RoHS Available

SILICON SWITCHING DIODES

Screening in reference to MIL-PRF-19500 available

DESCRIPTION

This 1N643, 1N662 and 1N663 series of JEDEC registered switching/signal diodes are metallurgically bonded and hermetically sealed. These low capacitance diodes feature double-plug construction in a DO-35 package. They are particularly suited to applications where medium speed switching is required. Microsemi also offers a variety of other switching/signal diodes.

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

DO-35 Package

FEATURES

- JEDEC registered 1N643, 1N662 and 1N663.
- Metallurgically bonded.
- Hermetically sealed.
- Double-plug construction.
- Up-screening available in reference to MIL-PRF-19500. (See part nomenclature for all available options.)
- RoHS compliant versions available.

APPLICATIONS / BENEFITS

- Flexible axial-lead mounting terminals.
- High frequency data lines:
  - RS-232 & RS–422 interface networks
  - Ethernet 10 Base T links
  - Switching core drivers
  - Local area networks
  - Computers

MAXIMUM RATINGS

Parameters/Test Conditions		Symbol	Value	Unit
Junction Temperature		T_J	-65 to +150	°C
Storage Temperature		T_{STG}	-65 to +175	°C
Thermal Impedance		$Z_{\Theta JX}$	70	°C/W
Reverse Voltage, RMS Value	1N643	V_r	200	V(pk)
	1N662 & 1N663		100	
Reverse Voltage, Working Peak	1N643	V_{RWM}	175	V(pk)
			80	
Forward Current, Surge Peak @ 8.3 ms	1N662 & 1N663	I_{FSM}	500	mA
Average Forward Current	1N643 & 1N662 (1)	I_O	40	mA
	1N663 (2)		100	
Solder Pad Temperature @ 10 s max.		T_{SP}	260	°C

Notes: 1. Derate 1N643 and 1N662 at 0.32 mA/ºC above T_A = 25 ºC.
2. Derate 1N663 at 0.48 mA/ºC above T_A = 25 ºC.

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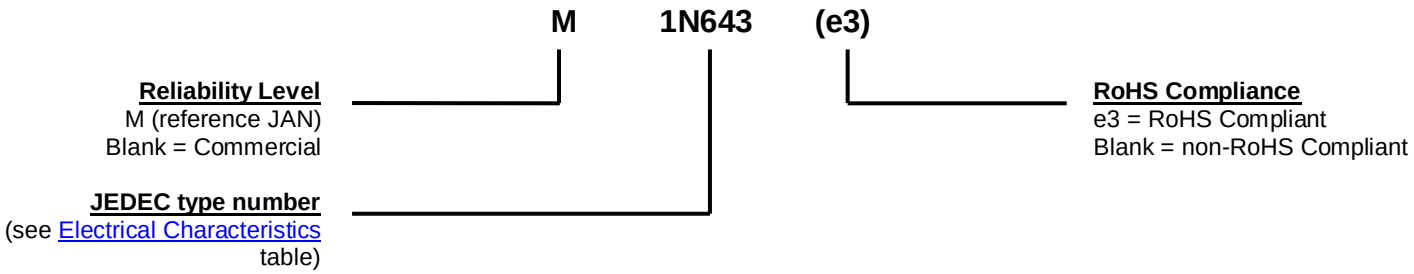
MECHANICAL and PACKAGING

- CASE: Hermetically sealed glass case.
- TERMINALS: Tin/lead finished copper clad steel or RoHS compliant matte-tin finish available.
- MARKING: Alphanumeric.
- POLARITY: Cathode end is banded.
- TAPE & REEL option: Standard per EIA-296 (add "TR" suffix to part number). Consult factory for quantities.
- WEIGHT: 0.2 grams.
- See Package Dimensions on last page.

PART NOMENCLATURE



SYMBOLS & DEFINITIONS

Symbol	Definition
I_F	Forward Current.
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 maximum reverse (leakage) current that will flow at the specified voltage and temperature.
T_{SP}	Temperature Solder Pad: The maximum solder temperature that can be safely applied to the terminal.
V_F	Maximum Forward Voltage: The maximum forward voltage the device will exhibit at a specified current.
V_{RWM}	Working Peak Reverse Voltage: The maximum peak voltage that can be applied over the operating temperature range excluding all transient voltages (ref JESD282-B). Also sometimes known as PIV.
V_{WM}	Working Peak Voltage: The maximum peak voltage that can be applied over the operating temperature range. This is also referred to as Standoff Voltage.
$Z_{\Theta JX}$	Thermal Impedance: The thermal impedance junction to reference point.

ELECTRICAL CHARACTERISTICS (T_A = 25 °C, unless otherwise specified)

TYPE NUMBER	Forward Voltage V_F (See Note 1)	Reverse Current I_R @ V_R = 10 V		Capacitance C	Reverse Recovery Time T_{rr} (See Note 2)
		T_A @ 25 °C (I_R @ 25 °C)	T_A @ 100 °C		
	V (max)	nA (max)	µA (max)	pF (max)	ns (max)
1N643	1.0	25 (100 µA @ 200 V)	15 @ 100 V	3 @ 175 V	300
1N662	1.0	25 (100 µA @ 100 V)	100 @ 50 V	3 @ 80 V	500
1N663	1.0	25 (100 µA @ 100 V)	50 @ 75 V	3 @ 80 V	500

NOTES: 1. I_F = 10 mA for 1N643 and 1N662; I_F = 100 mA for 1N663.
2. Test condition B: I_F = 5 mA; I_R = 17.5 mA; R_L = 2300 ohms +/- 10 %; C = 40 pF, max.

GRAPHS

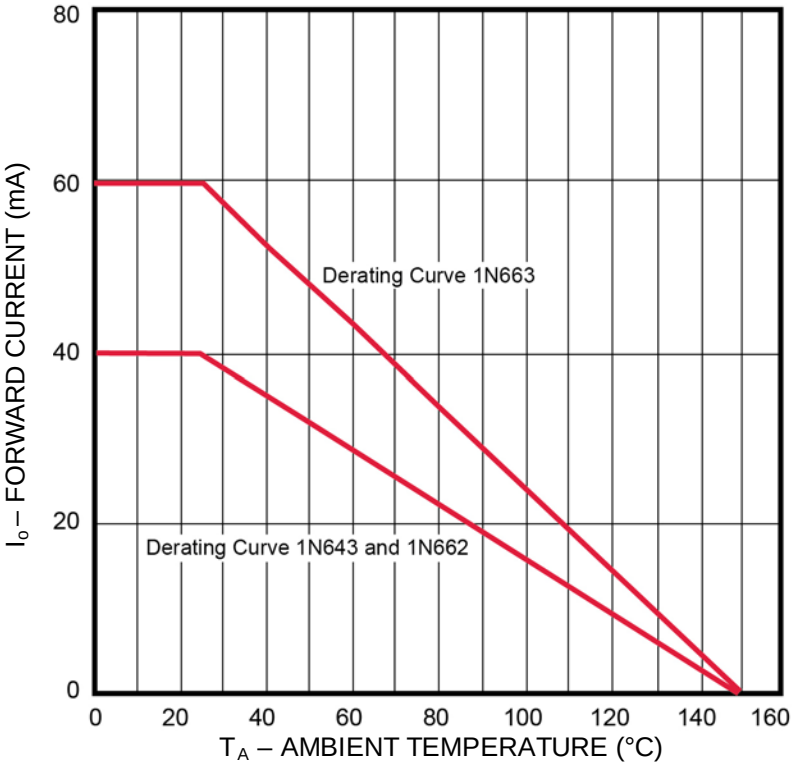
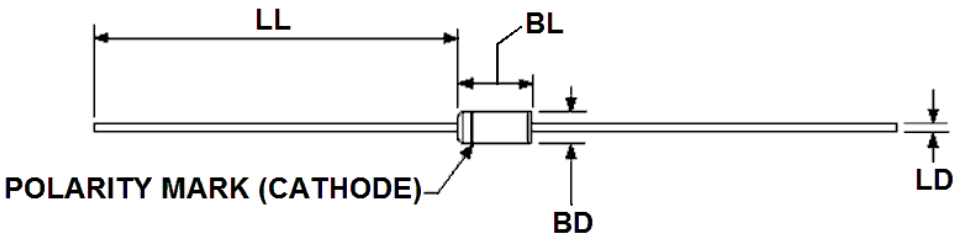


FIGURE 1
Average Rectified Current vs Ambient Temperature

PACKAGE DIMENSIONS



Symbol	Dimensions			
	Inch		Millimeters	
	Min	Max	Min	Max
BD	.056	..075	1.42	1.90
BL	.140	.180	3.56	4.57
LD	.018	.022	.046	.056
LL	1.000	1.500	25.40	38.10

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. The minimum body diameter shall be maintained over .15 inch (3.81 mm) inch of body length.
4. The specified lead diameter applies in the zone between .050 inch (1.27 mm) and the end of the lead. Outside of this zone the lead diameter shall not exceed LD.
5. Both leads shall be within the specified dimension.
6. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.