

## Surface Mount Super Fast Recovery Rectifier

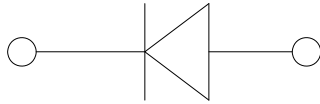


### Features

- 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 (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	E1AFS	E1BFS	E1CFS	E1DFS	E1FFS	E1GFS	E1HFS	E1JFS
Device marking code			E1AFS	E1BFS	E1CFS	E1DFS	E1FFS	E1GFS	E1HFS	E1JFS
Maximum Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	V	50	100	150	200	300	400	500	600
Maximum RMS Voltage	V <sub>RMS</sub>	V	35	70	105	140	210	280	350	420
Maximum DC blocking Voltage	V <sub>DC</sub>	V	50	100	150	200	300	400	500	600
Average rectified output current @60Hz sine wave, resistance load, TL (Fig.1)	I <sub>o</sub>	A	1.0							
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave, 1 cycle, T <sub>j</sub> =25°C	I <sub>FSM</sub>	A	30							
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, T <sub>j</sub> =25°C			60							
Current squared time @1ms≤t≤8.3ms T <sub>j</sub> =25°C	i <sup>2</sup> <sub>t</sub>	A <sup>2</sup> s	3.735							
Storage temperature	T <sub>stg</sub>	°C	-55 ~ +150							
Junction temperature	T <sub>j</sub>	°C	-55 ~ +150							

### ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	E1AFS	E1BFS	E1CFS	E1DFS	E1FFS	E1GFS	E1HFS	E1JFS
Maximum instantaneous forward voltage	V <sub>F</sub>	V	I <sub>FM</sub> =1.0A	1.0				1.3		1.7	
Maximum reverse recovery time	t <sub>rr</sub>	ns	I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A, I <sub>rr</sub> =0.25A	35							
Maximum DC reverse current at rated DC blocking voltage	I <sub>R</sub>	μA	T <sub>j</sub> =25°C	5.0							
			T <sub>j</sub> =125°C	100							
Typical junction capacitance	C <sub>j</sub>	pF	Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	15				10		7	



# E1AFS THRU E1JFS

## ■ Thermal Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	E1AFS	E1BFS	E1CFS	E1DFS	E1FFS	E1GFS	E1HFS	E1JFS
Typical thermal resistance	R <sub>θJ-A</sub>	°C/W	65 <sup>(1)</sup>							
	R <sub>θJ-L</sub>		25 <sup>(1)</sup>							
	R <sub>θJ-C</sub>		20 <sup>(1)</sup>							

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)

FIG1: I<sub>o</sub>-TL Curve

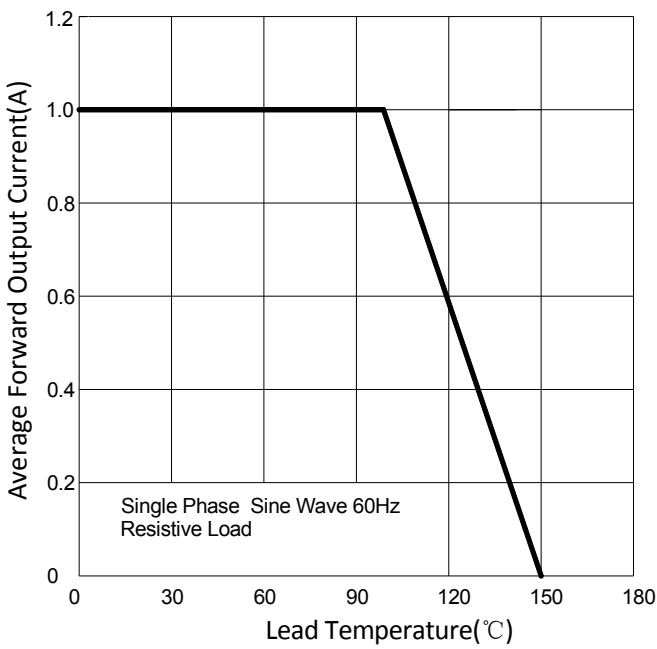


FIG2: Surge Forward Current Capability

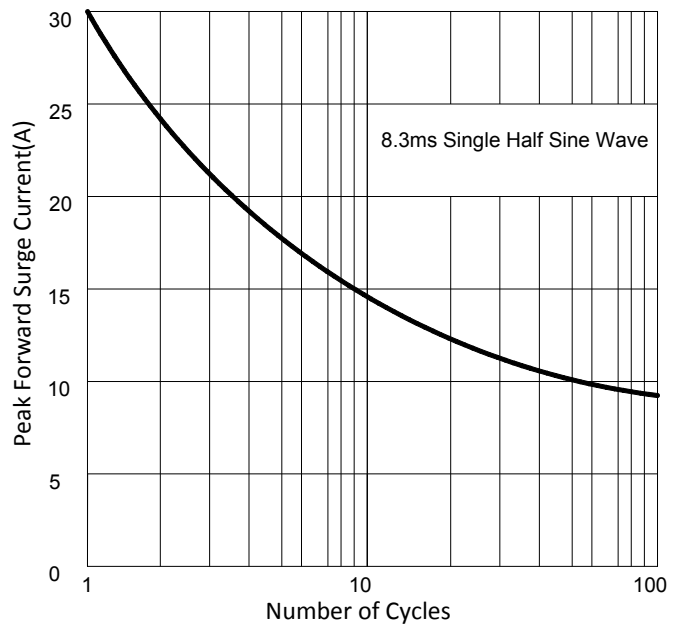


FIG3: Typical Forward Voltage

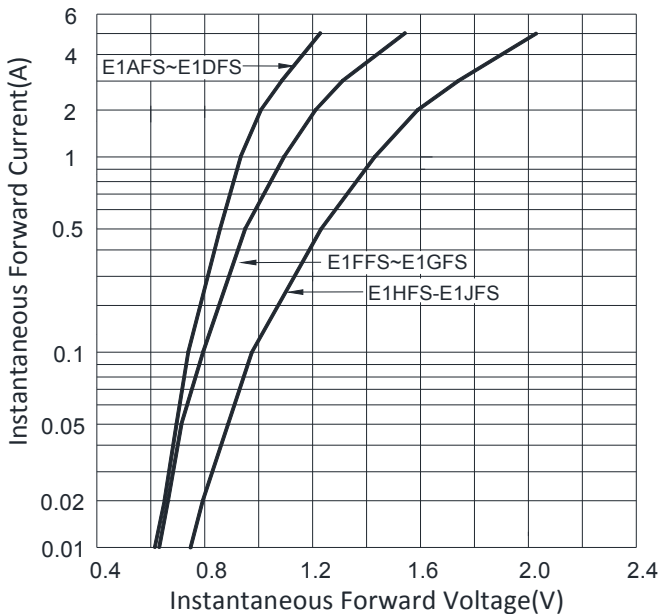
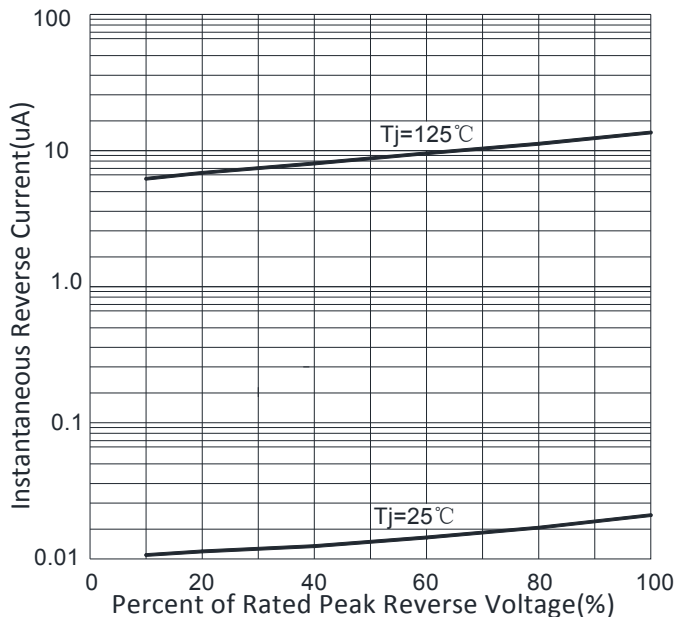


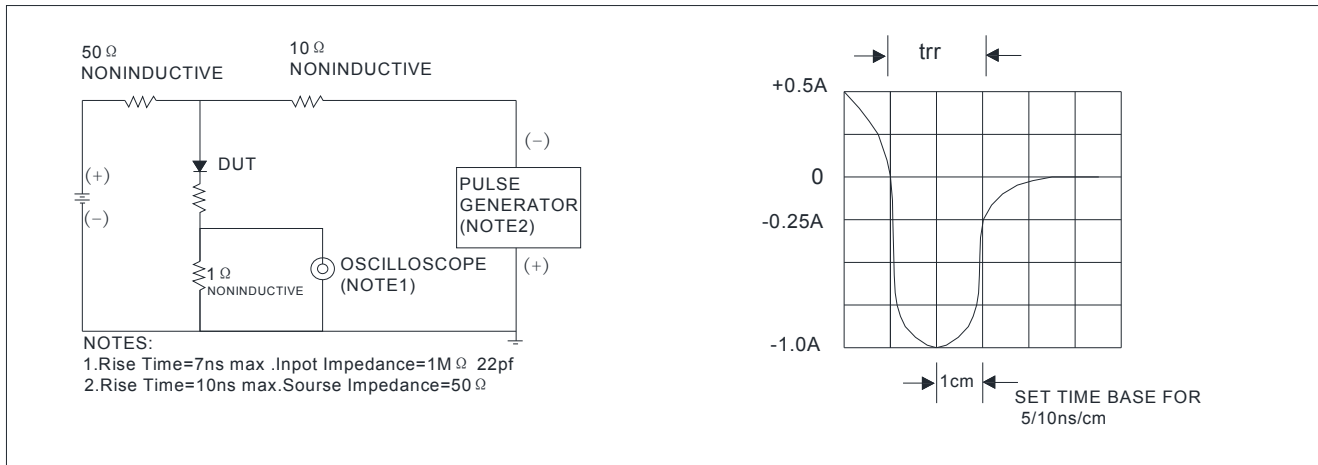
FIG4: Typical Reverse Characteristics





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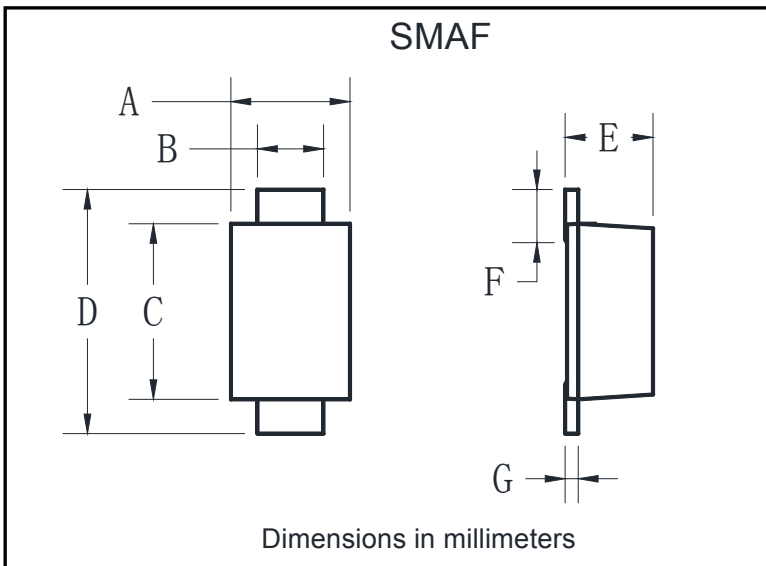
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



## Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
E1AFS-E1JFS	F1	Approximate 0.034	3000	24000	96000	7" reel
E1AFS-E1JFS	F2	Approximate 0.034	10000	/	160000	13" reel
E1AFS-E1JFS	F3	Approximate 0.034	10000	/	120000	13" reel
E1AFS-E1JFS	F4	Approximate 0.034	7500	/	120000	13" reel

## Outline Dimensions

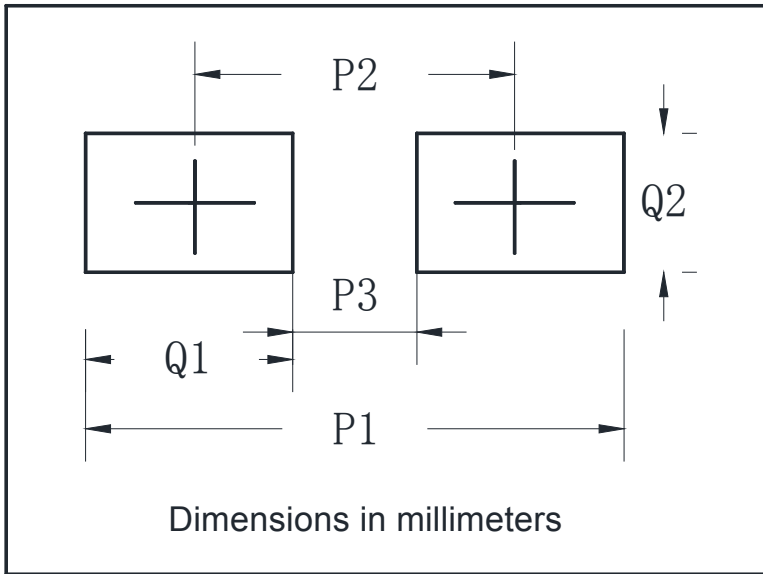


SMAF		
Dim	Min	Max
A	2.40	2.80
B	1.35	1.45
C	3.40	3.60
D	4.40	4.80
E	1.05	1.25
F	0.50	1.00
G	0.15	0.22



## E1AFS THRU E1JFS

### ■ 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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