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February 2017

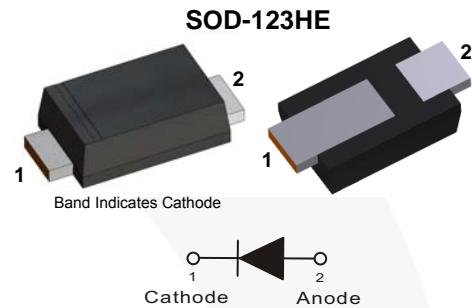
## SS12FP - S115FP

### 1 A, 20 V - 150 V Surface Mount Schottky Barrier Rectifiers

#### Features

- Larger Cathode Pad for Improved Power Dissipation
- Ultra Thin Profile - Package Height < 1.0 mm
- High Surge Current Capability
- Low Power Loss, High Efficiency
- UL Flammability 94V-0 Classification
- MSL 1 per J-STD-020
- RoHS Compliant / Green Molding Compound
- Industrial Device Qualified per AEC-Q101 Standards

\* See authorized use policy



#### Ordering Information

Part Number	Top Mark	Package	Packing Method
SS12FP	2FP	SOD-123HE	Tape and Reel
SS13FP	3FP	SOD-123HE	Tape and Reel
SS14FP	4FP	SOD-123HE	Tape and Reel
SS16FP	6FP	SOD-123HE	Tape and Reel
S110FP	0FP	SOD-123HE	Tape and Reel
S115FP	AFP	SOD-123HE	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
		SS12 FP	SS13 FP	SS14 FP	SS16 FP	S110 FP	S115 FP	
$V_{RRM}$	Repetitive Peak Reverse Voltage	20	30	40	60	100	150	V
$V_{RMS}$	RMS Reverse Voltage	14	21	28	42	70	105	V
$V_R$	DC Blocking Voltage	20	30	40	60	100	150	V
$I_{F(AV)}$	Average Forward Rectified Current	1						A
$I_{FSM}$	Peak Forward Surge Current: 8.3 ms Single Half Sine-Wave Superimposed on Rated Load	30						A
$T_J$	Operating Junction Temperature Range	-55 to +125		-55 to +150			$^\circ\text{C}$	
$T_{STG}$	Storage Temperature Range	-55 to +150						$^\circ\text{C}$

## Thermal Characteristics<sup>(1)</sup>

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

Symbol	Parameter	Value	Unit
$\psi_{JL}$	Thermal Characteristics, Junction-to-Lead <sup>(2)</sup>	10	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	140	$^\circ\text{C/W}$

### Notes:

1. Per JESD51-3 recommended thermal test board. Device mounted on FR-4 PCB, board size = 76.2 mm x 114.3 mm.
2. Thermocouple soldered at cathode lead.

## Electrical Characteristics

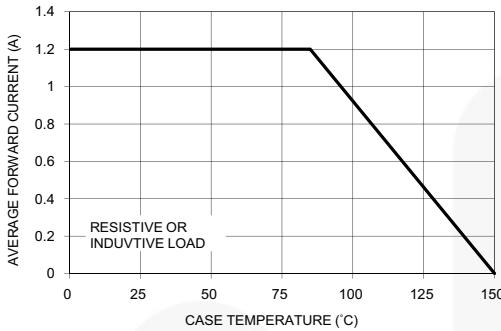
Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Condi-tions	Value						Unit
			SS12 FP	SS13 FP	SS14 FP	SS16 FP	S110 FP	S115 FP	
$V_F$	Maximum Instantaneous Forward Voltage <sup>(3)</sup>	$I_F = 0.5 \text{ A}$			0.51	0.58	0.70	0.75	V
		$I_F = 1.0 \text{ A}$	0.45	0.50	0.55	0.70	0.80	0.90	
$I_R$	Maximum Reverse Current at Rated $V_R$	$T_J = 25^\circ\text{C}$	0.40				0.05		mA
		$T_J = 125^\circ\text{C}$					0.50		
$C_J$	Typical Junction Capacitance	$V_R = 4 \text{ V}$ , $f = 1 \text{ MHz}$	54				28		pF
$T_{rr}$	Typical Reverse Recovery Time	$I_F = 0.5 \text{ A}$ , $I_R = 1 \text{ A}$ , $I_{RR} = 0.25 \text{ A}$	6				14		ns

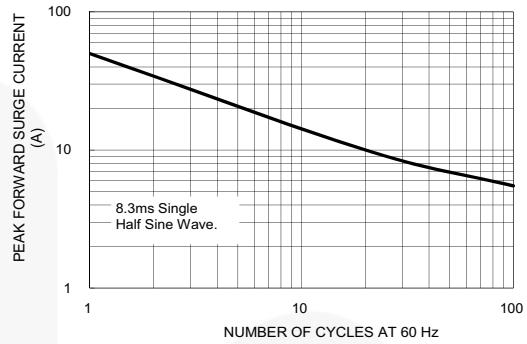
### Note:

3. Pulse test with  $PW = 300 \mu\text{s}$ , 1% duty cycle

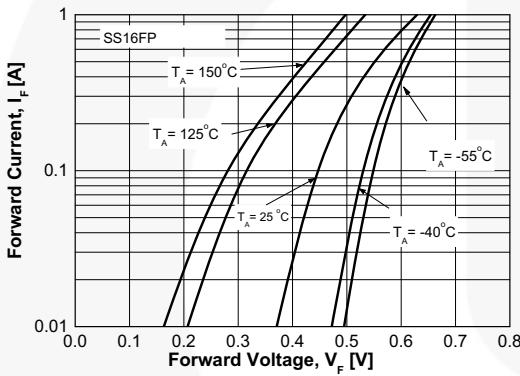
## Typical Performance Characteristics



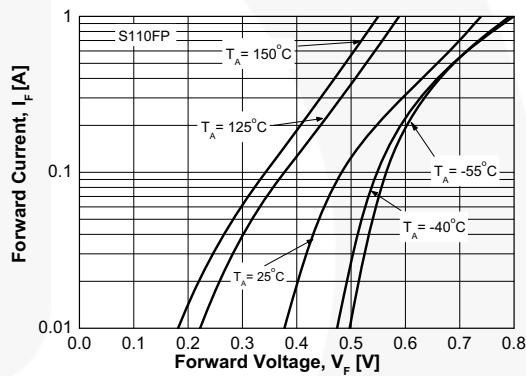
**Figure 1. Forward Current Derating Curve**



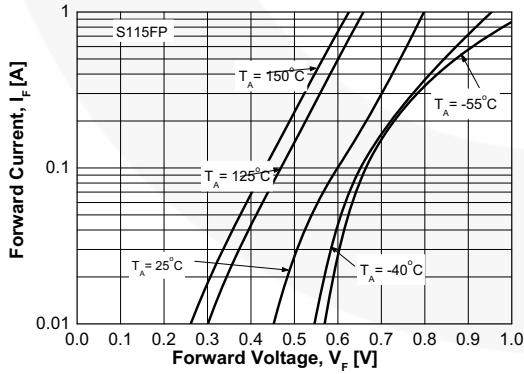
**Figure 2. Maximum Non-Repetitive Forward Surge Current**



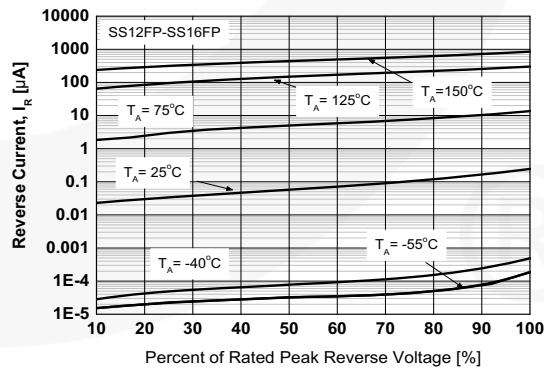
**Figure 3. Typical Forward Characteristics**



**Figure 4. Typical Forward Characteristics**

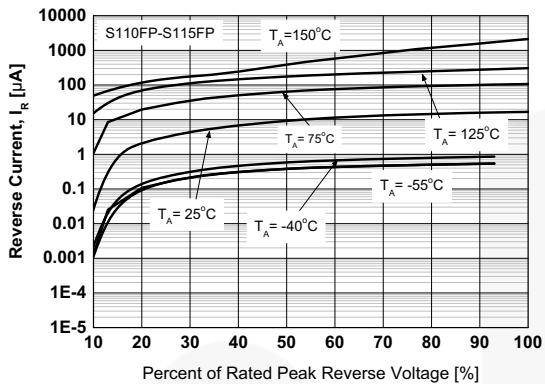


**Figure 5. Typical Forward Characteristics**

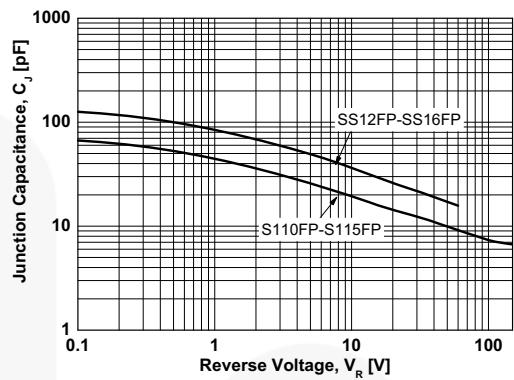


**Figure 6. Typical Reverse Characteristics**

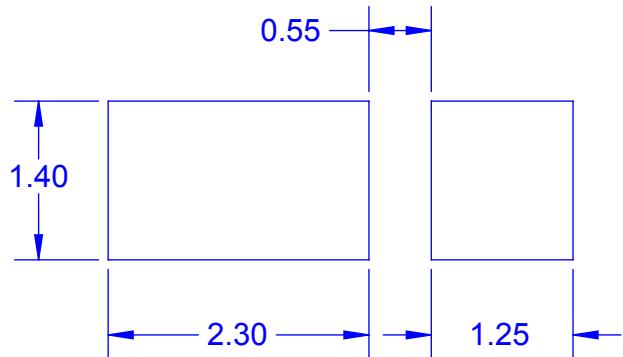
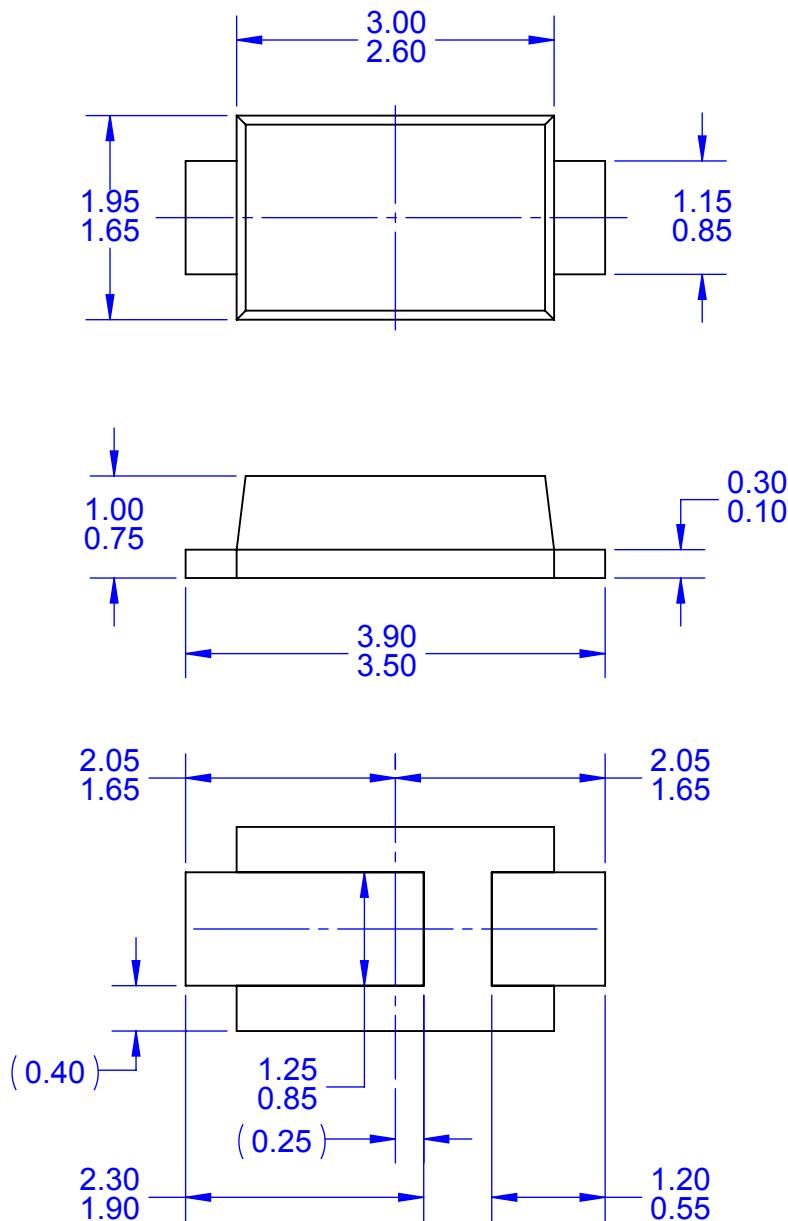
**Typical Performance Characteristics (Continued)**



**Figure 7. Typical Reverse Characteristics**



**Figure 8. Typical Junction Capacitance**



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