Available on commercial versions

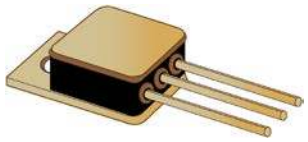
Silicon Dual Schottky Power Rectifier
30 Amp, 45 Volt

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 °C unless otherwise noted.

Parameters/Test Conditions	Symbol	Value per diode		Unit
Junction and Storage Temperature	T_J and T_{STG}	-65 to +150		°C
Thermal Resistance Junction-to-Case	$R_{\Theta JC}$	**Die 1**	**Die 2**	°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		°C/W
Working Peak Reverse Voltage	V_{RWM}	45		V
DC Blocking Voltage	V_R	45		V
Surge Peak Forward Current @ tp = 8.3 ms half-sine wave	I_{FSM}	300		A
Average Rectified Output Current (1)	I_O	15		A

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

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MECHANICAL and PACKAGING

- CASE: Nickel plated CRS steel.
- TERMINALS: Ceramic feed-though, 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

JAN 1N6660 R T1 (e3)

Reliability Level
JAN = JAN Level
JANTX = JANTX Level
JANTXV = JANTXV Level
Blank = Commercial

JEDEC type number

RoHS Compliance
e3 = RoHS Compliant (available on commercial grade only)
Blank = non-RoHS Compliant

TO-254 Package Type

Polarity
Blank = standard
R = reverse
CA = Common Anode
CC = Common Cathode
D = Doubler

SYMBOLS & DEFINITIONS

Symbol	Definition
C	Capacitance: The capacitance in pF at a frequency of 1 MHz and specified voltage.
f	frequency
I_F	Forward Current: The dc current flowing from the external circuit into the anode terminal.
I_{FSM}	Surge Peak Forward Current: The forward current including all nonrepetitive transient currents but excluding all repetitive transients (ref JESD282-B)
I_O	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_R	Reverse Current: The dc current flowing from the external circuit into the cathode terminal at the specified voltage V_R.
V_{RWM}	Working Peak Reverse Voltage: The peak voltage excluding all transient voltages (ref JESD282-B). Also sometimes known historically as PIV.
V_F	Forward Voltage: A positive dc anode-cathode voltage the device will exhibit at a specified forward current.
V_R	Reverse Voltage: A positive dc cathode-anode voltage below the breakdown region.

ELECTRICAL CHARACTERISTICS @ T_A = +25 °C unless otherwise noted

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

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

GRAPHS

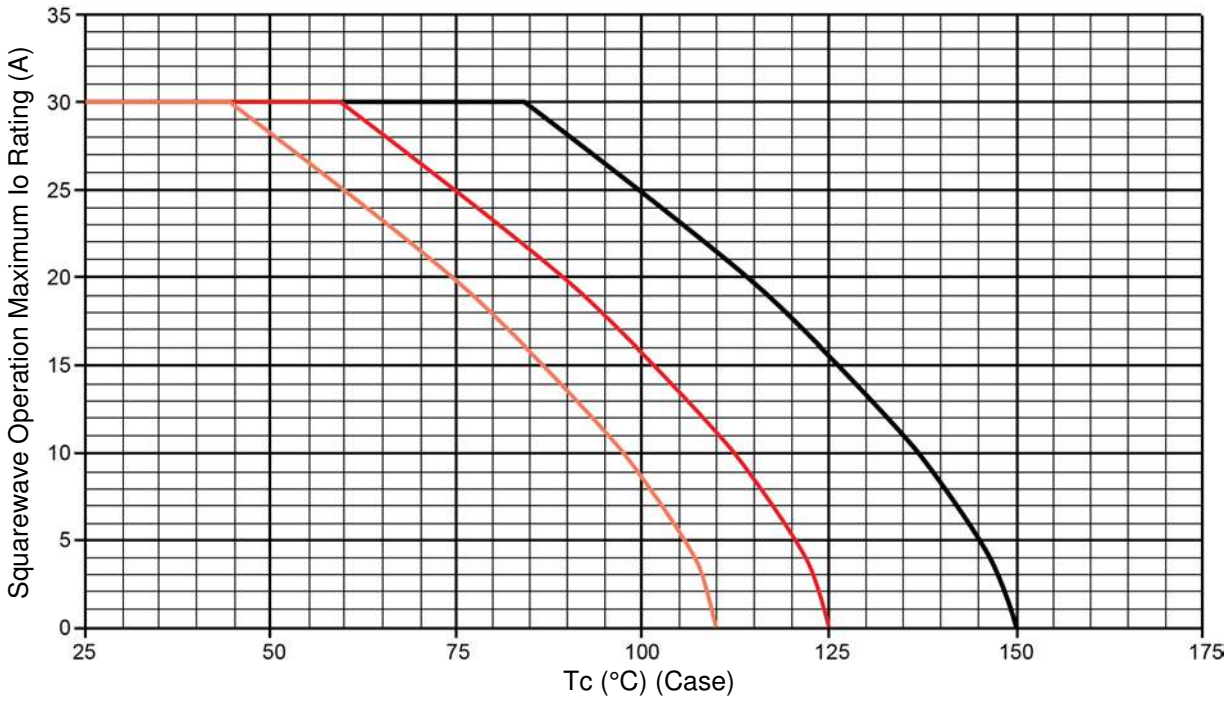


FIGURE 1
Temperature-current derating curve (1N6660, 1N6660CCT1, entire package)

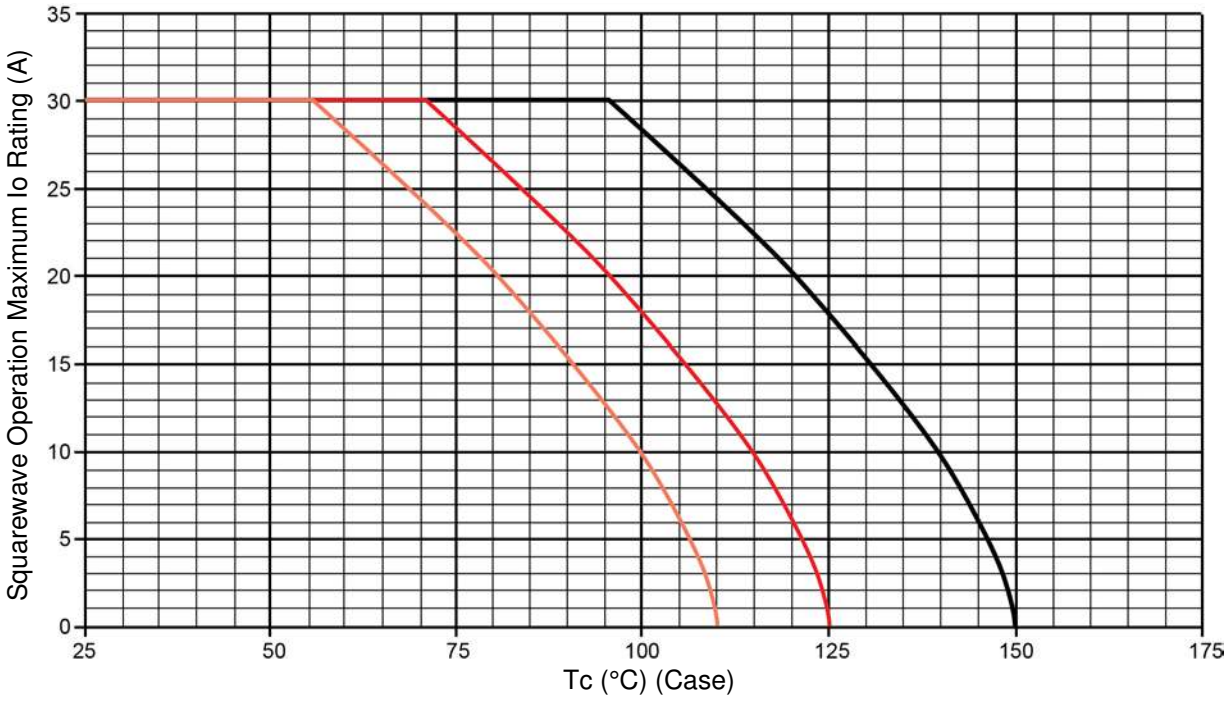


FIGURE 2
Temperature-current derating curve (1N6660R, 1N6660CAT1, 1N6660DT1, entire package)

GRAPHS

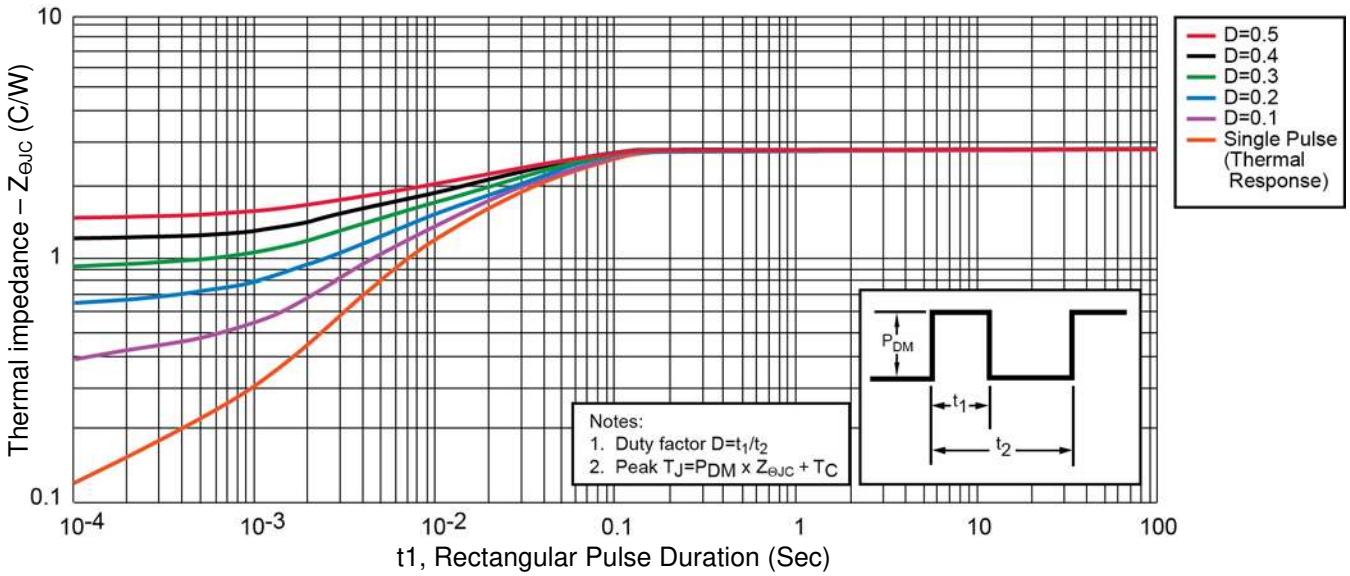


FIGURE 3
Thermal impedance for each leg 1N6660CAT1, 1N6660DT1, die 1, and 1N6660R

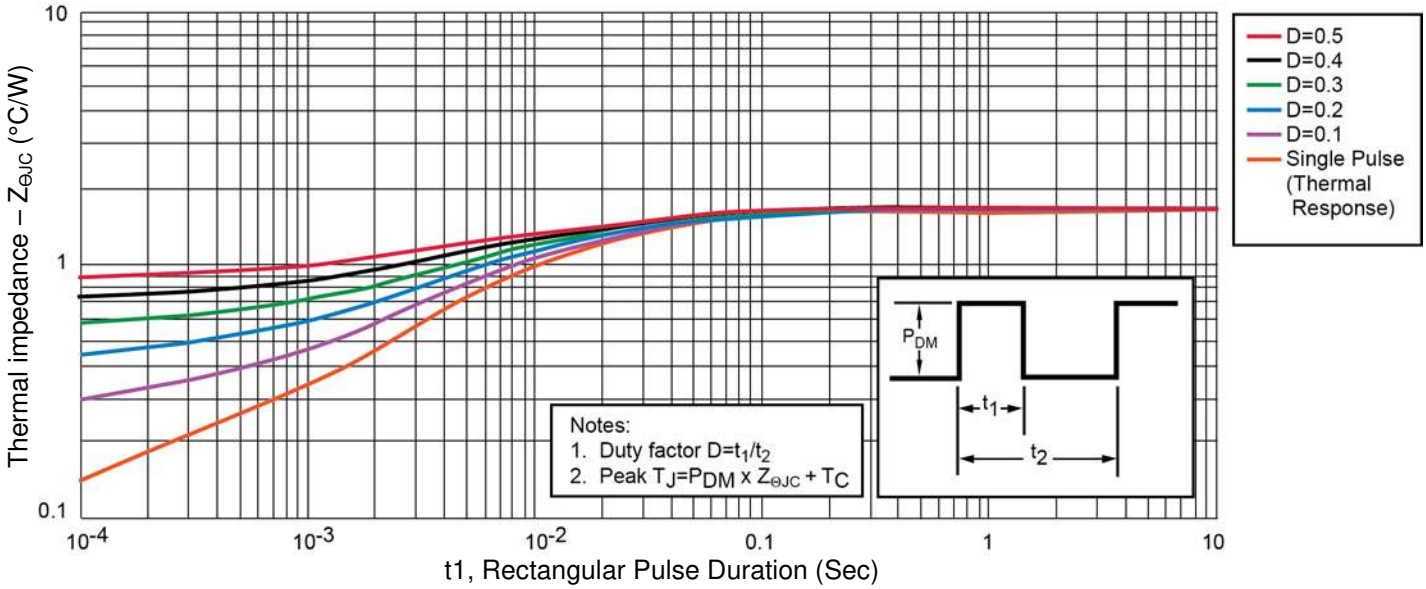
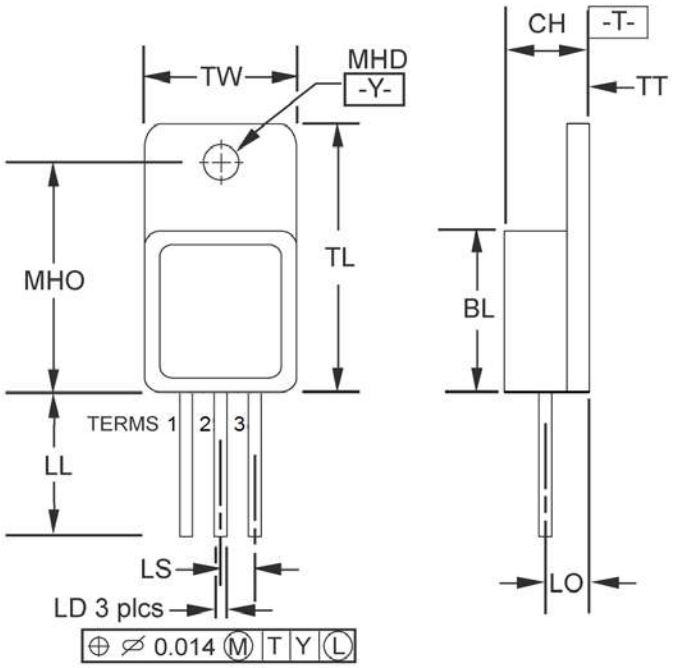


FIGURE 4
Thermal impedance for each leg 1N6660CCT1, 1N6660DT1, die 2, and 1N6660

PACKAGE DIMENSIONS

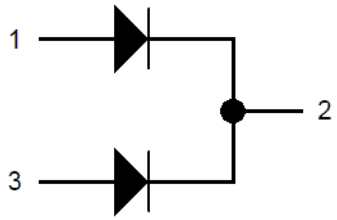


Ltr	Dimensions			
	Inch		Millimeters	
	Min	Max	Min	Max
BL	0.535	0.545	13.59	13.84
CH	0.249	0.260	6.32	6.60
LD	0.035	0.045	0.89	1.14
LL	0.510	0.570	12.95	14.48
LO	0.150 BSC		3.81 BSC	
LS	0.150 BSC		3.81 BSC	
MHD	0.139	0.149	3.53	3.78
MHO	0.665	0.685	16.89	17.40
TL	0.790	0.800	20.07	20.32
TT	0.040	0.050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

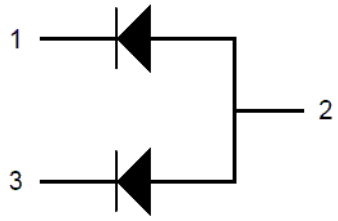
NOTES:

1. Dimensions are in inches.
2. Millimeters are given for information only.
3. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.

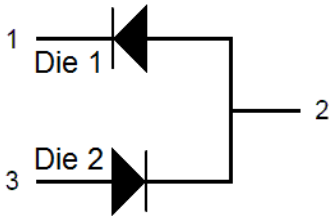
SCHEMATICS



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 = ?