

Surface Mount Fast Recovery Rectifier

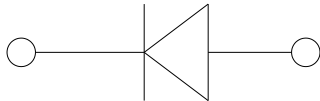


Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Fast reverse recovery time
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

Typical Applications

For use in high frequency rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, and telecommunication.



Mechanical Data

- **Package:** SMAF
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Cathode line denotes the cathode end

■Maximum Ratings (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	F1AFS	F1BFS	F1DFS	F1GFS	F1JFS	F1KFS	F1MFS
Device marking code			F1AFS	F1BFS	F1DFS	F1GFS	F1JFS	F1KFS	F1MFS
Maximum Repetitive Peak Reverse Voltage	VRRM	V	50	100	200	400	600	800	1000
Maximum RMS Voltage	VRMS	V	35	70	140	280	420	560	700
Maximum DC blocking Voltage	VDC	V	50	100	200	400	600	800	1000
Average rectified output current @60Hz sine wave, resistance load, TL (Fig.1)	I _O	A	1.0						
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave, 1 cycle, T _j =25°C	I _{FSM}	A	30						
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, T _j =25°C			60						
Current squared time @1ms≤t≤8.3ms T _j =25°C	I ² t	A ² s	3.735						
Storage temperature	T _{stg}	°C	-55 ~ +150						
Junction temperature	T _j	°C	-55 ~ +150						

■Electrical Characteristics (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	F1AFS	F1BFS	F1DFS	F1GFS	F1JFS	F1KFS	F1MFS
Maximum instantaneous forward voltage	V _F	V	I _{FM} =1.0A	1.3						
Maximum reverse recovery time	t _{rr}	ns	I _F =0.5A, I _R =1.0A, I _R =0.25A	150				250	500	
Maximum DC reverse current at rated DC blocking voltage	I _R	μA	T _j =25°C	5.0						
			T _j =125°C	100						
Typical junction capacitance	C _j	pF	Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	11				6		



F1AFS THRU F1MFS

■ Thermal Characteristics (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	F1AFS	F1BFS	F1DFS	F1GFS	F1JFS	F1KFS	F1MFS
Typical Thermal resistance	R _{θJ-A} ⁽¹⁾	°C/W	75						
	R _{θJ-L} ⁽¹⁾		25						
	R _{θJ-C} ⁽¹⁾		20						

Note:

(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

■ Characteristics (Typical)

FIG.1: I_o-T_L Curve

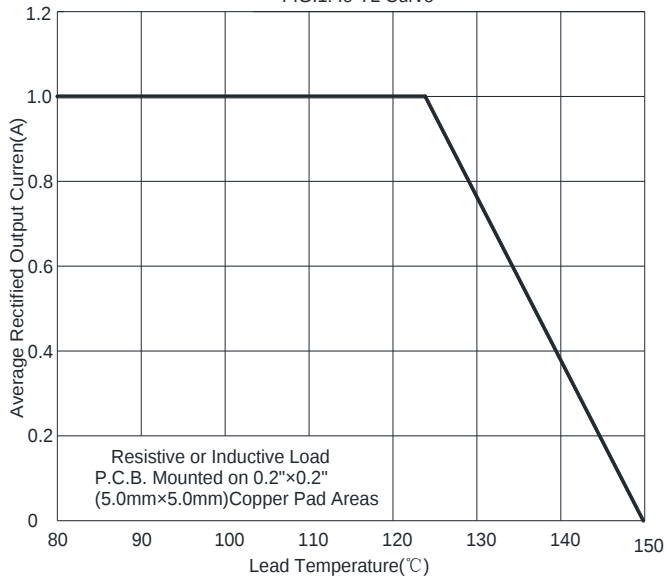


FIG2: Surge Forward Current Capability

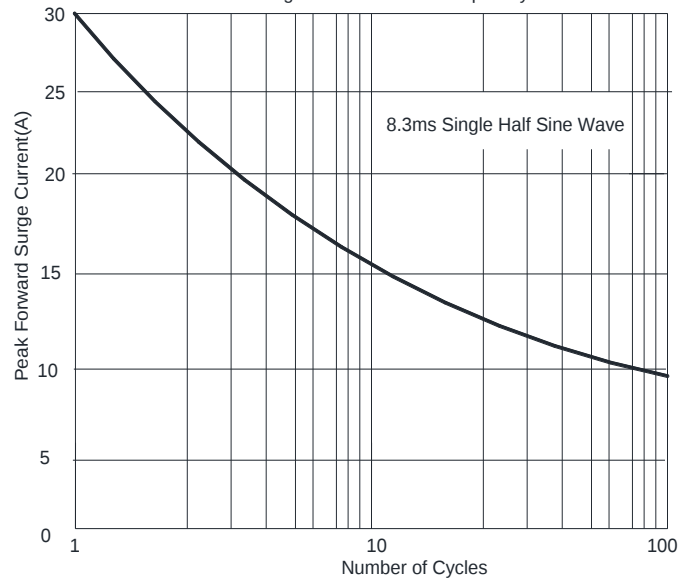


FIG3: Typical Forward Voltage

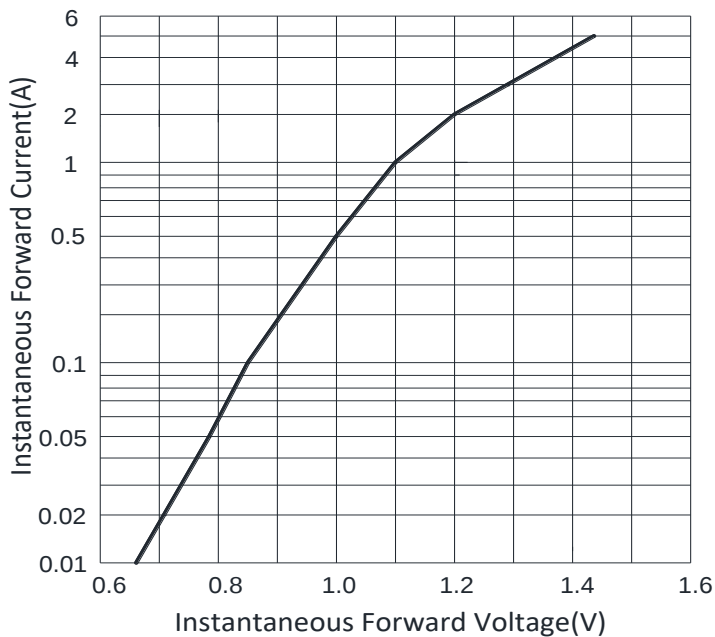
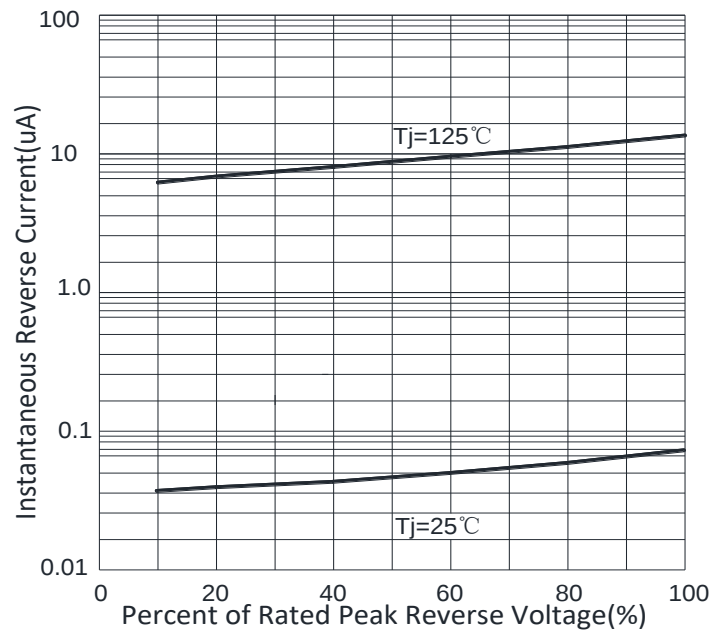


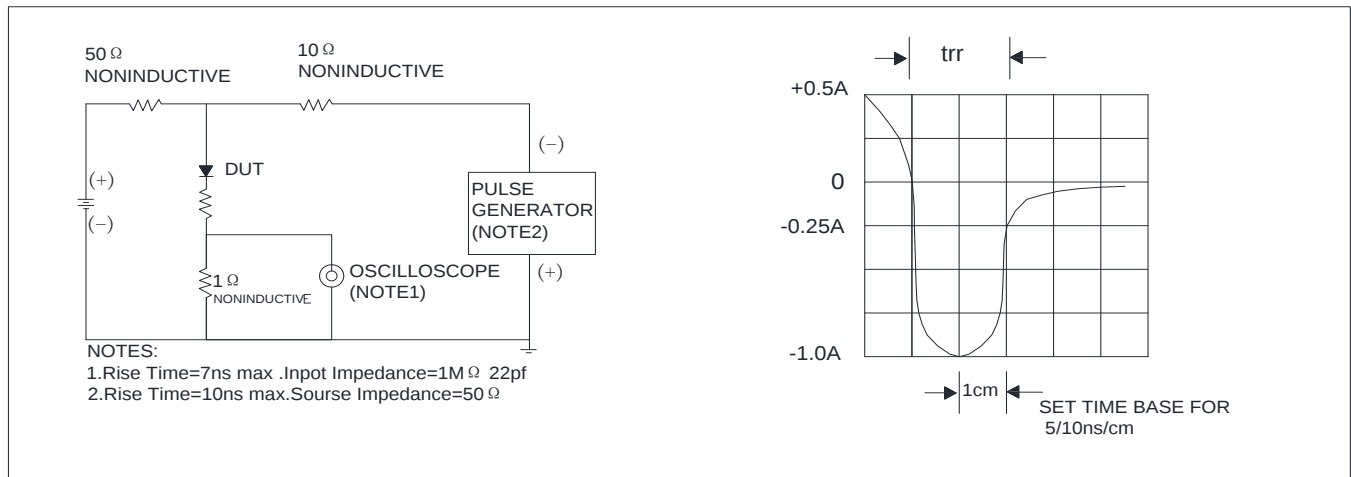
FIG4: Typical Reverse Characteristics





F1AFS THRU F1MFS

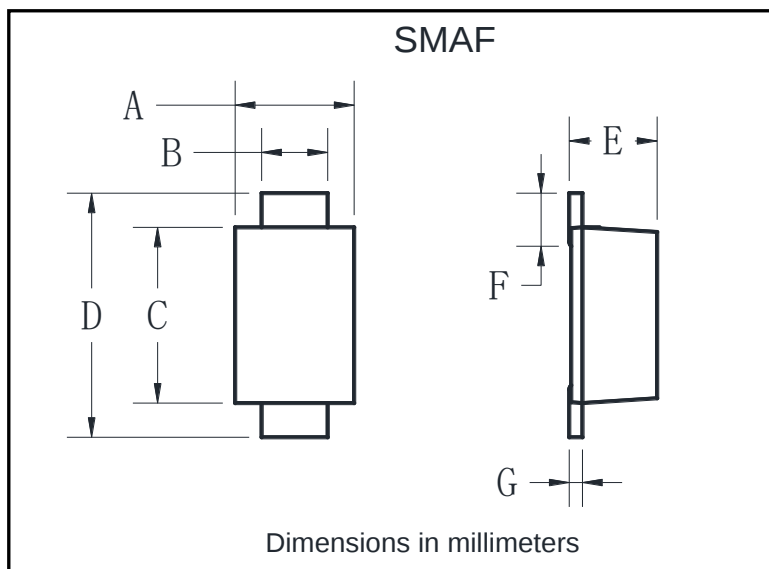
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
F1AFS-F1MFS	F1	Approximate 0.034	3000	24000	96000	7" reel
F1AFS-F1MFS	F2	Approximate 0.034	10000	/	160000	13" reel
F1AFS-F1MFS	F3	Approximate 0.034	10000	/	120000	13" reel
F1AFS-F1MFS	F4	Approximate 0.034	7500	/	120000	13" reel

■ Outline Dimensions

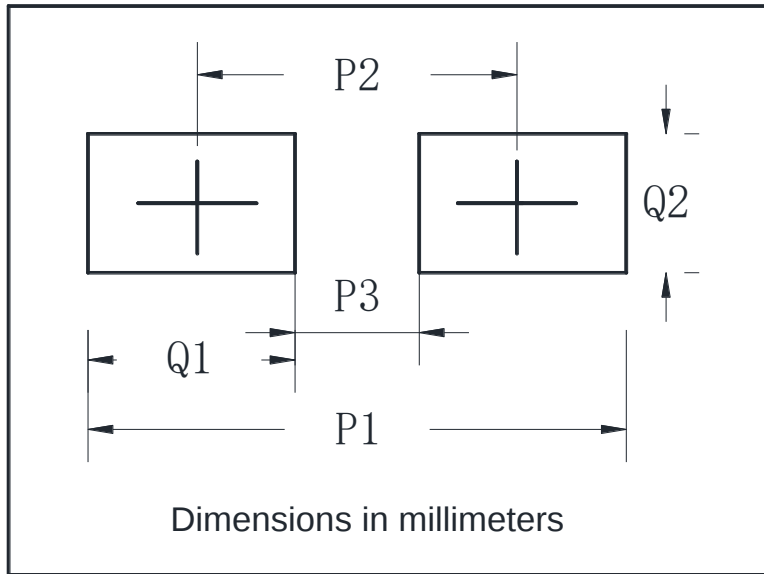


SMAF		
Dim	Min	Max
A	2.40	2.80
B	1.35	1.45
C	3.40	3.60
D	4.40	4.80
E	1.05	1.25
F	0.50	1.00
G	0.15	0.25



F1AFS THRU F1MFS

■ Suggested pad layout



SMAF	
Dim	Millimeters
P1	6.50
P2	4.00
P3	1.50
Q1	2.50
Q2	1.70



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