

SODZ ***A -SH Series

GLASS PASSIVATED JUNCTION Zener voltage regulator diodes

1.0 Watt Steady State

Feature

- * 1 W SOD-123-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 SOD-123-FL/MINI SMA molded plastic

Terminals :Plated terminals, solderable per MIL-STD-750,Method 2026

Polarity: Color band denoted cathode except Bipolar

Mounting Position: Any

Weight : Approximated 0.0155 gram

1.Electrical Characteristic

Ratings at 25°C ambient temperature unless otherwise specified.

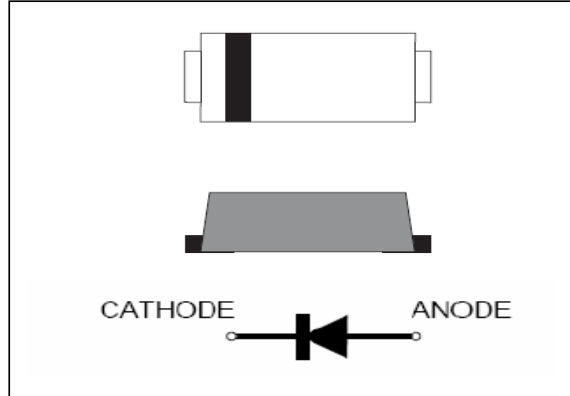
Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

RATING	SYMBOL	VALUE	UNITS
Steady State Power Dissipation at $T=75^{\circ}C$ (Note1)	$P_{M(AV)}$	1.0	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}	40	Amps
Operating and Storage Temperature Range	T_J, T_{STG}	-50 to +150	°C

NOTES:

1. 8.0mm² (.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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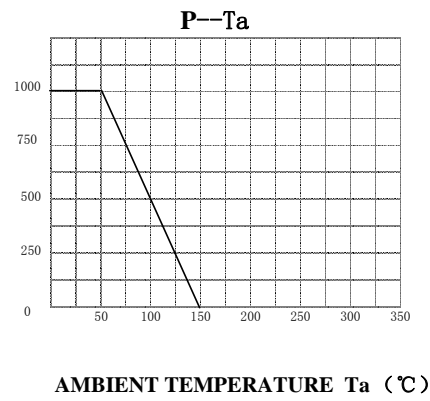
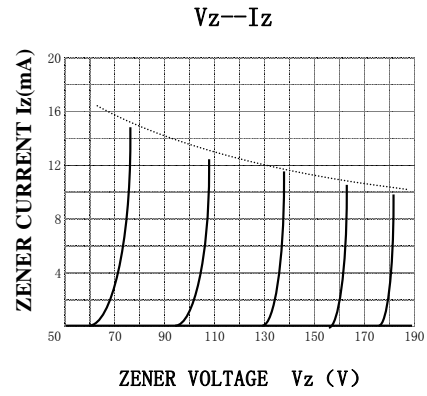
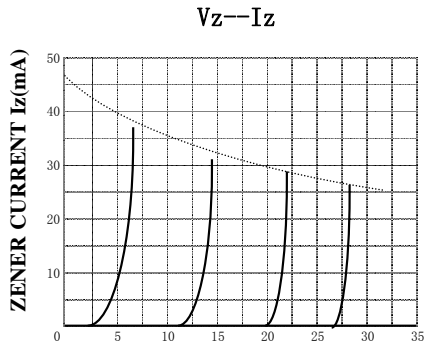
2.Product Characteristic

Vz tolerance : ±5%; Tested with pulse tp=40ms; Ta=25℃ Vmax =1.2V @ IF = 200mA P=1 W

Type	Device marking code	Zener	Current	A and B Suffix only			Leakage Current		Surge current	Maximum Regulator Current(2)	
		Voltage	Izt	Zzt @ Izt	Zzk@ Izk	Zzk@ Izk	IR	VR	IR @Tamb = 25 °C	IZM @ Tamb =50 ° C	
		Vz@Izt									
		Volts	mA	Ohms	Ohms	m A	uA Max	Volts	mA	mA	
SODZ5.1A-SH	Z5.1	5.1	49	7	550	1	100	1.0	890	178	
SODZ5.6A-SH	Z5.6	5.6	45	5	600			2.0	810	164	
SODZ6.2A-SH	Z6.2	6.2	41	2	700			3.0	730	146	
SODZ6.8A-SH	Z6.8	6.8	37	4	1300			4	660	133	
SODZ7.5A-SH	Z7.5	7.5	34	4.5	1300			0.5	5	605	121
SODZ8.2A-SH	Z8.2	8.2	31	5.5	1300			0.5	6	550	110
SODZ9.1A-SH	Z9.1	9.1	28	6	1300			0.5	7	500	100
SODZ10A-SH	Z10	10	25	7	1300	0.25	20	7.6	454	91	
SODZ11A-SH	Z11	11	23	8	1300			8.4	414	83	
SODZ12A-SH	Z12	12	21	9	1300			9.1	380	76	
SODZ13A-SH	Z13	13	19	10	1300			9.9	344	69	
SODZ15A-SH	Z15	15	17	14	1300			11.4	304	61	
SODZ16A-SH	Z16	16	15.5	16	1300			12.2	285	57	
SODZ18A-SH	Z18	18	14	20	1300			13.7	250	50	
SODZ20A-SH	Z20	20	12.5	22	1300			15.2	225	45	
SODZ22A-SH	Z22	22	11.5	23	1300			16.7	205	41	
SODZ24A-SH	Z24	24	10.5	25	1300			18.2	190	38	
SODZ27A-SH	Z27	27	9.5	35	1300			20.6	170	34	
SODZ30A-SH	Z30	30	8.5	40	1500			22.8	150	30	
SODZ33A-SH	Z33	33	7.5	45	1500			25.1	135	27	
SODZ36A-SH	Z36	36	7	50	1500			27.4	125	25	
SODZ39A-SH	Z39	39	6.5	60	1500			29.7	115	23	
SODZ43A-SH	Z43	43	6	70	2500			32.7	110	22	
SODZ47A-SH	Z47	47	5.5	80	2500			35.8	95	19	
SODZ51A-SH	Z51	51	5	95	2500	38.8	90	18			
SODZ56A-SH	Z56	56	4.5	110	2500	42.6	80	16			
SODZ62A-SH	Z62	62	4	125	2500	47.1	70	14			
SODZ68A-SH	Z68	68	3.7	150	2500	51.7	65	13			
SODZ75A-SH	Z75	75	3.3	175	2500	56	60	12			
SODZ82A-SH	Z82	82	3	200	3000	62.2	55	11			
SODZ91A-SH	Z91	91	2.8	250	3000	69.2	50	10			
SODZ100A-SH	Z100	100	2.5	350	3000	76	45	9			
SODZ110A-SH	Z110	110	2	550	5000	83	42	8			
SODZ120A-SH	Z120	120	1.5	750	5500	90	38	7			
SODZ130A-SH	Z130	130	1	900	6000	98	34	6			
SODZ150A-SH	Z150	150	1	1200	6500	113	30	6			
SODZ160A-SH	Z160	160	1	1350	7000	120	28	6			
SODZ180A-SH	Z180	180	1	1650	8500	135	25	5			
SODZ200A-SH	Z200	200	1	1950	10000	150	23	4			

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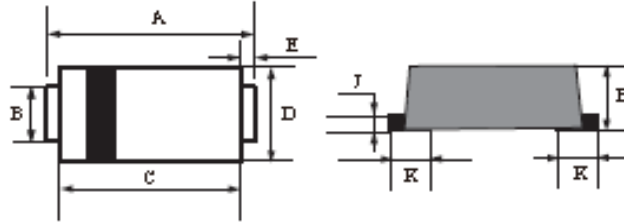
3.Characteristic Curves



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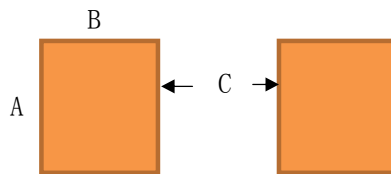
3. dimension:

SOD123-FL



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.5	3.9	0.138	0.159
B	0.75	0.95	0.029	0.037
C	2.6	3.0	0.103	0.119
D	1.6	2.0	0.063	0.079
E	0.45Typ		0.018Typ	
H	0.9	1.2	0.036	0.047
J	0.12	0.22	0.005	0.009
K	0.8Typ		0.032Typ	

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD123-FL	0.044(1.10)	0.040(1.00)	0.079(2.00)

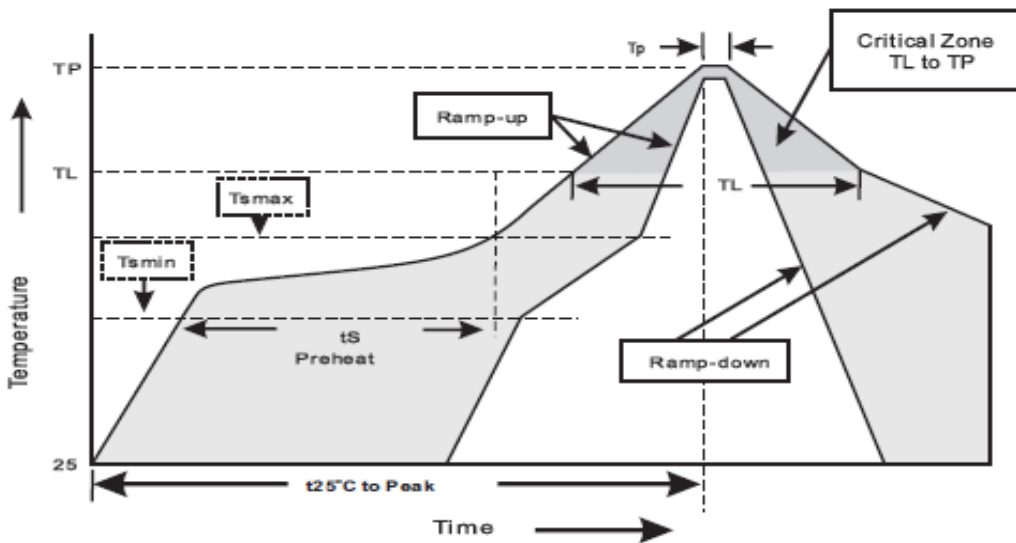
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Reel packing

PACKAGE	REEL SIZE	REEL (PCS)	COMPONENT SPACING (mm)	BOX (pcs)	INNER BOX (mm)	REEL DIA. (mm)	CARTON SIZE (mm)	CARTON (PCS)	APPOX. GROSS WEIGHT (kg)
SOD123-FL	7"	3,000	4.0	30,000	183*183*123	178	382*262*387	240,000	8.7

5.Suggested thermal profile for soldering process

1. Storage environment : Temperature=5~40°C Humidity=55±25%
2. Reflow soldering of surface-mount device



3. Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T _L to T _P)	<3°C/sec
Preheat - Temperature Min(T _{smin}) - Temperature Max(T _{smax}) - Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smax} to T _L - Ramp-up Rate	<3sec
Time maintained above: - Temperature (T _L) - Time(t _L)	217°C 60-260sec
Peak Temperature(T _P)	255 -0/+5°C
Time within 5°C of actual Peak Temperature(T _P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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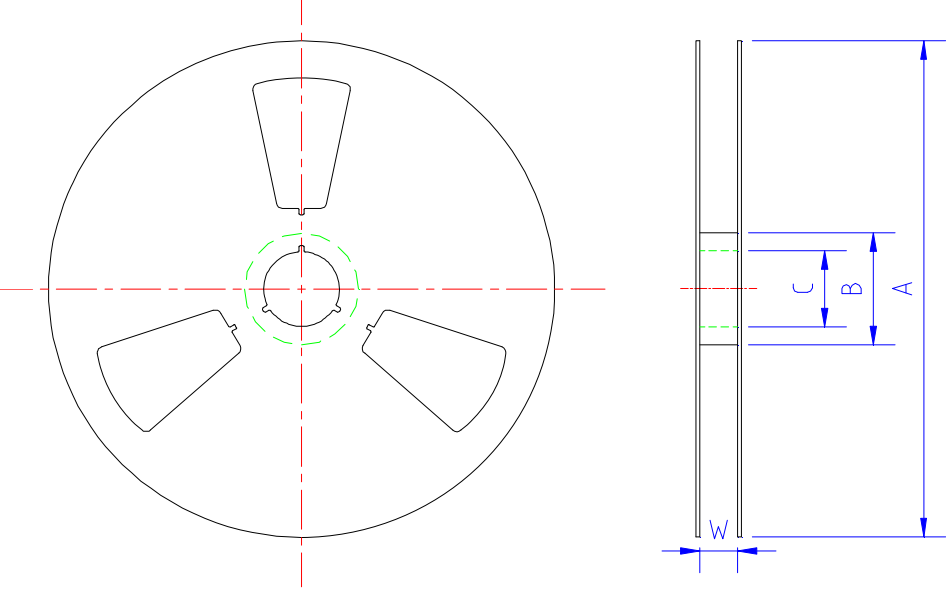
6.High reliability test capabilities

Item Test	Condition	Reference
Solder Resistance	at 260±5°C for 10±2sec immerse body into solder 1/16" ± 1/32"	MIL-STD-750D METHOD-2031
Solderability	at 245±5°C for 5 sec	MIL-STD-202F METHOD-208
High Temperature Reverse Bias	V _R =80% rate at T _J =150°C for 168hrs	MIL-STD-750D METHOD-1038
Forward Operation Life	Rated average rectifier current T _A =25°C for 500hrs	MIL-STD-750D METHOD-1027
Intermittent Operation Life	T _A =25°C , I _F =I _o On state:power on for 5 min. Off state:power off for 5 min. on and off for 500 cycles	MIL-STD-750D METHOD-1036
Pressure Cooker	15P _{SIG} at T _A =121°C for 4hrs	JESD22-A102
Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. Total 10 cycles	MIL-STD-750D METHOD-1051
Thermal Shock	0°C for 5min. Rise to 100°C for 5min. Total 10 cycles	MIL-STD-750D METHOD-1056
Forward Surge	8.3ms single half sine-wave superimposed on rated load,one surge	MIL-STD-750D METHOD-4066-2
Humidity	at T _A =85°C , RH=85% for 1000hrs	MIL-STD-750D METHOD-1021
High Temperature Storage Life	at 175°C for 1000hrs	MIL-STD-750D METHOD-1031

5.1 、 SMD Packing Reel Spec & Packing Quantity

5.1.1 Reel Packing

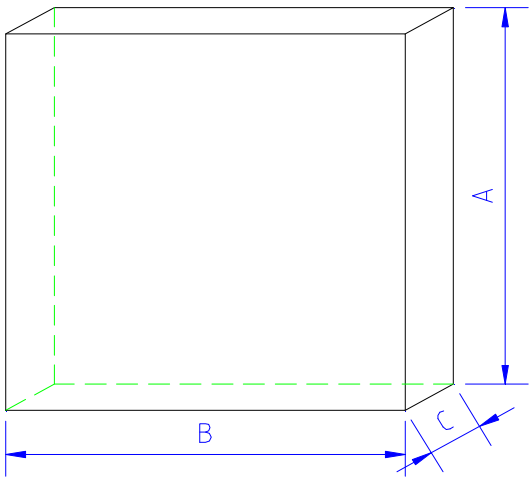
A. Reel Spec



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

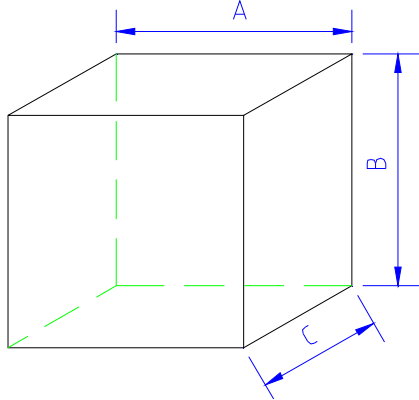
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C. 7" reel packing box



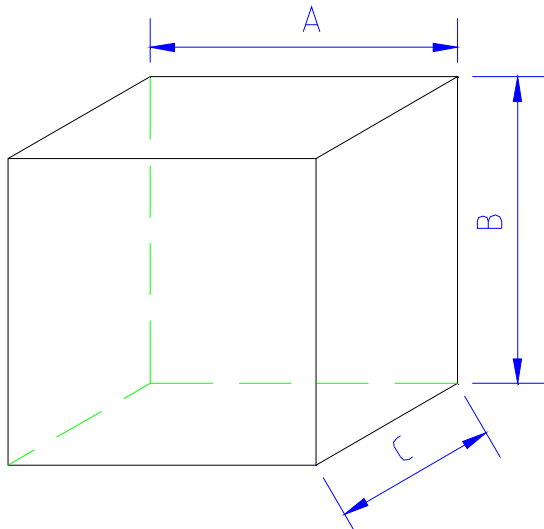
unit: mm

	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

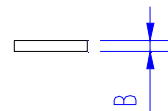
	A	B	C
SMA-FL			
SOD123FL			
SOD323HE	455±2.0	400±2.0	410±2.0

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

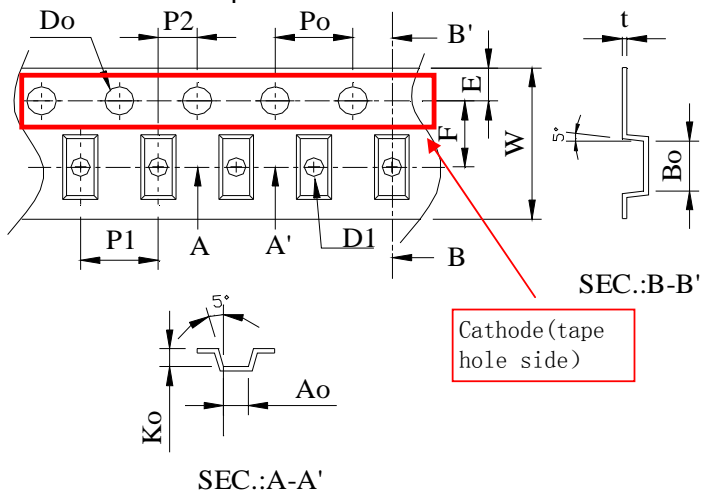
A. Cover Tape



unit: mm

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

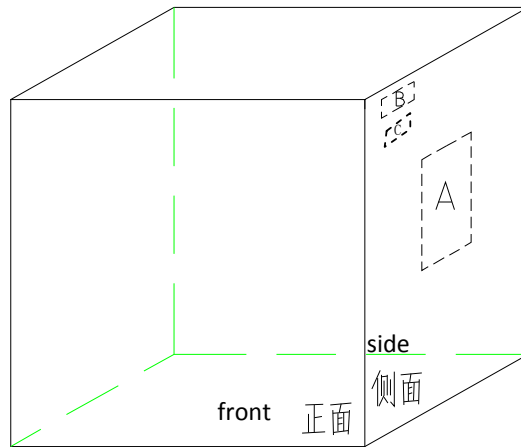
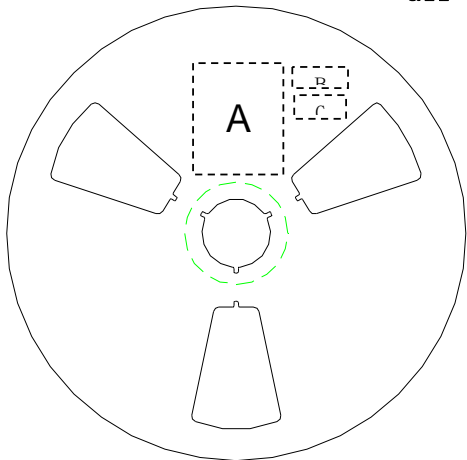
B. Carrier Tape



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

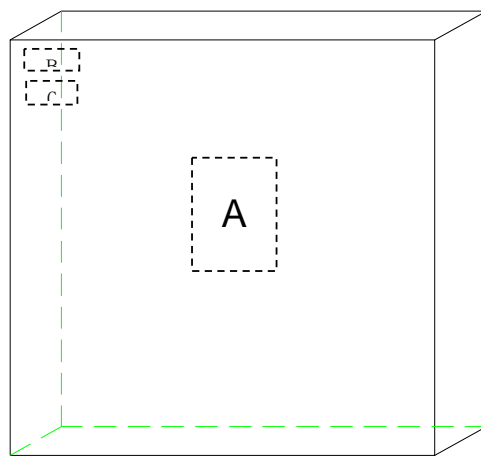
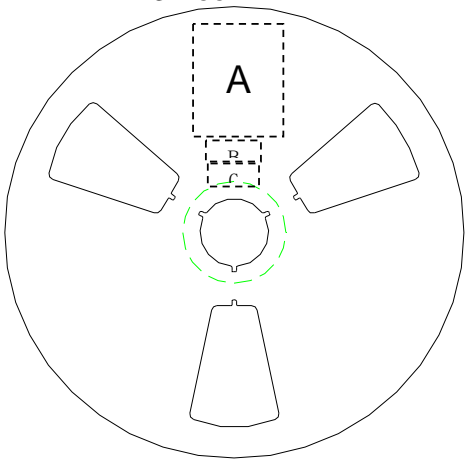
A. 7" reel all labels will be at cathode side of reel ;



A:LRC label;

B:Environment Label C:Halide free label

B. 13" reel



A:LRC label;

B:Environment Labe C:Halide free label

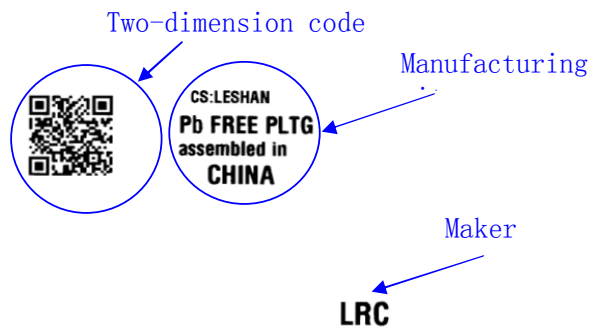
C. Tape lead: face anode side of the reel, upper side is the tape lead position. All labels are at cathode side of the reel.



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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



SODZ ***A -SH Series

7. Update Record

版次	更新记录	更新作者	更新日期
1	第一版	周杰	2013.06.18
2	增加5.1~6.2V	周杰	2014.08.14