



# FR1AF SERIES

## SURFACE MOUNT FAST RECOVERY RECTIFIER

**VOLTAGE** 50 to 600 Volt    **CURRENT** 1 Ampere

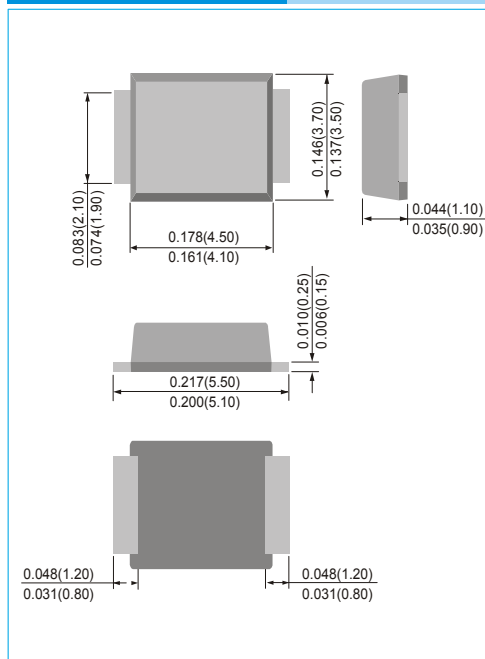
**SMBF**    Unit : inch(mm)

### FEATURES

- For surface mounted applications
- Low profile package
- Built-in strain relief
- Easy pick and place
- Fast Recovery times for high efficiency
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass passivated junction
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std

### MECHANICAL DATA

- Case: SMBF molded plastic
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0018 ounce, 0.05 grams
- Polarity: Color band denotes cathode end



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

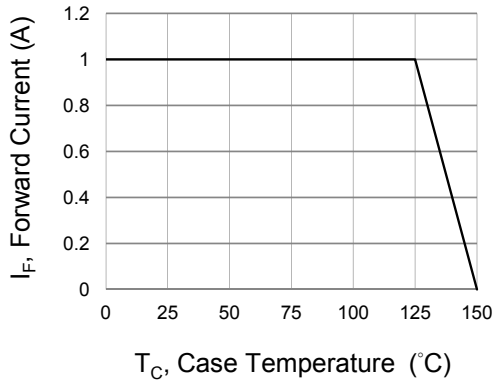
PARAMETER	SYMBOL	FR1AF	FR1BF	FR1DF	FR1GF	FR1JF	UNITS
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	50	100	200	400	600	V
Maximum RMS Voltage	$V_{RMS}$	35	70	140	280	420	V
Maximum DC Blocking Voltage	$V_{DC}$	50	100	200	400	600	V
Maximum Average Forward Rectified Current	$I_{F(AV)}$	1.0					A
Peak Forward Surge Current :8.3ms single half sine-wave superimposed on rated load(JEDEC method)per diode	$I_{FSM}$	30					A
Maximum Forward Voltage at 1A	$V_F$	1.3					V
Maximum DC Reverse Current $T_j=25^\circ\text{C}$	$I_R$	1.0					$\mu\text{A}$
Typical Junction Capacitance (VR=4V f=1MHZ)	$C_J$	16				9	pF
Typical Thermal Resistance (Note 1) (Note 2)	$R_{\theta JL}$ $R_{\theta JA}$	21 135					$^\circ\text{C} / \text{W}$
Maximum Reverse Recovery Time	$T_{rr}$	150				250	nS
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150					$^\circ\text{C}$

NOTES : 1. Mounted on an FR4 PCB, single-sided copper, with 48cm<sup>2</sup> copper pad area.  
2. Mounted on an FR4 PCB, single-sided copper, mini pad.

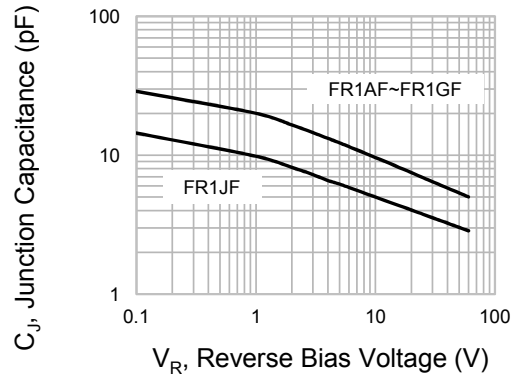


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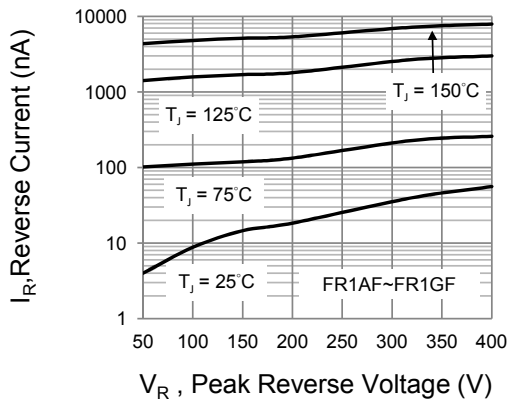
## RATING AND CHARACTERISTIC CURVES



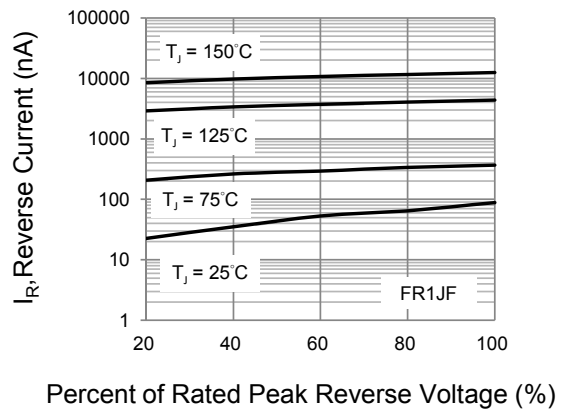
**Fig.1 Forward Current Derating Curve**



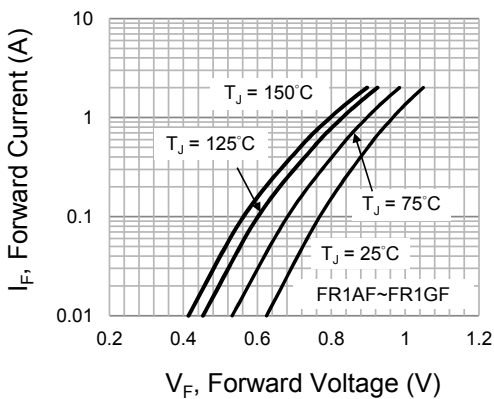
**Fig.2 Typical Junction Capacitance**



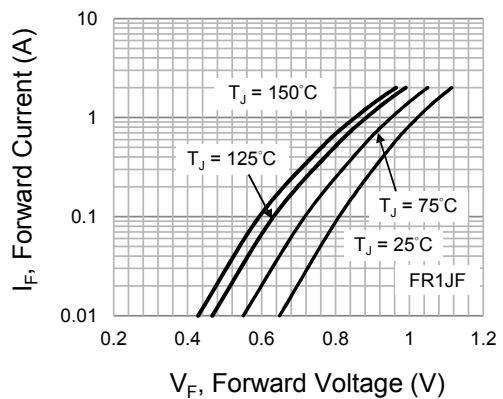
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Reverse Characteristics**



**Fig.5 Typical Forward Characteristics**

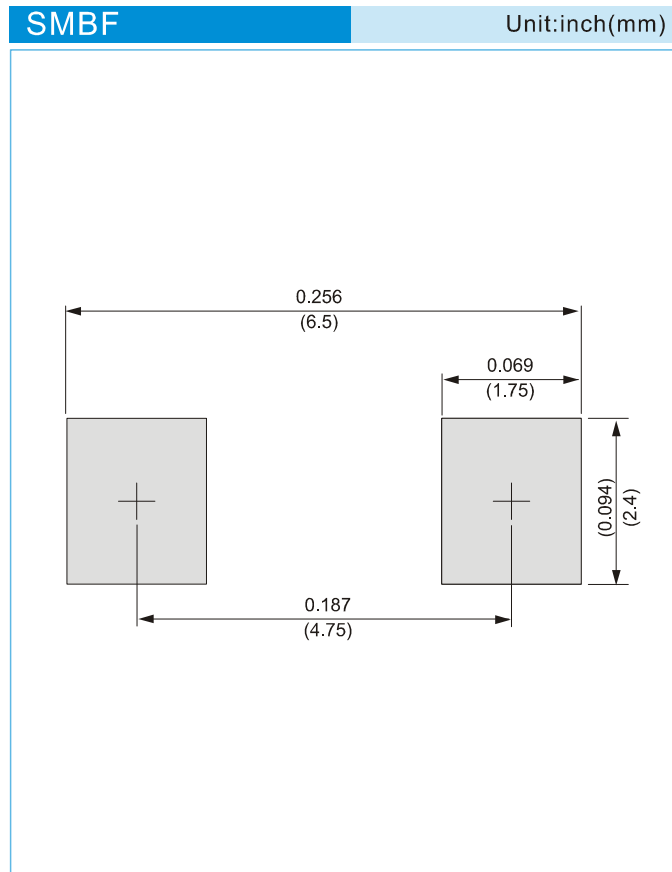


**Fig.6 Typical Forward Characteristics**



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### MOUNTING PAD LAYOUT



### ORDER INFORMATION

- Packing information  
T/R - 5K per 13" plastic Reel



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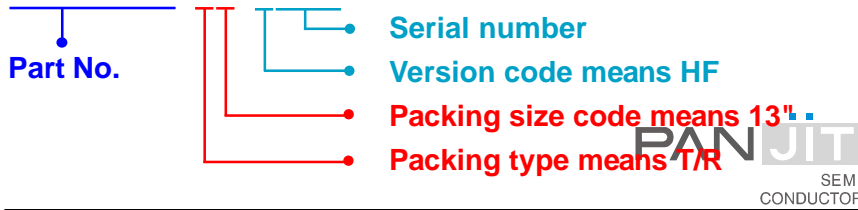
### Part No\_packing code\_Version

FR1AF\_R1\_00001

FR1AF\_R2\_00001

For example :

**RB500V-40\_R2\_00001**



Packing Code XX				Version Code XXXXX		
Packing type	1 <sup>st</sup> Code	Packing size code	2 <sup>nd</sup> Code	HF or RoHS	1 <sup>st</sup> Code	2 <sup>nd</sup> ~5 <sup>th</sup> Code
Tape and Ammunition Box (T/B)	A	N/A	0	HF	0	serial number
Tape and Reel (T/R)	R	7"	1	RoHS	1	serial number
Bulk Packing (B/P)	B	13"	2			
Tube Packing (T/P)	T	26mm	X			
Tape and Reel (Right Oriented) (TRR)	S	52mm	Y			
Tape and Reel (Left Oriented) (TRL)	L	PANASERT T/B CATHODE UP (PBCU)	U			
FORMING	F	PANASERT T/B CATHODE DOWN (PBCD)	D			



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