



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.

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FEATURES

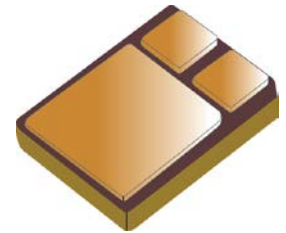
- Surface mount equivalent of JEDEC registered 1N6842.
- Low profile ceramic SMD.
- Ultrasonic aluminum wire bonds.
- JAN, JANTX, JANTXV qualifications available per MIL-PRF-19500/681.
- RoHS compliant by design.

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

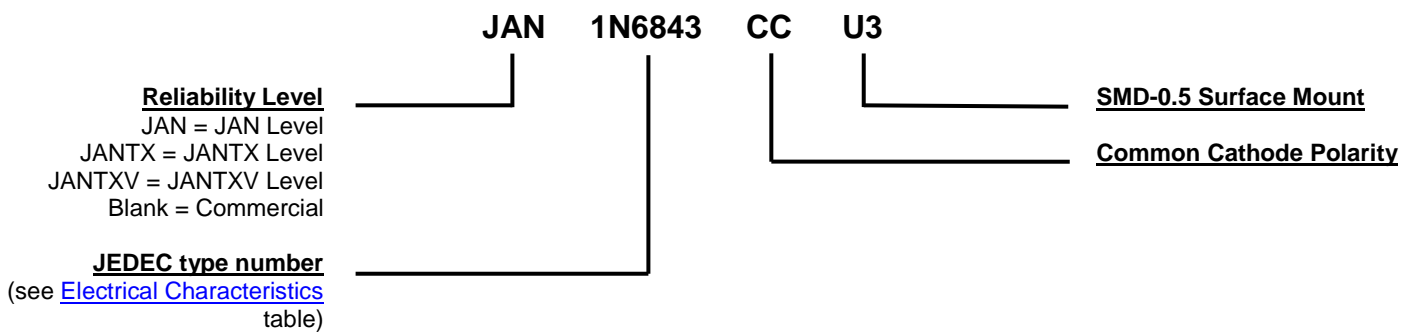
Gort Road Business Park,
Ennis, Co. Clare, Ireland
Tel: +353 (0) 65 6840044
Fax: +353 (0) 65 6822298

Website:

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 @ $T_A = +25\text{ }^\circ\text{C}$ 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%.

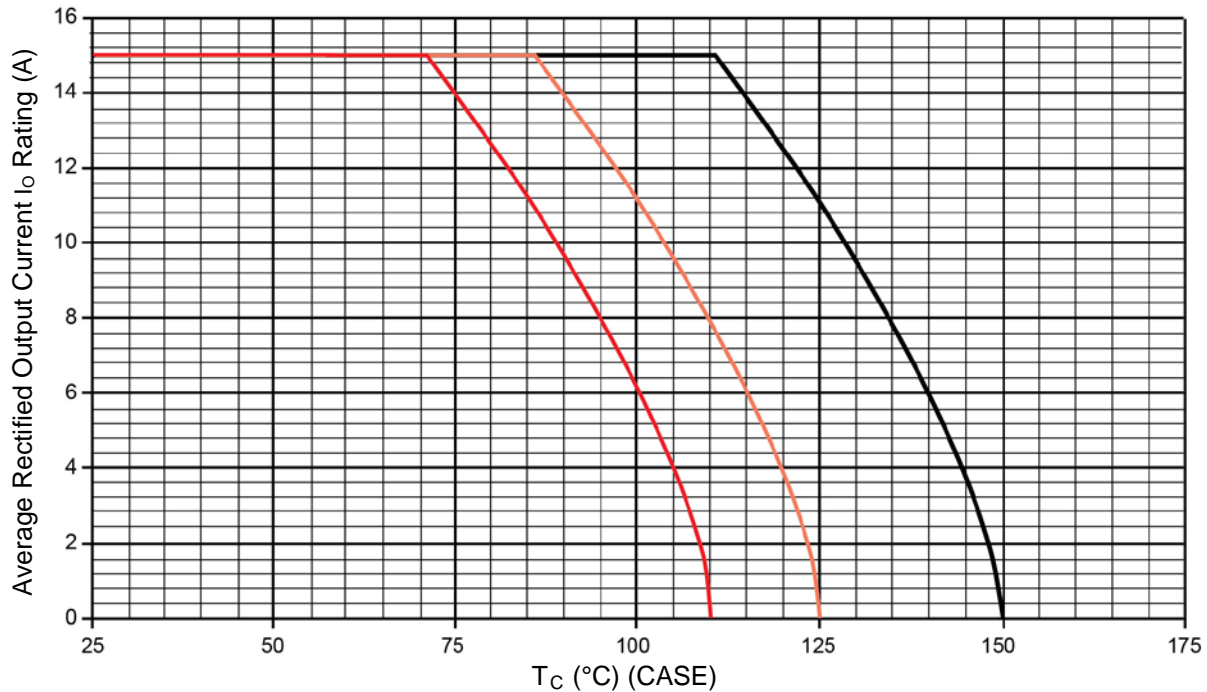
GRAPHS


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)

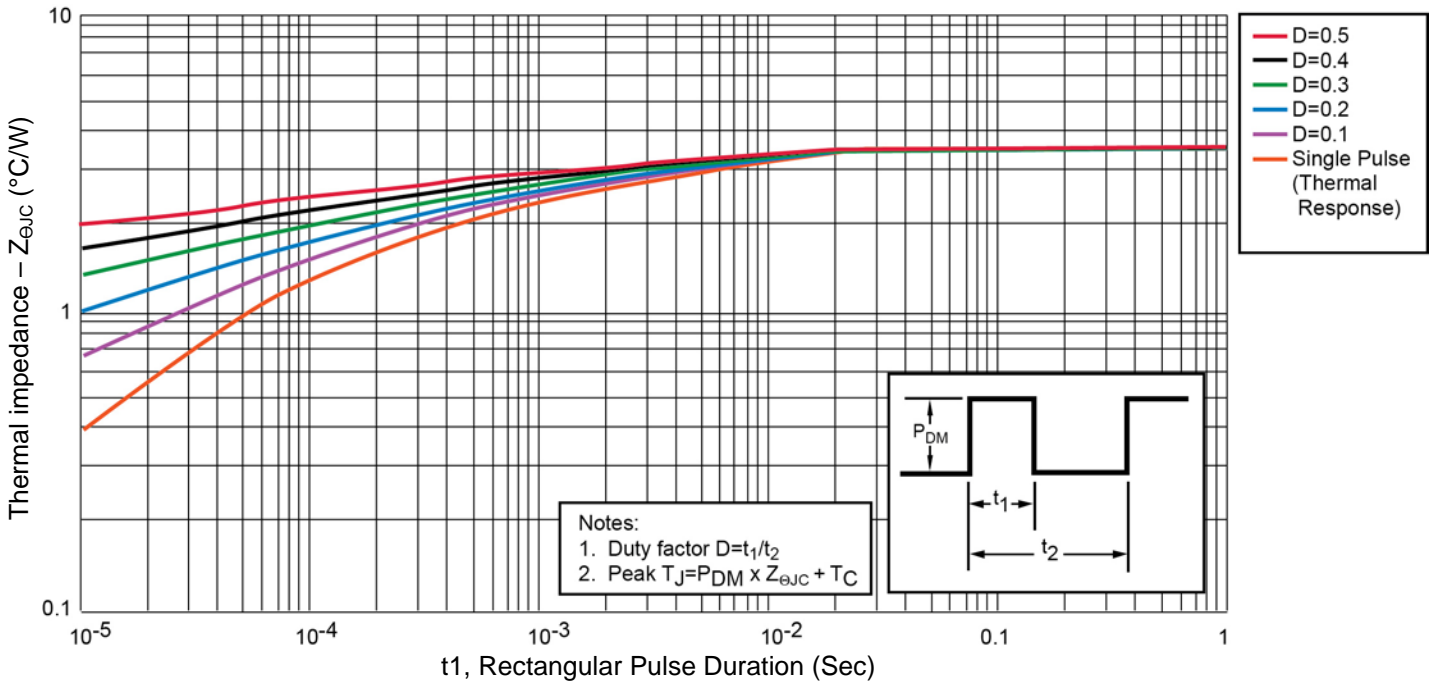
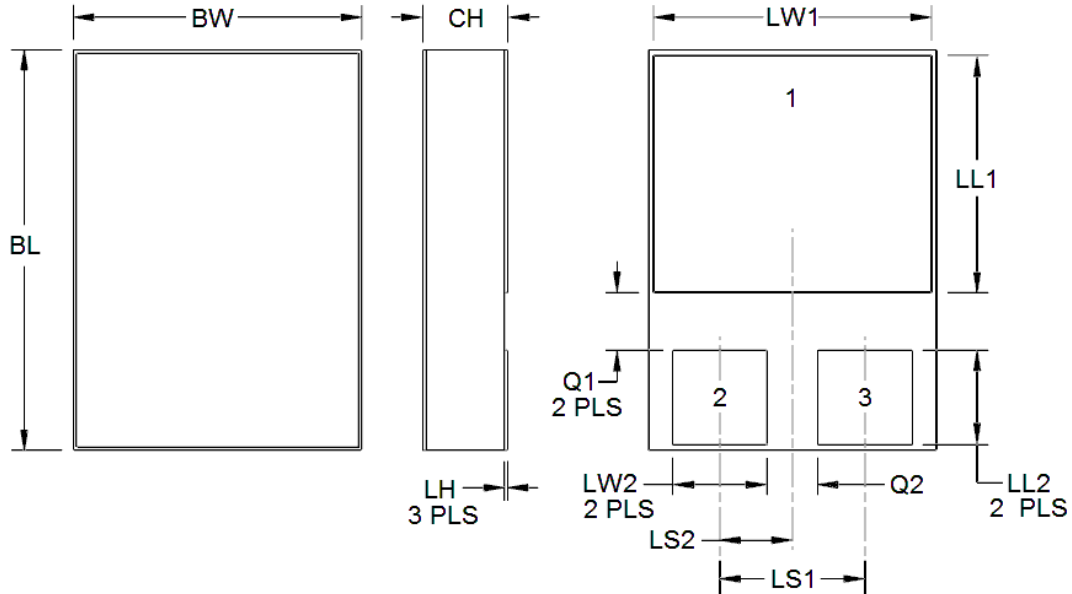
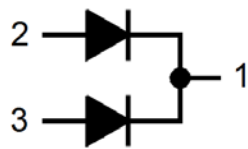


FIGURE 2
Thermal impedance (for each leg)

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 x 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) | | | |

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