1 Amp Ultra Low Forward Voltage Schottky Rectifier

LSM115J–LSM1100Je3
LSM115G–LSM1100Ge3

Product Overview

The LSM1xx series provides a 1 amp, Schottky surface mount rectifier with low forward voltage and low leakage current. The SMBJ J-bend design in the DO-214AA package allows for greater PC board mounting density. The SMBG Gull-wing design in the DO-215AA 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
- High surge capability
- Ultra low forward voltage
- Schottky OR'ing diode
- RoHS compliant versions are available with an e3 suffix.
- Moisture classification is level 1 with no dry pack required per IPC/JEDEC J-STD-020F.

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 and "OR'ing" applications
- Low forward power loss and high efficiency

Figure 1. DO-215AA (SMBG) Package

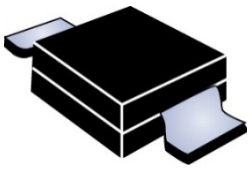
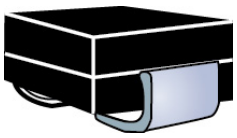


Figure 2. DO-214AA (SMBJ) Package



Note: All SMB 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 Specified

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	$R_{\Theta JL}$	15	°C/W
Forward Surge Current(1)	I_{FSM}	50	A
Average Rectified Forward Current at T_L = 75°C (Square Wave)	I_O	1.0	A
Solder Temperature at 10 seconds	—	260	°C

Note:

1. At 8.3 ms single half-sine waveform, T_J = 150°C.

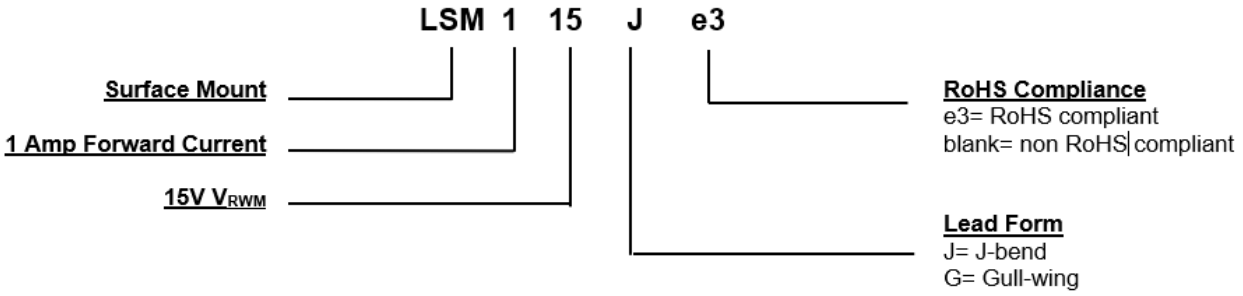
1.1. Mechanical and Packaging

- Case: Void-free transfer molded thermosetting epoxy body meeting UL94V-0
- Terminals: Tin-lead (Gull-wing only) 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 4. Package Dimensions

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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 averaged 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 JESD282-B). Also sometimes known as PIV.

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3. Electrical Characteristics

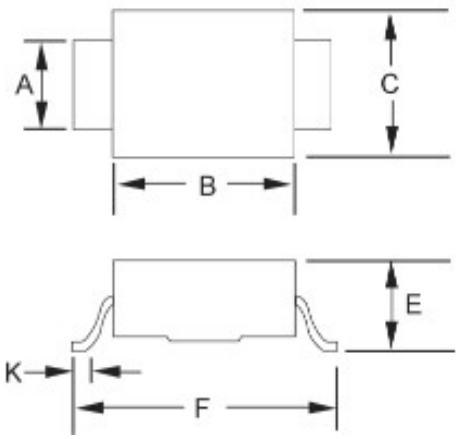
Table 3-1. Electrical Characteristics (T_A = 25 °C Unless Otherwise Noted)

Part Number	Device Marking	Working Peak Reverse Voltage V_{RWM} Volts Max.	Reverse Current I_R at V_{RWM} µA Max.	Max. Surge Current I_{FSM} at 8.3ms Amps Max.	Peak Forward Voltage V_F at 1A V_{FM} Volts Max.	Peak Forward Voltage V_F at 0.1A V_{FM} Volts Max.	Junction Capacitance at 5V C_J pF Typical
LSM115(J)(e3)	L115	15	10000	50	0.29	0.20	150
LSM120(G/J)(e3)	L120	20	1000	50	0.49	0.34	60
LSM130(G/J)(e3)	L130	30	1000	50	0.49	0.34	60
LSM140(G/J)(e3)	L140	40	1000	50	0.58	0.39	60
LSM150(G/J)(e3)	L150	50	1000	50	0.58	0.39	60
LSM160(G/J)(e3)	L160	60	1000	50	0.58	0.39	60
LSM170(G/J)(e3)	L170	70	1000	50	0.58	0.39	60
LSM180(G/J)(e3)	L180	80	1000	50	0.75	0.51	60
LSM190(G/J)(e3)	L190	90	1000	50	0.75	0.51	60
LSM1100(G/J)(e3)	L1100	100	1000	50	0.75	0.51	60

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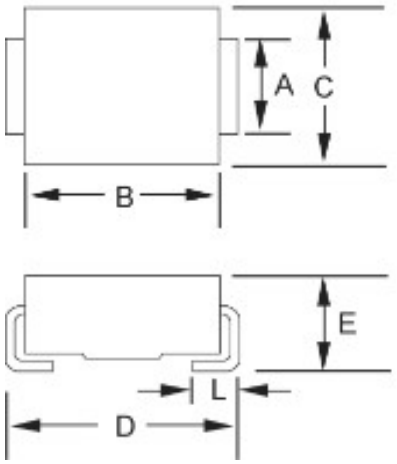
4. Package Dimensions

Figure 4-1. SMBG (DO-215AA)



Ltr	Dimensions			
	Inch		Millimeters	
	Min.	Max.	Min.	Max.
A	0.077	0.083	1.96	2.10
B	0.160	0.180	4.06	4.57
C	0.130	0.155	3.30	3.94
E	0.077	0.104	1.95	2.65
F	0.235	0.255	5.97	6.48
K	0.015	0.030	0.381	0.762

Figure 4-2. SMBJ (DO-214AA)



Ltr	Dimensions			
	Inch		Millimeters	
	Min.	Max.	Min.	Max.
A	0.077	0.083	1.96	2.10
B	0.160	0.180	4.06	4.57
C	0.130	0.155	3.30	3.94
D	0.205	0.220	5.21	5.59
E	0.077	0.104	1.95	2.65
L	0.030	0.060	0.760	1.52

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5. Pad Layout

Figure 5-1. Pad Layout

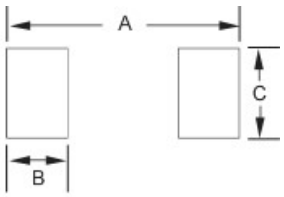


Table 5-1. SMBG (DO-215AA)

Ltr	Inch	Millimeters
A	0.320	8.13
B	0.085	2.16
C	0.110	2.79

Table 5-2. SMBJ (DO-214AA)

Ltr	Inch	Millimeters
A	0.260	6.60
B	0.085	2.16
C	0.110	2.79

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6. Revision History

Revision Level	Date	Description
A	10/2025	Initial version created in the Microchip template. Legacy document number is RF01197.

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