



## Silicon Dual Schottky Power Rectifier

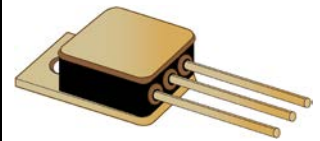
### 30 Amp, 45 Volt

Qualified per MIL-PRF-19500/608

*Qualified Levels:  
JAN, JANTX, and  
JANTXV*

#### DESCRIPTION

This Dual Schottky rectifier device is military qualified up to a JANTXV level for high-reliability applications. This TO-254 packaged product is available in three polarity options.



**TO-254AA Package**

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

#### FEATURES

- JEDEC registered 1N6660.
- Hermetically isolated TO-254AA package.
- Available in standard, reverse, common cathode, common anode and doubler configurations.
- JAN, JANTX, and JANTXV qualifications are available per MIL-PRF-19500/608.
- RoHS compliant versions available (commercial grade only).

#### APPLICATIONS / BENEFITS

- High frequency operation.
- Low forward voltage drop.

#### MAXIMUM RATINGS @ $T_A = +25^\circ\text{C}$ unless otherwise noted.

Parameters/Test Conditions	Symbol	Value per diode		Unit
Junction and Storage Temperature	$T_J$ and $T_{STG}$	-65 to +150		$^\circ\text{C}$
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	<b>Die 1</b>	<b>Die 2</b>	$^\circ\text{C/W}$
1N6660CCT1		1.65	1.65	
1N6660CAT1		2.8	2.8	
1N6660DT1		2.8	1.65	
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	50		$^\circ\text{C/W}$
Working Peak Reverse Voltage	$V_{RWM}$	45		V
DC Blocking Voltage	$V_R$	45		V
Surge Peak Forward Current @ $t_p = 8.3$ ms half-sine wave	$I_{FSM}$	300		A
Average Rectified Output Current <sup>(1)</sup>	$I_O$	15		A

**Note:** 1. See [Figures 1 and 2](#) for derating of entire package (30 Amps).

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#### **MSC – Ireland**

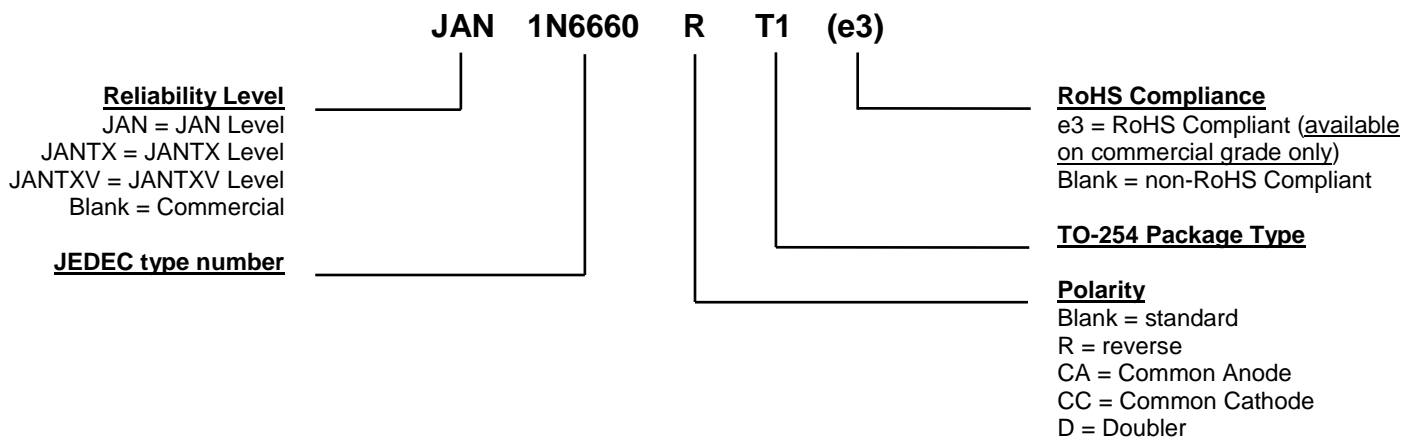
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**Website:**

[www.microsemi.com](http://www.microsemi.com)

**MECHANICAL and PACKAGING**

- CASE: Nickel plated CRS steel.
- TERMINALS: Ceramic feed-through, hot solder dip, Ni plated Alloy 52, copper core. "e3" available for commercial only (pure tin dip).
- MARKING: Part number, date code, and polarity symbol.
- POLARITY: See [Schematic](#) on last page.
- WEIGHT: Approximately 6.5 grams.
- See [Package Dimensions](#) on last page.

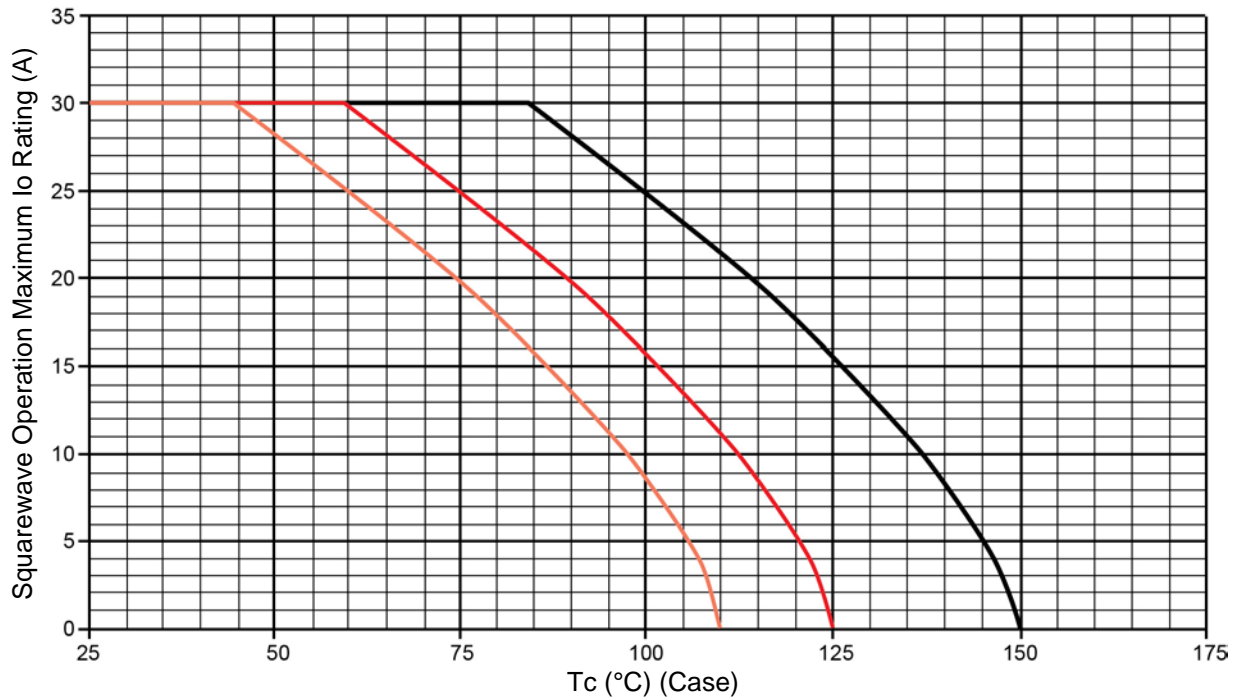
**PART NOMENCLATURE**

**SYMBOLS & DEFINITIONS**

Symbol	Definition
C	Capacitance: The capacitance in pF at a frequency of 1 MHz and specified voltage.
f	frequency
I <sub>F</sub>	Forward Current: The dc current flowing from the external circuit into the anode terminal.
I <sub>FSM</sub>	Surge Peak Forward Current: The forward current including all nonrepetitive transient currents but excluding all repetitive transients (ref JESD282-B)
I <sub>O</sub>	Average Rectified Output Current: The Output Current averaged over a full cycle with a 50 Hz or 60 Hz sine-wave input and a 180 degree conduction angle.
I <sub>R</sub>	Reverse Current: The dc current flowing from the external circuit into the cathode terminal at the specified voltage V <sub>R</sub> .
V <sub>RWM</sub>	Working Peak Reverse Voltage: The peak voltage excluding all transient voltages (ref JESD282-B). Also sometimes known historically as PIV.
V <sub>F</sub>	Forward Voltage: A positive dc anode-cathode voltage the device will exhibit at a specified forward current.
V <sub>R</sub>	Reverse Voltage: A positive dc cathode-anode voltage below the breakdown region.

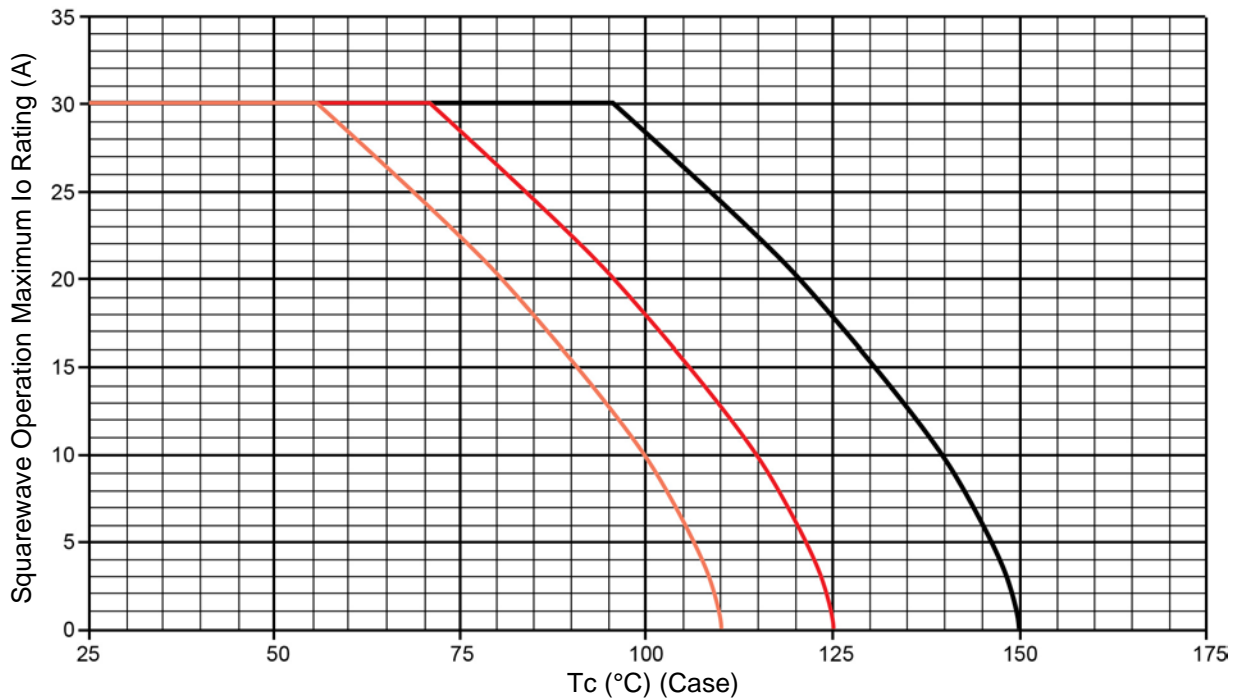
**ELECTRICAL CHARACTERISTICS @  $T_A = +25\text{ }^\circ\text{C}$  unless otherwise noted**

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
<b>CHARACTERISTICS per Leg</b>				
Forward Voltage* $I_F = 5\text{ A}$ $I_F = 15\text{ A}$ $I_F = 30\text{ A}$ $I_F = 15\text{ A}, T_A = -55\text{ }^\circ\text{C}$	$V_F$		0.55 0.75 1.00 0.80	V
Reverse Current $V_R = 45\text{ V}$ $V_R = 45\text{ V}, T_J = +125\text{ }^\circ\text{C}$	$I_R$		1.0 40	mA
Junction Capacitance $V_R = 5\text{ V}$ $f = 1\text{ MHz}, V_{SIG} = 50\text{ mV (p-p) (max)}$	C		2000	pF

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

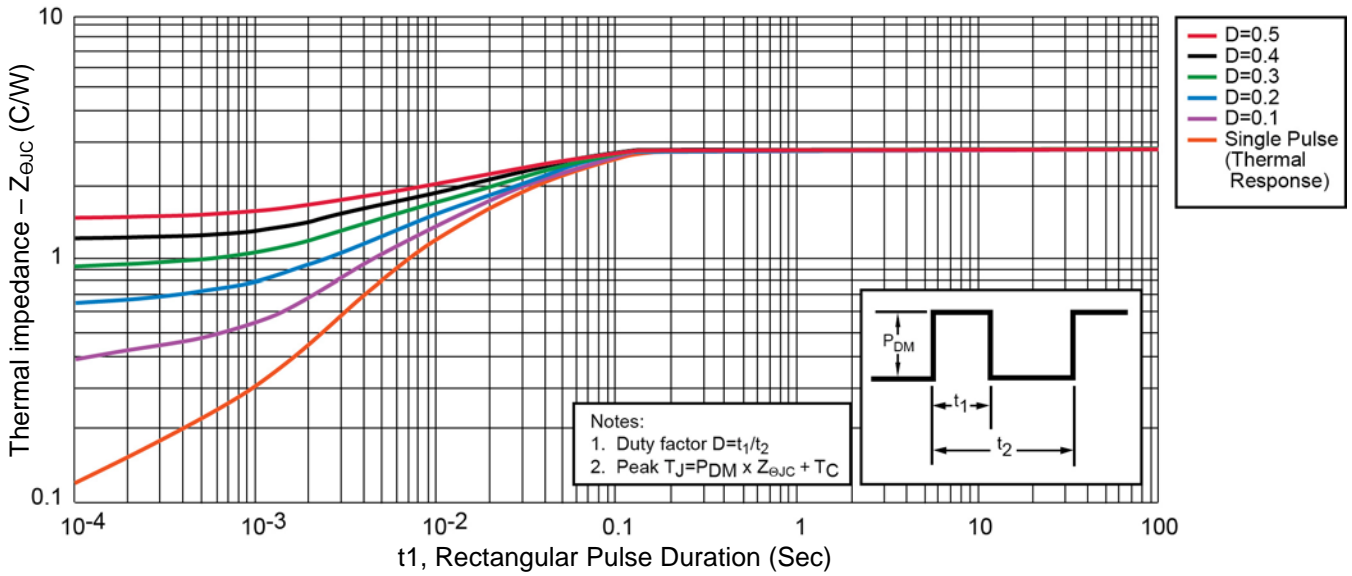
**GRAPHS**

**FIGURE 1**

Temperature-current derating curve (1N6660, 1N6660CCT1, entire package)

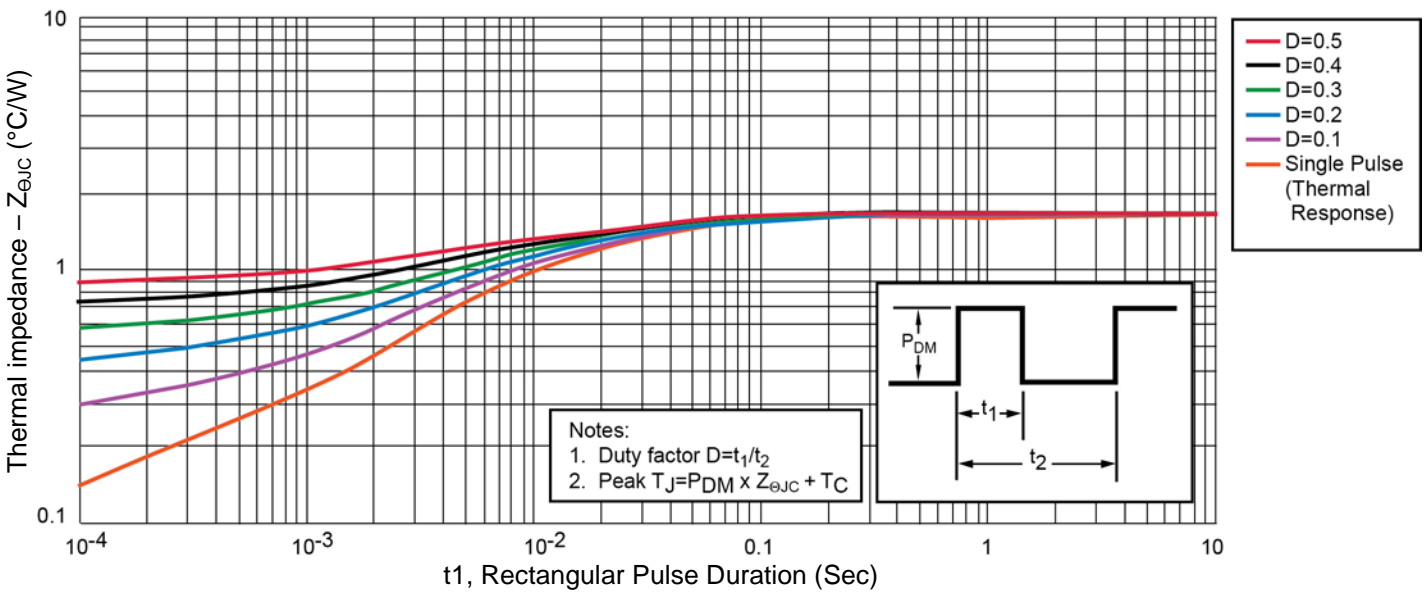

**FIGURE 2**

Temperature-current derating curve (1N6660R, 1N6660CAT1, 1N6660DT1, entire package)

GRAPHS

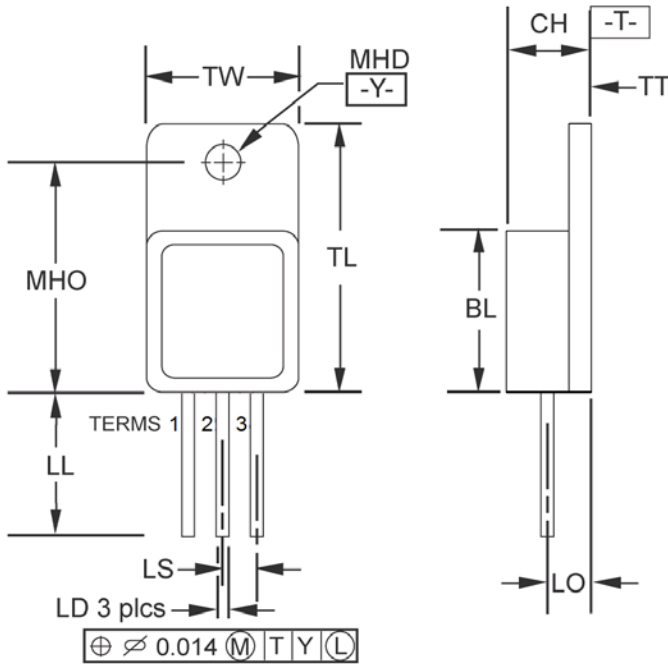


**FIGURE 3**  
 Thermal impedance for each leg 1N6660CAT1, 1N6660DT1, die 1, and 1N6660R



**FIGURE 4**  
 Thermal impedance for each leg 1N6660CCT1, 1N6660DT1, die 2, and 1N6660

PACKAGE DIMENSIONS

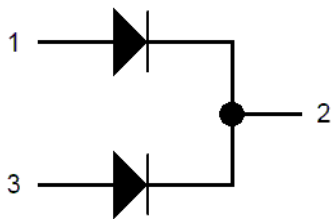


Ltr	Dimensions			
	Inch		Millimeters	
	Min	Max	Min	Max
BL	0.535	0.545	13.59	13.84
CH	0.249	0.260	6.32	6.60
LD	0.035	0.045	0.89	1.14
LL	0.510	0.570	12.95	14.48
LO	0.150 BSC		3.81 BSC	
LS	0.150 BSC		3.81 BSC	
MHD	0.139	0.149	3.53	3.78
MHO	0.665	0.685	16.89	17.40
TL	0.790	0.800	20.07	20.32
TT	0.040	0.050	1.02	1.27
TW	0.535	0.545	13.59	13.84

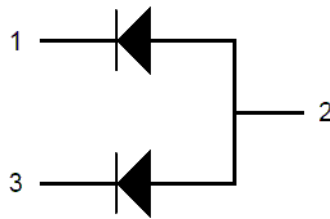
NOTES:

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.

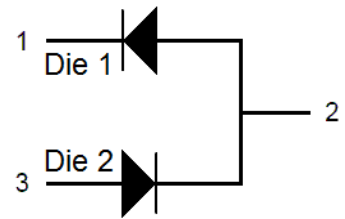
SCHEMATICS



**1N6660 & 1N6660CCT1**  
 TERM 1 = ANODE  
 TERM 2 = CATHODE  
 TERM 3 = ANODE



**1N6660R & 1N6660CAT1**  
 TERM 1 = CATHODE  
 TERM 2 = ANODE  
 TERM 3 = CATHODE



**1N6660DT1**  
 TERM 1 = ?  
 TERM 2 = ?  
 TERM 3 = ?