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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

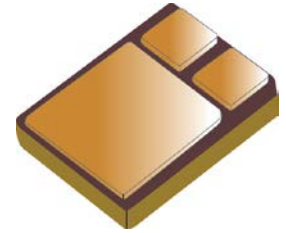
- Surface mount equivalent of JEDEC registered 1N6842.
- Low profile ceramic SMD.
- Ultrasonic aluminum wire bonds.
- JAN, JANTX, JANTXV qualifications available per MIL-PRF-19500/681.
- RoHS compliant by design.

APPLICATIONS / BENEFITS

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

MAXIMUM RATINGS @ T_C = +25 °C unless otherwise noted

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

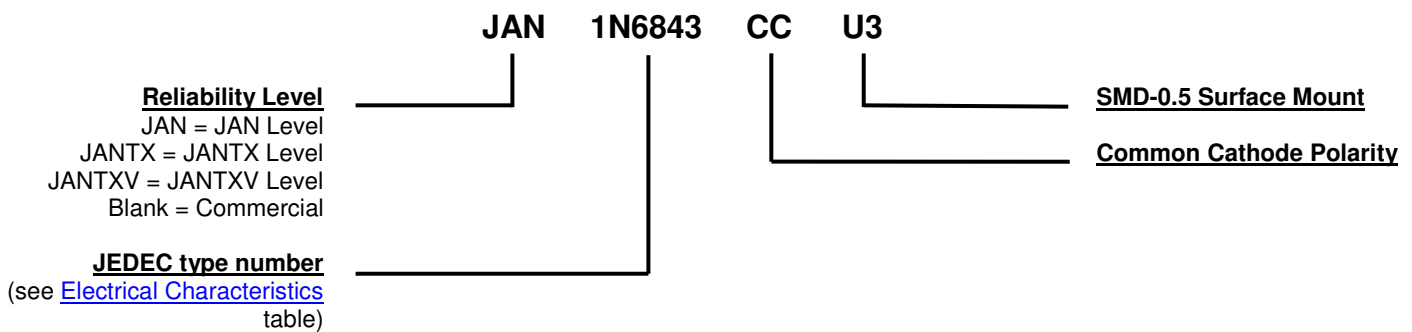
Gort Road Business Park,
Ennis, Co. Clare, Ireland
Tel: +353 (0) 65 6840044
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MECHANICAL and PACKAGING

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

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

* Pulse test: Pulse width 300 μsec , duty cycle 2%.

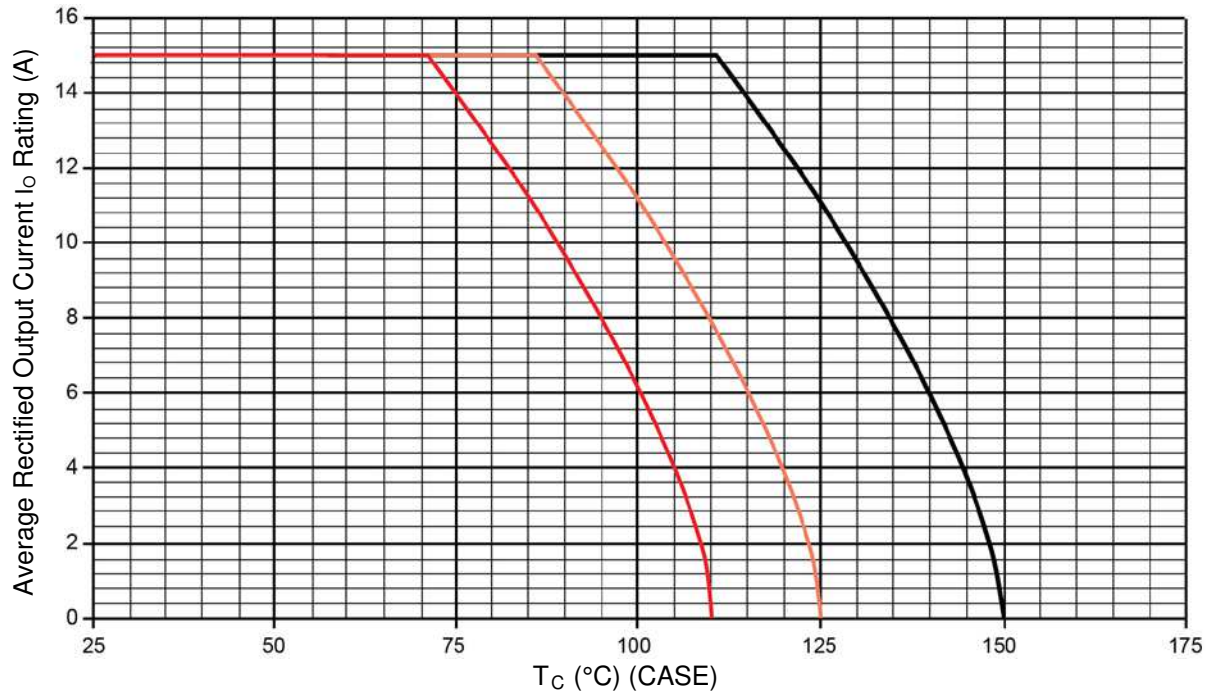
GRAPHS


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)

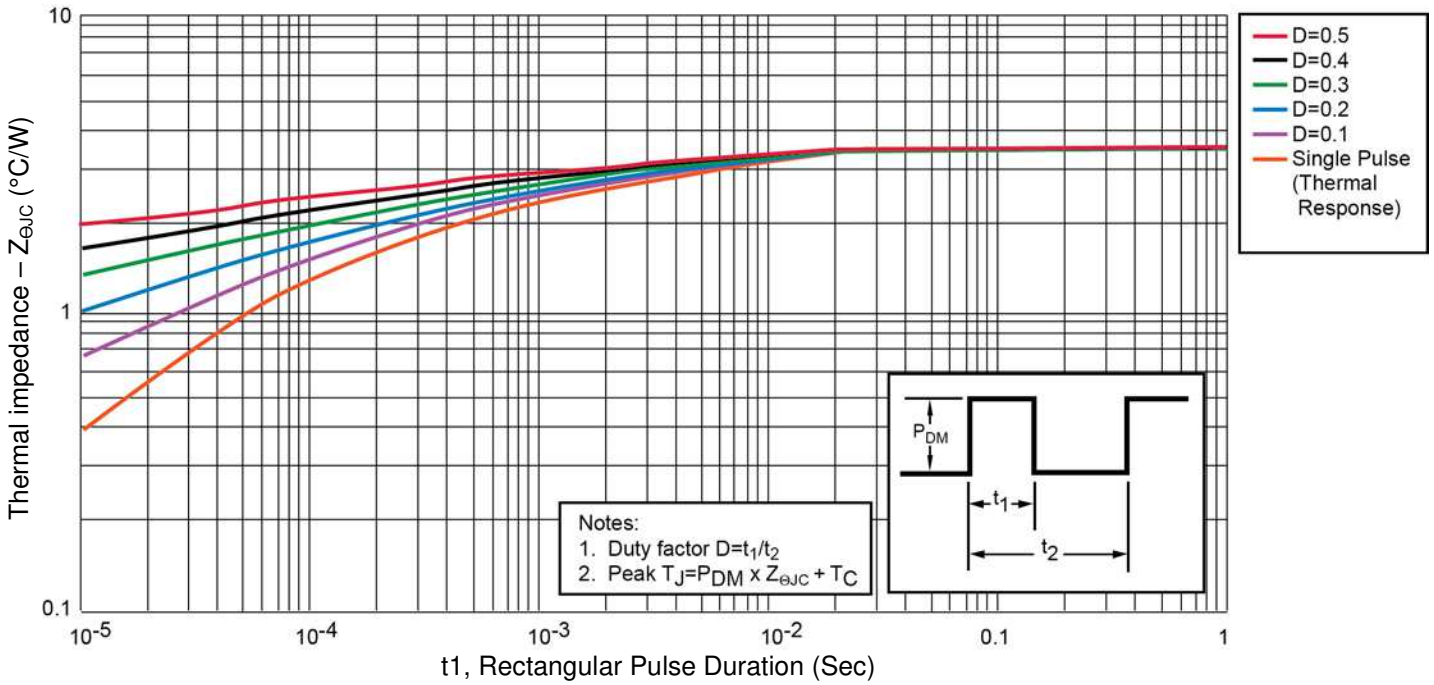
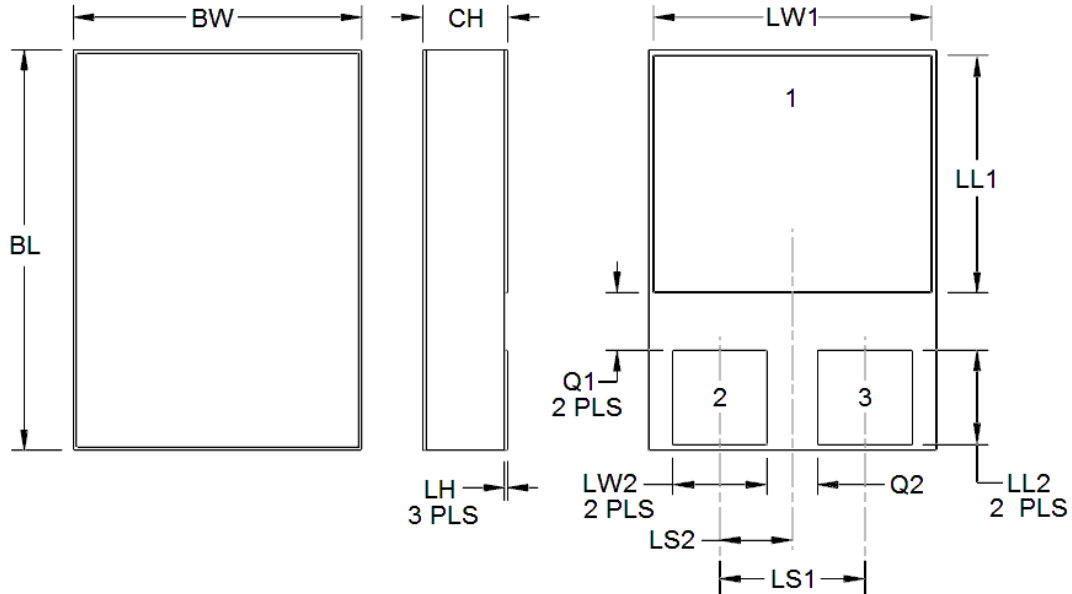
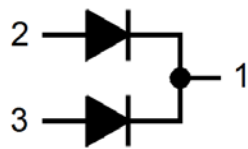


FIGURE 2
Thermal impedance (for each leg)

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 Φ symbology.



Schematic

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