

# HFMAF101 thru HFMAF109

## Surface Mount Glass Passivated High Efficiency Rectifiers

### Reverse Voltage 50 to 1200V Forward Current 1.0A

#### FEATURES

- \* Plastic package has Underwriters Laboratories Flammability Classification 94V-0
- \* Ideally suited for use in very high frequency switching power supplies, inverters and as free wheeling diodes
- \* Ultrafast recovery time for high efficiency
- \* Excellent high temperature switching
- \* Soft recovery characteristics
- \* Cavity-free glass passivated junction
- \* High temperature soldering guaranteed:
- \* 260°C/10 seconds, 0.375" (9.5mm) lead length, 5 lbs. (2.3kg) tension

#### Mechanical Data

**Case:** JEDEC SMA-FL, molded plastic over glass die

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

**Polarity:** Color band denotes cathode end

**Mounting Position:** Any

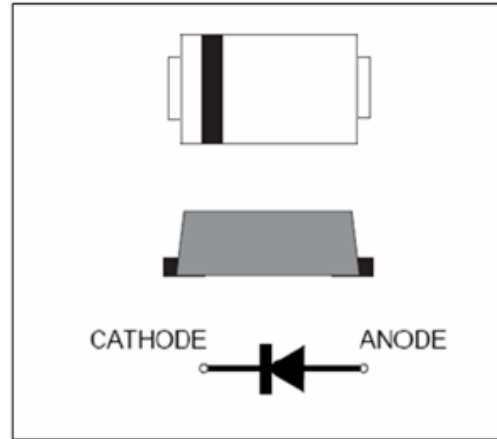
**Weight:** 0.0327 g

**Handling precaution:** None

#### 1. Electrical Characteristic

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

Parameter Symbol	symbol	HFMA F 101	HFMA F 102	HFMA F 103	HFMA F 104	HFMA F 105	HFMA F 106	HFMA F 107	HFMA F 108	HFMA F 109	Unit
marking		HF1	HF2	HF3	HF4	HF5	HF6	HF7	HF8	HF9	
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	200	300	400	600	800	1000	1200	V
Maximum RSM voltage	$V_{RSM}$	35	70	140	210	280	420	560	700	840	V
Maximum DC blocking voltage	$V_{DC}$	50	100	200	300	400	600	800	1000	1200	V
Maximum average forward rectified current lead length at $T_C = 75^\circ\text{C}$	$I_{F(AV)}$	1.0									A
Peak forward surge current 8.3ms single half sine-wave, superimposed on rated load (JEDEC Method)	$I_{FSM}$	30									A
Maximum full load reverse current, full cycle average, 0.375"(9.5mm) lead lengths at $\bar{I} = 55^\circ\text{C}$	$I_{R(AV)}$	100									$\mu\text{A}$
Typical thermal resistance (Note 2)	$R_{\theta JA}$	150									$^\circ\text{C/W}$
	$R_{\theta JC}$	25									
Operating junction and storage temperature range	$T_J, T_{STG}$	-50 to +150									$^\circ\text{C}$



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	HFMA F 101	HFMA F 102	HFMA F 103	HFMA F 104	HFMA F 105	HFMA F 106	HFMA F 107	HFMA F 108	HFMA F 109	Unit	
Maximum instantaneous forward voltage at 1.0A	$V_F$	1.00		1.30		1.85					V	
Maximum DC reverse current $T_A = 25^\circ\text{C}$ at rated DC blocking voltage $T_J = 100^\circ\text{C}$	$I_R$	5.0					50					$\mu\text{A}$
Typical reverse recovery time (Note 1)	$t_{rr}$	50					75					ns
Typical junction capacitance at 4.0V, 1MHz	$C_J$	17										PF

#### NOTES:

1.  $I_F = 0.5\text{A}$ ,  $I_R = 1.0\text{A}$ ,  $IRR = 0.25\text{A}$
2. 8.0mm<sup>2</sup> (.013mm thick) land areas

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

Fig. 1 - Forward Current Derating Curve

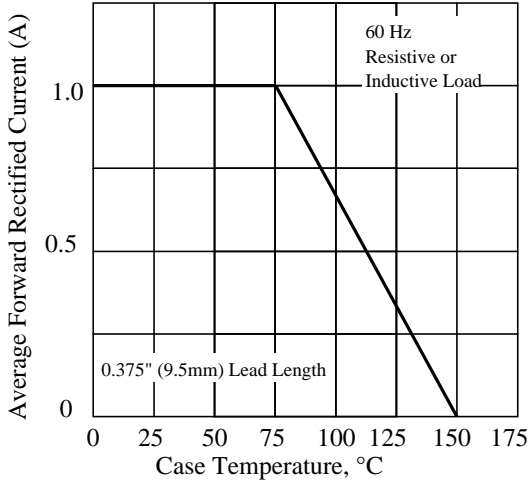


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

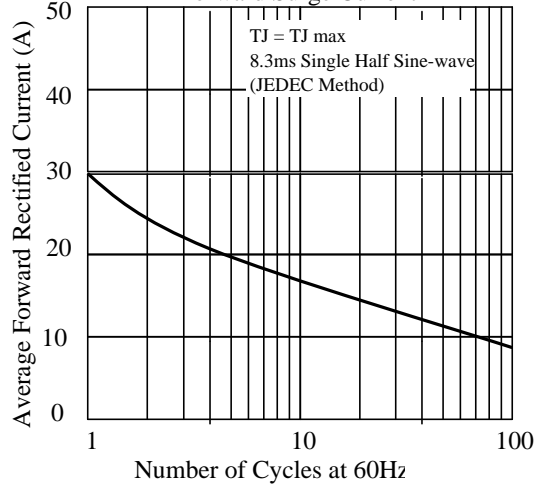


Fig 3. - Typical Instantaneous Forward Characteristics

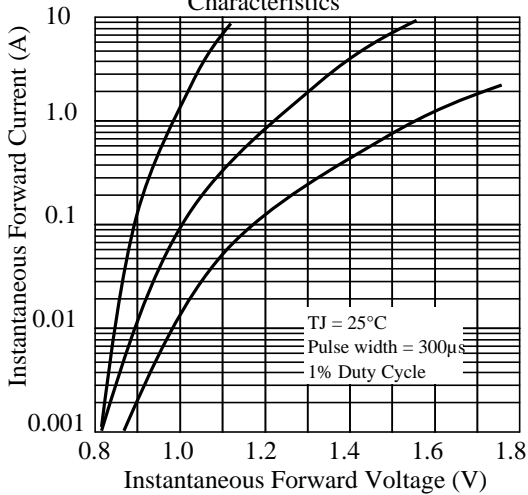


Fig 4. - Typical Reverse Characteristics

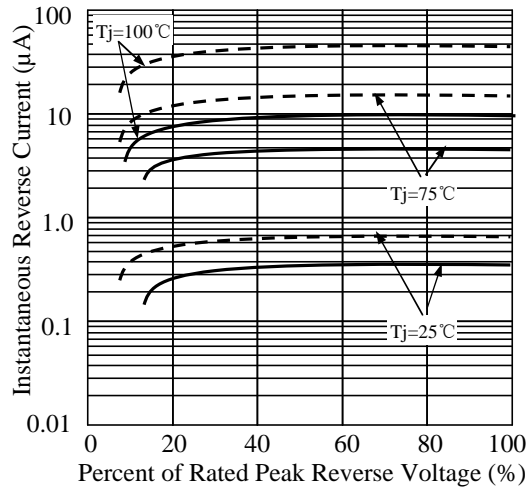


Fig 5. - typical transient thermal impedance

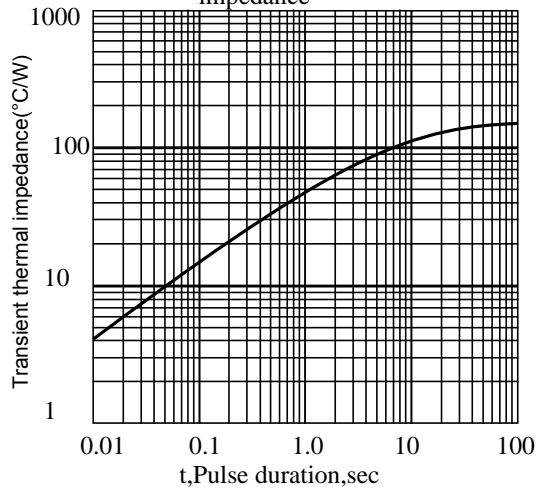
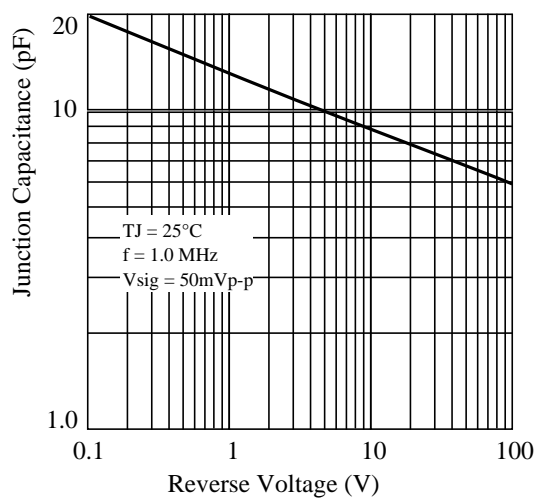


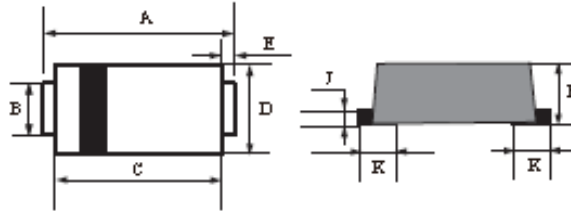
Fig 6. - Typical Junction Capacitance



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### 3. dimension:

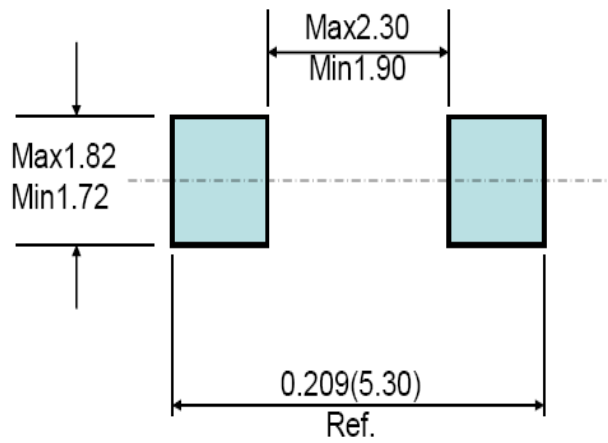
SMA-FL



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	
H	0.9	1.2	0.036	0.047

Mounting Pad Layout

SMA-FL



HFMAF106: HF---高效快速二极管; M---SM贴片产品; AF---SMA-FL封装; 1---IF=1A; 06---VB=600V;

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



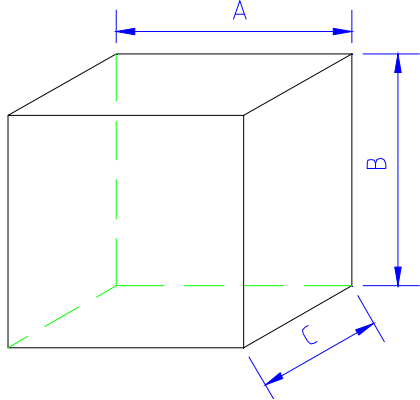
unit: mm

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

C. 7" reel packing box



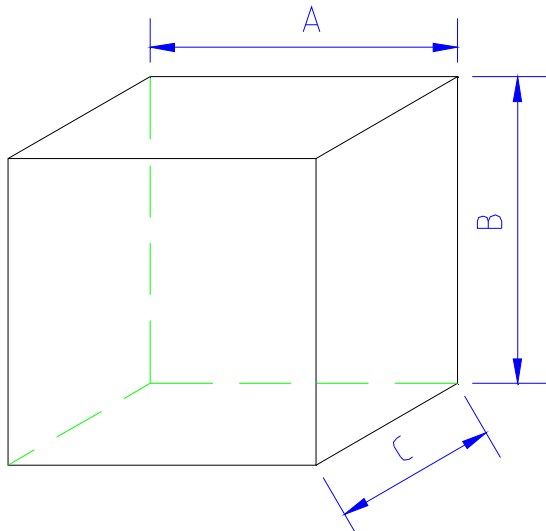
unit: mm

	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

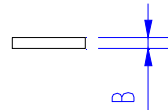
5.1.2 Tape Spec

A. Cover Tape

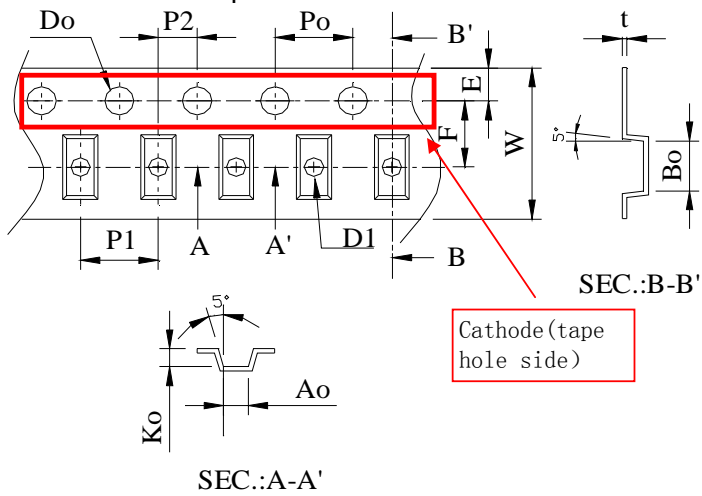


unit: mm

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



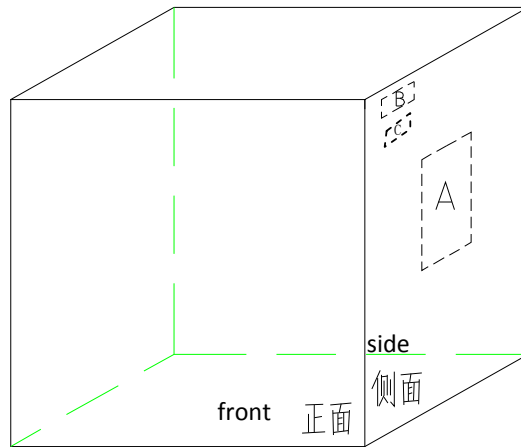
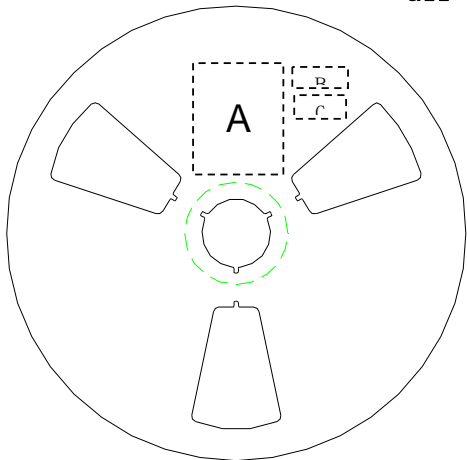
**B. Carrier Tape**



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

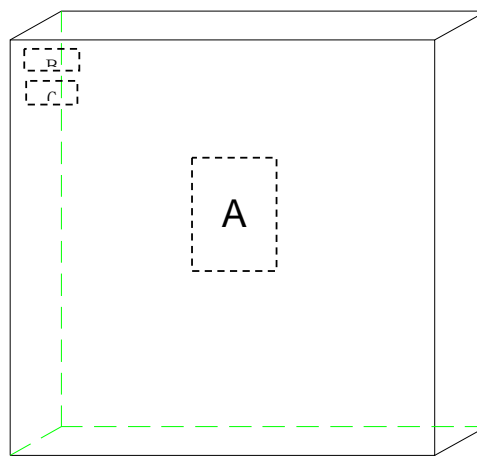
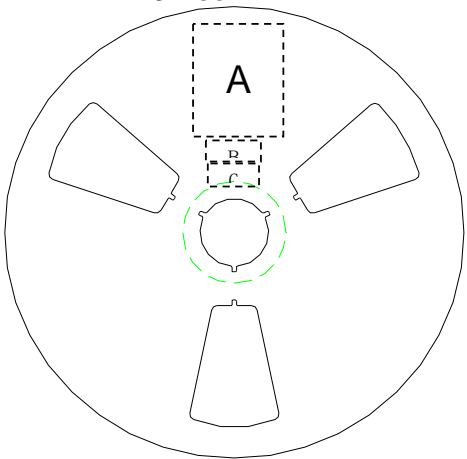
A. 7" reel all labels will be at cathode side of reel ;



A:LRC label;

B:Environment Label C:Halide free label

B. 13" reel



A:LRC label;

B:Environment Labe C:Halide free label

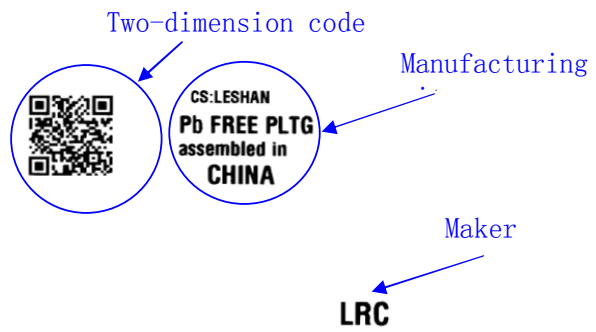
C. Tape lead: face anode side of the reel, upper side is the tape lead position. All labels are at cathode side of the reel.



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





## HFMAF101 thru HFMAF109

### 4. Update Record

版次	更新记录	更新作者	更新日期
1	第一版	周杰	2014.04.25