

# HFMAF210 thru HFMAF290

## Surface Mount Glass Passivated High Efficiency Rectifiers

### Reverse Voltage 50 to 1200V Forward Current 2.0A

#### 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
- \* 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

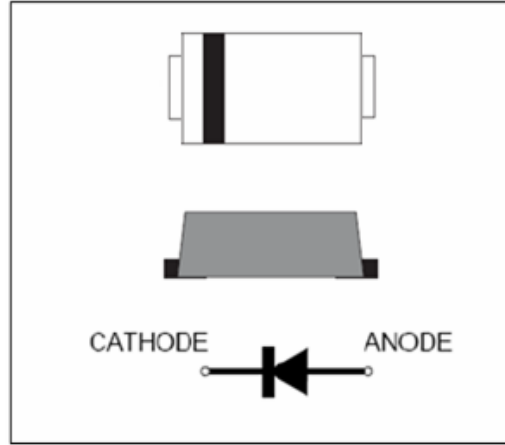
**Weight:** 0.0327 g

**Handling precaution:** None

#### 1. Electrical Characteristic

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

Parameter Symbol	symbol	HFMA F210	HFMA F220	HFMA F230	HFMA F240	HFMA F 250	HFMA F260	HFMA F270	HFMA F280	HFMA F290	Unit
device marking code		HF21	HF22	HF23	HF24	HF25	HF26	HF27	HF28	HF29	
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 (See fig. 2) at $T_c=75^\circ\text{C}$	$I_F(AV)$	2.0									A
Peak forward surge current 8.3ms single half sine-wave, superimposed on rated load (JEDEC Method)	$I_{FSM}$	60									A
Typical thermal resistance (Note 2)	$R_{\theta JA}$ $R_{\theta JC}$	150 25									$^\circ\text{C/W}$
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 210	HFMA 220	HFMA 230	HFMA 240	HFMA 250	HFMA 260	HFMA 270	HFMA 280	HFMA 290	Unit	
Maximum instantaneous forward voltage at 2.0A	$V_F$	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. 8.0mm2 (.013mm thick) land areas

# HFMAF210 thru HFMAF290

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

Fig. 1 - Forward Current Derating Curve

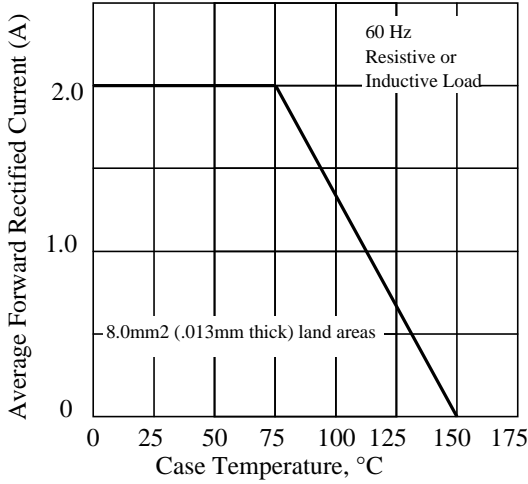


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

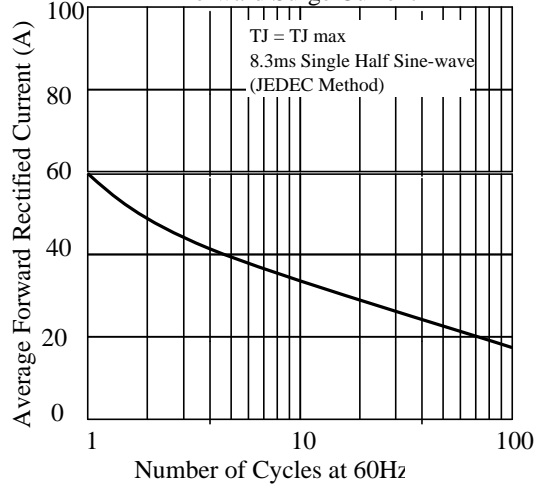


Fig 3. - Typical Instantaneous Forward Characteristics

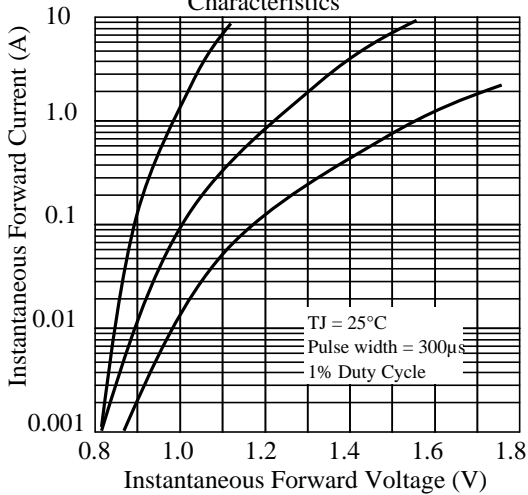


Fig 4. - Typical Reverse Characteristics

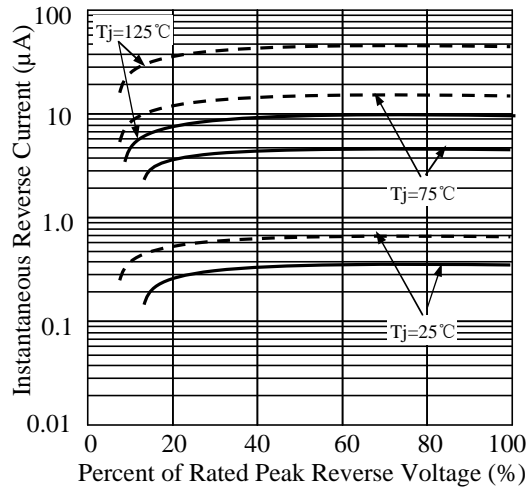


Fig 5. - typical transient thermal impedance

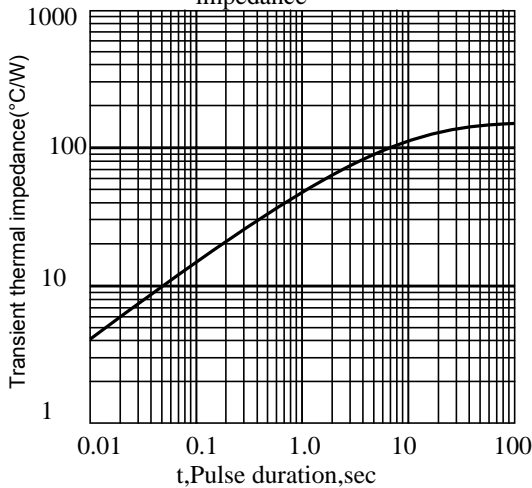
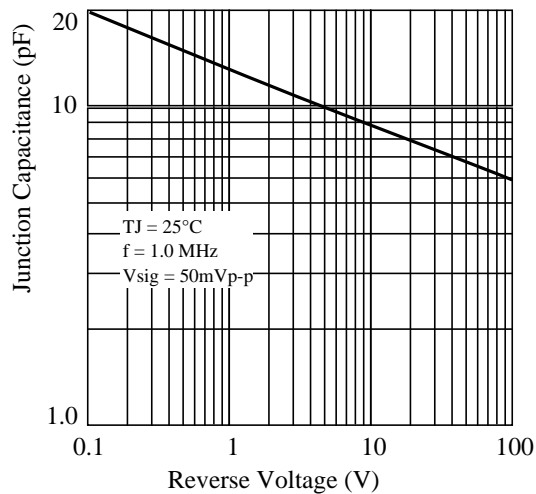


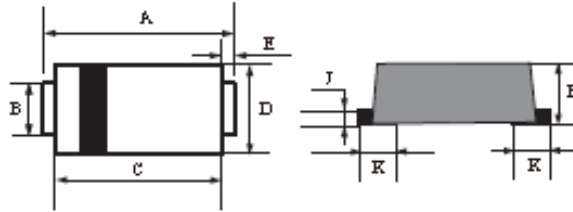
Fig 6. - Typical Junction Capacitance



## HFMAF210 thru HFMAF290

### 3. dimension:

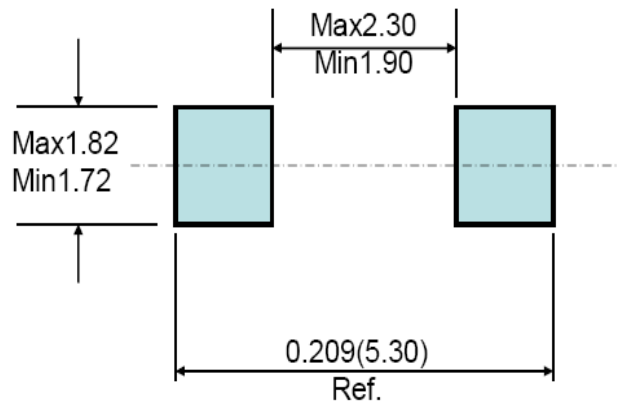
SMA-FL



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

Mounting Pad Layout

SMA-FL



HFMAF290: HF---超快二极管; M---SM贴片产品; AF---SMA-FL封装; 2---IF=2A; 90---VB=1200V;

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



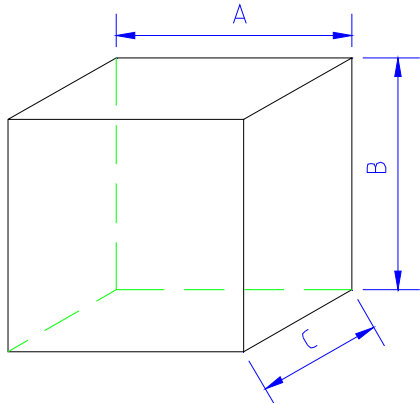
unit: mm

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



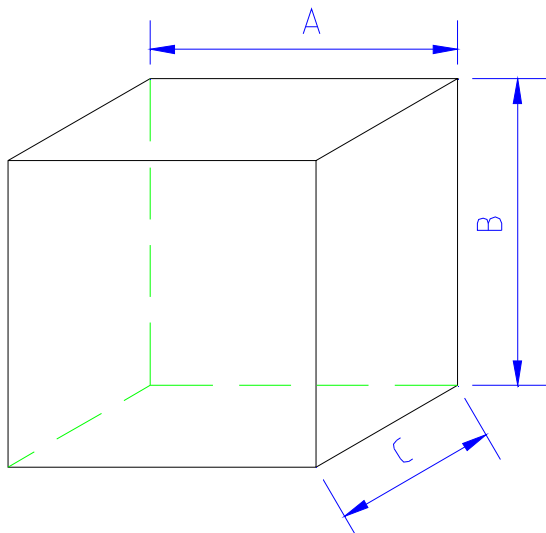
unit: mm

	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

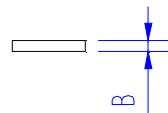
5.1.2 Tape Spec

A. Cover Tape

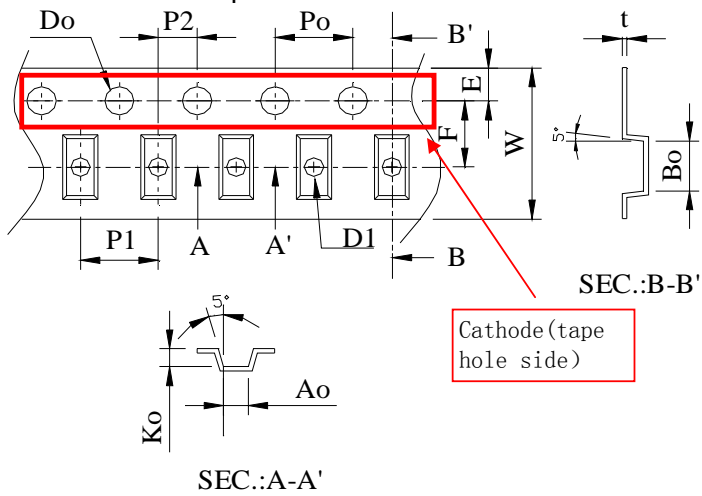


unit: mm

	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

Title:

Power Diode SMD Package Packing Spec

DOC NO.: WI-258

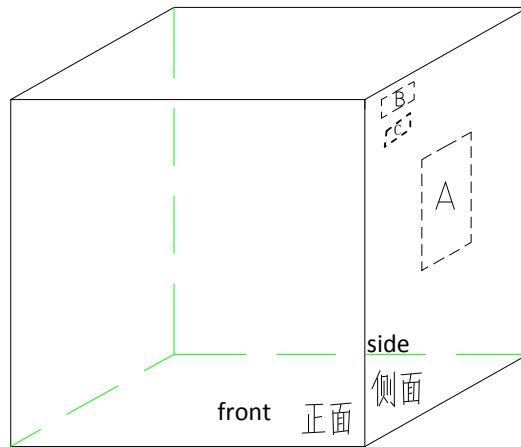
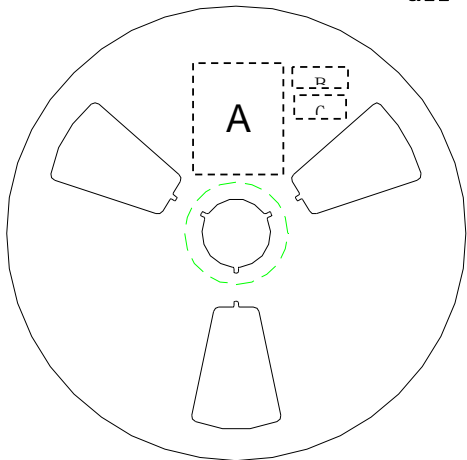
Version: 5 Modification: 0

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5.2、SMD Power Diode General Packing Spec

A. 7" reel

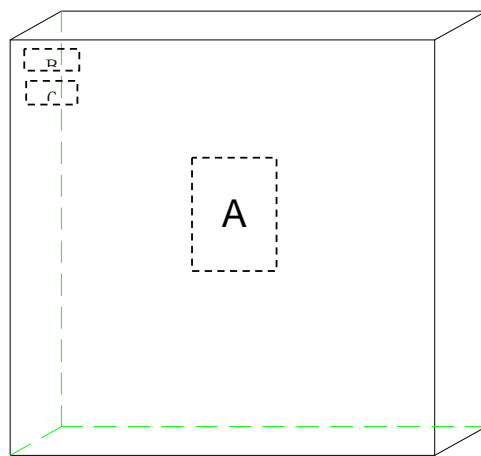
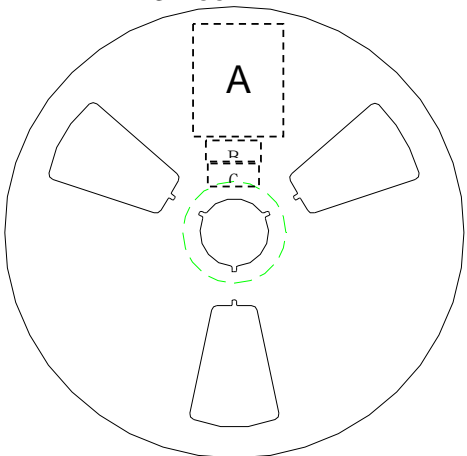
all labels will be at cathode side of reel ;



A:LRC label;

B:Environment Label C:Halide free label

B. 13" reel



A:LRC label;

B:Environment Labe C:Halide free label

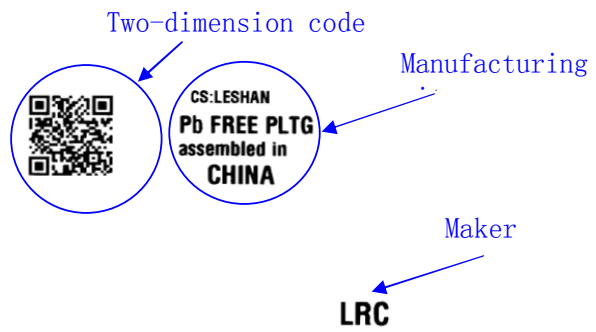
C. Tape lead: face anode side of the reel, upper side is the tape lead position. All labels are at cathode side of the reel.



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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





## HFMAF210 thru HFMAF290

### 4. Update Record

版次	更新记录	更新作者	更新日期
1	第一版	周杰	2014.04.29