RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

ES1AF THRU ES1JF

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

Top View
Marking Code:
ES1AF~ES1JF: ES1A~ES1J
Simplified outline SMAF and symbol

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

MAXIMUM RATINGS (@ T_A=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 °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^2S
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(@T_A=25 °C unless otherwise noted)

CHARACTERISTICS		SYMBOL	ES1AF	ES1BF	ES1CF	ES1DF	ES1EF	ES1GF	ES1JF	UNITS
Maximum Instantaneous Forward Voltage at 1.0A DC		V_F	1.0				1.25		1.7	Volts
Maximum DC Reverse Current at Rated DC Blocking Voltage	@T_A = 25°C	I_R	5.0							µAmps
	@T_A = 125°C		100							
Maximum Reverse Recovery Time (Note 1)		trr	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.

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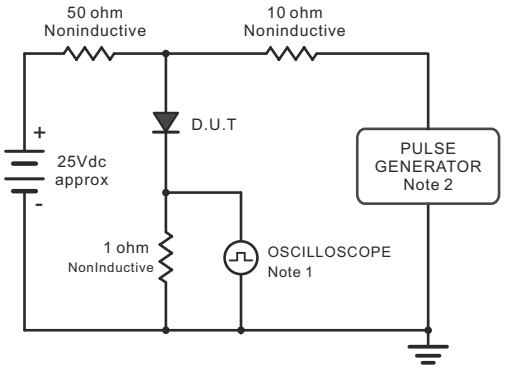
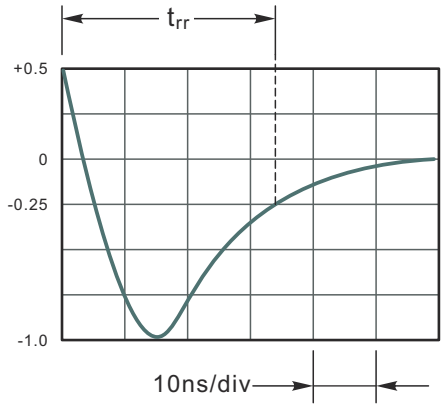
RATING AND CHARACTERISTICS CURVES (ES1AF THRU ES1JF)

Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram





Set time Base for 10ns/div

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

Fig.2 Maximum Average Forward Current Rating

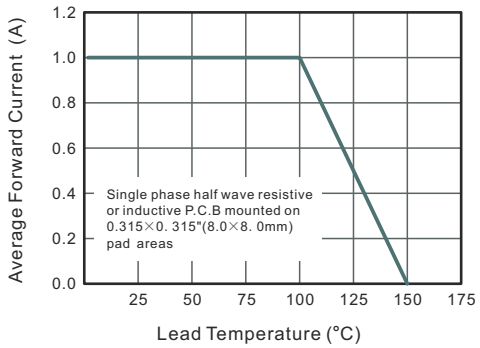


Fig.3 Typical Reverse Characteristics

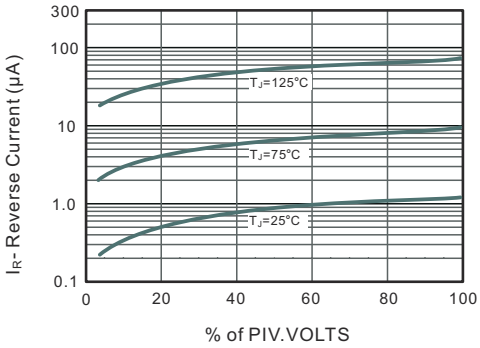


Fig.4 Typical Forward Characteristics

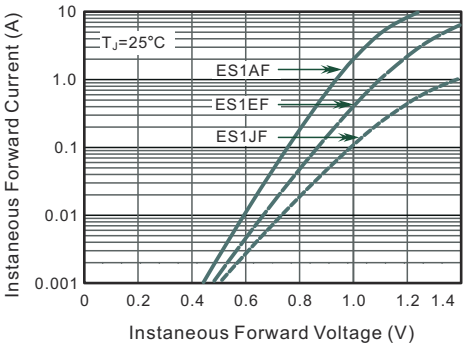
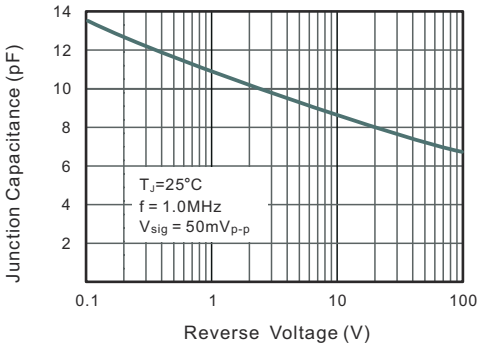
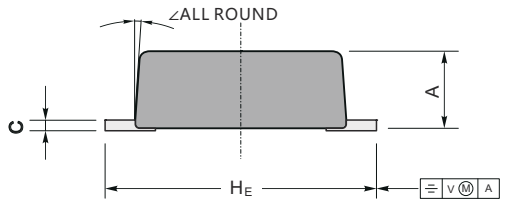


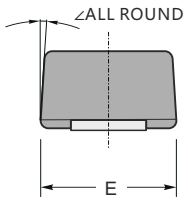
Fig.5 Typical Junction Capacitance

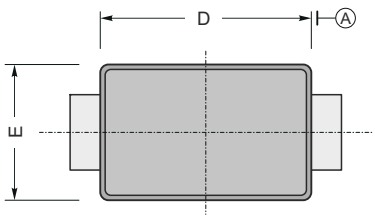


PACKAGE OUTLINE

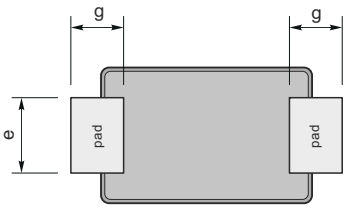
Plastic surface mounted package; 2 leads SMAF







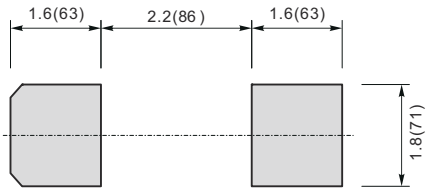
Top View



Bottom View

UNIT		A	C	D	E	e	g	H_E	∠
mm	max	1.1	0.23	3.7	2.7	1.6	1.3	4.9	7°
	min	0.9	0.18	3.3	2.4	1.3	1.0	4.4	
mil	max	43	9.1	146	106	63	51	193	
	min	35	7.1	130	94	51	39	173	

The recommended mounting pad size



Unit: mm(mil)

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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