

# SZBF \*\*\*A Series

## GLASS PASSIVATED JUNCTION Zener voltage regulator diodes 2.0 Watt Steady State

### Feature

- \* 2.0 W SMB-FL
- \* Zener voltage regulator diodes
- \* Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- \* We declare that the material of product compliance with RoHS requirements.
- \* Guarding for over voltage protection
- \* High temperature soldering guaranteed:  
260°C/10 seconds at terminals
- \* IEC61000-4-2 ESD Air Contact  $\geq \pm 15KV$
- \* MSL: 1

### Mechanical Data

- Case:** JEDEC SMB-FL molded plastic  
**Terminals:** Plated terminals, solderable per MIL-STD-750, Method 2026  
**Polarity:** Color band denoted cathode except Bipolar  
**Mounting Position:** Any  
**Weight:** Approximated 0.066 gram

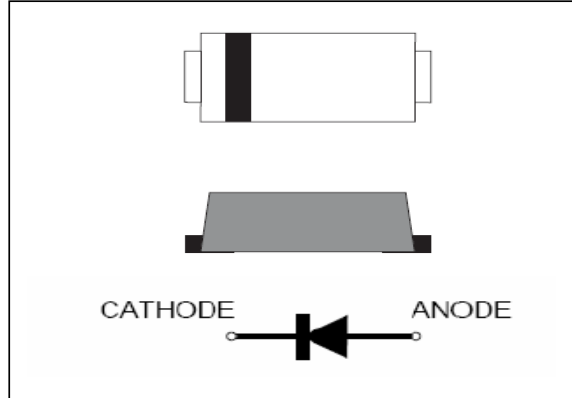
### 1. Electrical Characteristic

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
Steady State Power Dissipation at $T_L=75^\circ C$ (Note1)	$P_{M(AV)}$	2.0	Watts
Z-current	$I_Z$	$P_V/V_Z$	mA
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load(JECED Method) (Note 2)	$I_{FSM}$	60	Amps
Operating and Storage Temperature Range	$T_J, T_{STG}$	-50 to +150	°C

#### NOTES:

1. 8.0mm<sup>2</sup> (.013mm thick) land areas
2. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.



We declare that the material of product is Halogen free (green epoxy compound)

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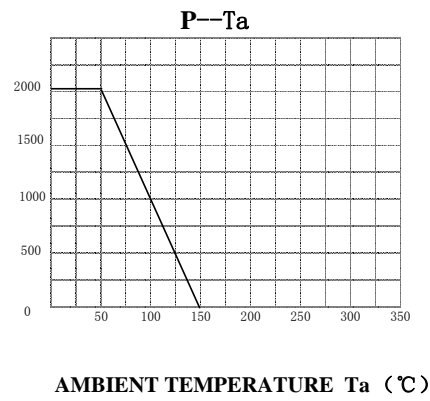
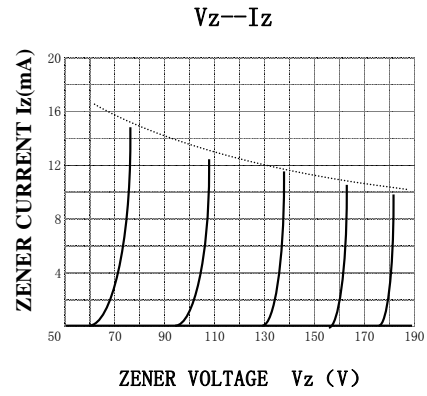
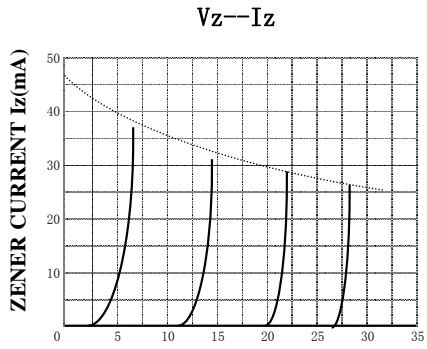
### 2.Product Characteristic

Vz tolerance : ±5%; Ta=25°C Vmax =1.2V @ IF = 200mA P=2 W; Tested with pulse tp=40ms

Type	Device marking code	Zener	Current	A and B Suffix only			Leakage Current		Maximum Regulator Current2)	
		Voltage	Izt	Zzt @ Izt	Zzk@ Izk	Zzk@ Izk	IR	VR	IzM	
		Vz@Izt								
		Volts	mA	Ohms	Ohms	m A	uA Max	Volts	mA	
SZBF5.1A	SZBF5.1A	5.1	98	7	550	1	100	1.0	178	
SZBF5.6A	SZBF5.6A	5.6	90	5	600			2.0	164	
SZBF6.2A	SZBF6.2A	6.2	82	2	700			3.0	146	
SZBF6.8A	SZBF6.8A	6.8	74	4	1300			4	294	
SZBF7.5A	SZBF7.5A	7.5	67	4.5	1300			0.5	5	267
SZBF8.2A	SZBF8.2A	8.2	61	5.5	1300			0.5	6	244
SZBF9.1A	SZBF9.1A	9.1	55	6	1300			0.5	7	220
SZBF10A	SZBF10A	10	50	7	1300	0.25	20	7.6	200	
SZBF11A	SZBF11A	11	45	8	1300			8.4	182	
SZBF12A	SZBF12A	12	42	9	1300			9.1	167	
SZBF13A	SZBF13A	13	38	10	1300			9.9	154	
SZBF15A	SZBF15A	15	33	14	1300			11.4	133	
SZBF16A	SZBF16A	16	31	16	1300			12.2	125	
SZBF18A	SZBF18A	18	28	20	1300			13.7	111	
SZBF20A	SZBF20A	20	25	22	1300			15.2	100	
SZBF22A	SZBF22A	22	23	23	1300			16.7	91	
SZBF24A	SZBF24A	24	21	25	1300			18.2	83	
SZBF27A	SZBF27A	27	19	35	1300			20.6	74	
SZBF30A	SZBF30A	30	17	40	1500			22.8	67	
SZBF33A	SZBF33A	33	15	45	1500			25.1	61	
SZBF36A	SZBF36A	36	14	50	1500			27.4	56	
SZBF39A	SZBF39A	39	13	60	1500			29.7	51	
SZBF43A	SZBF43A	43	12	70	2500			32.7	47	
SZBF47A	SZBF47A	47	11	80	2500			35.8	43	
SZBF51A	SZBF51A	51	10	95	2500	38.8	39			
SZBF56A	SZBF56A	56	9	110	2500	42.6	36			
SZBF62A	SZBF62A	62	8	125	2500	47.1	32			
SZBF68A	SZBF68A	68	7	150	2500	51.7	29			
SZBF75A	SZBF75A	75	7	175	2500	56	27			
SZBF82A	SZBF82A	82	6	200	3000	62.2	24			
SZBF91A	SZBF91A	91	5	250	3000	69.2	22			
SZBF100A	SZBF100A	100	5	350	3000	76	20			
SZBF110A	SZBF110A	110	5	550	5000	83	18			
SZBF120A	SZBF120A	120	4	750	5500	90	17			
SZBF130A	SZBF130A	130	4	900	6000	98	15			
SZBF150A	SZBF150A	150	3	1200	6500	113	13			
SZBF160A	SZBF160A	160	3	1350	7000	120	13			
SZBF180A	SZBF180A	180	3	1650	8500	135	11			
SZBF200A	SZBF200A	200	3	1950	10000	150	10			

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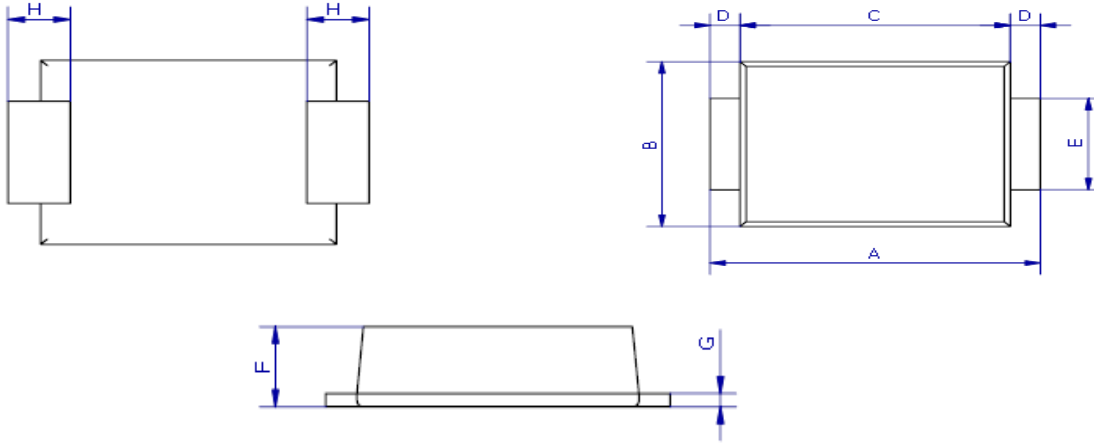
### 3.Characteristic Curves



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### 3. dimension:

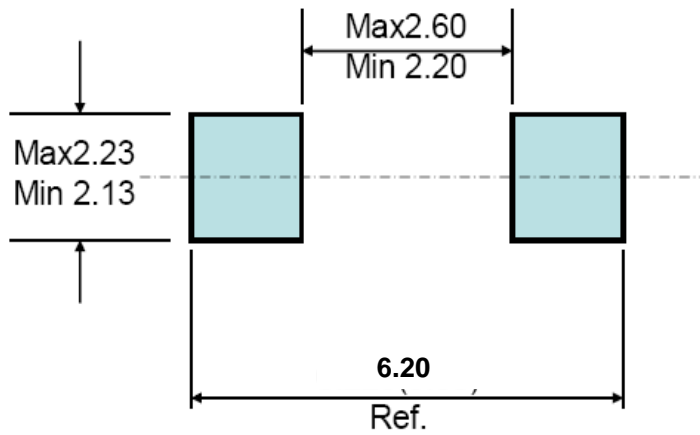
SMB-FL



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	

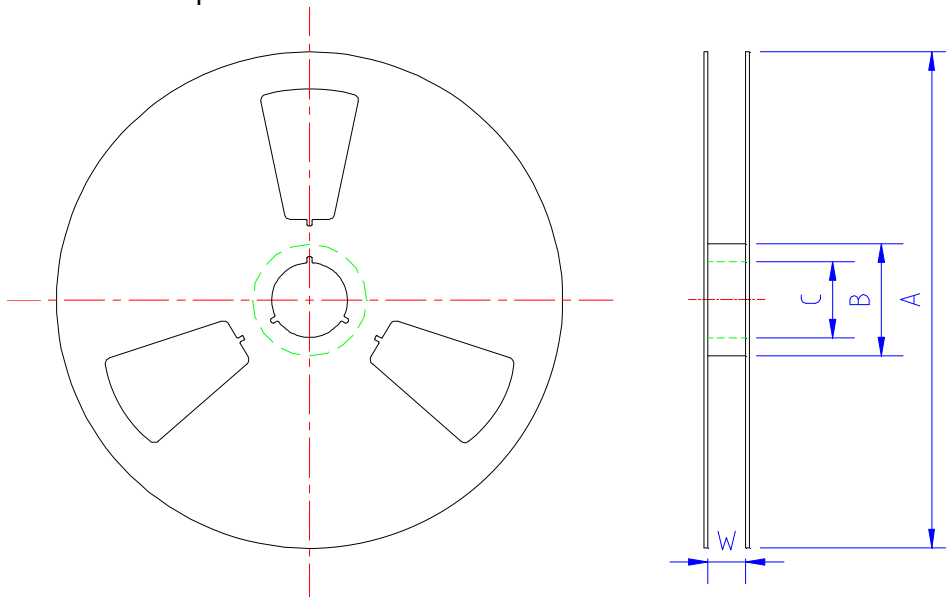
### Mounting Pad Layout

--- SMB-FL



5.1 、 SMD Packing Reel Spec & Packing Quantity

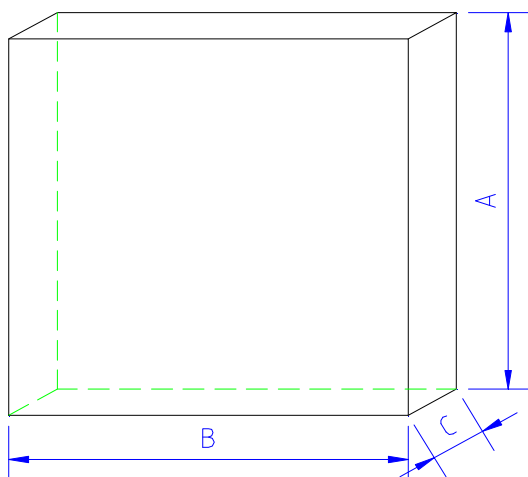
5.1.1 Reel Packing  
A. Reel Spec



unit: mm

SPEC	A	B	C	W	Quantity/Reel
SMA-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

size	A	B	C
	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

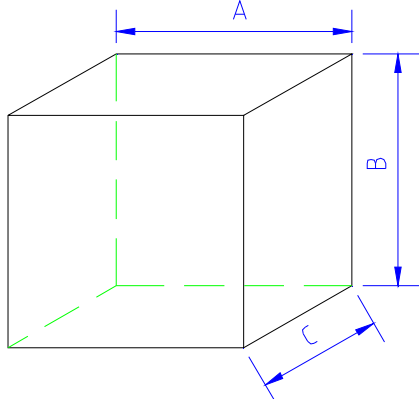
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C. 7" reel packing box



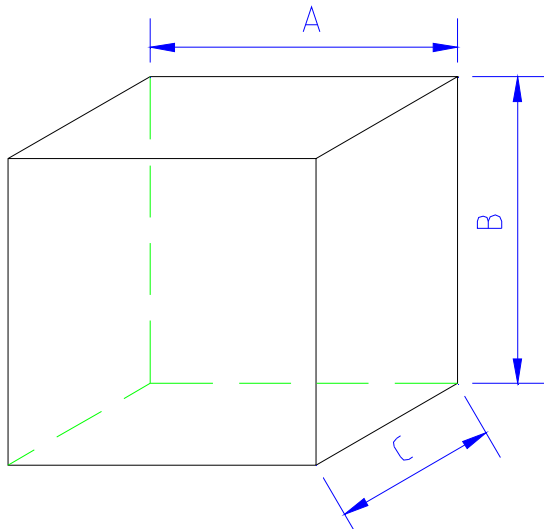
unit: mm

	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

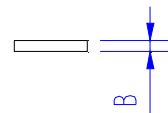
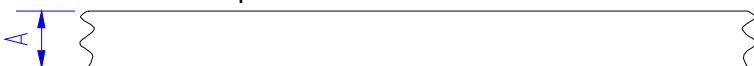
	A	B	C
SMA-FL			
SOD123FL			
SOD323HE	455±2.0	400±2.0	410±2.0

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

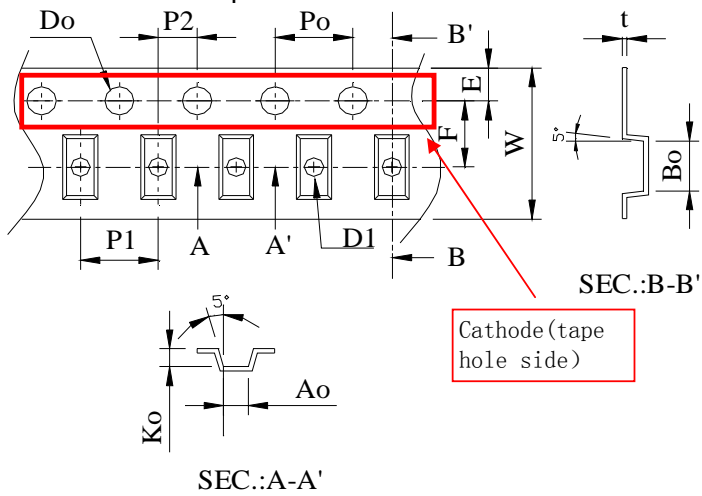
A. Cover Tape



unit: mm

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

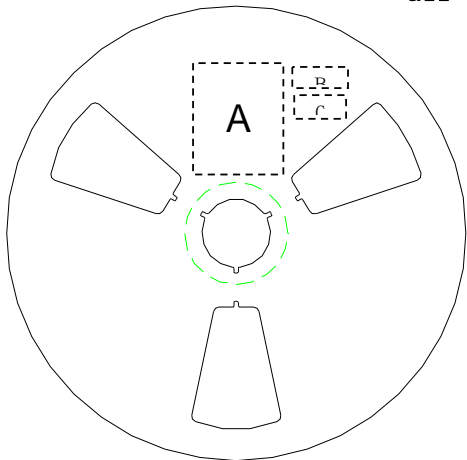
**B. Carrier Tape**



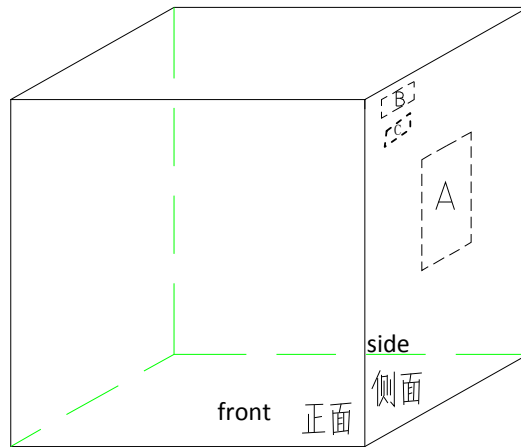
Item	SOD323HE	SOD123FL	SMA-FL	SMB-FL	TO277
W	8±0.3	8±0.3	12±0.3	12±0.3	12±0.3
P1	4±0.1	4±0.1	4±0.1	8±0.1	8±0.1
E	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1
F	3.5±0.05	3.5±0.05	5.5±0.05	5.5±0.05	5.5±0.05
D0	1.55±0.05	1.55±0.05	1.55±0.05	1.55±0.05	1.55±0.05
D1	1.1±0.1	1.1±0.1	1.5±0.1	1.55±0.05	1.5±0.1
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

5.2、SMD Power Diode General Packing Spec

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

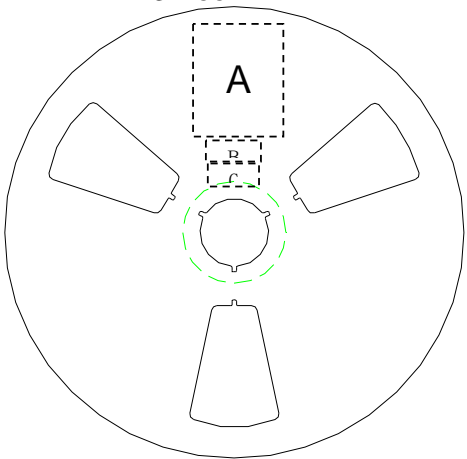


A:LRC label;



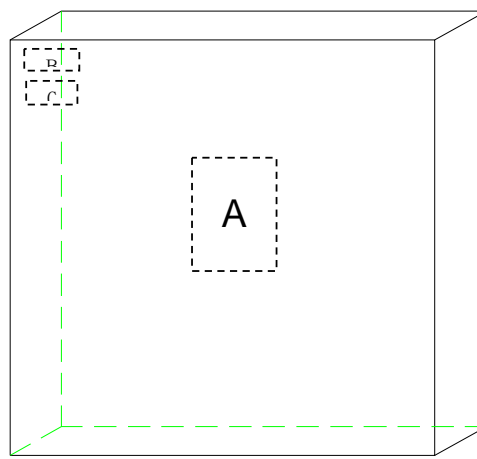
B:Environment Label C:Halide free label

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.

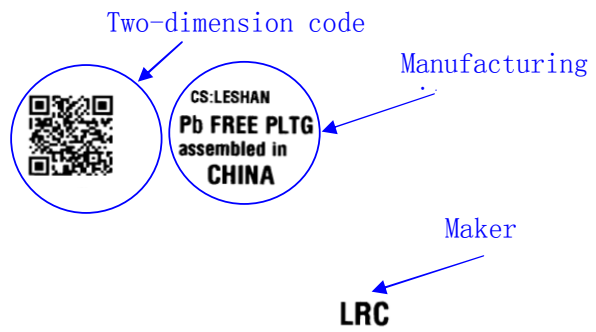




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C. Label Content :  
LRC Label

P/N → (1P) LPN: **SM140A**  
 Lot No. → (1T) LOT: **140106049X**  
 Date code → (9D) DTE: **1403**  
 Quantity → (Q) QTY: **10000**



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

Environment Label



Halide-free Label



## SZBF \*\*\*A Series

### 7. Update Record

版次	更新记录	更新作者	更新日期
1	第一版	周杰	2014. 05. 23
2	增加5.1~6.2	周杰	2014. 08. 14