

# SM220AF thru SM2100AF

## Schottky Barrier Rectifiers

Reverse Voltage 20 to 100V Forward Current 2.0A

### FEATURES

- \* Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- \* Low power loss, high efficiency
- \* For use in low voltage high frequency inverters, free wheeling, and polarity protection applications
- \* Guardring for over voltage protection
- \* High temperature soldering guaranteed: 260°C/10 seconds at terminals

### Mechanical Data

Case: JEDEC SMA-FL

molded plastic over sky die

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

Polarity: Color band denotes cathode end

Mounting Position Any

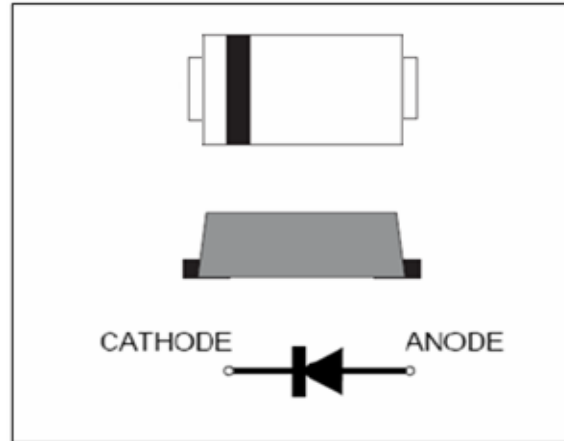
Weight: 0.0327 g

Handling precaution None

### 1. Electrical Characteristic

**Maximum & Thermal Characteristics Ratings** at 25°C ambient temperature unless otherwise specified.

Parameter Symbol	symbol	SM220 AF	SM230 AF	SM240 AF	SM245 AF	SM250 AF	SM260 AF	SM280 AF	SM2100 AF	Unit
device marking code		S22	S23	S24	S245	S25	S26	S28	S210	
Maximum repetitive peak reverse voltage	VRRM	20	30	40	45	50	60	80	100	V
Maximum RMS voltage	VRMS	14	21	28	31.5	35	42	56	70	V
Maximum DC blocking voltage	VDC	20	30	40	45	50	60	80	100	V
Maximum average forward rectified current at TC = 75°C (See fig. 1)	IF(AV)	2.0								A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	IFSM	60.0								A
Typical thermal resistance (Note 1)	R $\theta$ JA R $\theta$ Jc	150 25								°C/W
Operating junction and storage temperature range	TJ, TSTG	-40 to +150								°C



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

**Electrical Characteristics Ratings** at 25°C ambient temperature unless otherwise specified.

Parameter Symbol	symbol	SM220 AF	SM230 AF	SM240 AF	SM245 AF	SM250 AF	SM260 AF	SM280 AF	SM2100 AF	Unit	
Maximum instantaneous forward voltage at 2.0A	V <sub>F</sub>	0.50			0.70		0.85			V	
Maximum DC reverse current TA = 25°C at rated DC blocking voltage Tj = 125°C	IR	0.5					5.0				mA
Typical junction capacitance at 4.0V, 1MHz	CJ	110									PF

#### NOTES:

1. 8.0mm<sup>2</sup> (.013mm thick) land areas

# SM220AF thru SM2100AF

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

Fig. 1 - Forward Current Derating Curve

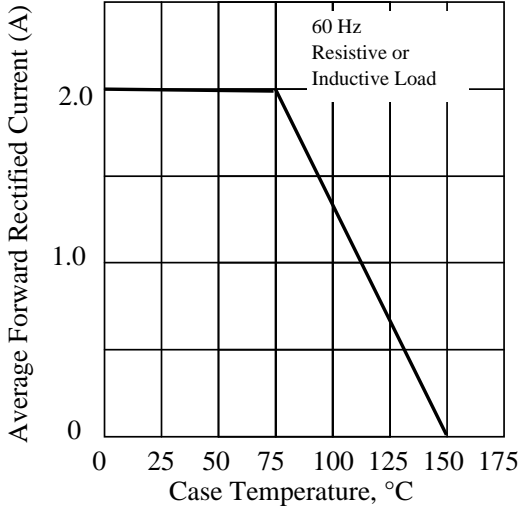


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

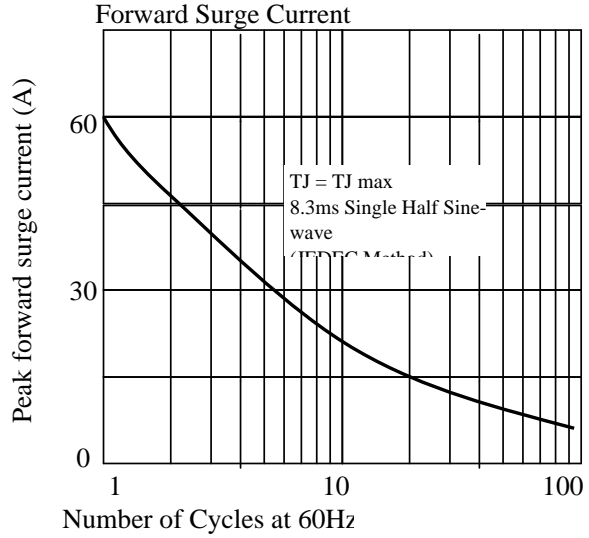


Fig 3. - Typical Instantaneous Forward Characteristics

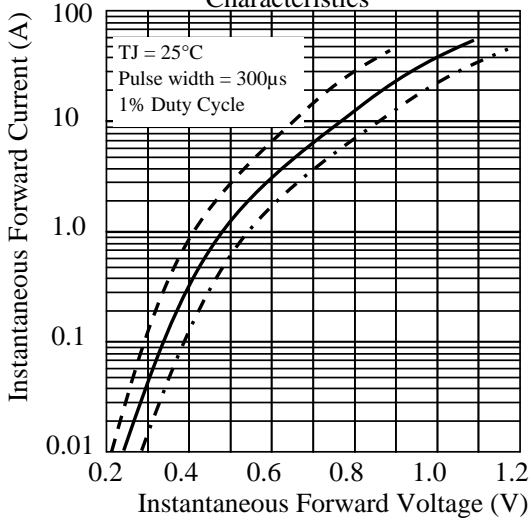


Fig 4. - Typical Reverse Characteristics

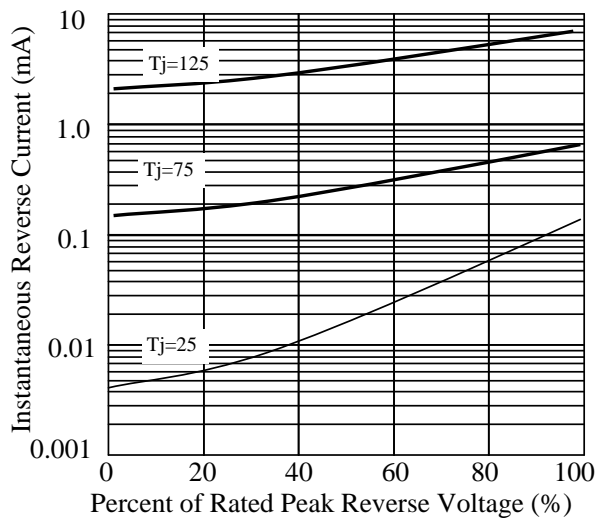


Fig 5. - typical transient thermal impedance

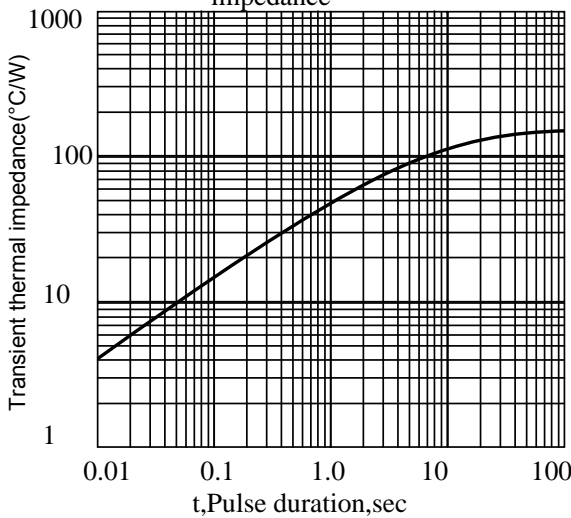
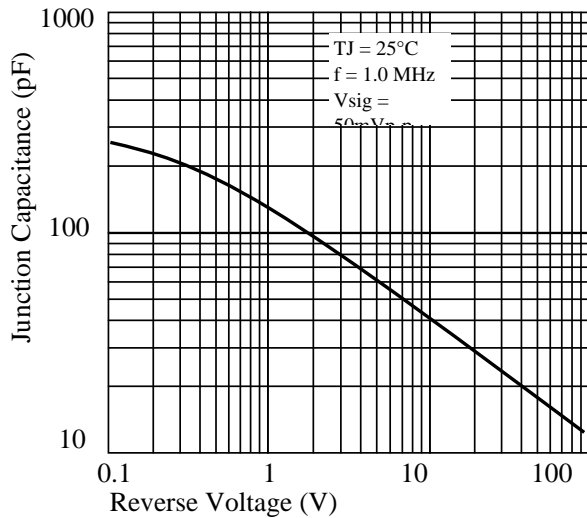
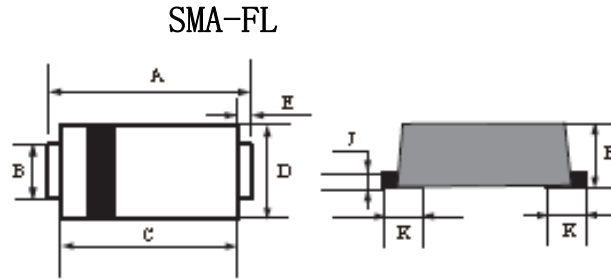


Fig 6. - Typical Junction Capacitance



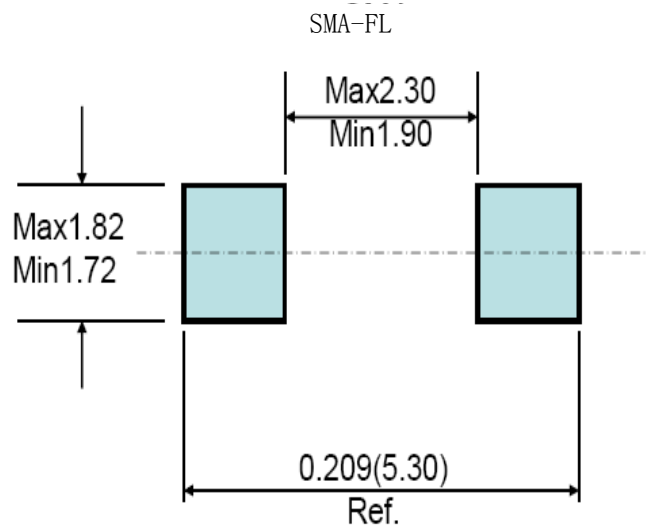
## SM220AF thru SM2100AF

### 3. dimension:



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	
H	0.9	1.2	0.036	0.047
J	0.11	0.21	0.005	0.009

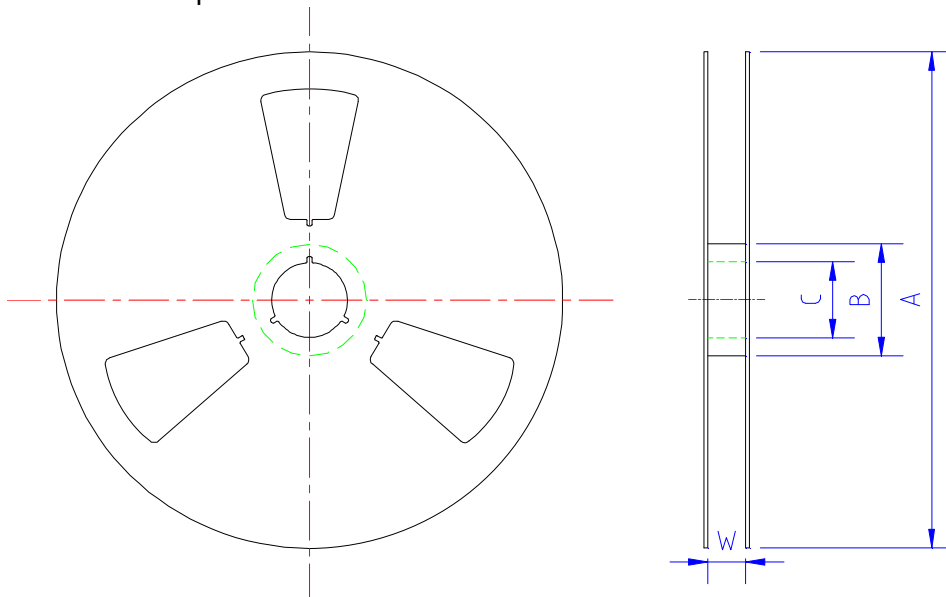
### Mounting Pad Layout



SM240AF: " S"--肖特基产品; M---贴片产品; "2"--正向电流2A; " 40"---VB为40V;AF---SMA-FL封装;

5.1 、 SMD Packing Reel Spec & Packing Quantity

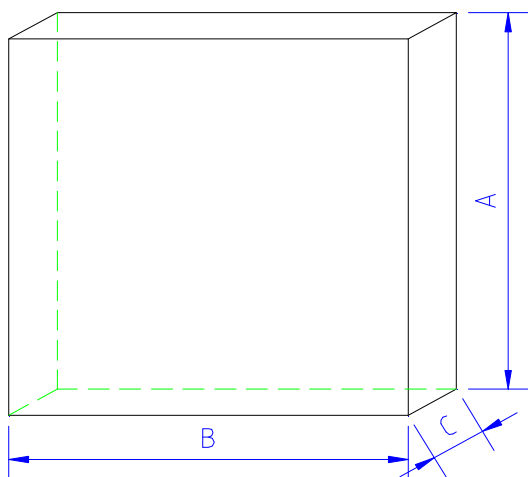
5.1.1 Reel Packing  
A. Reel Spec



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

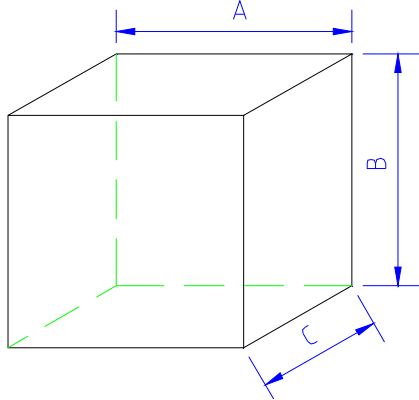
Title:  
Power Diode SMD Package Packing Spec

DOC NO.: WI-258

DOC NO.: WI-258

Page: 3

C. 7" reel packing box



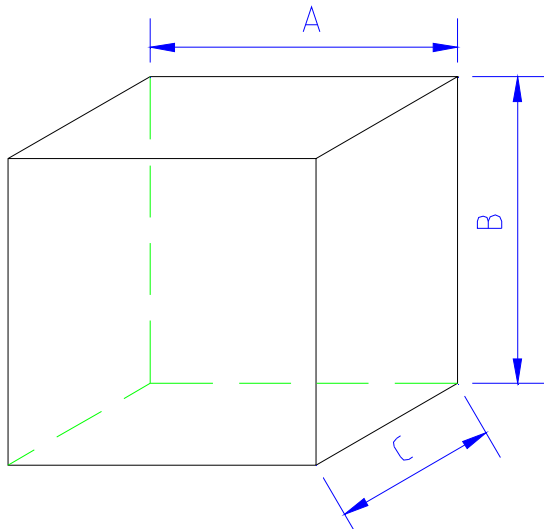
unit: mm

	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

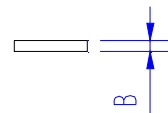
	A	B	C
SMA-FL			
SOD123FL			
SOD323HE	455±2.0	400±2.0	410±2.0

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

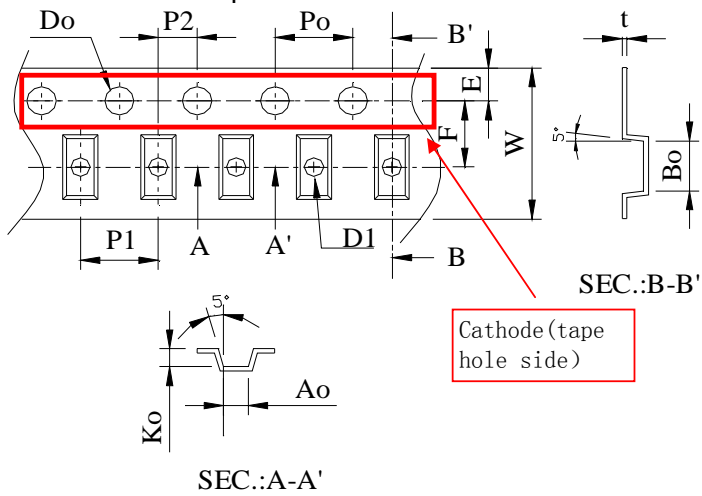
A. Cover Tape



unit: mm

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

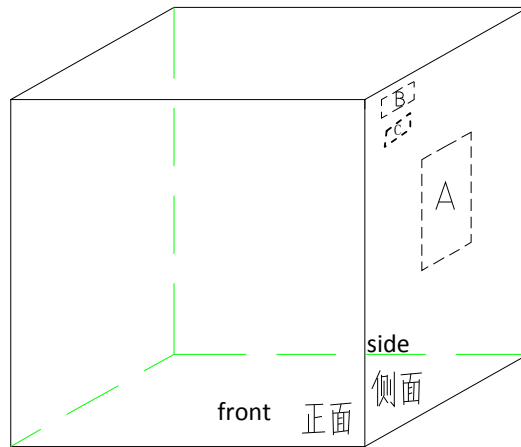
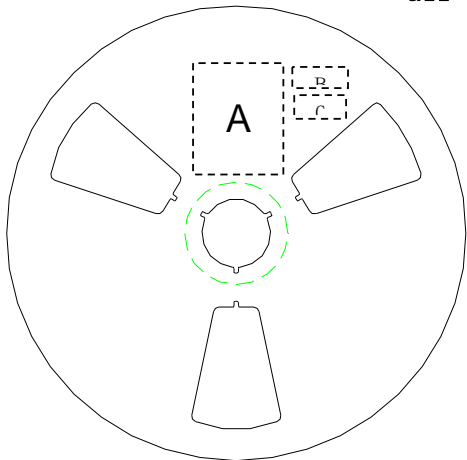
**B. Carrier Tape**



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

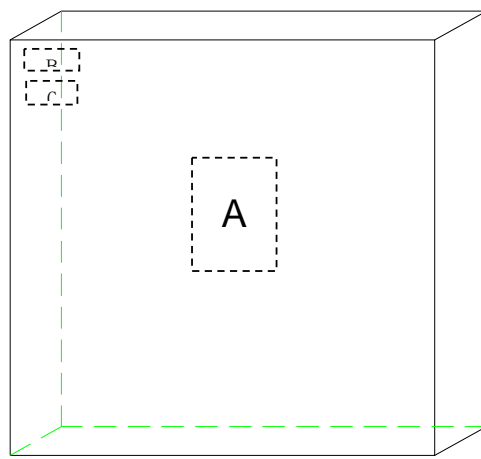
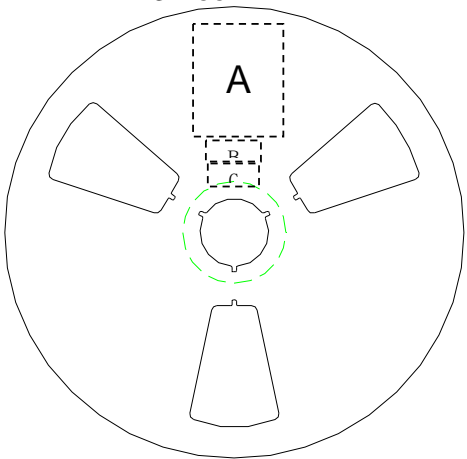
A. 7" reel all labels will be at cathode side of reel ;



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.

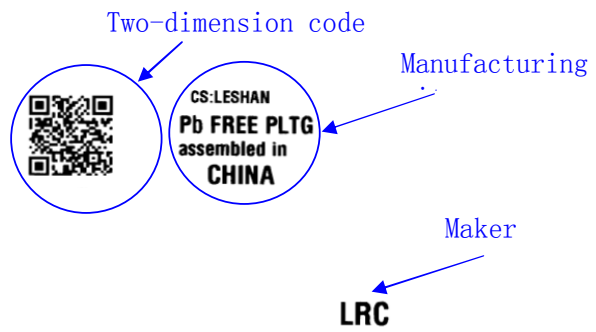


→  
User Direction of Feed

标题: <b>Power Diode SMD Package Packing Spec</b>	DOC NO.: WI-258
	Version: 5    Modification: 0
	Page: 6

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





## SM220AF thru SM2100AF

### 4. Update Record

版次	更新记录	更新作者	更新日期
1	第一版	周杰	2014. 04. 28
2	增加SB245AF	周杰	2014. 11. 06