



## Silicon Dual Schottky Power Rectifier

### 35 Amp, 150 Volt

Qualified per MIL-PRF-19500/737

Qualified Levels:  
JAN, JANTX, and  
JANTXV

#### DESCRIPTION

This Dual Schottky rectifier device is military qualified up to a JANTXV level for high-reliability applications. They are hermetically sealed in a common cathode configuration offering very fast switching characteristics compared to fast or ultrafast rectifiers.

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

#### FEATURES

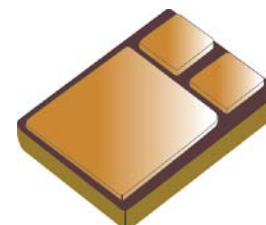
- JEDEC registered equivalent of 1N7039
- Hermetically isolated U1 package
- Internal metallurgical bonds
- Temperature independent switching behavior
- JAN, JANTX, and JANTXV qualifications are available per MIL-PRF-19500/737
- RoHS compliant versions available (commercial grade only)

#### APPLICATIONS / BENEFITS

- Schottky barrier rectifier diodes (dual) for military, space and other high reliability applications
- Switching power supplies or other applications requiring extremely fast switching and essentially no switching losses.
- Low forward voltage drop
- High forward surge capability
- Inherently radiation hard >100 krad as described in [MicroNote 050](#)

#### MAXIMUM RATINGS @ $T_A = +25^\circ\text{C}$ unless otherwise noted.

| Parameters/Test Conditions                                                             | Symbol              | Value       | Unit                      |
|----------------------------------------------------------------------------------------|---------------------|-------------|---------------------------|
| Junction and Storage Temperature                                                       | $T_J$ and $T_{STG}$ | -65 to +150 | $^\circ\text{C}$          |
| Thermal Resistance Junction-to-Case<br>(2.3 $^\circ\text{C}/\text{W}$ maximum)         | $R_{\theta JC}$     | 1.67        | $^\circ\text{C}/\text{W}$ |
| Working Peak Reverse Voltage                                                           | $V_{RWM}$           | 150         | V                         |
| Junction Capacitance                                                                   | $C_J$               | 350         | pF                        |
| Average DC Output Current @ $T_C = +100^\circ\text{C}$                                 | $I_O$               | 35          | A                         |
| Non-Repetitive Sinusoidal Surge Current @ $t_p = 8.3$ ms,<br>$T_C = +25^\circ\text{C}$ | $I_{FSM}$           | 200         | A                         |



**U1 (SMD-1)  
Package**

Also available in:

**TO-257AA package**  
(leadless)



**TO-254AA package**  
(leadless)



#### MSC – Lawrence

6 Lake Street,  
Lawrence, MA 01841  
Tel: 1-800-446-1158 or  
(978) 620-2600  
Fax: (978) 689-0803

#### MSC – Ireland

Gort Road Business Park,  
Ennis, Co. Clare, Ireland  
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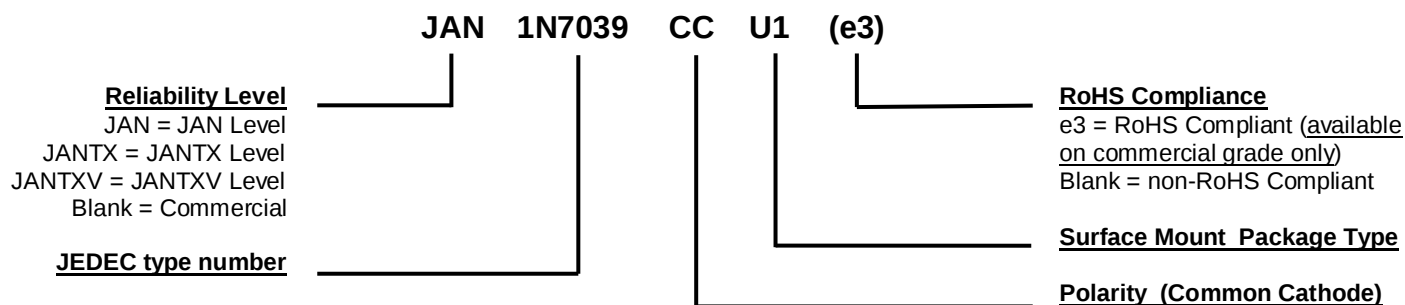
**Website:**

[www.microsemi.com](http://www.microsemi.com)

### MECHANICAL and PACKAGING

- CASE: Ceramic and gold over nickel plated steel
- TERMINALS: Gold over nickel plated tungsten/copper.
- MARKING: Part number, date code, and polarity symbol
- POLARITY: See [Schematic](#) on last page
- WEIGHT: Approximately 2.25 grams
- See [Package Dimensions](#) on last page.

### PART NOMENCLATURE



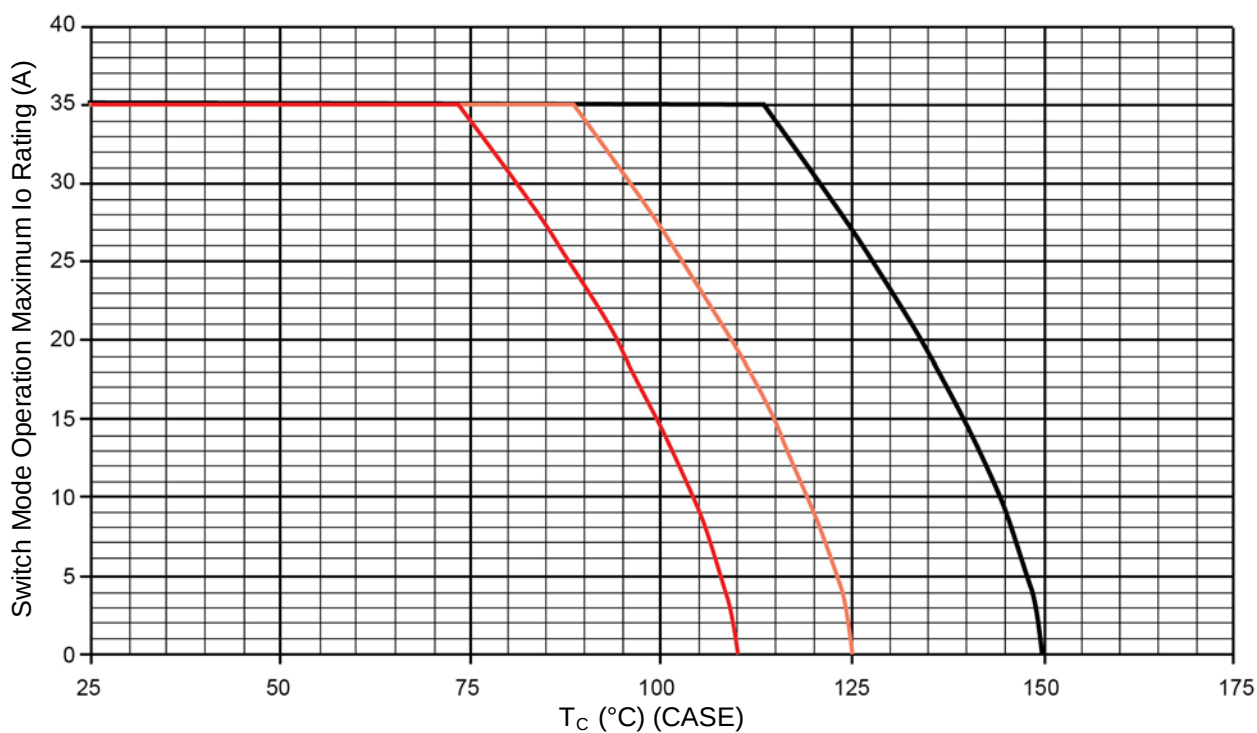
### SYMBOLS & DEFINITIONS

| Symbol | Definition                                                                                                                   |
|--------|------------------------------------------------------------------------------------------------------------------------------|
| $C_J$  | Junction Capacitance: The junction capacitance in pF at a specified frequency (typically 1MHz) and specified voltage.        |
| $I_F$  | Forward current: The current flowing from the p-type region to the n-type region.                                            |
| $I_R$  | Reverse Current: The dc current flowing from the external circuit into the cathode terminal at the specified voltage $V_R$ . |
| $T_J$  | Junction temperature: The temperature of a semiconductor junction.                                                           |
| $V_F$  | Forward Voltage: A positive dc anode-cathode voltage the device will exhibit at a specified forward current.                 |
| $V_R$  | Reverse Voltage: A positive dc cathode-anode voltage below the breakdown region.                                             |

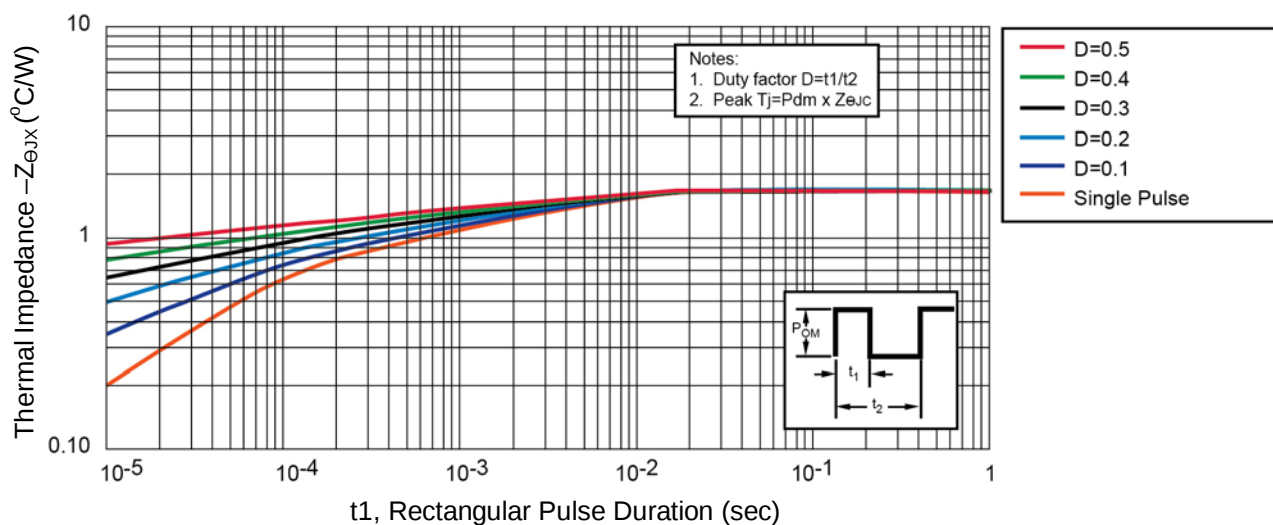
**ELECTRICAL CHARACTERISTICS @  $T_A = +25^\circ\text{C}$  unless otherwise noted**

| Parameters / Test Conditions                                                                                                                                    | Symbol | Min. | Max.                         | Unit |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------|------------------------------|------|
| <b>OFF CHARACTERISTICS</b>                                                                                                                                      |        |      |                              |      |
| Forward Voltage*<br>$I_F = 15\text{ A}$<br>$I_F = 35\text{ A}$<br>$I_F = 15\text{ A}, T_C = -55^\circ\text{C}$<br>$I_F = 35\text{ A}, T_C = +125^\circ\text{C}$ | $V_F$  |      | 1.13<br>1.60<br>1.35<br>1.20 | V    |
| Reverse Current<br>$V_R = 150\text{ V}$<br>$V_R = 150\text{ V}, T_C = +125^\circ\text{C}$                                                                       | $I_R$  |      | 0.5<br>15                    | mA   |

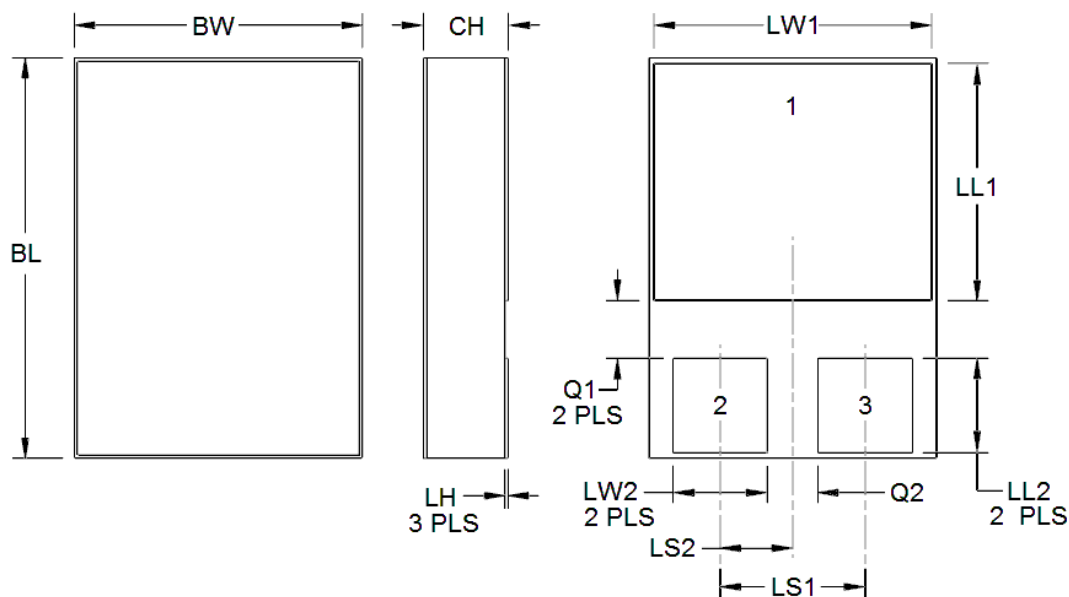
\* Pulse test: Pulse width 300  $\mu\text{sec}$ , duty cycle 2%.

**GRAPHS**


**FIGURE 1**  
Temperature-Current Derating (for each leg)

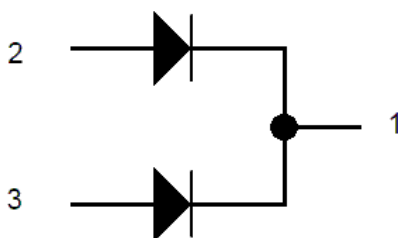


**FIGURE 2**  
Thermal Impedance (for each leg)

**PACKAGE DIMENSIONS**

**NOTES:**

1. Dimensions are in inches.
2. Millimeters are given for information only.
3. In accordance with ASME Y14.5M, diameters are equivalent to  $\Phi$  symbology.

| Symbol     | Dimensions |       |             |       |
|------------|------------|-------|-------------|-------|
|            | Inches     |       | Millimeters |       |
|            | Min        | Max   | Min         | Max   |
| <b>BL</b>  | 0.620      | 0.630 | 15.75       | 16.00 |
| <b>BW</b>  | 0.445      | 0.455 | 11.30       | 11.56 |
| <b>CH</b>  | 0.129      | 0.142 | 3.28        | 3.61  |
| <b>LH</b>  | 0.010      | 0.020 | 0.26        | 0.51  |
| <b>LW1</b> | 0.370      | 0.380 | 9.40        | 9.65  |
| <b>LW2</b> | 0.135      | 0.145 | 3.43        | 3.68  |
| <b>LL1</b> | 0.410      | 0.420 | 10.41       | 10.67 |
| <b>LL2</b> | 0.152      | 0.162 | 3.86        | 4.12  |
| <b>LS1</b> | 0.200      | 0.220 | 5.08        | 5.59  |
| <b>LS2</b> | 0.100      | 0.110 | 2.54        | 2.79  |
| <b>Q1</b>  | 0.030      | -     | 0.76        |       |
| <b>Q2</b>  | 0.035      | -     | 0.89        |       |

**SCHEMATIC**


TERM 1 = CATHODE  
 TERM 2 = ANODE  
 TERM 3 = ANODE

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