

## Surface Mount Superfast Recovery Rectifier

Reverse Voltage - 50 to 600 V

Forward Current - 1 A

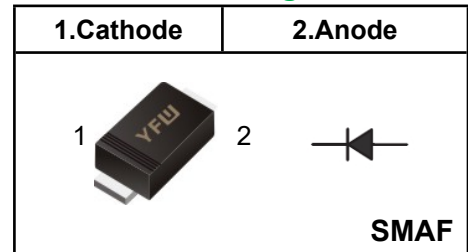
### FEATURES

- ◆ Glass Passivated Chip Junction
- ◆ For surface mounted applications
- ◆ Low profile package
- ◆ Superfast reverse recovery time
- ◆ Lead free in comply with EU RoHS 2011/65/EU directives

### MECHANICAL DATA

- ◆ Case: SMAF
- ◆ Terminals: Solderable per MIL-STD-750, Method 2026
- ◆ Approx. Weight: 27mg / 0.00095oz

### Pinning



### Marking Code

<b>ES1AF</b>	<b>YFW ES1A</b>
<b>ES1BF</b>	<b>YFW ES1B</b>
<b>ES1DF</b>	<b>YFW ES1D</b>
<b>ES1GF</b>	<b>YFW ES1G</b>
<b>ES1JF</b>	<b>YFW ES1J</b>

### Absolute Maximum Ratings and characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

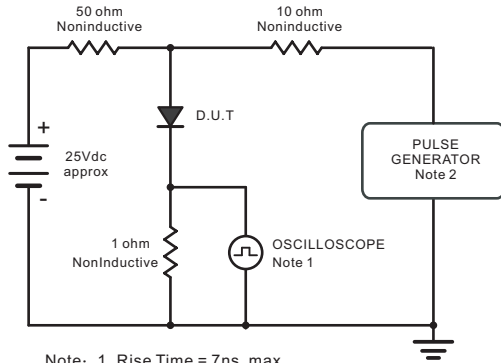
Single phase half-wave 60 Hz, resistive or inductive load, for capacitive load current derate by 20 %.

Parameter	Symbols	ES1AF	ES1BF	ES1DF	ES1GF	ES1JF	Units
Maximum Repetitive Peak Reverse Voltage	$V_{RRM}$	50	100	200	400	600	V
Maximum RMS voltage	$V_{RMS}$	35	70	140	280	420	V
Maximum DC Blocking Voltage	$V_{DC}$	50	100	200	400	600	V
Maximum Average Forward Rectified Current at $T_c = 125\text{ }^\circ\text{C}$	$I_{F(AV)}$	1					A
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load	$I_{FSM}$	30					A
Maximum Instantaneous Forward Voltage at 1 A	$V_F$	0.95			1.25	1.65	V
Maximum DC Reverse Current $T_a = 25\text{ }^\circ\text{C}$ at Rated DC Blocking Voltage $T_a = 125\text{ }^\circ\text{C}$	$I_R$	5 100					$\mu\text{A}$
Typical Junction Capacitance at $V_R = 4\text{V}, f = 1\text{MHz}$	$C_j$	15					pF
Maximum Reverse Recovery Time <sup>(1)</sup>	$T_{rr}$	35					nS
Typical Thermal Resistance <sup>(2)</sup>	$R_{\theta JA}$	80					$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_j, T_{stg}$	-55 ~ +150					$^\circ\text{C}$

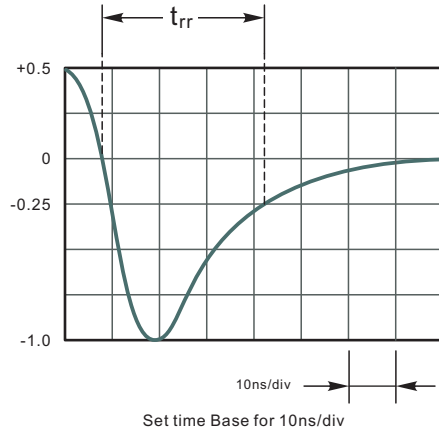
(1) Measured with  $I_F = 0.5\text{A}, I_R = 1\text{A}, I_n = 0.25\text{A}$

(2) P.C.B. mounted with 2.0" X 2.0" (5 X 5 cm) copper pad areas.

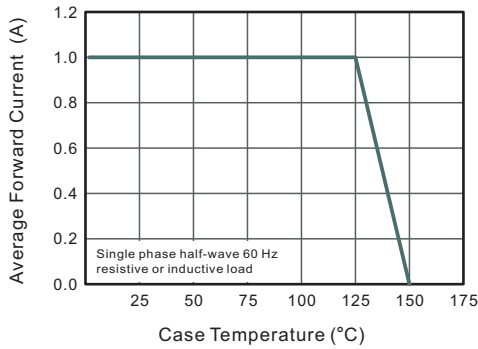
**Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram**



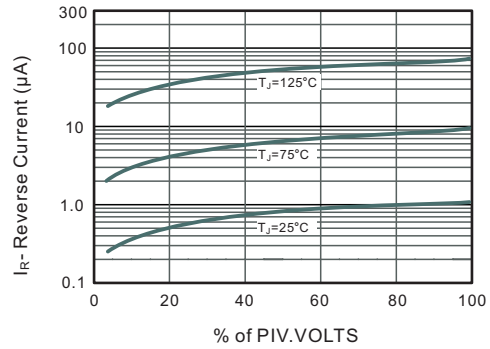
Note: 1. Rise Time = 7ns, max.  
Input Impedance = 1megohm, 22pF.  
2. Rise Time = 10ns, max.  
Source Impedance = 50 ohms.



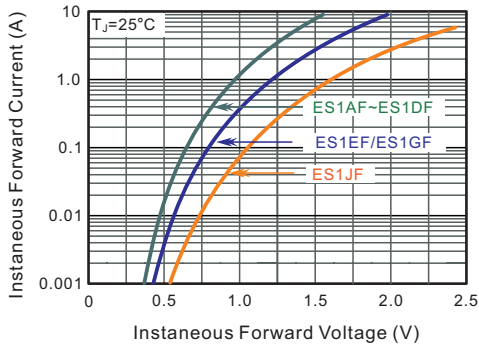
**Fig.2 Maximum Average Forward Current Rating**



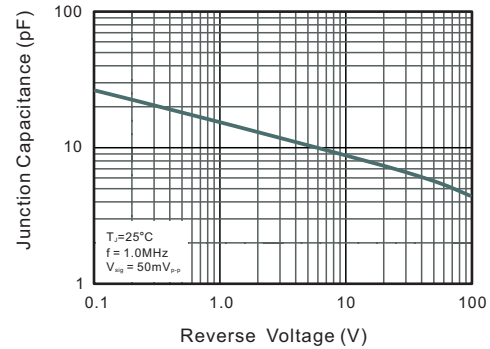
**Fig.3 Typical Reverse Characteristics**



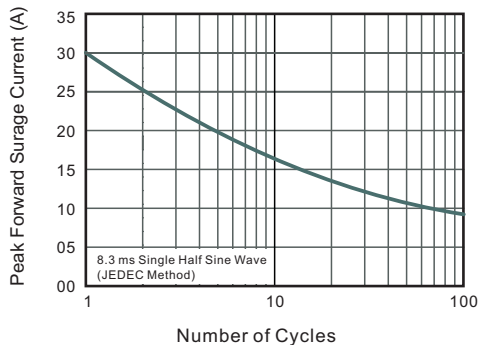
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Junction Capacitance**



**Fig.6 Maximum Non-Repetitive Peak Forward Surge Current**



**Marking Diagram**



**Ordering information**

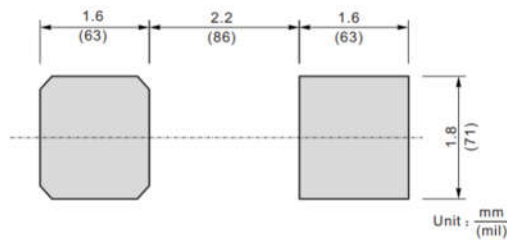
Package	Packing Description	Packing Quantity
SMAF	Tape/Reel, 7" reel	3000PCS/Reel 9000PCS/Carton

**Package Dimensions**

**SMAF**

Dim.	Millimeter(mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.1	35	43
C	0.12	0.20	4.7	7.9
D	3.3	3.7	130	146
E	2.4	2.7	94	106
e	1.3	1.6	51	63
g	0.8	1.2	31	47
HE	4.4	4.9	173	193
∠	7°			

**The recommended mounting pad size**



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