



## 100 Volt, 10 Amp Dual Schottky Common Cathode Center Tap Rectifier

*Qualified per MIL-PRF-19500/681*

*Qualified Levels:  
JAN, JANTX, and  
JANTXV*

### DESCRIPTION

This low-profile 1N6843CCU3 Schottky rectifier device is military qualified up to a JANTXV level for high-reliability applications.

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

### FEATURES

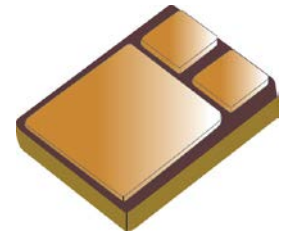
- Surface mount equivalent of JEDEC registered 1N6842.
- Low profile ceramic SMD.
- Ultrasonic aluminum wire bonds.
- JAN, JANTX, JANTXV qualifications available per MIL-PRF-19500/681.
- RoHS compliant by design.

### APPLICATIONS / BENEFITS

- High surge rating.
- Low reverse leakage current.
- Low forward voltage.
- Seam welded package.
- Low capacitance.

### MAXIMUM RATINGS @ T<sub>C</sub> = +25 °C unless otherwise noted

Parameters/Test Conditions	Symbol	Value	Unit
Junction and Storage Temperature	T <sub>J</sub> and T <sub>STG</sub>	-65 to +150	°C
Thermal Resistance Junction-to-Case on each leg entire package	R <sub>θJC</sub>	3.5 1.75	°C/W
Thermal Resistance Junction-to-Ambient each leg	R <sub>θJA</sub>	40	°C/W
Working Peak Reverse Voltage	V <sub>RWM</sub>	100	V
Average Rectified Output Current per leg (see <a href="#">Figure 1</a> )	I <sub>O</sub>	15	A
Non-Repetitive Sinusoidal Surge Current @ t <sub>p</sub> = 8.3 ms	I <sub>FSM</sub>	100	A



**U3 (SMD-0.5)  
Package**

**MSC – Lawrence**

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

**MSC – Ireland**

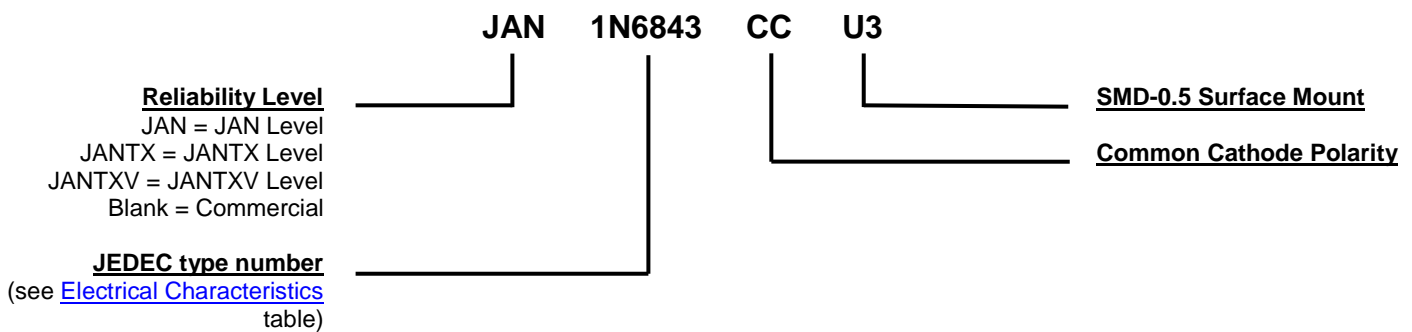
Gort Road Business Park,  
Ennis, Co. Clare, Ireland  
Tel: +353 (0) 65 6840044  
Fax: +353 (0) 65 6822298

**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, A = anode.
- POLARITY: See [schematic](#) on last page.
- WEIGHT: Approximately 0.9 grams.
- See [Package Dimensions](#) on last page.

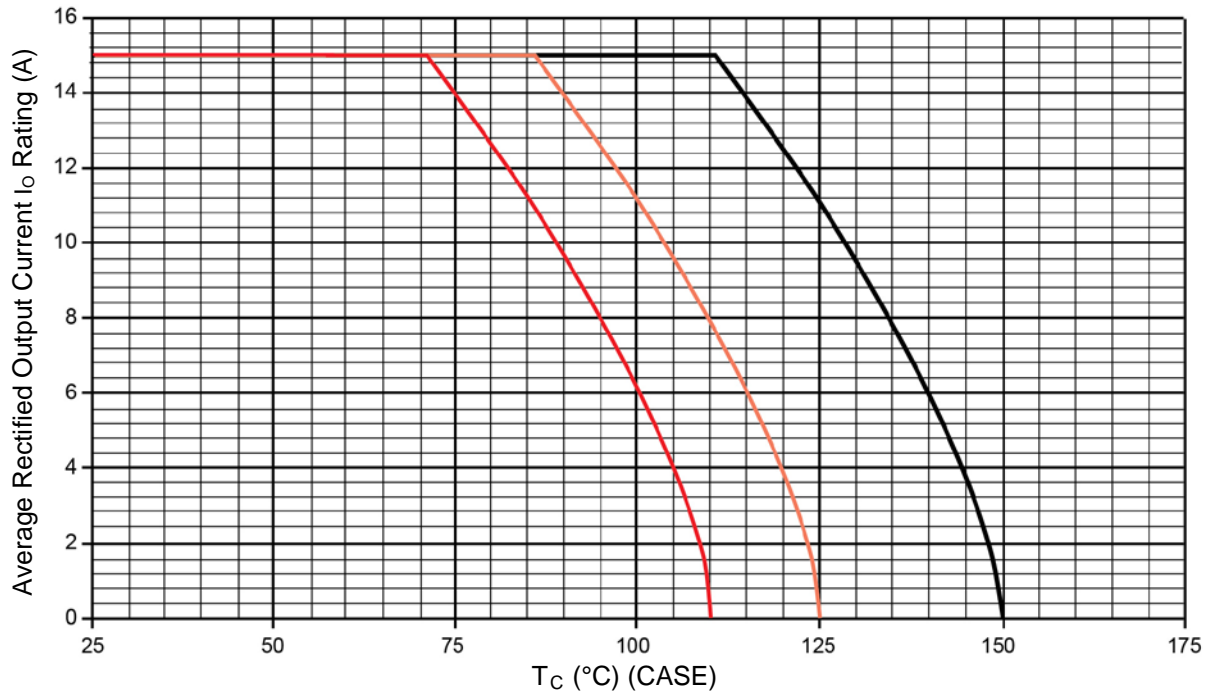
**PART NOMENCLATURE**

**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 forward current dc value, no alternating component.
$I_R$	Reverse Current: The maximum reverse (leakage) current that will flow at the specified voltage and temperature.
$T_J$	Junction Temperature: The temperature of a semiconductor junction.
$V_F$	Forward Voltage: The forward voltage the device will exhibit at a specified current (typically shown as maximum value).
$V_R$	Reverse Voltage: The reverse voltage dc value, no alternating component.

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

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
<b>CHARACTERISTICS per Leg</b>				
Forward Voltage*				
$I_F = 5\text{ A}, 300\ \mu\text{s Pulse}$			0.77	
$I_F = 15\text{ A}, 300\ \mu\text{s Pulse}$			1.03	
$I_F = 30\text{ A}, 300\ \mu\text{s Pulse}$			1.27	
$I_F = 5\text{ A}, T_C = +125^\circ\text{C}, 300\ \mu\text{s Pulse}$			0.60	
$I_F = 15\text{ A}, T_C = +125^\circ\text{C}, 300\ \mu\text{s Pulse}$	$V_F$		0.77	V
$I_F = 30\text{ A}, T_C = +125^\circ\text{C}, 300\ \mu\text{s Pulse}$			0.95	
$I_F = 5\text{ A}, T_C = -55^\circ\text{C}, 300\ \mu\text{s Pulse}$			0.86	
$I_F = 15\text{ A}, T_C = -55^\circ\text{C}, 300\ \mu\text{s Pulse}$			1.18	
$I_F = 30\text{ A}, T_C = -55^\circ\text{C}, 300\ \mu\text{s Pulse}$			1.43	
Reverse Current				
$V_R = 100\text{ V}$	$I_R$		0.010	mA
$V_R = 100\text{ V}, T_C = +125^\circ\text{C}$			5.0	
Junction Capacitance				
$V_R = 5\text{ V}$				
$f = 1\text{ MHz}$	$C_J$		275	pF
$V_{SIG} = 50\text{ mV (p-p)}$				

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

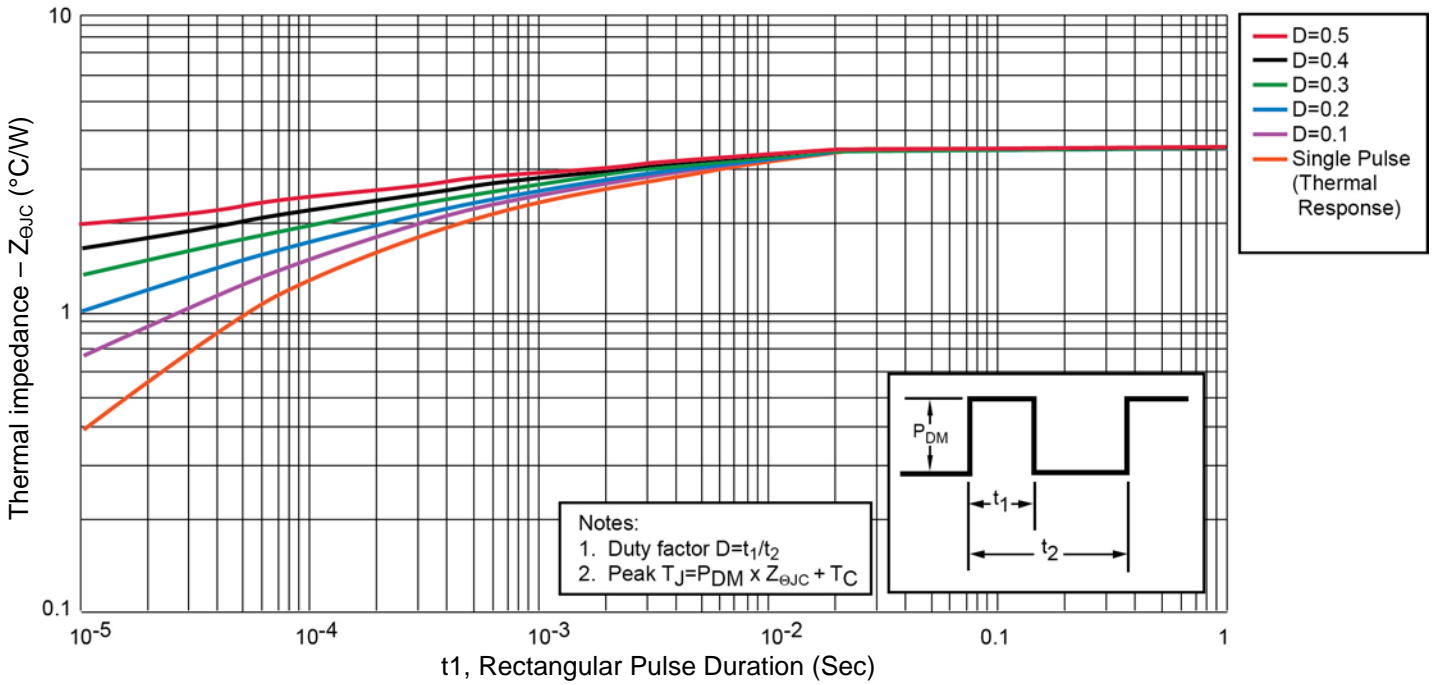
**GRAPHS**


**FIGURE 1**  
Temperature-current derating curve (for each leg)

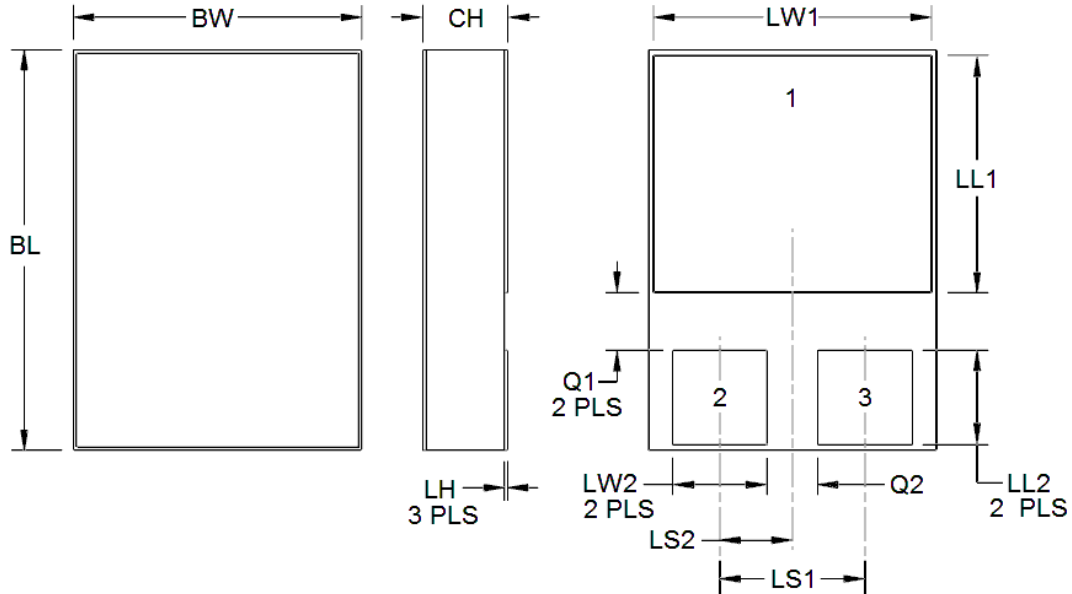
**NOTES:**

1. All devices are capable of operating at  $\leq T_J$  specified on this curve. Any parallel line to this curve will intersect the appropriate current for the desired maximum  $T_J$  allowed.
2. Derate design curve constrained by the maximum junction temperature ( $T_J \leq 150$  °C) and current rating specified. (See [Maximum Ratings](#).)
3. Derate design curve chosen at  $T_J \leq 125$  °C, where the maximum temperature of electrical test is performed.
4. Derate design curves chosen at  $T_J \leq 125$  °C, and 110 °C to show current rating where most users want to limit  $T_J$  in their application.

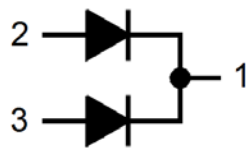
**GRAPHS (continued)**



**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  $\Phi$ x symbology.



Schematic

Symbol	DIMENSIONS			
	INCH		MILLIMETERS	
	Min	Max	Min	Max
<b>BL</b>	0.395	0.405	10.03	10.29
<b>BW</b>	0.291	0.301	7.39	7.65
<b>CH</b>	0.112	0.124	2.84	3.15
<b>LH</b>	0.010	0.020	0.25	0.51
<b>LL1</b>	0.220	0.230	5.59	5.84
<b>LL2</b>	0.115	0.125	2.92	3.18
<b>LS1</b>	0.150 BSC		3.81 BSC	
<b>LS2</b>	0.075 BSC		1.91 BSC	
<b>LW1</b>	0.281	0.291	7.14	7.39
<b>LW2</b>	0.090	0.100	2.29	2.54
<b>Q1</b>	0.030		0.76	
<b>Q2</b>	0.030		0.76	
<b>Term 1</b>	Common Cathode			
<b>Term 2</b>	Anode (See Schematic)			
<b>Term 3</b>	Anode (See Schematic)			