

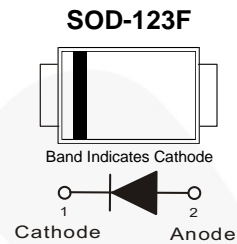


October 2015

# ES1JFL Surface Mount Ultrafast Rectifier

## Features

- Fast Switching Speed – Maximum  $T_{rr}$  35 ns
  - Ultra Thin Profile - Maximum Height of 1.08 mm
  - Glass Passivated Junction
  - UL Flammability 94V-0 Classification
  - MSL 1
  - RoHS Compliant / Green Mold Compound
  - Industrial Device Qualified per AEC-Q101 Standards.
- \* see authorized use policy



## Ordering Information

Part Number	Top Mark	Package	Packing Method
ES1JFL	E1J	SOD-123F	Tape and Reel

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$V_{RRM}$	Repetitive Peak Reverse Voltage	600	V
$V_{RMS}$	RMS Voltage	420	V
$V_{DC}$	DC Blocking Voltage	600	V
$I_{F(AV)}$	Average Forward Current at $T_L = 120^\circ\text{C}$	1	A
$I_{FSM}$	Peak Forward Surge Current, 8.3 ms Single Half Sine-Wave at $T_L = 25^\circ\text{C}$	30	A
$T_J, T_{STG}$	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

## Thermal Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Typical Thermal Resistance, Junction-to-Ambient <sup>(1)</sup>	200	$^\circ\text{C/W}$
$R_{\theta JC}$	Typical Thermal Resistance, Junction-to-Case <sup>(2)</sup>	30	$^\circ\text{C/W}$

### Note:

1. Mounted on a FR4 PCB, single-sided copper, mini pad.
2. Mounted on a FR4 PCB, single-sided copper, with 10cm x 10cm copper pad area.

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_F$	Forward Voltage	$I_F = 1\text{ A}$			1.7	V
$I_R$	Reverse Current	$V_R = 600\text{ V}$			0.5	$\mu\text{A}$
		$V_R = 600\text{ V}, T_A = 100^\circ\text{C}$			10	
$C_J$	Capacitance	$V_R = 4\text{ V}, f = 1.0\text{ MHz}$		7		pF
$T_{rr}$	Reverse Recovery Time	$I_F = 0.5\text{ A}, I_R = 1\text{ A}, I_{rr} = 0.25\text{ A}$		22.55	35.00	ns

## Typical Performance Characteristics

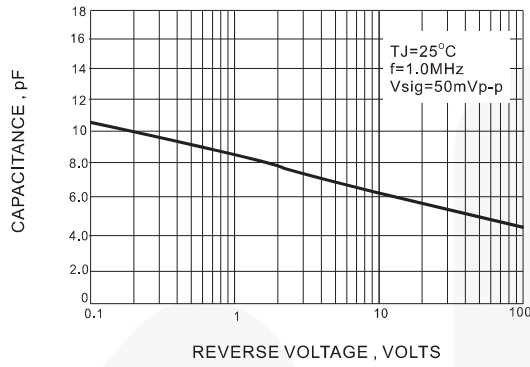


Figure 1. Typical Junction Capacitance

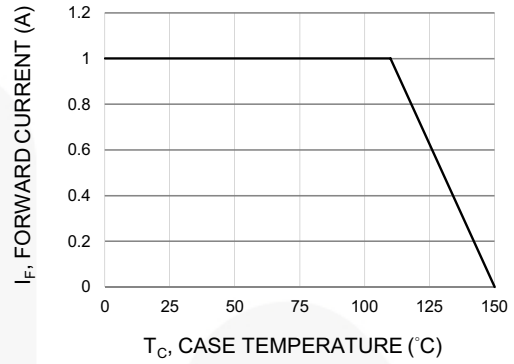


Figure 2. Forward Current Derating Curve

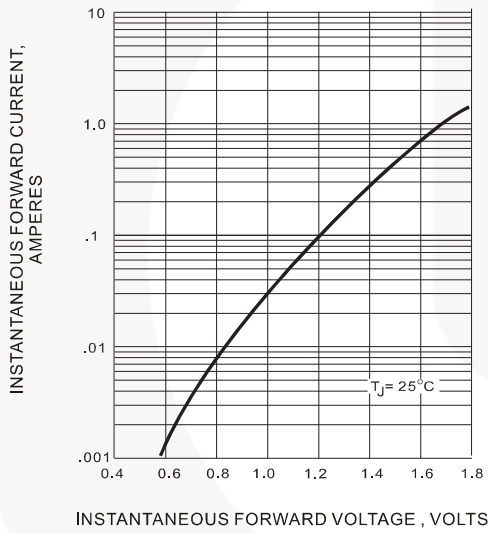


Figure 3. Typical Forward Characteristic

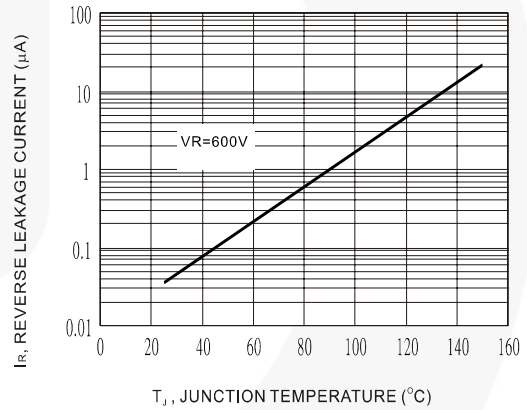
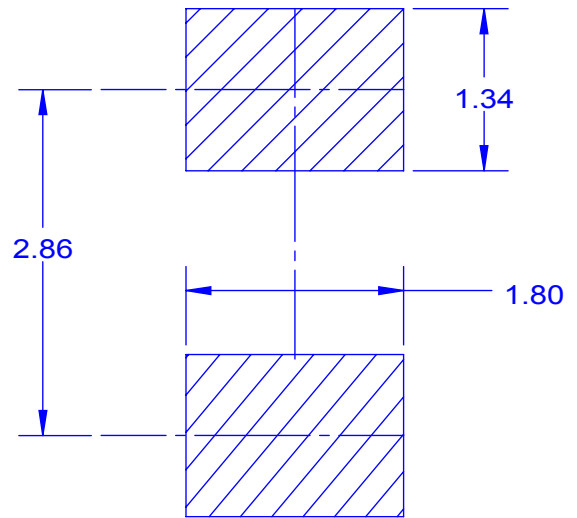
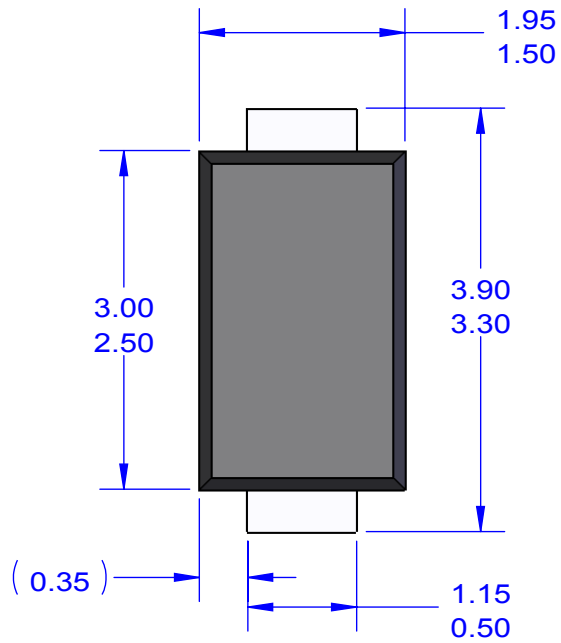
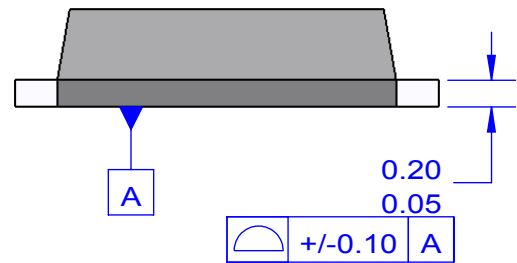
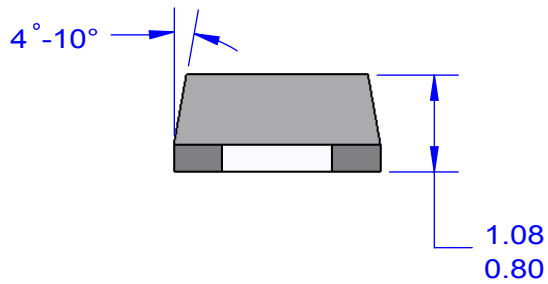


Figure 4. Typical Leakage Current vs. Junction Temperature



LAND PATTERN RECOMMENDATION



NOTES:

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- B. ALL DIMENSIONS ARE IN MILLIMETERS.
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- D. DRAWING FILE NAME: MA02BREV5





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