CA	SMBFJ150CA	150.00	167.00	185.00	1.00	243.00	2.50	1
SMBFJ160CA	SMBFJ160CA	160.00	178.00	197.00	1.00	259.00	2.30	1
SMBFJ170CA	SMBFJ170CA	170.00	189.00	209.00	1.00	275.00	2.20	1
SMBFJ180CA	SMBFJ180CA	180.00	198.00	221.00	1.00	291.00	2.10	1
SMBFJ190CA	SMBFJ190CA	190.00	209.00	233.00	1.00	307.00	2.00	1
SMBFJ200CA	SMBFJ200CA	200.00	220.00	246.00	1.00	324.00	1.90	1
SMBFJ220CA	SMBFJ220CA	220.00	246.00	272.00	1.00	356.00	1.70	1
SMBFJ250CA	SMBFJ250CA	250.00	279.00	309.00	1.00	405.00	1.50	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

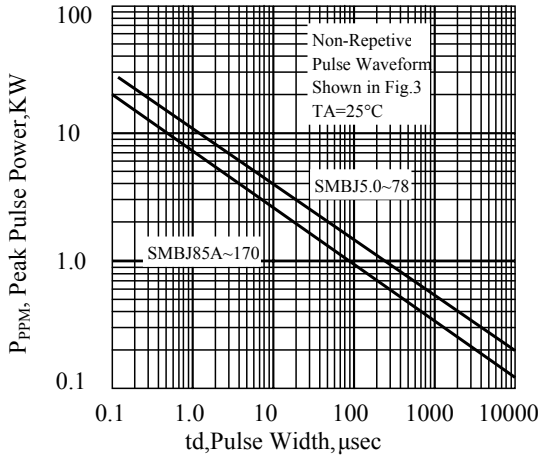


Fig. 2-Pulse Derating Curve

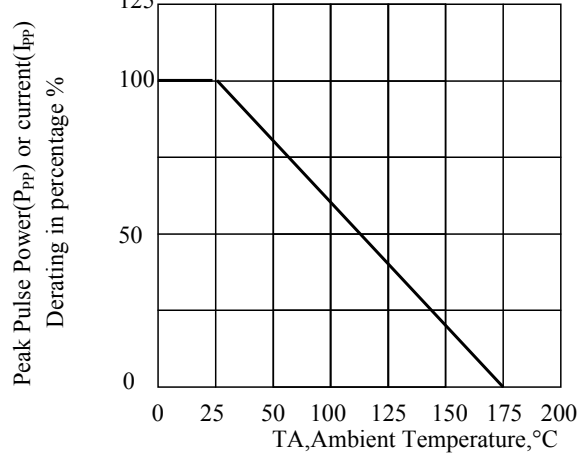


Fig. 3-Pulse Waveform

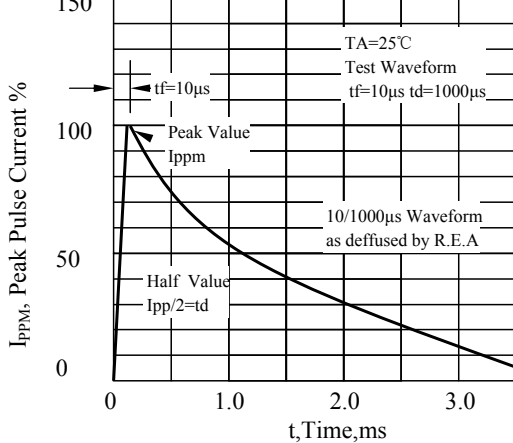


Fig. 4-Typical Junction Capacitance Unidirectional

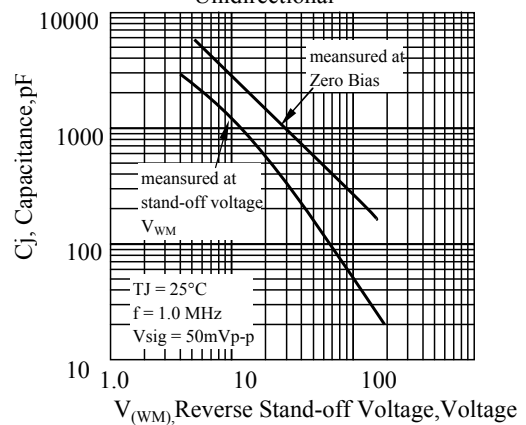


Fig 5. - typical transient thermal impedance

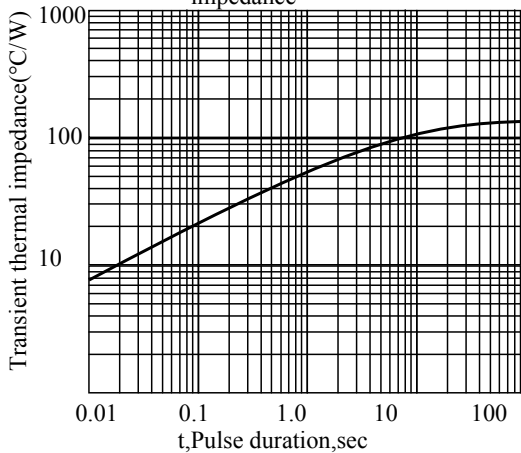
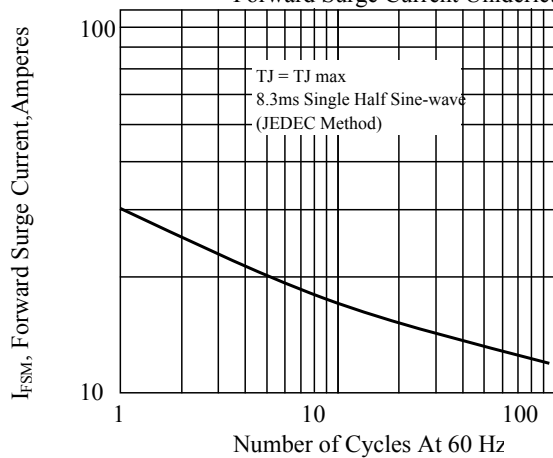


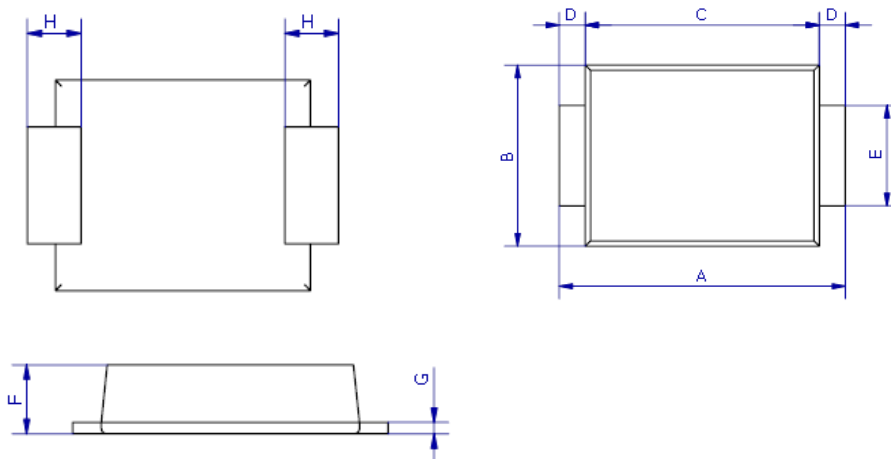
Fig. 6-Maximum Non-Repetitive Peak Forward Surge Current Unidirectional



## SMBFJ\*\*\* CA Series

### 3. dimension:

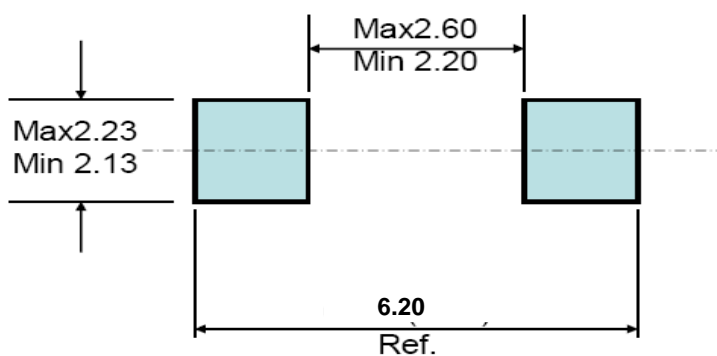
#### SMB-FL



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.3	5.7	0.209	0.224
B	3.4	3.8	0.134	0.150
C	4.3	4.7	0.169	0.185
D	0.45Typ		0.018Typ	
E	1.9	2.1	0.0748	0.08268
F	1.05	1.40	0.04134	0.05512
G	0.2	0.3	0.00591	0.00984
H	0.95Typ		0.037Typ	

#### Mounting Pad Layout

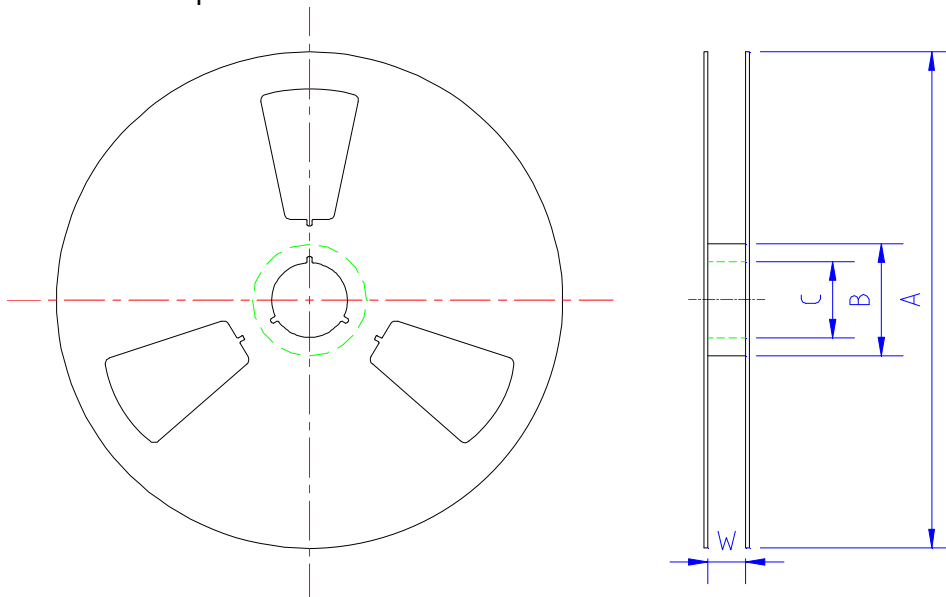
--- SMB-FL



5.1 、 SMD Packing Reel Spec & Packing Quantity

5.1.1 Reel Packing

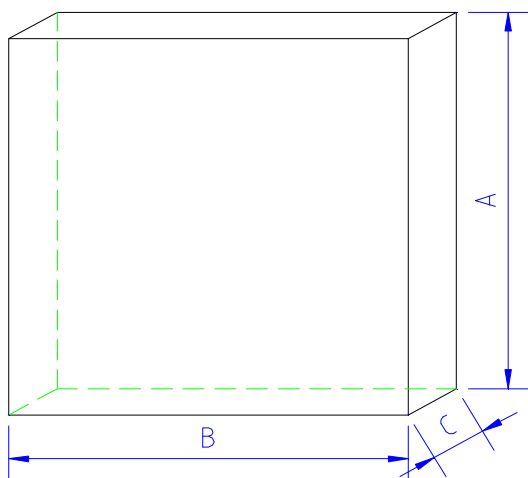
A. Reel Spec



unit: mm

SPEC	A	B	C	W	Quantity/Reel
SMA 7" reel	177.0±2.0	54.0±0.5	13.0±0.5	13.2±0.2	2K
SMA13" reel	330.0±2.0	75.0±0.5	13.0±0.5	13.2±0.2	5K
SMA-FL13" reel	330.0±2.0	75.0±0.5	13.0±0.5	13.2±0.2	5K
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

size	A	B	C
	335±5.0	335±2.0	40±1.0

as per above packing

Spec	Q' ty/Box
SMA13" reel	10K
TO277 13" reel	10K
SMB-FL 13" reel	10K

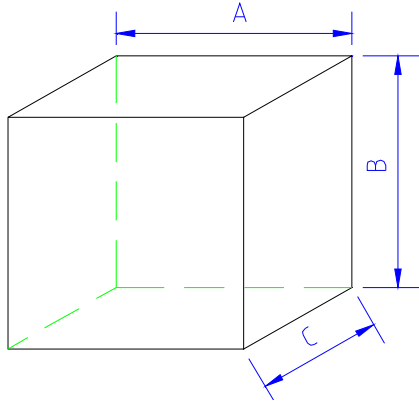
Title:  
Power Diode SMD Package Packing Spec

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C. 7" reel packing box



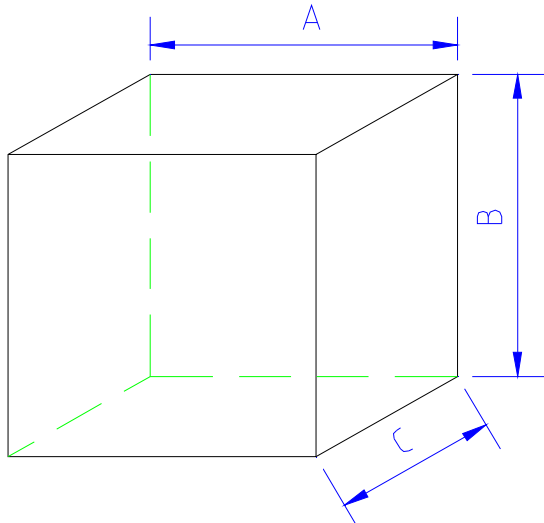
unit: mm

	A	B	C
SMA/SMA-FL	188±2.0	188±2.0	138±2.0
SOD123FL SOD323HE	186±2.0	139±2.0	185±2.0

as per above packing

	Q' ty/Box
SMA/SMA-FL	16K
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
SMA/SMA-FL 7" reel	80K
SMA13"reel	80K
SMA-FL13"reel	80K
TO277 13" reel	80K
SMB-FL 13" reel	80K

unit: mm

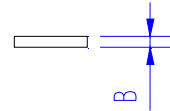
	A	B	C
SOD123FL SOD323HE	455±2.0	400±2.0	410±2.0

as per above packing

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

5.1.2 Tape Spec

A. Cover Tape



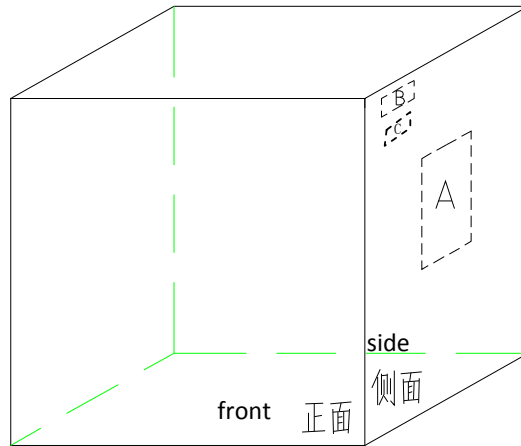
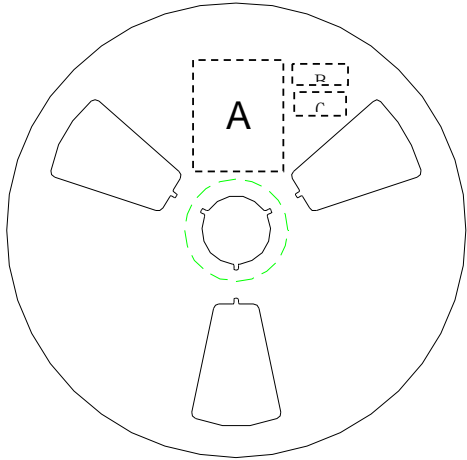
unit: mm

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



5.2、SMD Power Diode General Packing Spec

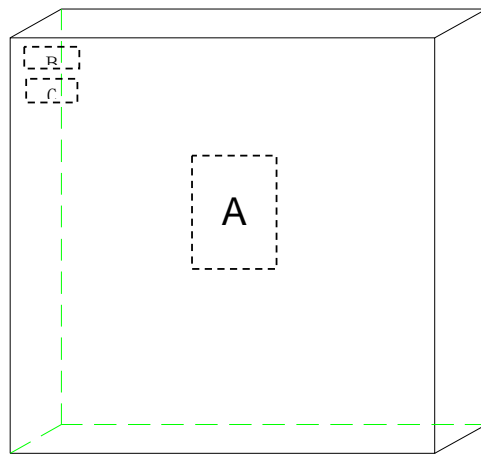
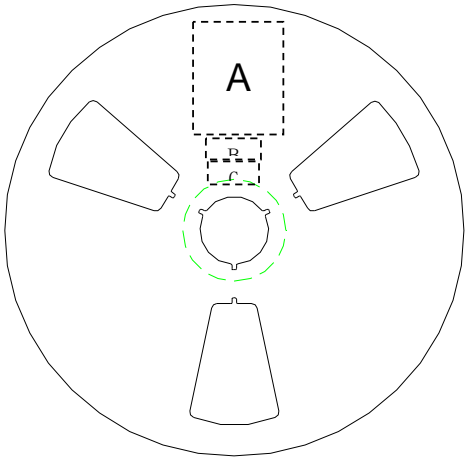
A. 7" reel all labels will be at cathode side of reel ;



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.





标题:

Power Diode SMD Package Packing Spec

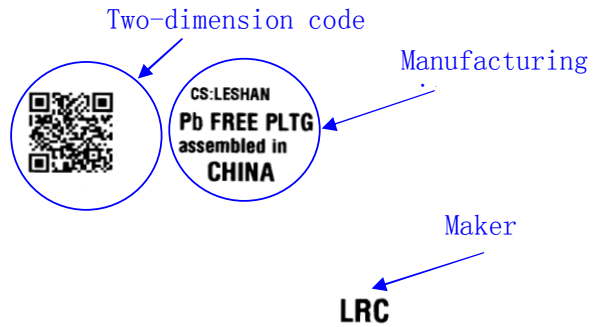
DOC NO.: WI-258

Version: 5 Modification: 0

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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



lot: 140106049X: 140106---2014/1/6; 049----lot number:49; X: product code

Environment Label



Halide-free Label



## SMBFJ\*\*\* CASeries

### 4. Update Record

版次	更新记录	更新作者	更新日期
1	第一版	周杰	2014.05.08

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[MMAD1108E3/TR13](#) [D5V0M1U2LP3-7](#) [SMAJ400A-TP](#) [AOZ8811DT-03](#) [AOZ8831DI-05](#) [AOZ8831DT-03](#) [SMAJ188CA](#) [3SMC33CA](#)  
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[MPLAD30KP43CAE3](#) [SMAJ43A-TP](#) [D5V0F6U8LP33-7](#) [TVS5501V10MUT5G](#) [5.0SMLJ24CA-TP](#) [SMAJ110CA-TP](#) [MPLAD15KP75CAE3](#)  
[MMAD1103e3/TR13](#) [DFLT40AQ-7](#)