



SILICON SCHOTTKY POWER RECTIFIER

40 A, 100 V

Qualified per MIL-PRF-19500/679

Qualified Levels:
JAN, JANTX, and
JANTXV

DESCRIPTION

This low-profile 1N6844U3 Schottky rectifier device is military qualified up to a JANTXV level for high-reliability applications. Microsemi also offers numerous other products to meet higher and lower power voltage regulation applications.

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

FEATURES

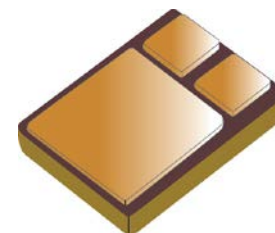
- Surface mount equivalent of JEDEC registered 1N6844.
- Low profile ceramic SMD.
- JAN, JANTX, JANTXV qualifications available per MIL-PRF-19500/679.
- RoHS compliant versions available (commercial grade only).

APPLICATIONS / BENEFITS

- High surge rating.
- Low reverse leakage current.
- Low forward voltage.
- Seam welded package.
- Low capacitance.
- Ultrasonic aluminum wire bonds.

MAXIMUM RATINGS @ $T_C = +25^\circ\text{C}$ 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-Ambient	$R_{\theta JA}$	40	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case (1.6 $^\circ\text{C/W}$ maximum)	$R_{\theta JC}$	2.0	$^\circ\text{C/W}$
Working Peak Reverse Voltage	V_{RWM}	100	V
Junction Capacitance	C_J	600	pF
Average DC Output Current @ $T_C = +125^\circ\text{C}$	I_O	15	A
Non-Repetitive Sinusoidal Surge Current @ $t_p = 8.3$ ms	I_{FSM}	250	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
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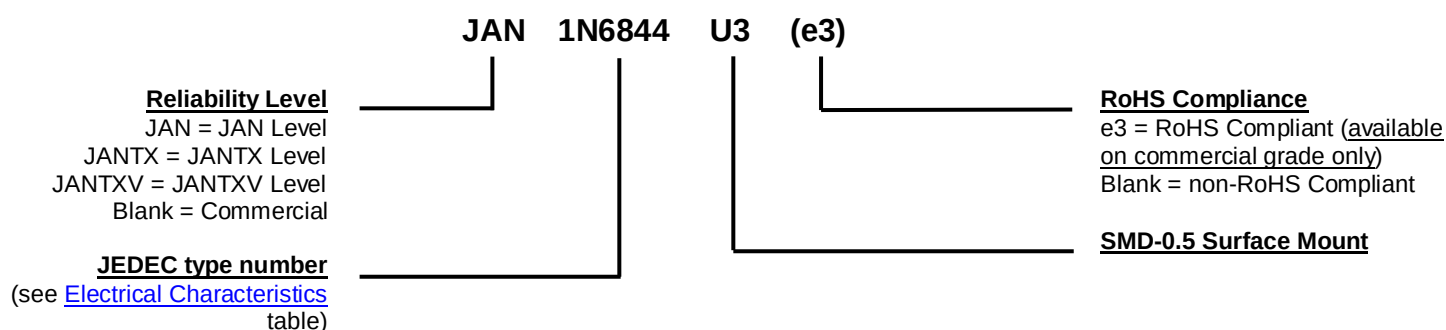
Website:

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: 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
OFF CHARACTERISTICS				
Forward Voltage* $I_F = 5\text{ A}$ $I_F = 15\text{ A}$ $I_F = 20\text{ A}$ $I_F = 5\text{ A}, T_C = -55^{\circ}\text{C}$ $I_F = 5\text{ A}, T_C = +125^{\circ}\text{C}$ $I_F = 15\text{ A}, T_C = +125^{\circ}\text{C}$	V_F		0.70 0.90 1.00 0.85 0.58 0.72	V
Reverse Current $V_R = 100\text{ V}$ $V_R = 100\text{ V}, T_C = +125^{\circ}\text{C}$	I_R		0.100 15.00	mA
Junction Capacitance $V_R = 5\text{ V}$ $f = 1\text{ MHz}$ $V_{\text{SIG}} = 50\text{ mV (p-p)}$	C_J		600	pF

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

GRAPHS

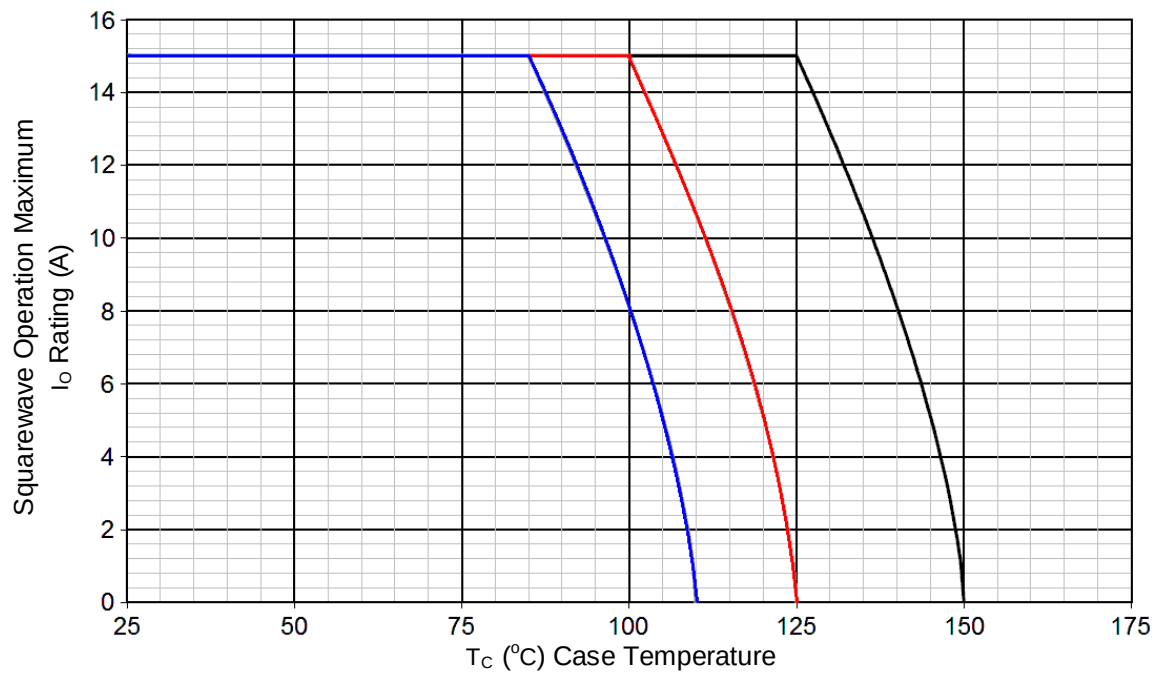


FIGURE 1
Temperature-Current Derating

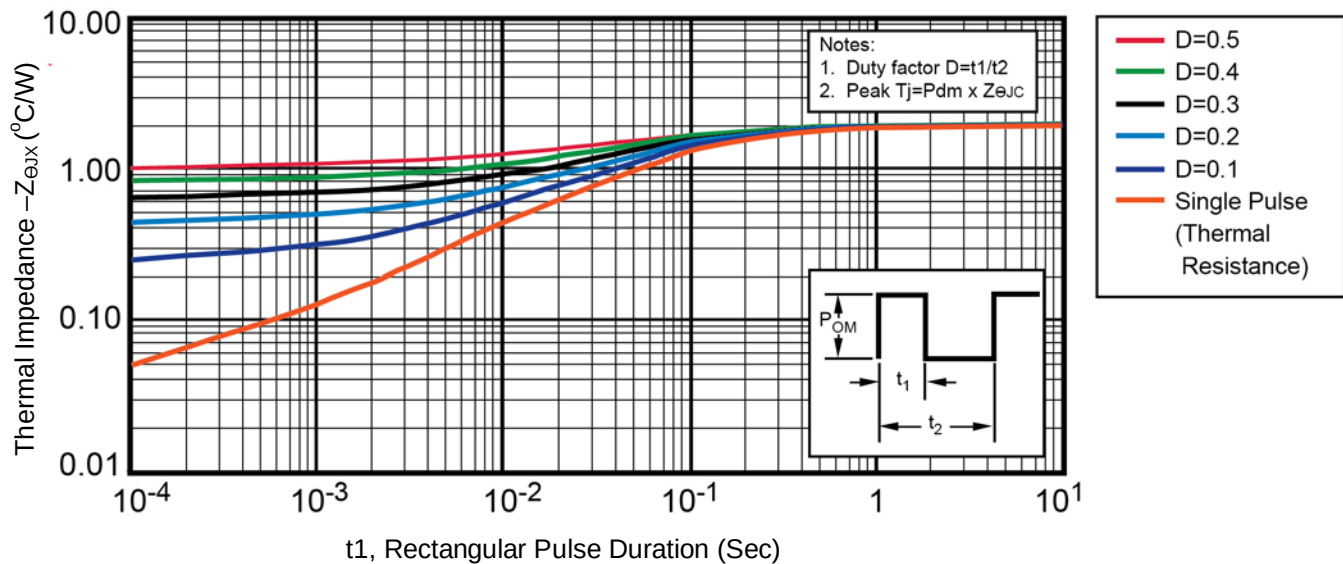
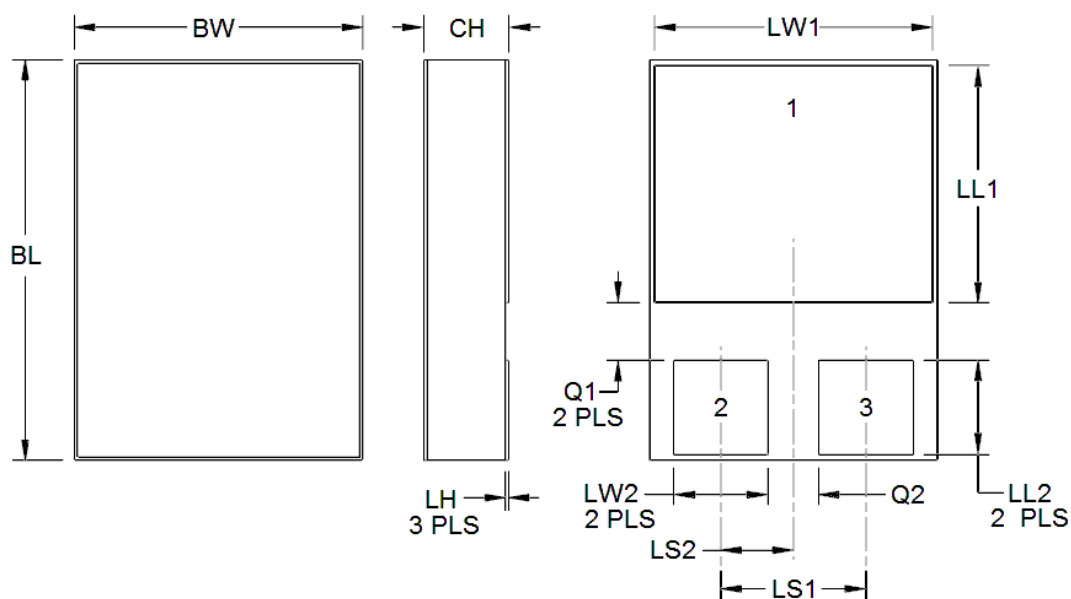


FIGURE 2
Thermal Impedance

PACKAGE DIMENSIONS

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general 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	.395	.405	10.03	10.29
BW	.291	.301	7.39	7.65
CH	.112	.124	2.84	3.15
LH	.010	.020	0.25	0.51
LL1	.220	.230	5.59	5.84
LL2	.115	.125	2.92	3.18
LS1	.150 BSC		3.81 BSC	
LS2	.075 BSC		1.91 BSC	
LW1	.281	.291	7.14	7.39
LW2	.090	.100	2.29	2.54
Q1	.030		0.76	
Q2	.030		0.76	
Term 1	Cathode			
Term 2	Anode (See Schematic)			
Term 3	Anode (See Schematic)			