



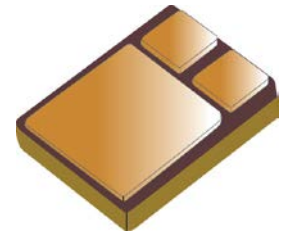
## 45 Volts, 30 Amp Schottky Rectifier Ceramic Surface Mount

*Qualified per MIL-PRF-19500/682*

*Qualified Levels:  
JAN, JANTX, and  
JANTXV*

### DESCRIPTION

This low-profile 1N6845U3 Schottky rectifier device is military qualified up to a JANTXV level for high-reliability applications.



**U3 (SMD-0.5)  
Package**

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

### FEATURES

- Surface mount equivalent of JEDEC registered 1N6845.
- Low profile ceramic SMD.
- JAN, JANTX, JANTXV qualifications available per MIL-PRF-19500/682.
- RoHS compliant by design.

### APPLICATIONS / BENEFITS

- High surge rating.
- Low reverse leakage current.
- Low forward voltage.
- Low power losses.

### 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-Case	$R_{\theta JC}$	2.0	$^\circ\text{C}/\text{W}$
Working Peak Reverse Voltage	$V_{RWM}$	45	V
Average Rectified Output Current @ $T_C = +55^\circ\text{C}$ <sup>(1)</sup>	$I_O$	30	A
Non-Repetitive Sinusoidal Surge Current @ $t_p = 8.3$ ms	$I_{FSM}$	300	A

**Note:** 1. Derate  $I_O$  as shown in [Figure 2](#) where derating starts at  $T_C = +55^\circ\text{C}$  for rated  $V_{RWM}$ . Higher temperature derating curves also apply to progressively lower voltages as shown.

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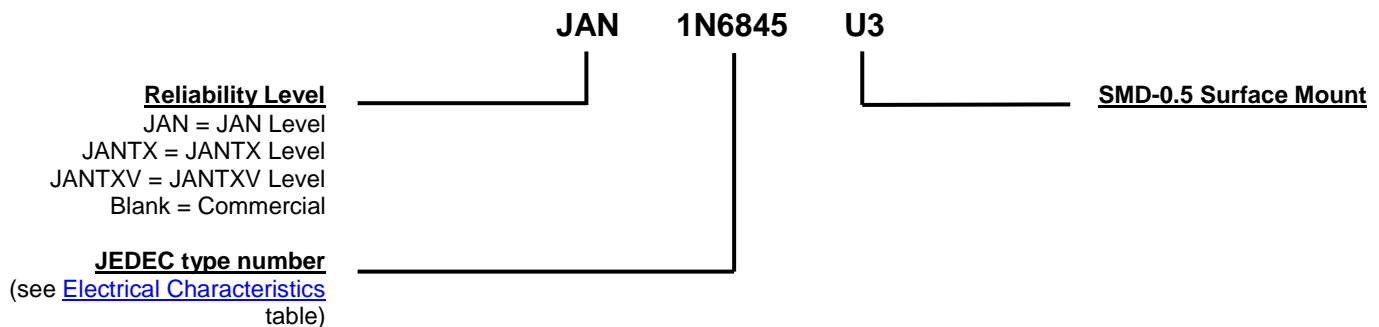
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**MECHANICAL and PACKAGING**

- 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**

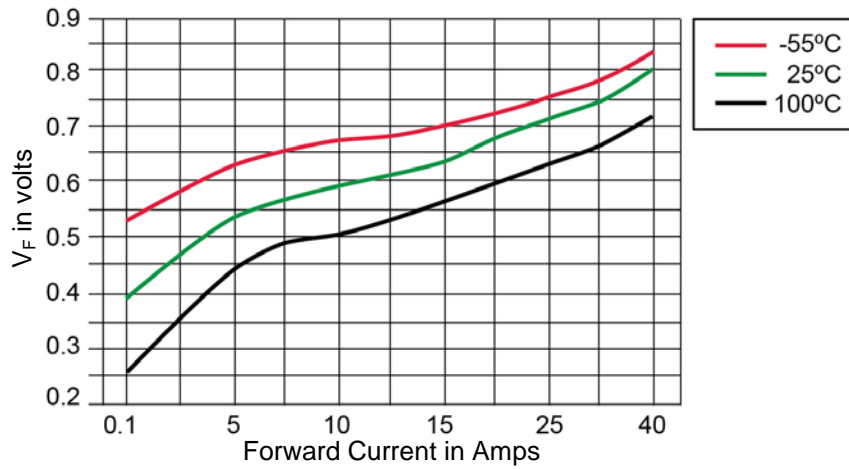
Symbol	Definition
$C_J$	Junction Capacitance: The junction capacitance in pF at a specified frequency (typically 1MHz) and specified voltage.
$I_F$	Forward Current: The forward current dc value, no alternating component.
$I_R$	Reverse Current: The maximum reverse (leakage) current that will flow at the 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 @  $T_C = +25^\circ\text{C}$  unless otherwise noted**

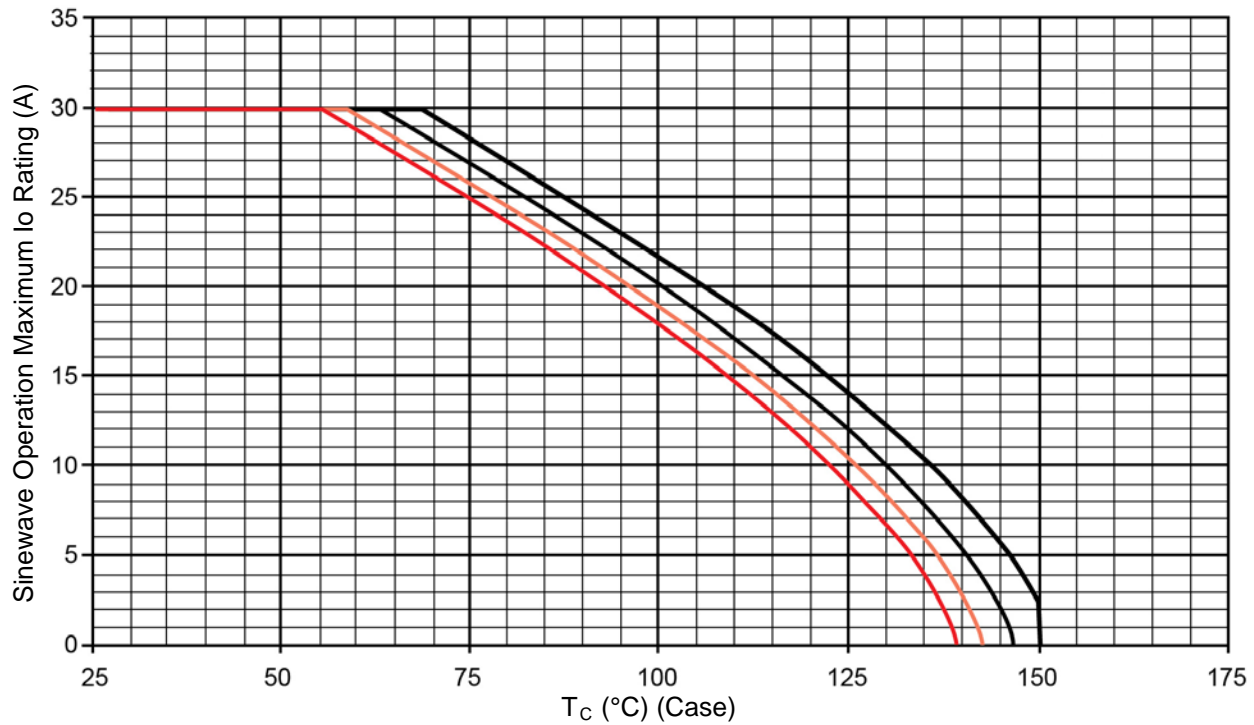
Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Forward Voltage* $I_F = 10\text{ A (pk)}$ $I_F = 20\text{ A (pk)}$ $I_F = 40\text{ A (pk)}$ $I_F = 10\text{ A (pk), } T_C = +100^\circ\text{C}$ $I_F = 20\text{ A (pk), } T_C = +100^\circ\text{C}$ $I_F = 10\text{ A (pk), } T_C = -55^\circ\text{C}$	$V_F$		0.65 0.72 0.86 0.55 0.67 0.78	V
Reverse Current $V_R = 45\text{ V}$ $V_R = 45\text{ V, } T_C = +100^\circ\text{C}$	$I_R$		0.1 10.0	mA
Junction Capacitance $V_R = 5\text{ V}$ $f = 1\text{ MHz}$ $V_{SIG} = 50\text{ mV (p-p)}$	$C_J$		800	pF

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

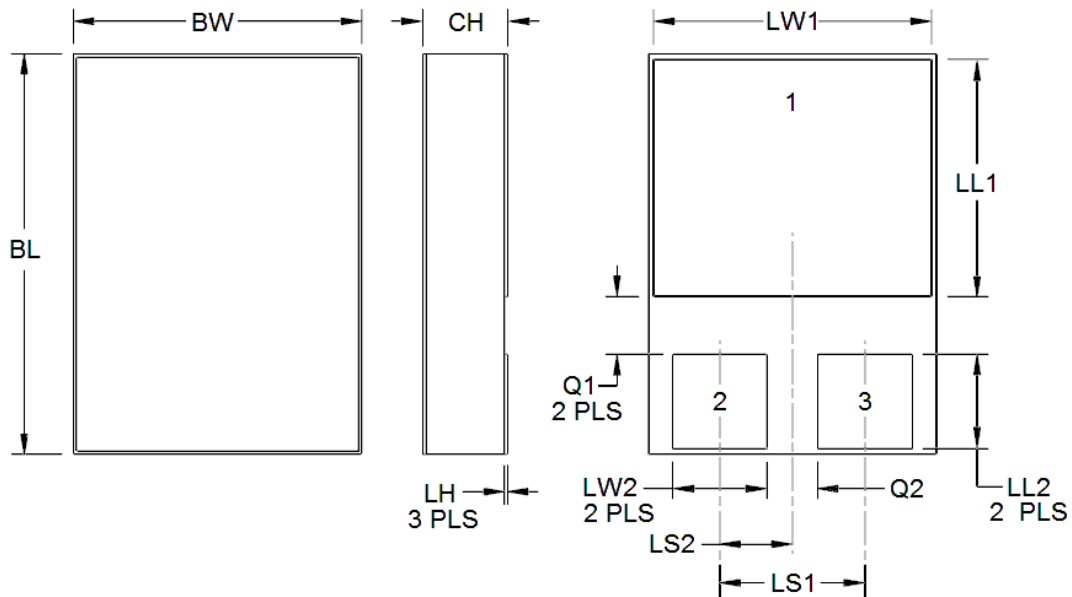
**GRAPHS**



**FIGURE 1**  
1N6845U3 Typical  $V_F$  at  $I_O$



**FIGURE 2**  
Temperature - Current Derating Curve

**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)			