



## 8 Amp Schottky Barrier Rectifier

### DESCRIPTION

The HSM880, HSM890, and HSM8100 series provides 8 Amp, 80V-100V Schottky surface mount rectifier in either J lead or gull wing configuration with low forward voltage and low leakage current. For critical applications requiring very fast switching, these higher voltage Schottkys with their “hot carrier” features provide extremely fast switching to replace conventional ultrafast rectifiers.

**Important:** For the latest information, visit our website <http://www.microsemi.com>.

### FEATURES

- Schottky Barrier Rectifier
- Guard Ring Protection
- 175°C Junction Temperature
- High Current Capability
- $V_{RWM}$  80 to 100 Volts
- Surface Mount Packages
- Low profile surface mount package
- RoHS compliant versions are available with e3 suffix

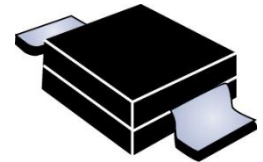
### APPLICATIONS / BENEFITS

- Silicon Schottky (hot carrier) rectifier for minimal  $t_{rr}$  and elimination of reverse-recovery oscillations to reduce need for EMI filtering
- For use in high-frequency switching power supplies, inverters, free wheeling, polarity protection, and “ORing” applications
- Low power loss and high efficiency
- Low profile package
- Robust package configuration for pick-and-place handling

### MAXIMUM RATINGS @ 25 °C unless otherwise noted

Parameters/Test Conditions	Symbol	Value	Unit
Storage Temperature	$T_{STG}$	-55 to +175	°C
Junction Temperature	$T_J$	-55 to +175	°C
Thermal Resistance Junction-to-Ambient <sup>(1)</sup>	$R_{\theta JA}$	75	°C/W
Thermal Resistance Junction-to-Case	$R_{\theta JL}$	20	°C/W
Forward Surge Current <sup>(2)</sup>	$I_{FSM}$	300	A
Average Rectified Forward Current @ $T_L = 75$ °C (Square wave)	$I_{F(AV)}$	8.0	A
Solder Temperature @ 10 s		260	°C

- Notes:** 1. On PCB with FR4 using 2 oz copper and recommended mounting pad size (see [pad layout](#)).  
2. At 8.3 ms single half-sine waveform superimposed on rated load (JEDEC method).



**DO-215AB  
(SMCG) Package**



**DO-214AB  
(SMCJ) Package**

NOTE: All SMC series are equivalent to prior SMM package identifications.

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#### **MSC – Ireland**

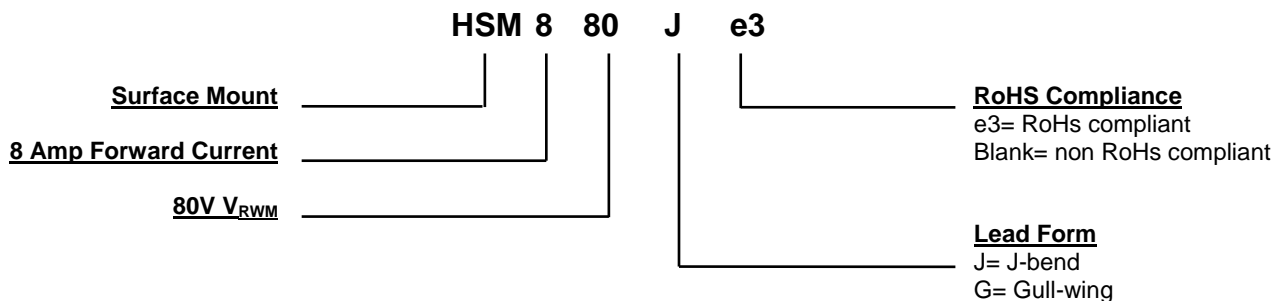
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**MECHANICAL and PACKAGING**

- CASE: Void-free transfer molded thermosetting epoxy body meeting UL94V-0.
- TERMINALS: RoHS compliant annealed matte-tin plating. Readily solderable per MIL-STD-750, method 2026.
- POLARITY: Indicated by cathode band
- TAPE-AND-REEL: Standard per EIA-481-B (add "TR" suffix to part number). Consult factory for quantities.
- WEIGHT: Approximately 0.22 grams
- See [Package Dimensions](#) on last page.

**PART NOMENCLATURE**

**SYMBOLS & DEFINITIONS**

Symbol	Definition
$C_T$	Total Capacitance: The total small signal capacitance between the diode terminals of a complete device.
$I_F$	Forward Current: The forward current dc value, no alternating component.
$I_{FSM}$	Maximum Forward Surge Current: The forward current, surge peak or rated forward surge current.
$I_{F(AV)}$	Average Rectified Forward Current: The current averaged over a full cycle with 180 degree conduction angle (square wave).
$I_R$	Reverse Current: The maximum reverse (leakage) current that will flow at the specified voltage and temperature.
$V_F$	Maximum Forward Voltage: The maximum forward voltage the device will exhibit at a specified current.
$V_R$	Reverse Voltage: The reverse voltage dc value, no alternating component.
$V_{RRM}$	Repetitive Peak Reverse Voltage: The peak reverse voltage including all repetitive transient voltages but excluding all non-repetitive transient voltages.
$V_{RWM}$	Working Peak Reverse Voltage: The maximum peak voltage that can be applied over the operating temperature range excluding all transient voltages (ref JESD282-B). Also sometimes known as PIV.

**ELECTRICAL CHARACTERISTICS @ 25 °C unless otherwise stated**

PART NUMBER	Working Peak Reverse Voltage $V_{RWM}$	Repetitive Peak Reverse Voltage $V_{RRM}$	Reverse Current $I_R$ @ $V_{RWM}$	Average Forward Current $I_{F(AV)}$	Maximum Surge Current $I_{FSM}$ @ 8.3 ms	Max Peak Forward Voltage $V_F$ @ 8A	Max Peak Forward Voltage $V_F$ @ 8A	CAPACITANCE $C_T$ @ 5 V
	Volts	Volts	$\mu A$	Amps	Amps	Volts	Volts	pF
	MAX	MAX	MAX	MAX	MAX	MAX	MAX	TYPICAL
HSM880	80	80	500	8	300	.61	.78	480
HSM890	90	90	500	8	300	.61	.78	480
HSM8100	100	100	500	8	300	.61	.78	480

**GRAPHS**

Figure 1  
Typical Forward Characteristics

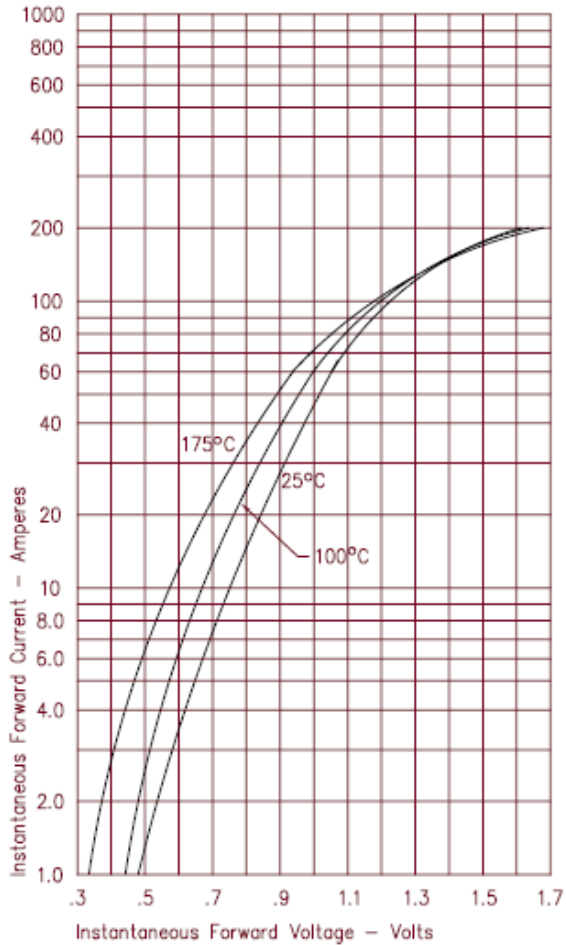


Figure 3  
Typical Junction Capacitance

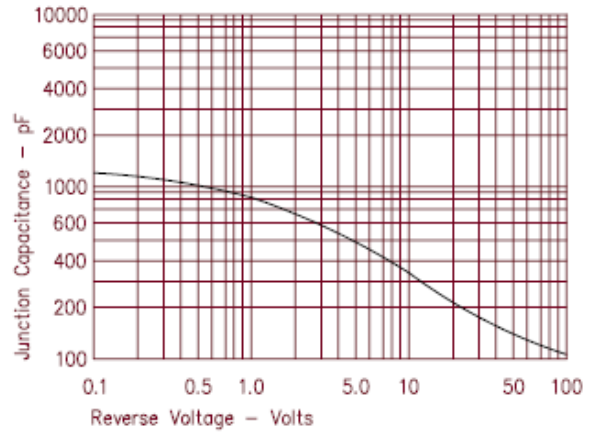
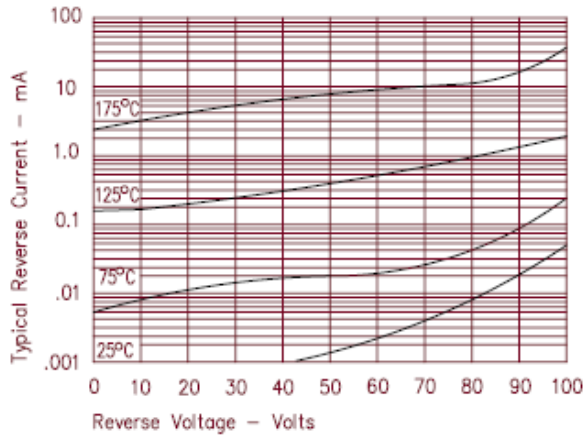
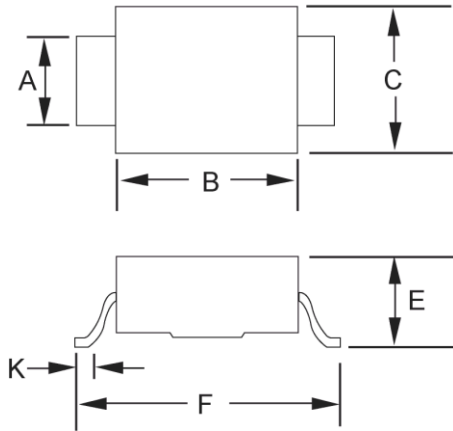
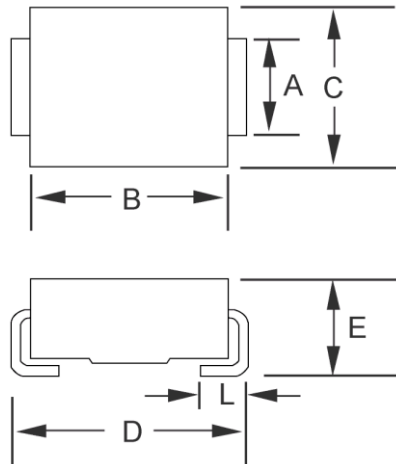


Figure 2  
Typical Reverse Characteristics



**PACKAGE DIMENSIONS**

**SMCG (DO-215AB)**

Ltr	Dimensions			
	Inch		Millimeters	
	Min	Max	Min	Max
<b>A</b>	.117	.123	2.97	3.12
<b>B</b>	.260	.280	6.60	7.11
<b>C</b>	.220	.245	5.59	6.22
<b>E</b>	.075	.095	1.91	2.41
<b>F</b>	.380	.400	9.65	10.16
<b>K</b>	.025	.040	0.640	1.02


**SMCJ (DO-214AB)**

Ltr	Dimensions			
	Inch		Millimeters	
	Min	Max	Min	Max
<b>A</b>	.117	.123	2.97	3.12
<b>B</b>	.260	.280	6.60	7.11
<b>C</b>	.220	.245	5.59	6.22
<b>D</b>	.307	.322	7.80	8.18
<b>E</b>	.075	.095	1.91	2.41
<b>L</b>	.030	.060	.760	1.52