

## Product Overview

The 5817SMJ–5819SMJ series of 1-amp Schottky Rectifiers feature low power loss, high efficiency, and high surge capacity. They offer optimized forward voltage characteristics with reverse blocking capabilities from 20–40 volts. Design for surface-mounted applications requiring optimized board space. The SMBJ J-bend design in the DO-214AA package allows for greater PC board mounting density. RoHS compliant versions are available.

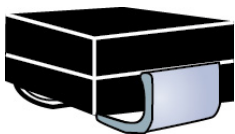
## Features

- Surface mount equivalent to JEDEC registered 1N5817–1N5819
- Guard-ring die construction for transient protection
- Low forward voltage
- High current capability
- Optimized board space
- RoHS compliant versions available

## Applications/Benefits

- Switching and regulating power supplies
- Charge pump circuits
- Elimination of reverse-recovery oscillations to reduce need for EMI filtering
- Reduces reverse recovery loss with low IRM
- Protects sensitive components
- High thermal performance
- Low electrical resistance
- Low power loss

**Figure 1.** DO-214AA J-bend Package



## Table of Contents

Product Overview.....	1
Features.....	1
Applications/Benefits.....	1
1. Maximum Ratings.....	3
1.1. Mechanical and Packaging.....	3
2. Part Nomenclature.....	4
2.1. Symbols and Definitions.....	4
2.2. Electrical Characteristics at 25 °C Unless Otherwise Stated.....	4
3. Package Dimensions.....	5
3.1. SMBJ (DO-214AA).....	5
4. PAD Layout.....	6
4.1. SMBJ (DO-214AA).....	6
5. Revision History.....	7
Microchip Information.....	8
Trademarks.....	8
Legal Notice.....	8
Microchip Devices Code Protection Feature.....	8

## 1. Maximum Ratings

Parameters/Test Conditions	Symbol	Value	Unit
Junction Temperature	$T_J$	-55 to +150	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C
Thermal Resistance Junction-to-Lead	$R_{\theta JL}$	25	°C/W
Average Rectified Output Current (At rated $V_{RWM}$ , $T_C = 133$ °C)	$I_O$	1.0	A
Maximum Forward Surge Current (8.3 ms, half sine, $T_J = 150$ °C)	$I_{FSM}$	50	A

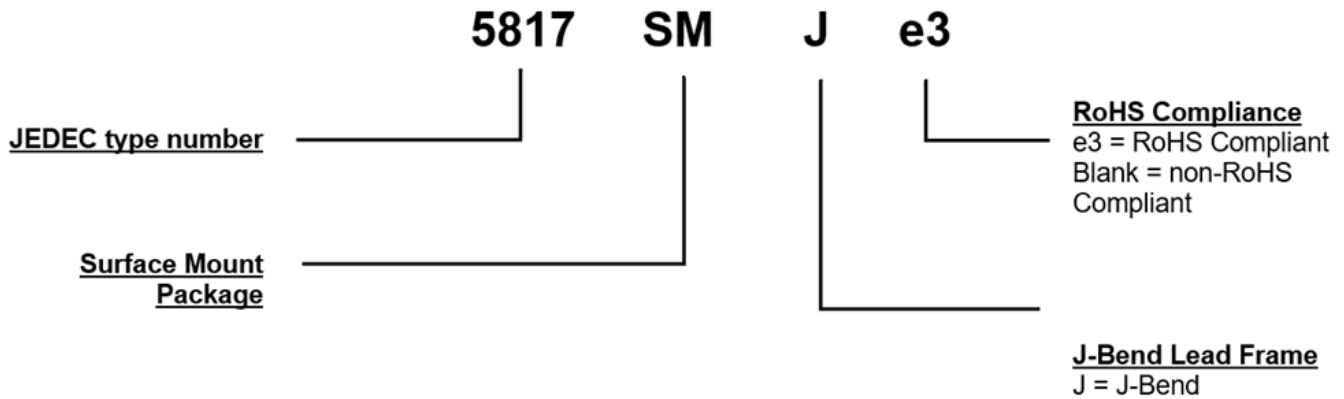
### 1.1. Mechanical and Packaging

- Case: Void-free transfer molded thermosetting epoxy body meeting UL94V-0.
- Terminals: Tin-lead or RoHS compliant annealed matte-tin plating. Solderable to MIL-STD-750, method 2026.
- Marking: Part number, date code and RoHS compliance marked on package.
- Polarity: Cathode indicated by band.
- Tape and Reel option: Standard per EIA-481-2 (add "TR" suffix to part number). Consult factory for quantities.
- Weight: Approximately 0.13 grams.

**Note:** See [3. Package Dimensions](#).

## 2. Part Nomenclature

Figure 2-1. Part Nomenclature



### 2.1. Symbols and Definitions

Symbol	Definition
$I_F$	Forward Current: The dc current flowing from the external circuit into the anode terminal.
$I_O$	Average Rectified Output Current: The Output Current averaged over a full cycle with a 50 Hz or 60 Hz sine-wave input and a 180 degree conduction angle.
$I_R$	Reverse Current: The dc current flowing from the external circuit into the cathode terminal at the specified voltage $V_R$ .
$V_F$	Forward Voltage: A positive dc anode-cathode voltage the device will exhibit at a specified forward current.
$V_{RWM}$	Working Peak Reverse Voltage: The peak voltage excluding all transient voltages (ref JESD282-B). Also sometimes known historically as PIV.
$V_R$	Reverse Voltage: A positive dc cathode-anode voltage below the breakdown region.
$I_{FSM}$	Surge Peak Forward Current: The forward current including all nonrepetitive transient currents but excluding all repetitive transients (ref JESD282-B).
$C_T$	Total Capacitance: The total small signal capacitance between the diode terminals of a complete device.

### 2.2. Electrical Characteristics at 25 °C Unless Otherwise Stated

Part Number	Working Peak Reverse Voltage	Maximum Reverse Leakage Current	Maximum Forward Voltage $V_F$			Capacitance $C_T$
	$V_{RWM}$ (V)	$I_{RM}$ at $V_{RWM}$ (mA)	at $I_F = 0.1A$ (V)	at $I_F = 1A$ (V)	at $I_F = 3A$ (V)	at $V_R = 5V$ (pF)
5817SMJ	20	1.0	0.32	0.45	0.65	105
5818SMJ	30	1.0	0.37	0.55	0.85	105
5819SMJ	40	1.0	0.37	0.55	0.85	105

### 3. Package Dimensions

#### 3.1. SMBJ (DO-214AA)

Figure 3-1. SMBJ (DO-214AA)

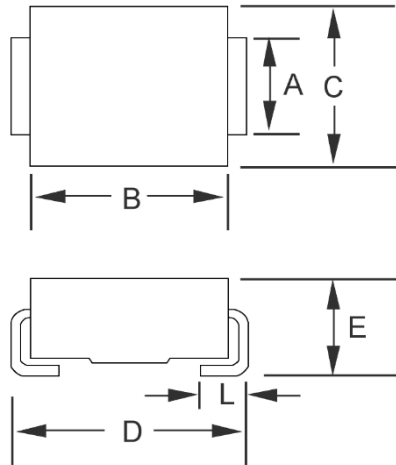


Table 3-1. SMBJ (DO-214AA)

Dimensions				
Ltr	Inch		Millimeters	
	Min	Max	Min	Max
<b>A</b>	0.077	0.083	1.96	2.10
<b>B</b>	0.160	0.180	4.06	4.57
<b>C</b>	0.130	0.155	3.30	3.94
<b>D</b>	0.205	0.220	5.21	5.59
<b>E</b>	0.077	0.104	1.95	2.65
<b>L</b>	0.030	0.060	.760	1.52

## 4. PAD Layout

### 4.1. SMBJ (DO-214AA)

Figure 4-1. SMBJ (DO-214AA)

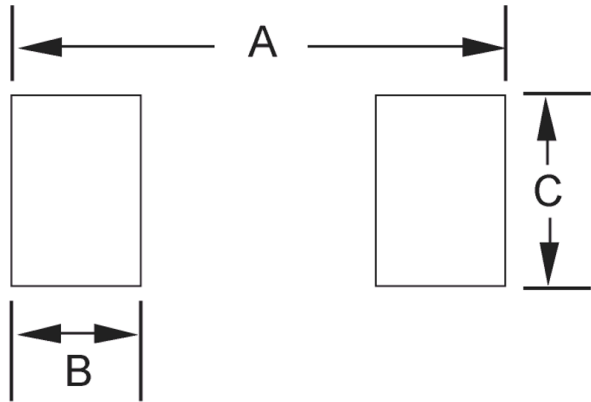


Table 4-1. SMBJ (DO-214AA)

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

## 5. Revision History

Revision Level	Date	Description
A	4/2025	Initial version created in the Microchip template. Legacy document number is RF01310.

## Microchip Information

### Trademarks

The “Microchip” name and logo, the “M” logo, and other names, logos, and brands are registered and unregistered trademarks of Microchip Technology Incorporated or its affiliates and/or subsidiaries in the United States and/or other countries (“Microchip Trademarks”). Information regarding Microchip Trademarks can be found at <https://www.microchip.com/en-us/about/legal-information/microchip-trademarks>.

ISBN: 979-8-3371-0987-9

### Legal Notice

This publication and the information herein may be used only with Microchip products, including to design, test, and integrate Microchip products with your application. Use of this information in any other manner violates these terms. Information regarding device applications is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that your application meets with your specifications. Contact your local Microchip sales office for additional support or, obtain additional support at [www.microchip.com/en-us/support/design-help/client-support-services](http://www.microchip.com/en-us/support/design-help/client-support-services).

THIS INFORMATION IS PROVIDED BY MICROCHIP “AS IS”. MICROCHIP MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, STATUTORY OR OTHERWISE, RELATED TO THE INFORMATION INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTIES RELATED TO ITS CONDITION, QUALITY, OR PERFORMANCE.

IN NO EVENT WILL MICROCHIP BE LIABLE FOR ANY INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL, OR CONSEQUENTIAL LOSS, DAMAGE, COST, OR EXPENSE OF ANY KIND WHATSOEVER RELATED TO THE INFORMATION OR ITS USE, HOWEVER CAUSED, EVEN IF MICROCHIP HAS BEEN ADVISED OF THE POSSIBILITY OR THE DAMAGES ARE FORESEEABLE. TO THE FULLEST EXTENT ALLOWED BY LAW, MICROCHIP’S TOTAL LIABILITY ON ALL CLAIMS IN ANY WAY RELATED TO THE INFORMATION OR ITS USE WILL NOT EXCEED THE AMOUNT OF FEES, IF ANY, THAT YOU HAVE PAID DIRECTLY TO MICROCHIP FOR THE INFORMATION.

Use of Microchip devices in life support and/or safety applications is entirely at the buyer’s risk, and the buyer agrees to defend, indemnify and hold harmless Microchip from any and all damages, claims, suits, or expenses resulting from such use. No licenses are conveyed, implicitly or otherwise, under any Microchip intellectual property rights unless otherwise stated.

### Microchip Devices Code Protection Feature

Note the following details of the code protection feature on Microchip products:

- Microchip products meet the specifications contained in their particular Microchip Data Sheet.
- Microchip believes that its family of products is secure when used in the intended manner, within operating specifications, and under normal conditions.
- Microchip values and aggressively protects its intellectual property rights. Attempts to breach the code protection features of Microchip products are strictly prohibited and may violate the Digital Millennium Copyright Act.
- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of its code. Code protection does not mean that we are guaranteeing the product is “unbreakable”. Code protection is constantly evolving. Microchip is committed to continuously improving the code protection features of our products.