

Surface Mount Super Fast Recovery Rectifier

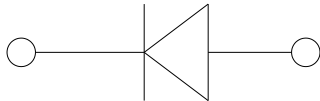


Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Super 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 (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	U3DF
Device marking code			U3DF
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	V	200
Maximum RMS Voltage	V_{RMS}	V	140
Maximum DC blocking Voltage	V_{DC}	V	200
Average rectified output current @60Hz sine wave, resistance load, TL (Fig.1)	I_o	A	3.0
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave, 1 cycle, Tj=25°C	I_{FSM}	A	85
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, Tj=25°C			170
Current squared time @1ms≤t≤8.3ms Tj=25°C	I^2t	A ² s	29.98
Storage temperature	T_{stg}	°C	-55 ~ +175
Junction temperature	T_j	°C	-55 ~ +175



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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	U3DF
Maximum instantaneous forward voltage	V _F	V	I _{FM} =1.0A	0.93
Maximum reverse recovery time	t _{rr}	ns	I _F =0.5A, I _R =1.0A, I _{rr} =0.25A	35
Maximum DC reverse current at rated DC blocking voltag	I _R	μA	T _j =25°C	5.0
			T _j =125°C	50
Typical junction capacitance	C _j	pF	Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	41

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

PARAMETER	SYMBOL	UNIT	U3DF
Typical Thermal resistance	R _{θJ-A} ⁽¹⁾	°C/W	75
	R _{θJ-L} ⁽¹⁾		25
	R _{θJ-C} ⁽¹⁾		10

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 Cure

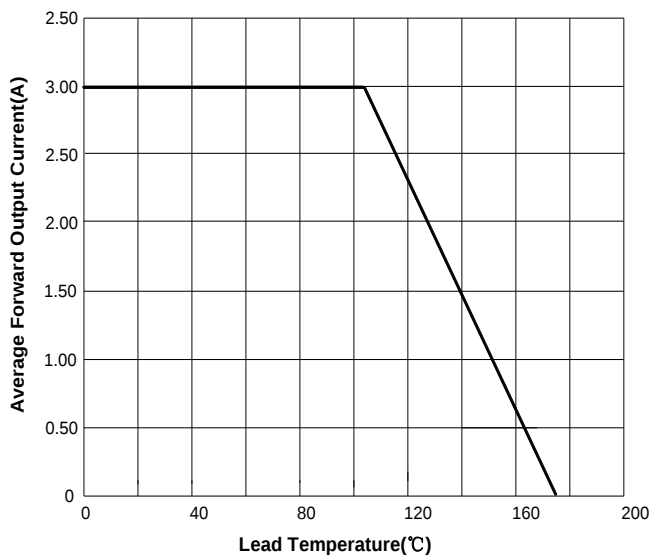


FIG.2: Forward Surge Current Capability

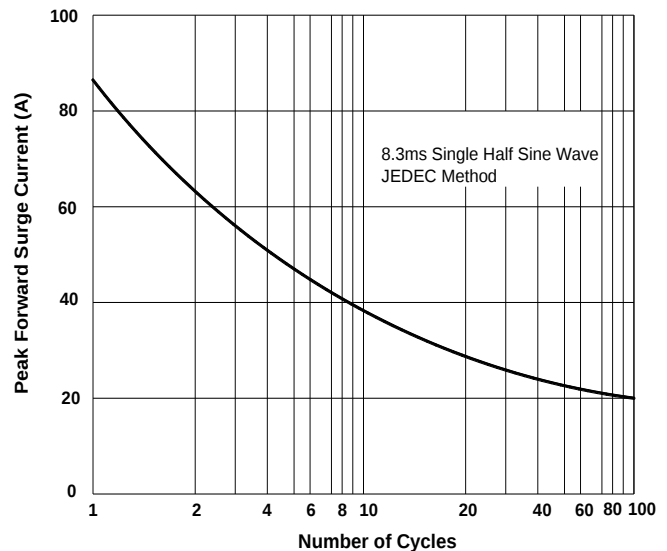


FIG.3: Typical Forward Characteristics

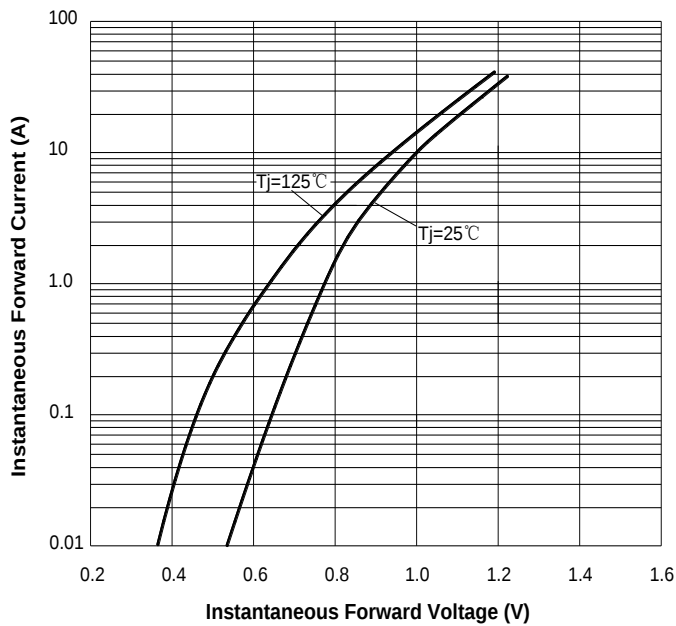


FIG.4: Typical Reverse Characteristics

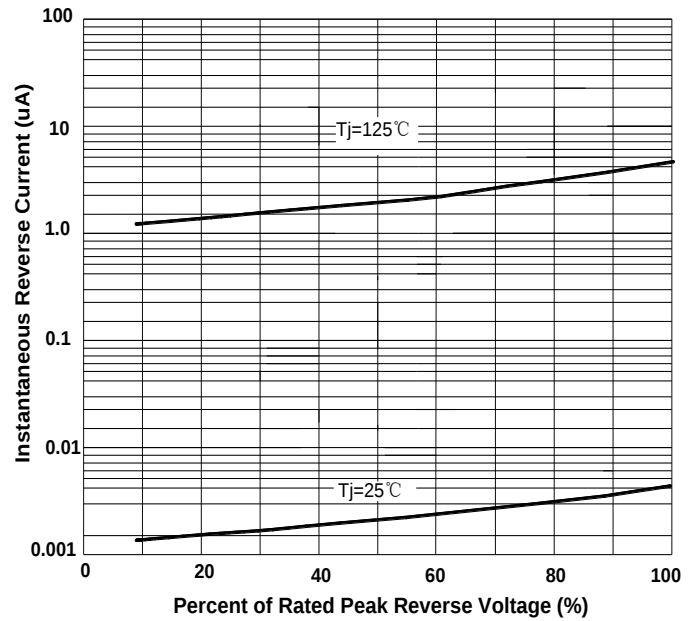
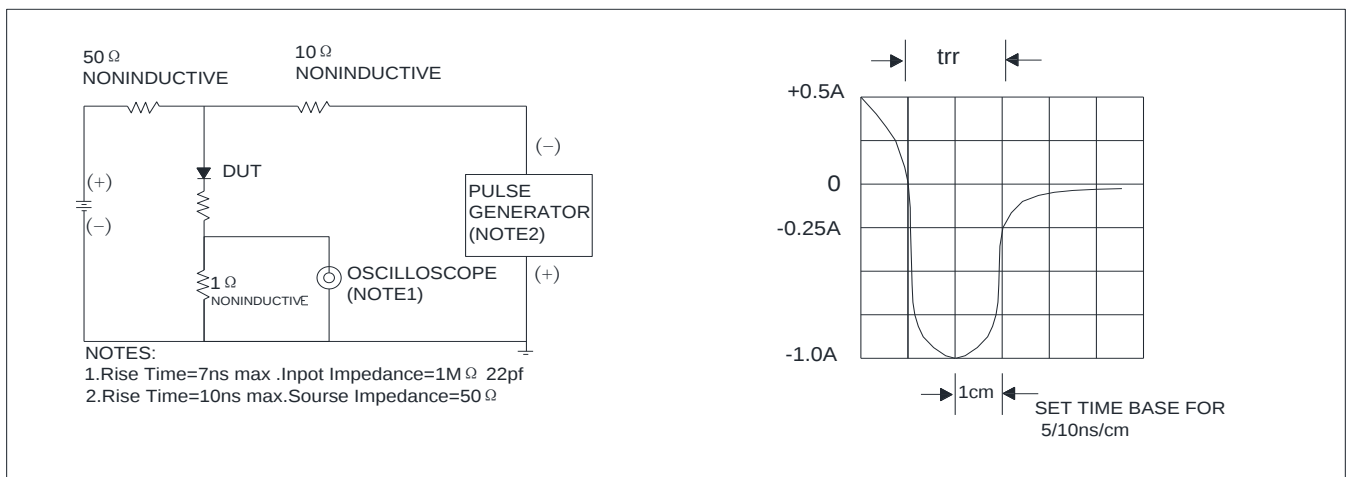


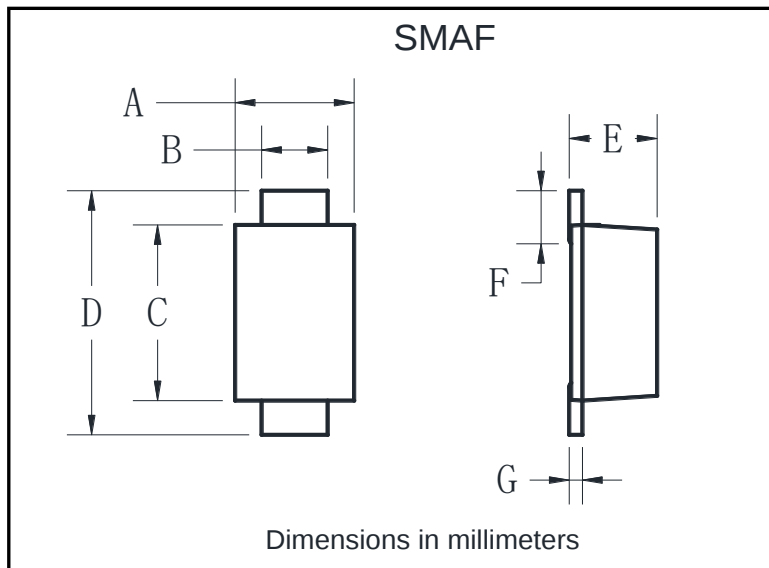
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



Ordering Information (Example)

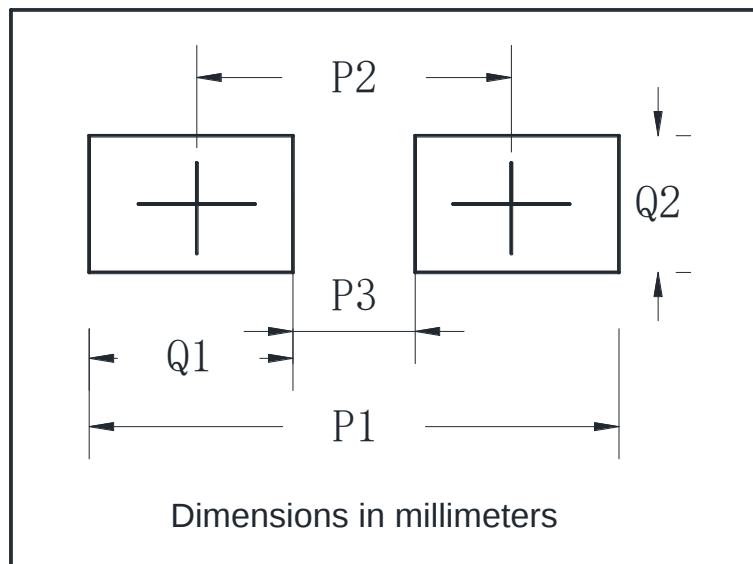
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
U3DF	F1	Approximate 0.034	3000	24000	96000	7" reel
U3DF	F2	Approximate 0.034	10000	/	160000	13" reel
U3DF	F3	Approximate 0.034	10000	/	120000	13" reel
U3DF	F4	Approximate 0.034	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

■ 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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