



## 35 and 45 VOLT, 10 AMP DUAL SCHOTTKY COMMON CATHODE CENTER TAP RECTIFIER

Qualified per MIL-PRF-19500/678

*Qualified Levels:  
JAN, JANTX, and  
JANTXV*

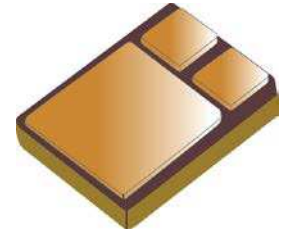
### DESCRIPTION

These low-profile 1N6840U3 and 1N6841U3 dual schottky rectifier devices are 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 1N6840 and 1N6841.
- Low profile ceramic SMD.
- JAN, JANTX, JANTXV qualifications available per MIL-PRF-19500/678.
- RoHS compliant by design.



**U3 (SMD-0.5)  
Package**

### APPLICATIONS / BENEFITS

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

### MAXIMUM RATINGS PER LEG @ $T_C = +25\text{ }^\circ\text{C}$ 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 <sup>(1)</sup> (each individual diode)	$R_{\theta JC}$	2.8	$^\circ\text{C/W}$
Peak Working Reverse Voltage	$V_{RWM}$	35 45	V
		1N6840U3 1N6841U3	
Junction Capacitance	$C_J$	400	pF
Average Rectified Output Current @ $T_C = +100\text{ }^\circ\text{C}$ <sup>(2)</sup>	$I_O$	10	A
Surge Peak Forward Current @ $t_p = 8.3\text{ ms}$	$I_{FSM}$	200	A

**NOTES:** 1. 1.7  $^\circ\text{C/W}$  both legs tied together.  
2. Derate linearly at 200 mA/ $^\circ\text{C}$  from  $T_J = T_C = +100\text{ }^\circ\text{C}$  to +150  $^\circ\text{C}$ .

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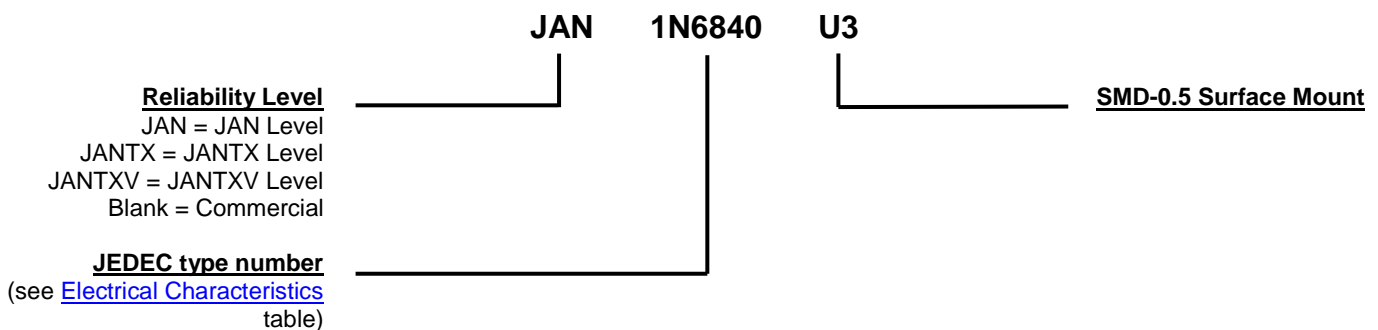
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**MECHANICAL and PACKAGING**

- CASE: Ceramic and gold over nickel plated steel.
- TERMINALS: Gold over nickel plated tungsten/copper.
- MARKING: Manufacturer ID, part number, date code, common cathode symbol.
- POLARITY: See [schematic](#) on last page.
- WEIGHT: 0.9 grams.
- See [Package Dimensions](#) on last page.

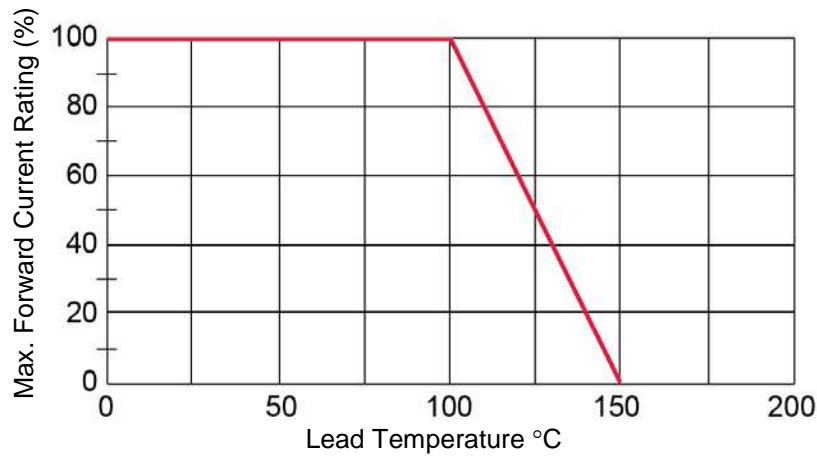
**PART NOMENCLATURE**

**SYMBOLS & DEFINITIONS**

Symbol	Definition
$C_J$	Junction Capacitance: The junction capacitance in pF at a specified frequency (typically 1MHz) and specified voltage.
$I_{FM}$	Maximum Forward Current: The maximum 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.

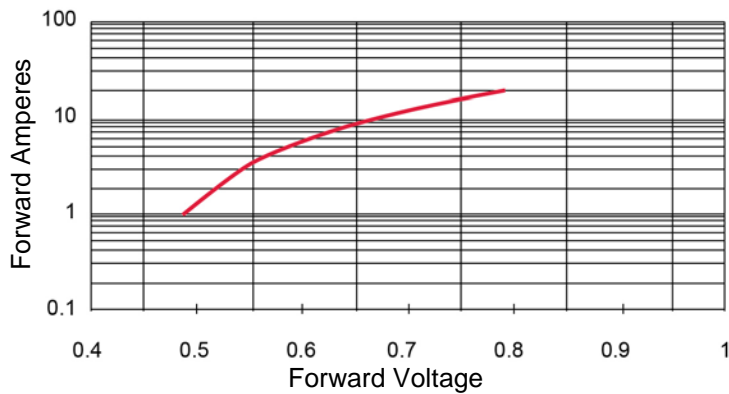
**ELECTRICAL CHARACTERISTICS PER LEG @  $T_A = +25\text{ }^\circ\text{C}$  unless otherwise noted**

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Instantaneous Forward Voltage Drop $I_{FM} = 3\text{ A}$ , $T_A = 25\text{ }^\circ\text{C}$ , 300 $\mu\text{s}$ Pulse $I_{FM} = 10\text{ A}$ , $T_A = 25\text{ }^\circ\text{C}$ , 300 $\mu\text{s}$ Pulse $I_{FM} = 20\text{ A}$ , $T_A = 25\text{ }^\circ\text{C}$ , 300 $\mu\text{s}$ Pulse	$V_F$		0.62 0.75 0.88	V
Instantaneous Forward Voltage Drop $I_F = 10\text{ A}$ , $T_A = 100\text{ }^\circ\text{C}$ , 300 $\mu\text{s}$ Pulse $I_F = 20\text{ A}$ , $T_A = 100\text{ }^\circ\text{C}$ , 300 $\mu\text{s}$ Pulse $I_F = 10\text{ A}$ , $T_A = -55\text{ }^\circ\text{C}$ , 300 $\mu\text{s}$ Pulse	$V_F$		0.63 0.70 0.85	V
Reverse Leakage Current Rated $V_R$ , $T_A = 25\text{ }^\circ\text{C}$ , 300 $\mu\text{s}$ pulse minimum	$I_R$	1N6840U3, $V_R = 35\text{ V}$ 1N6841U3, $V_R = 45\text{ V}$	100	$\mu\text{A}$
Reverse Leakage Current Rated $V_R$ , $T_A = 100\text{ }^\circ\text{C}$ , 300 $\mu\text{s}$ pulse minimum	$I_R$	1N6840U3, $V_R = 35\text{ V}$ 1N6841U3, $V_R = 45\text{ V}$	15	mA
Junction Capacitance $V_R = 5\text{ V}$ , $T_A = 25\text{ }^\circ\text{C}$ , $f = 1\text{ MHz}$ $V_{SG} = 50\text{ mV}$ (p-p) (max)	$C_J$		400	pF

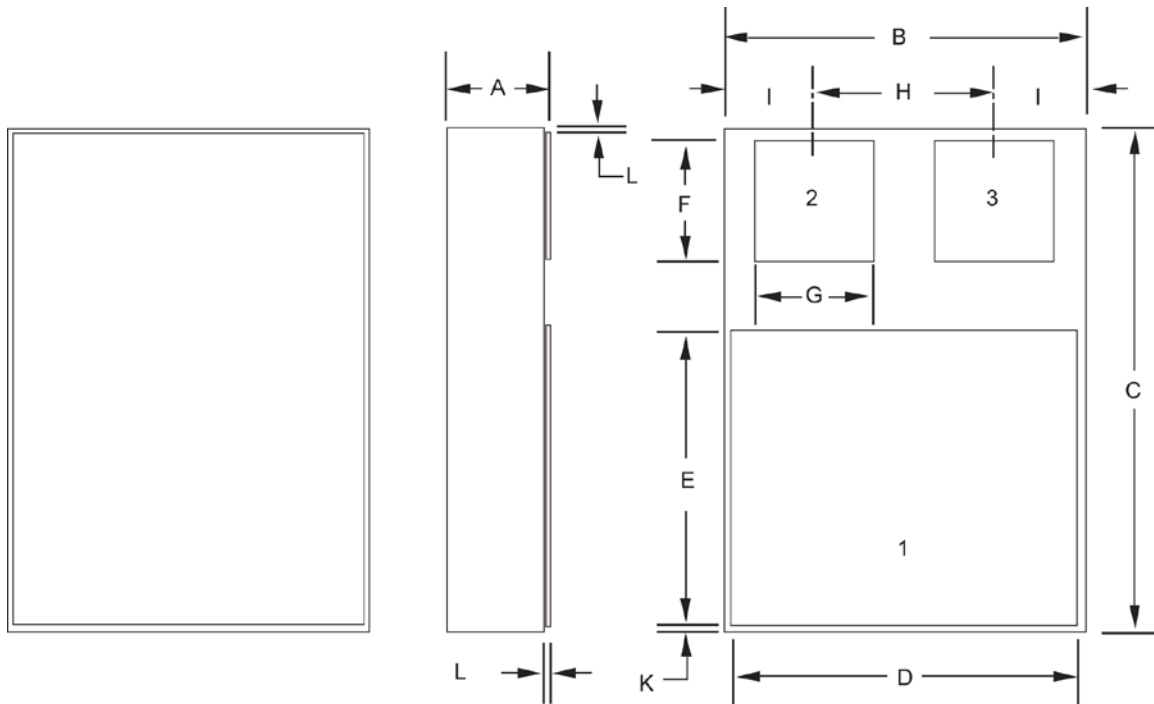
GRAPHS



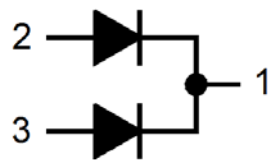
**FIGURE 1**  
 Typical Operating Curves  
 ( $T_A = 25\text{ }^\circ\text{C}$  Unless otherwise specified)



**FIGURE 2**  
 1N6841  $V_F$  vs.  $I_F$

**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  $\Phi$ x symbology.



Schematic

Symbol	DIMENSIONS			
	INCH		MILLIMETERS	
	Min	Max	Min	Max
<b>A</b>	0.111	0.122	2.82	3.10
<b>B</b>	0.291	0.301	7.39	7.65
<b>C</b>	0.395	0.405	10.03	10.29
<b>D</b>	0.281	0.291	7.14	7.39
<b>E</b>	0.220	0.230	5.59	5.84
<b>F</b>	0.115	0.125	2.92	3.18
<b>G</b>	0.090	0.100	2.29	2.54
<b>H</b>	0.125	0.135	3.18	3.43
<b>I</b>	0.073 TYP.		1.85 TYP.	
<b>J</b>	0.083 TYP.		2.11 TYP.	
<b>K</b>	0.005 TYP.		0.13 TYP.	
<b>L</b>	0.015 TYP.		0.38 TYP.	
<b>Term 1</b>	Common Cathode			
<b>Term 2</b>	Anode 1 (See Schematic)			
<b>Term 3</b>	Anode 2 (See Schematic)			