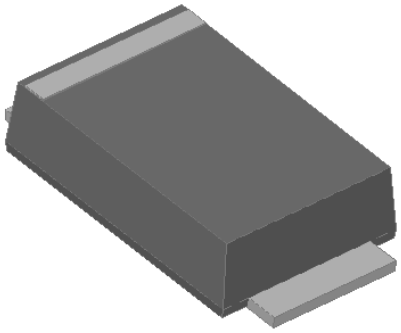
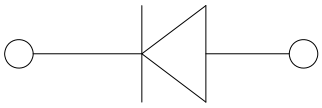
F1AF THRU F1MF

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, -compliant, halogen-free
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Cathode line denotes the cathode end

■Maximum Ratings (Ta=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	F1AF	F1BF	F1DF	F1GF	F1JF	F1KF	F1MF
Device marking code			F1AF	F1BF	F1DF	F1GF	F1JF	F1KF	F1MF
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	V	50	100	200	400	600	800	1000
Maximum RMS Voltage	V_{RMS}	V	35	70	140	280	420	560	700
Maximum DC blocking Voltage	V_{DC}	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, Tj=25℃	I_{FSM}	A	30						
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, Tj=25℃			60						
Current squared time @1ms≤t≤8.3ms Tj=25℃	I^2t	A^2s	3.735						
Storage temperature	T_{stg}	℃	-55 ~ +150						
Junction temperature	Tj	℃	-55 ~ +150						

■Electrical Characteristics (Ta=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	F1AF	F1BF	F1DF	F1GF	F1JF	F1KF	F1MF
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_{rr}=0.25A	150				250	500	
Maximum DC reverse current at rated DC blocking voltage	I_R	μA	Tj =25℃	5.0						
			Tj =125℃	100						
Typical junction capacitance	Cj	pF	Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	11				7		

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■Thermal Characteristics （T_a=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	F1AF	F1BF	F1DF	F1GF	F1JF	F1KF	F1MF
Typical Thermal resistance	RθJ-A(1)	℃/W	70						
	RθJ-L(1)		20						
	RθJ-C(1)		18						

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: Io-TL Curve

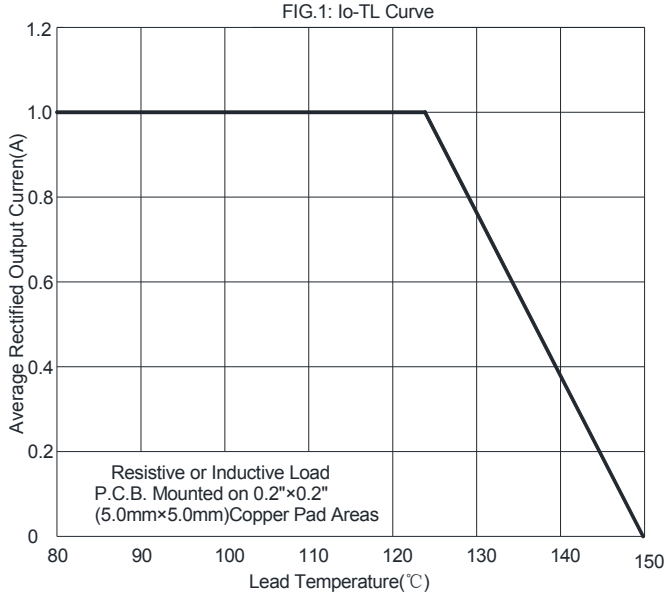


FIG2:Surge Forward Current Capability

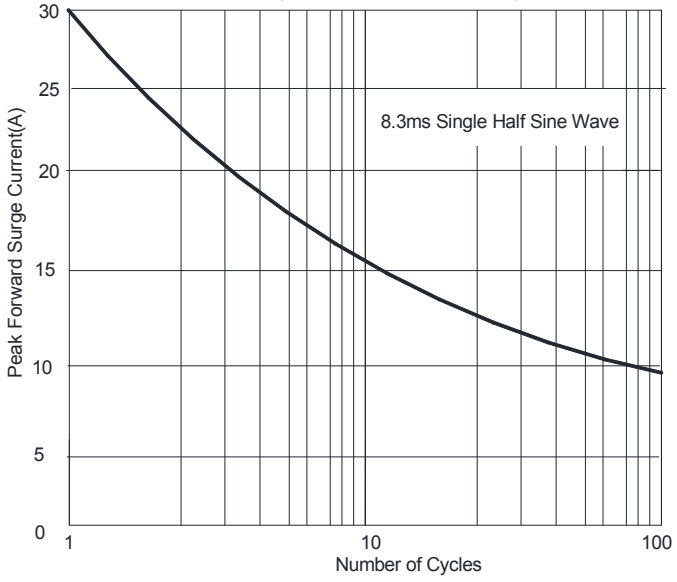


FIG3：Typical Forward Voltage

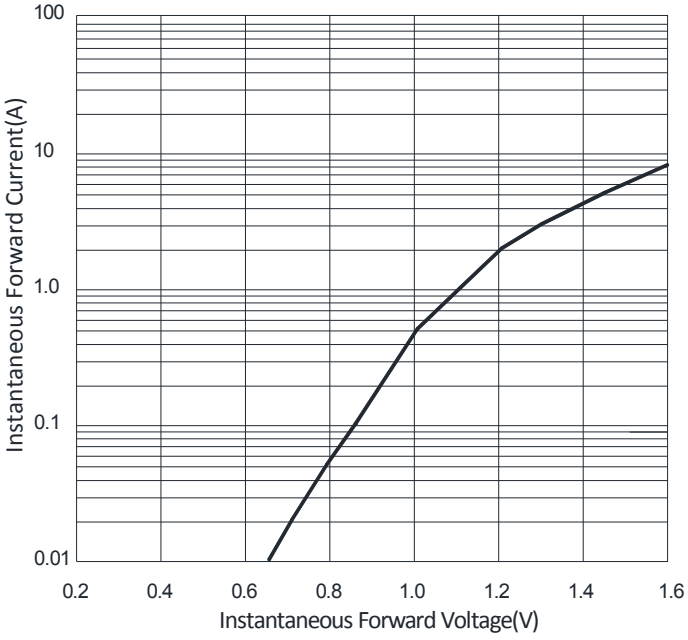


FIG4:Typical Reverse Characteristics

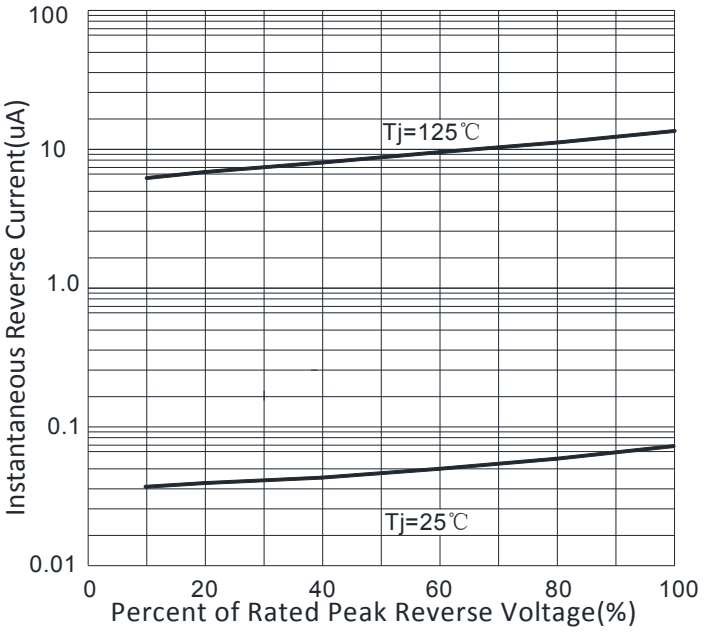
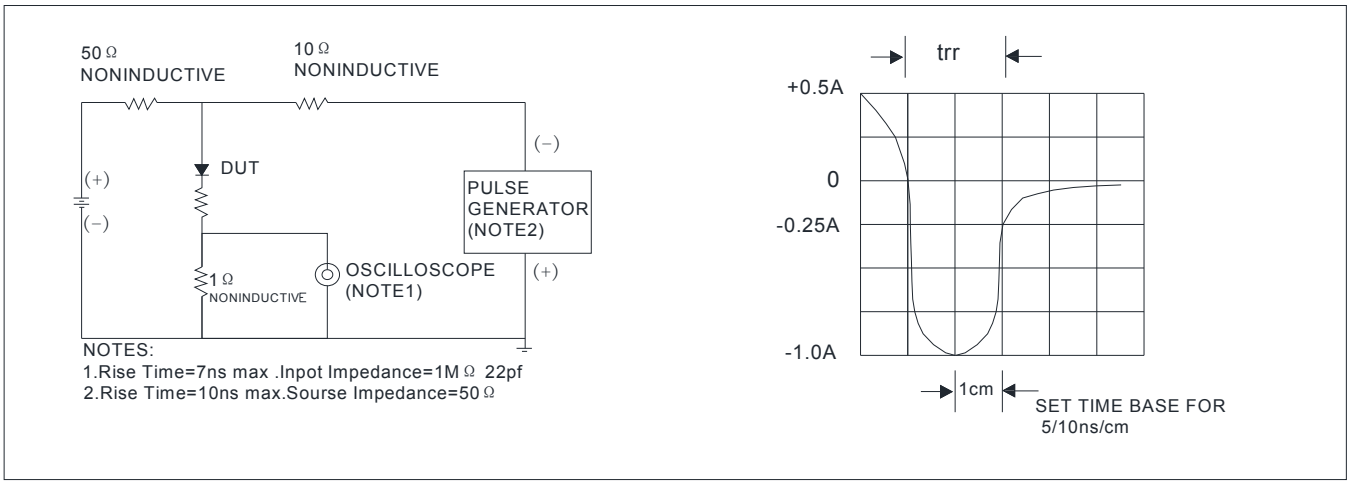


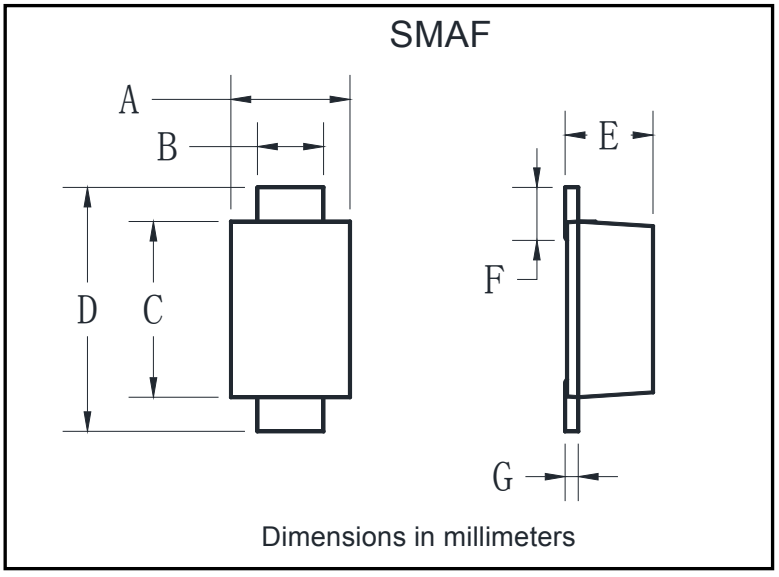
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



■Ordering Information (Example)

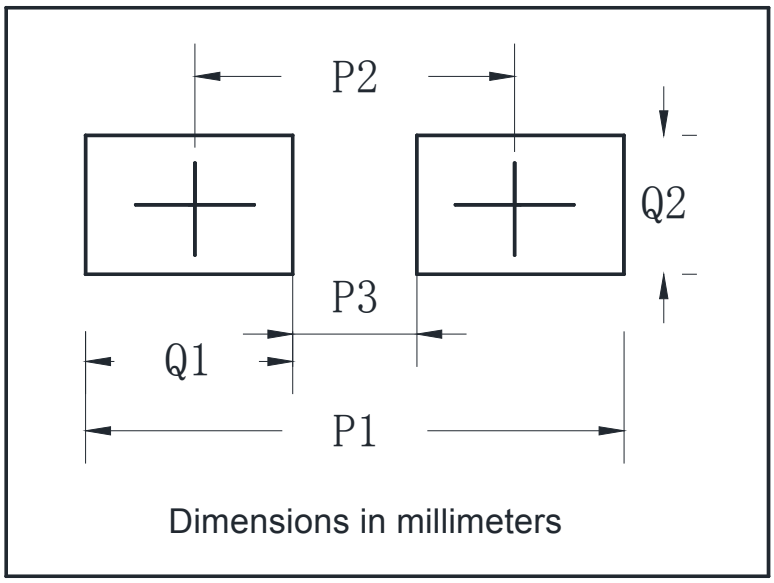
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
F1AF-F1MF	F1	Approximate 0.034	3000	24000	96000	7” reel
F1AF-F1MF	F2	Approximate 0.034	10000	/	160000	13” reel
F1AF-F1MF	F3	Approximate 0.034	10000	/	120000	13” reel
F1AF-F1MF	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	0.22

■ 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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