

# 8 Amp Ultra Low Forward Voltage Schottky Rectifier

HSM825J-HSM8100Je3  
HSM825G-HSM8100Ge3



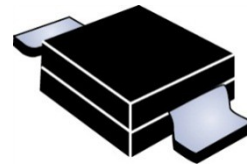
## Product Overview

The HSM8xx series provides a 8 Amp, Schottky surface mount rectifier with low forward voltage and low leakage current. The SMCJ J-bend design in the DO-214AB package allows for greater PC board mounting density. The SMCG Gull-wing design in the DO-215AB package is ideal for visible solder connections. For critical applications requiring very fast switching, these very low forward voltage Schottkys with their “hot carrier” features provide extremely fast switching to replace conventional ultrafast rectifiers.

## Features

- Schottky Barrier Rectifier
- Surface Mount Plastic Package
- Guard Ring for Reverse Protection
- 150 °C Junction Temperature
- High Surge Capability
- Ultra Low Forward Voltage
- Schottky OR'ing diode
- RoHS compliant versions are available with an e3 suffix
- Moisture classification is a level 1 with no dry pack required per IPC/JEDEC J-STD-020F

**Figure 1.** DO-215AB (SMCG) Package



**Figure 2.** DO-214AB (SMCJ) Package



## 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, freewheeling, polarity protection, or “OR’ing” applications
- Low forward power loss and high efficiency

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

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# 1. Maximum Ratings

**Table 1-1.** Maximum Ratings at 25 °C Unless Otherwise Noted

| Parameters/Test Conditions                      | Symbol          | Value                  | Unit |
|-------------------------------------------------|-----------------|------------------------|------|
| Storage Temperature                             | $T_{STG}$       | -55 to +150            | °C   |
| Junction Temperature                            | $T_J$           | -55 to +150            | °C   |
| Thermal Resistance Junction-to-Lead             | $R_{\theta JL}$ | 20                     | °C/W |
| Forward Surge Current <sup>1</sup>              | $I_{FSM}$       | 300 <sup>2</sup> , 350 | A    |
| Average Rectified Forward Current (Square Wave) | $I_O$           | 8.0                    | A    |
| Solder Temperature at 10 s                      | —               | 260                    | °C   |

**Notes:**

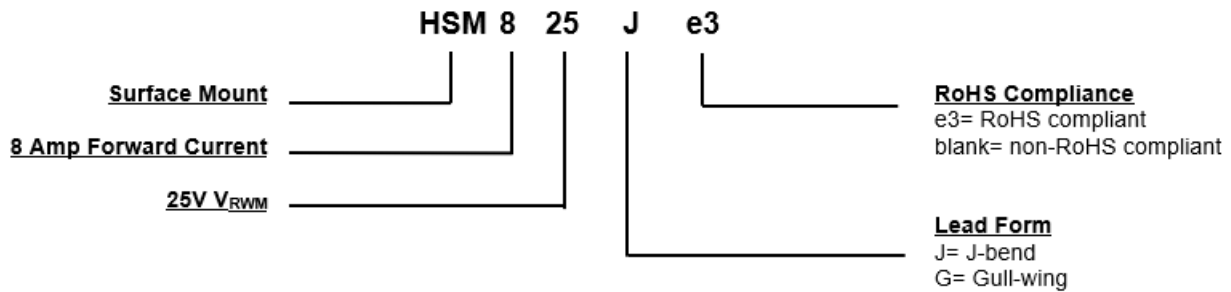
1. At 8.3 ms single half-sine waveform superimposed on rated load (JEDEC method),  $T_J = 150$  °C.
2. For LSM880, LSM890 and LSM8100

## 1.1. Mechanical and Packaging

- Case: Void-free transfer molded thermosetting epoxy body meeting UL94V-0
- Terminals: Tin-lead or 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 0.13 grams
- See Package Dimensions

## 2. Part Nomenclature

Figure 2-1. Part Nomenclature



### 2.1. Symbols and Definitions

Table 2-1. Symbols and Definitions

| Symbol    | Definition                                                                                                                                                                                     |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $C_J$     | Junction 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.                                                                                                 |
| $I_O$     | Average Rectified Forward Current: The current average over a full cycle with a 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 JE5D282-B). Also sometimes known as PIV. |

### 3. Electrical Characteristics

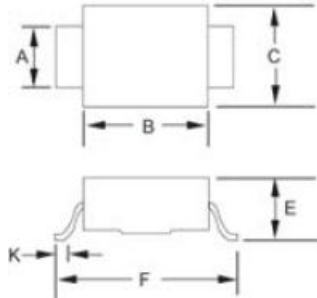
**Table 3-1.** Electrical Characteristics at 25 °C Unless Otherwise Stated

| Part Number      | Device Marking | Working Peak Reverse Voltage<br>$V_{RWM}$<br>Volts | Reverse Current<br>$I_R$<br>$T_J = 25\text{ °C}$<br>at $V_{RWM}$<br>$\mu A$ | Peak Forward Voltage <sup>1</sup><br>$V_F$ at 8A<br>$T_J = 25\text{ °C}$<br>$V_{FM}$<br>Volts | Peak Forward Voltage <sup>1</sup><br>$V_F$ at 8A<br>$T_J = 150\text{ °C}$<br>$V_{FM}$<br>Volts | Junction Capacitance<br>at 5V<br>$C_J$<br>pF |
|------------------|----------------|----------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------|
|                  |                | MAX                                                | MAX                                                                         | MAX                                                                                           | MAX                                                                                            | Typical                                      |
| HSM825(G/J)(e3)  | H825           | 25                                                 | 250                                                                         | 0.62                                                                                          | 0.47                                                                                           | 660                                          |
| HSM830(G/J)(e3)  | H830           | 30                                                 | 250                                                                         | 0.62                                                                                          | 0.47                                                                                           | 660                                          |
| HSM835(G/J)(e3)  | H835           | 35                                                 | 250                                                                         | 0.62                                                                                          | 0.47                                                                                           | 660                                          |
| HSM840(G/J)(e3)  | H840           | 40                                                 | 250                                                                         | 0.62                                                                                          | 0.47                                                                                           | 660                                          |
| HSM845(G/J)(e3)  | H845           | 45                                                 | 250                                                                         | 0.62                                                                                          | 0.47                                                                                           | 660                                          |
| HSM880(G/J)(e3)  | H880           | 80                                                 | 500                                                                         | 0.78                                                                                          | 0.61                                                                                           | 480                                          |
| HSM890(G/J)(e3)  | H890           | 90                                                 | 500                                                                         | 0.78                                                                                          | 0.61                                                                                           | 480                                          |
| HSM8100(G/J)(e3) | H800           | 100                                                | 500                                                                         | 0.78                                                                                          | 0.61                                                                                           | 480                                          |

**Note:** Obtained through square wave pulse with a pulse width of 300  $\mu s$  and a 2% duty cycle.

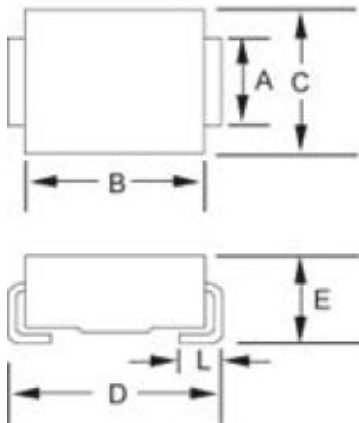
## 4. Package Dimensions

Figure 4-1. SMCG (DO-215AB)



| Ltr | Dimensions |       |             |       |
|-----|------------|-------|-------------|-------|
|     | Inch       |       | Millimeters |       |
|     | Min        | Max   | Min         | Max   |
| A   | 0.117      | 0.123 | 2.97        | 3.12  |
| B   | 0.260      | 0.280 | 6.60        | 7.11  |
| C   | 0.220      | 0.245 | 5.59        | 6.22  |
| E   | 0.075      | 0.095 | 1.91        | 2.41  |
| F   | 0.380      | 0.400 | 9.65        | 10.16 |
| K   | 0.025      | 0.040 | 0.640       | 1.02  |

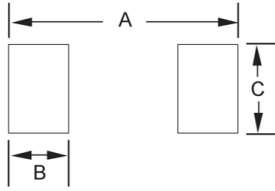
Figure 4-2. SMCJ (DO-214AB)



| Ltr | Dimensions |       |            |      |
|-----|------------|-------|------------|------|
|     | Inch       |       | Millimeter |      |
|     | Min        | Max   | Min        | Max  |
| A   | 0.117      | 0.123 | 2.97       | 3.12 |
| B   | 0.260      | 0.280 | 6.60       | 7.11 |
| C   | 0.220      | 0.245 | 5.59       | 6.22 |
| D   | 0.307      | 0.322 | 7.80       | 8.18 |
| E   | 0.075      | 0.095 | 1.91       | 2.41 |
| L   | 0.030      | 0.060 | 0.760      | 1.52 |

## 5. Pad Layout

**Figure 5-1.** Pad Layout



**Table 5-1.** SMCG (DO-215AB)

| Ltr | Inch  | Millimeters |
|-----|-------|-------------|
| A   | 0.510 | 12.95       |
| B   | 0.110 | 2.79        |
| C   | 0.150 | 3.81        |

**Table 5-2.** SM CJ (DO-214AB)

| Ltr | Inch  | Millimeter |
|-----|-------|------------|
| A   | 0.390 | 9.90       |
| B   | 0.110 | 2.79       |
| C   | 0.150 | 3.81       |

## 6. Revision History

| Revision | Date    | Description                                                                               |
|----------|---------|-------------------------------------------------------------------------------------------|
| B        | 12/2025 | Updated last row of Table 3-1 Electrical Characteristics at 25 °C Unless Otherwise Stated |
| A        | 08/2025 | Initial version                                                                           |

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ISBN: 979-8-3371-2564-0

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