

Super Fast Recovery Surface Mount Rectifiers

Features

- Low profile package
- For surface mounted applications
- Glass passivated chip junction
- High forward surge capability
- Super fast reverse recovery time
- High temperature soldering guaranteed
260℃/10 seconds at terminals

Mechanical Data

• Package: SMAF

Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free

• Terminals: Tin plated leads, solderable per MIL-STD-750, Method 2026

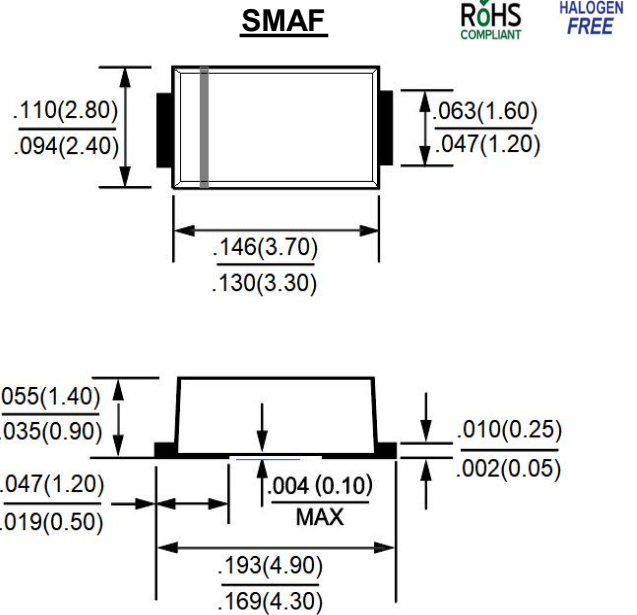
• Polarity: Cathode line denotes the cathode end

Typical Applications

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

Reverse Voltage: 50 to 600V

Forward Current: 1.0 Amp



Package Outline Dimensions in Inches (Millimeters)

Maximum Ratings and Electrical Characteristics

Rating at 25℃ ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Parameter&Test Conditions	SYM.	ES1AF	ES1BF	ES1CF	ES1DF	ES1FF	ES1GF	ES1JF	Unit
Device marking code		ES1AF	ES1BF	ES1CF	ES1DF	ES1FF	ES1GF	ES1JF	
Maximum Recurrent Peak Reverse Voltage	V _{RRM}	50	100	150	200	300	400	600	V
Maximum RMS Voltage	V _{RMS}	35	70	105	140	210	280	420	V
Maximum DC Blocking Voltage	V _{DC}	50	100	150	200	300	400	600	V
Average rectified output current @60Hz sine wave, Resistance load, TL (FIG.1)	I _{O(AV)}	1.0							A
Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed On Rated Load	I _{FSM}	30							A
Maximum Thermal Resistance, Junction To Ambient (Note 1)	R _{θJA}	150							℃/W
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150							℃

Electrical Characteristics (Ta=25℃ Unless otherwise specified)

Parameter&Test Conditions		SYM.	ES1AF	ES1BF	ES1CF	ES1DF	ES1FF	ES1GF	ES1JF	Unit
Maximum Instantaneous Forward Voltage IFM =1A		V _{FM}	0.95				1.3		1.7	V
Maximum DC reverse current at rated DC blocking voltage	TA = 25℃	I _R	5							μA
	TA = 125℃		200							
Maxinum reverse recovery time(Note 2)		T _{rr}	35							ns
Typical junction capacitance(Note 3)		C _J	18				12		8	pF

Notes:

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.
2. Reverse recovery time test condition: IF=0.5A IR=1.0A Irr=0.25A .
3. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
4. The typical data above is for reference only.

Rating and Characteristic Curves

FIG. 1- DERATING CURVE OUTPUT RECTIFIED

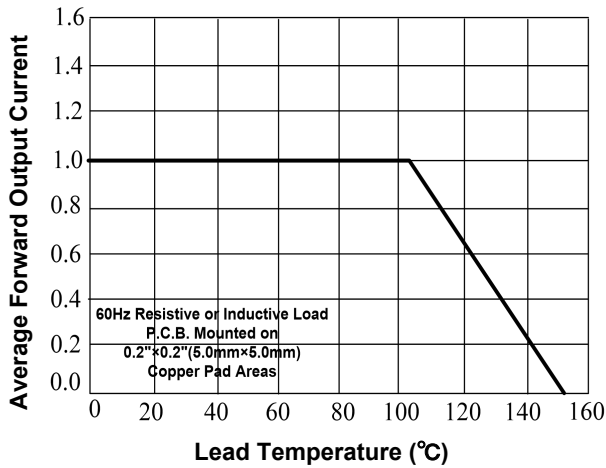


FIG. 2- -MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT PERLEG

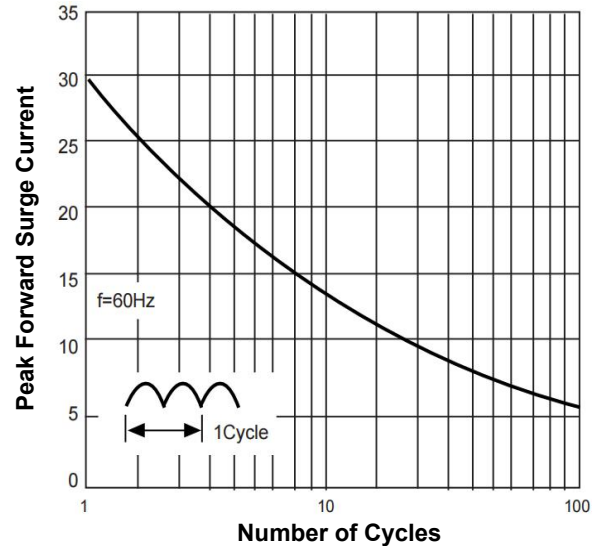


FIG. 3- TYPICAL FORWARD VOLTAGE

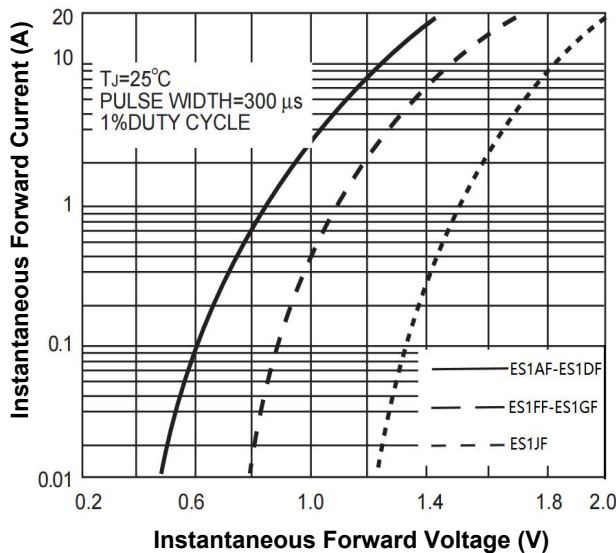


FIG. 4- TYPICAL REVERSE LEAKAGE

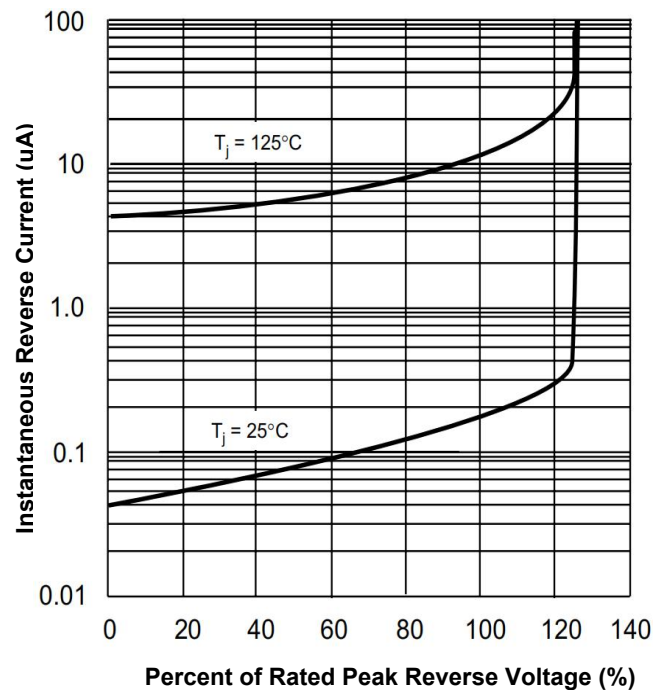
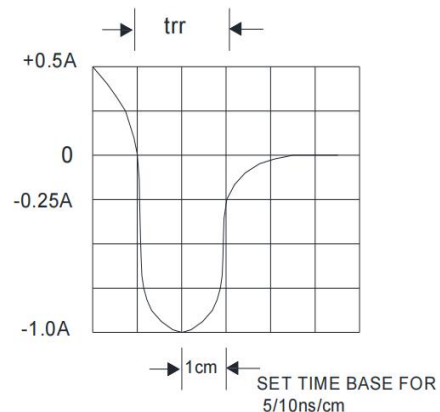
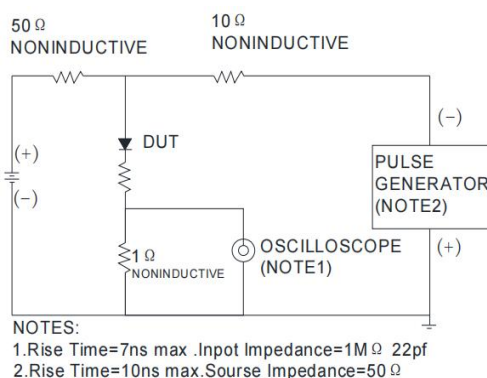
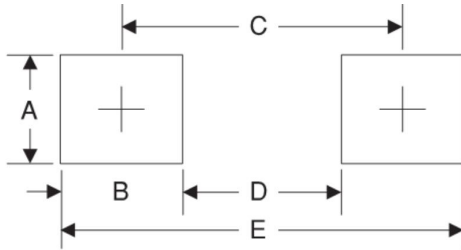


FIG. 5- Diagram of circuit and Testing wave form of reverse recovery



The curve above is for reference only.

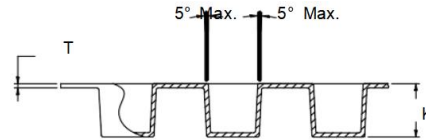
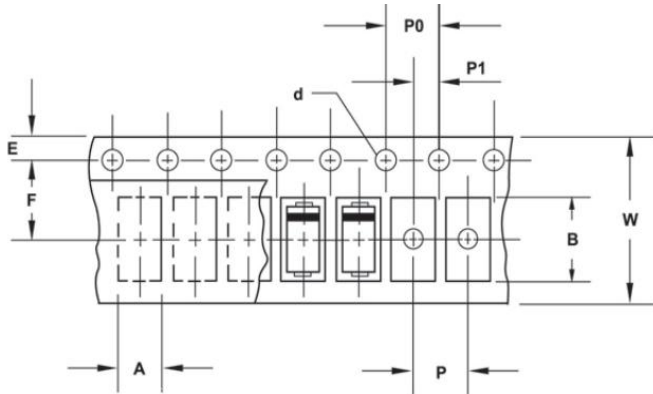
Recommended Pad Layout



SYMBOL	Millimeters
A	1.70
B	2.50
C	3.90
D	1.50
E	6.50

Package Information

Carrier Dimension(mm)



W	F	d	E
12.0	5.5	∅ 1.55	1.75
A	B	K	T
2.9	4.95	1.35	0.25
P0	P1	P	Tolerance
4.0	2.0	4.0	0.10

Package Specifications

Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SMAF	11'	278	5	290	10	310*310*400	100
	13'	330	10	340	20	370*360*360	200

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