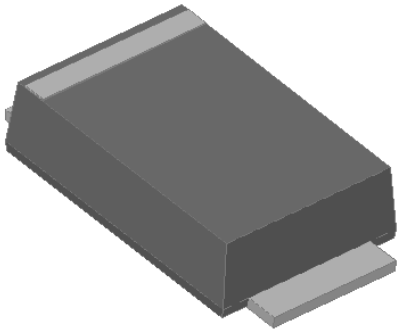
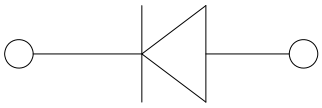
Surface Mount Super Fast Recovery Rectifier





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℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	U1AF	U1BF	U1CF	U1DF	U1FF	U1GF	U1HF	U1JF
Device marking code			U1AF	U1BF	U1CF	U1DF	U1FF	U1GF	U1HF	U1JF
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	V	50	100	150	200	300	400	500	600
Maximum RMS Voltage	V_{RMS}	V	35	70	105	140	210	280	350	420
Maximum DC blocking Voltage	V_{DC}	V	50	100	150	200	300	400	500	600
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	T_j	℃	-55 ~ +150							

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	U1AF	U1BF	U1CF	U1DF	U1FF	U1GF	U1HF	U1JF
Maximum instantaneous forward voltage	VF	V	I_{FM}=1.0A	0.92				1.25		1.7	
Maximum reverse recovery time	t_{rr}	ns	I_F=0.5A,I_R=1.0A, I_{rr}=0.25A	25						35	
Maximum DC reverse current at rated DC blocking voltag	I_R	μA	Tj =25℃	5.0							
			Tj =125℃	50							
Typical junction capacitance	Cj	pF	Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	17				15		16	

■Dynamic Characteristics

◆ U1AF THRU U1DF

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T_{RR}	ns	Tj=25℃	I_F=1A，di/dt=-50A/us V_{RM}=30V	-	27	-
			Tj=25℃	I_F=1A di/dt=-200A/us V_{RM}=100V	-	18	-
			Tj=125℃		-	24	-
Peak recovery current	I_{RRM}	A	Tj=25℃		-	2.4	-
			Tj=125℃		-	3.9	-
Reverse recovery charge	Qrr	nC	Tj=25℃		-	21.6	-
			Tj=125℃		-	46.6	-
Non-repetitive avalanche energy	E_{AS}	mJ	Tj=25℃	I_R=1.5 A，L=15 mH	16.9	-	-

◆ U1FF THRU U1GF

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T_{RR}	ns	Tj=25℃	I_F=1A，di/dt=-50A/us V_{RM}=30V	-	26	-
			Tj=25℃	I_F=1A di/dt=-200A/us V_{RM}=200V	-	22	-
			Tj=125℃		-	31	-
Peak recovery current	I_{RRM}	A	Tj=25℃		-	1.9	-
			Tj=125℃		-	3.5	-
Reverse recovery charge	Qrr	nC	Tj=25℃		-	21.1	-
			Tj=125℃		-	54.9	-
Non-repetitive avalanche energy	E_{AS}	mJ	Tj=25℃	I_R=0.4A，L=15 mH	1.2	-	-

◆ U1HF THRU U1JF

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T_{RR}	ns	Tj=25℃	I_F=1A，di/dt=-50A/us V_{RM}=30V	-	38	-
			Tj=25℃	I_F=1A di/dt=-200A/us V_{RM}=400V	-	32	-
			Tj=125℃		-	52	-
Peak recovery current	I_{RRM}	A	Tj=25℃		-	2.9	-
			Tj=125℃		-	4.7	-
Reverse recovery charge	Qrr	nC	Tj=25℃		-	45.8	-
			Tj=125℃		-	121.9	-
Non-repetitive avalanche energy	E_{AS}	mJ	Tj=25℃	I_R=0.3A，L=15 mH	0.7	-	-

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

PARAMETER	SYMBOL	UNIT	U1AF	U1BF	U1CF	U1DF	U1FF	U1GF	U1HF	U1JF
Typical Thermal resistance	$R_{\theta J-A}$(1)	℃/W	60							
	$R_{\theta J-L}$(1)		20							
	$R_{\theta J-C}$(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 Cure

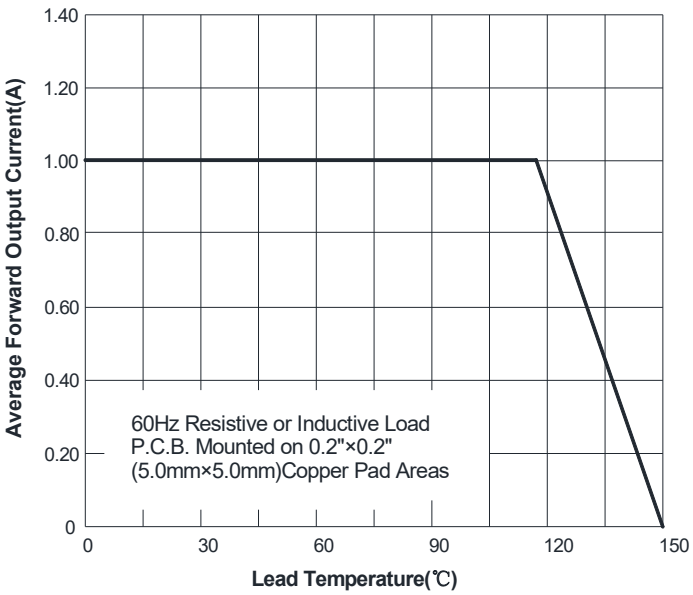


FIG.2: Forward Surge Current Capability

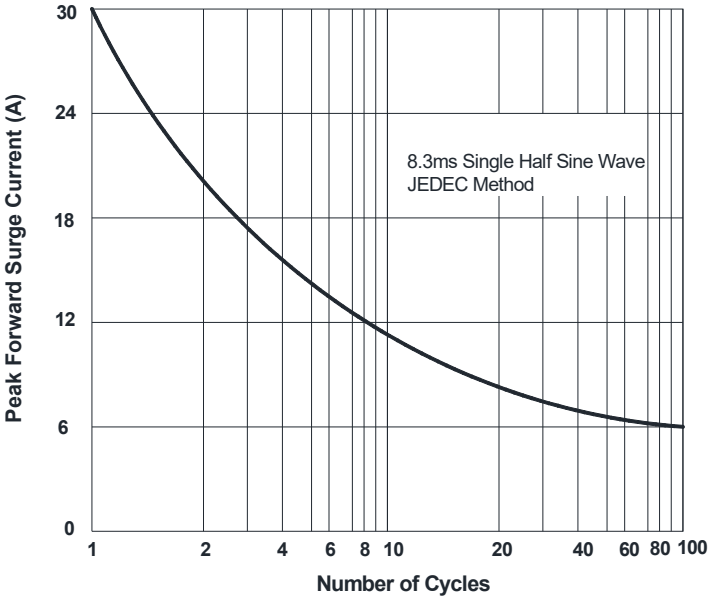


FIG.3: Typical Forward Characteristics

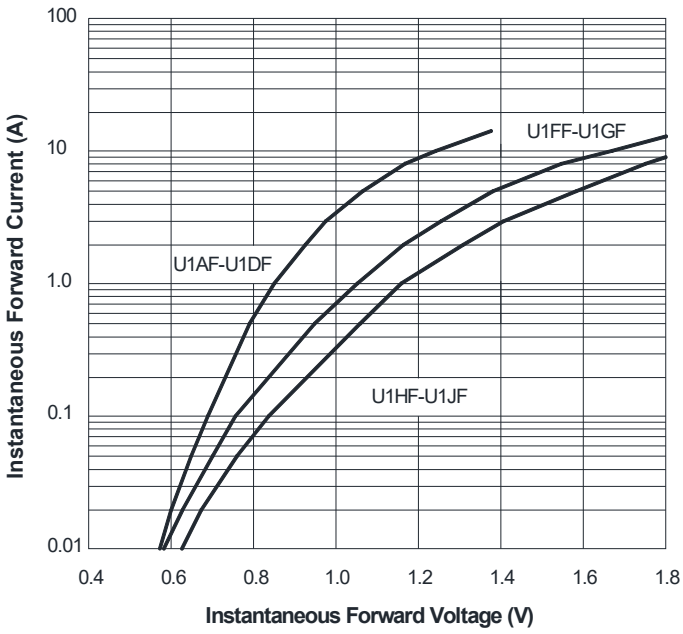


FIG.4: Typical Reverse Characteristics

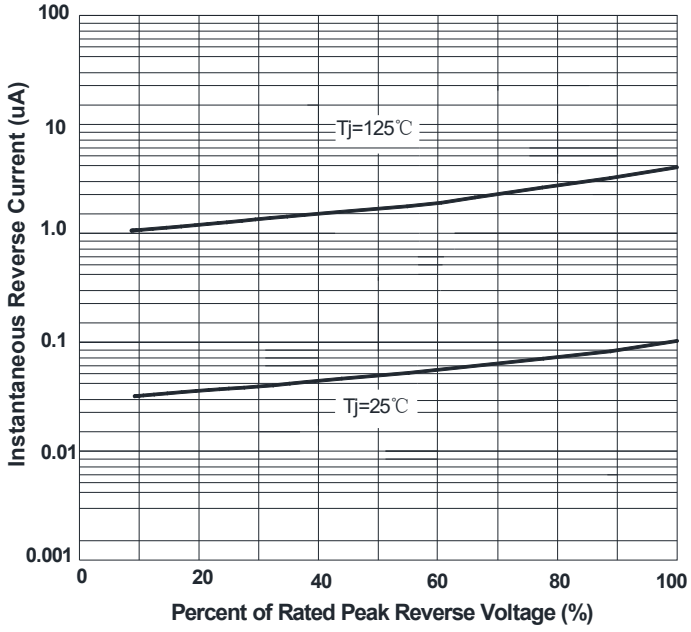
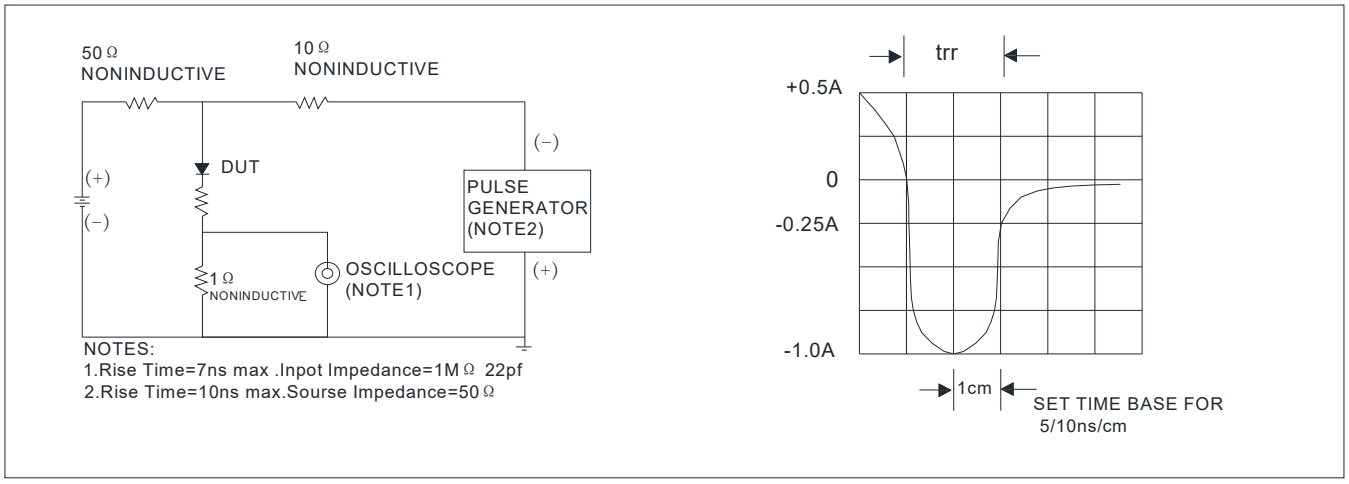


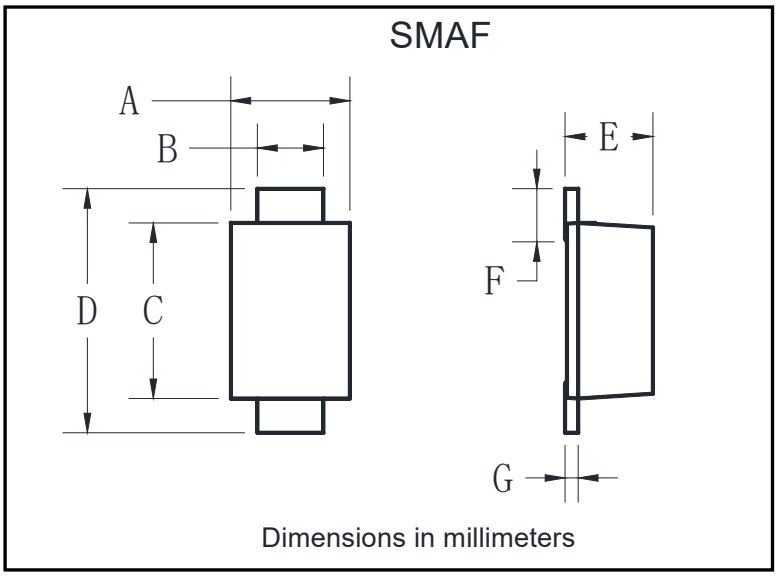
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



■Ordering Information (Example)

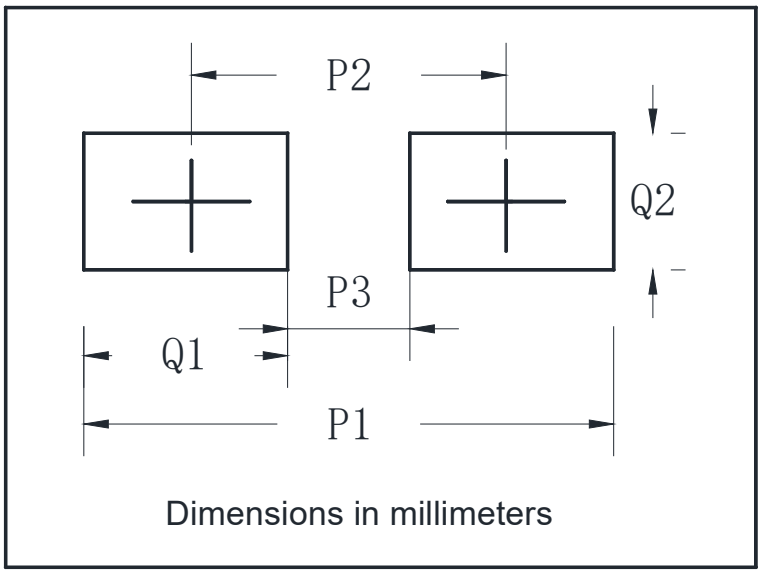
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
U1AF-U1JF	F1	Approximate 0.034	3000	24000	96000	7” reel
U1AF-U1JF	F2	Approximate 0.034	10000	/	160000	13” reel
U1AF-U1JF	F3	Approximate 0.034	10000	/	120000	13” reel
U1AF-U1JF	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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