

**SURFACE MOUNT GLASS PASSIVATED  
SUPER FAST SILICON RECTIFIER**  
VOLTAGE RANGE 50 to 600 Volts CURRENT 1.0 Ampere

**FEATURES**

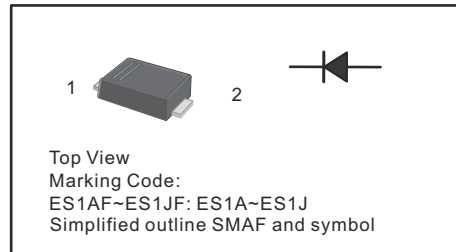
- \* Glass passivated device
- \* Ideal for surface mounted applications
- \* Low leakage current
- \* Metallurgically bonded construction
- \* Mounting position: Any
- \* Weight: 0.027 gram

**MECHANICAL DATA**

- \* Epoxy : Device has UL flammability classification 94V-0

**PINNING**

PIN	DESCRIPTION
1	Cathode
2	Anode



**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25 °C ambient temperature unless otherwise specified.  
Resistive or inductive load.

**MAXIMUM RATINGS (@ TA=25 °C unless otherwise noted)**

RATINGS	SYMBOL	ES1AF	ES1BF	ES1CF	ES1DF	ES1EF	ES1GF	ES1JF	UNITS
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	50	100	150	200	300	400	600	Volts
Maximum RMS Voltage	$V_{RMS}$	35	70	105	140	210	280	420	Volts
Maximum DC Blocking Voltage	$V_{DC}$	50	100	150	200	300	400	600	Volts
Maximum Average Forward Rectified Current at $T_L = 100^\circ C$	$I_o$	1.0							Amps
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method)	$I_{FSM}$	30							Amps
Typical Current Square Time	$i^2T$	3.7							A <sup>2</sup> S
Typical Thermal Resistance	$R_{\theta JA}$	100							°C/W
	$R_{\theta JL}$	60							
Typical Junction Capacitance (Note 2)	$C_J$	10							pF
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to + 150							°C

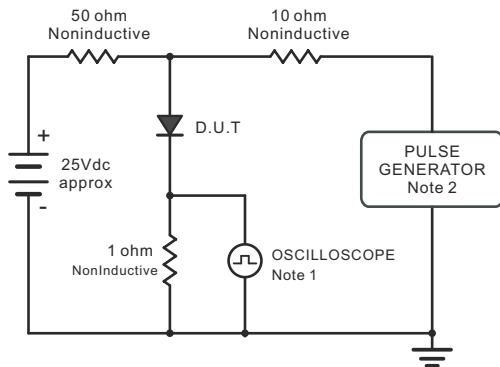
**ELECTRICAL CHARACTERISTICS (@ TA=25 °C unless otherwise noted)**

CHARACTERISTICS	SYMBOL	ES1AF	ES1BF	ES1CF	ES1DF	ES1EF	ES1GF	ES1JF	UNITS
Maximum Instantaneous Forward Voltage at 1.0ADC	$V_F$	1.0				1.25	1.7		Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage	@ $T_A = 25^\circ C$	5.0							µAmps
	@ $T_A = 125^\circ C$	100							
Maximum Reverse Recovery Time (Note 1)	$t_{rr}$	35							nSec

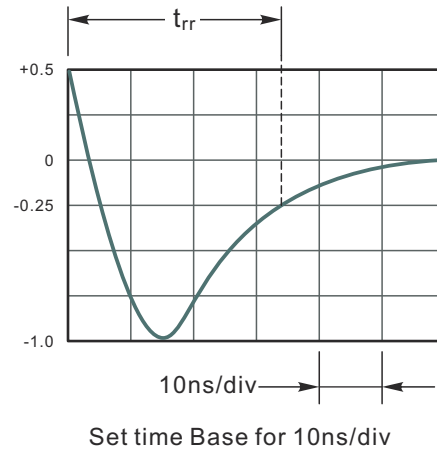
- NOTES : 1. Reverse Recovery Test Conditions:  $I_F = 0.5A$ ,  $I_R = -1.0A$ ,  $I_{RR} = -0.25A$   
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts  
3. Thermal Resistance : Mounted on PCB.

# RATING AND CHARACTERISTICS CURVES (ES1AF THRU ES1JF)

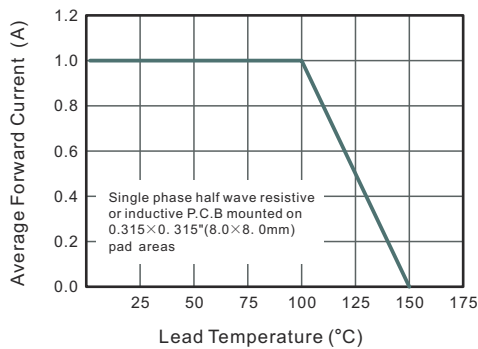
**Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram**



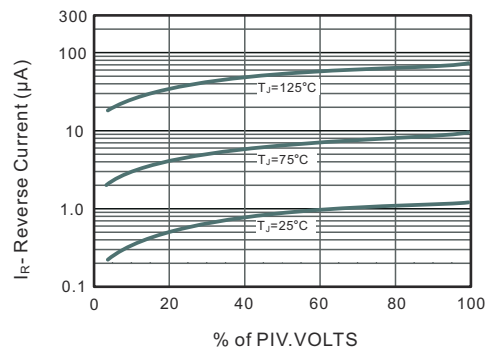
Note: 1. Rise Time = 7ns, max.  
Input Impedance = 1 megohm, 22pF.  
2. Rise Time = 10ns, max.  
Source Impedance = 50 ohms.



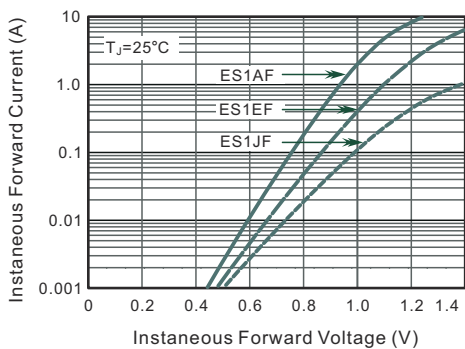
**Fig.2 Maximum Average Forward Current Rating**



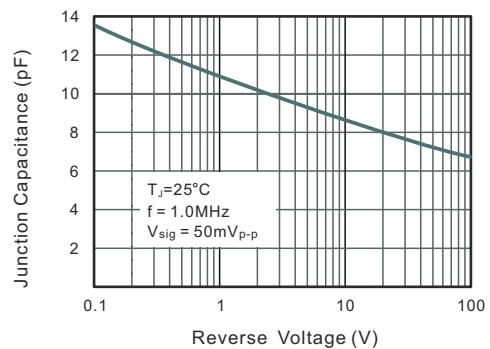
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Forward Characteristics**



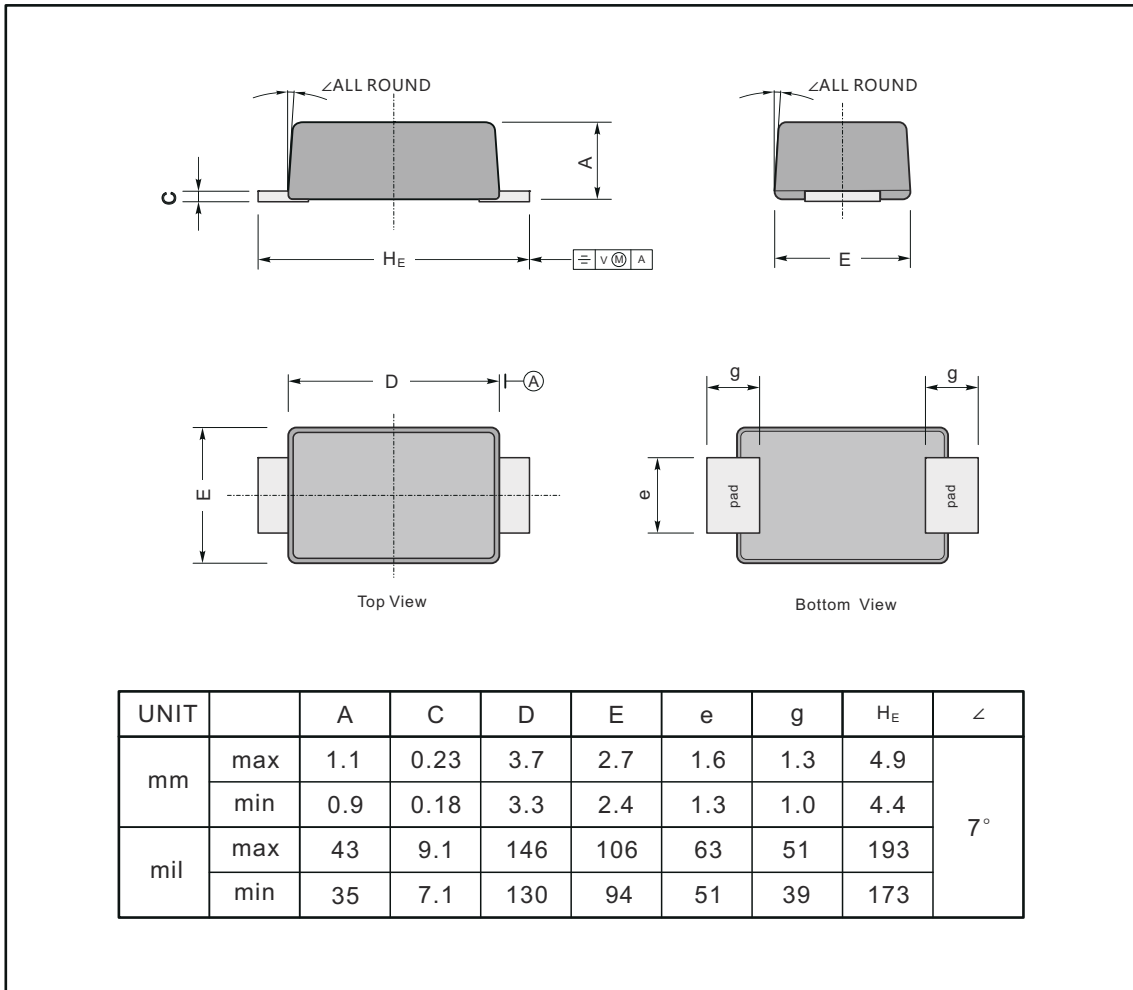
**Fig.5 Typical Junction Capacitance**



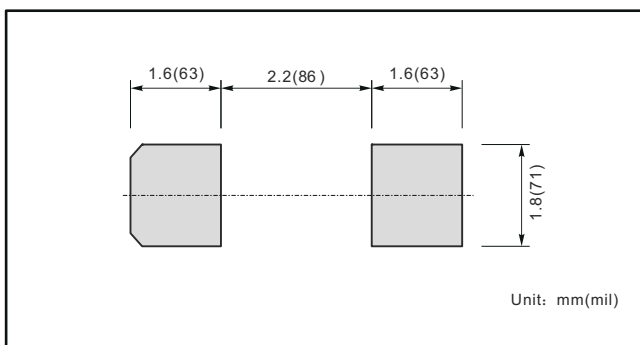
# PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SMAF



## The recommended mounting pad size



## Marking

Type number	Marking code
ES1AF	ES1A
ES1BF	ES1B
ES1CF	ES1C
ES1DF	ES1D
ES1EF	ES1E
ES1GF	ES1G
ES1JF	ES1J

## PACKAGING OF DIODE AND BRIDGE RECTIFIERS

### REEL PACK

PACKAGE	PACKING CODE	EA PER REEL	EA PER INNER BOX	COMPONENT SPACE (mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
SMAF	-T	3,000	12,000	---	---	178	390*205*310	96,000	---
SMAF	-W	10,000	20,000	---	---	330	360*355*360	160,000	---

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