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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





VOIDLESS HERMETICALLY SEALED SWITCHING DIODES

Qualified per MIL-PRF-19500/578

Qualified Levels:
JAN, JANTX,
JANTXV and JANS

DESCRIPTION

This popular surface mount equivalent JEDEC registered switching/signal diodes are military qualified and available with internal metallurgical bonded construction. These small low capacitance diodes with very fast switching speeds are hermetically sealed and bonded into a "D-5D" package. They may be used in a variety of fast switching applications including computers and peripheral equipment such as magnetic cores, thin-film memories, plated-wire memories, as well as decoding or encoding applications, etc. Microsemi also offers a variety of other switching/signal diodes.

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

FEATURES

- JEDEC registered surface mount equivalents of 1N6638, 1N6642, and 1N6643.
- Ultra fast recovery time.
- Very low capacitance.
- Metallurgically bonded.
- Non-cavity glass package.
- JAN, JANTX, JANTXV and JANS qualifications are available per MIL-PRF-19500/578.
- Replacements for 1N4148UR, 1N4148UR-1, 1N4150UR-1, and 1N914UR.
- RoHS compliant devices available (commercial grade only).

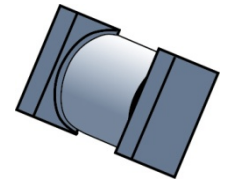
APPLICATIONS / BENEFITS

- Small size for high density mounting (see package illustration).
- Ideal for:
 - High frequency data lines
 - RS-232 & RS-422 Interface Networks
 - Ethernet: 10 Base T
 - Switching core drivers
 - LAN
 - Computers

MAXIMUM RATINGS @ T_A = +25 °C unless otherwise noted.

Parameters/Test Conditions	Symbol	Value	Unit	
Junction and Storage Temp	T _J and T _{STG}	-65 to +175	°C	
Thermal Resistance Junction-to-End Cap	R _{θJEC}	40	°C/W	
Thermal Resistance Junction-to-Ambient ⁽¹⁾	R _{θJA}	250	°C/W	
Peak Forward Surge Current @ T _A = +25 °C (Test pulse = 8.3 ms, half-sine wave.)	I _{FSM}	2.5	A	
Average Rectified Forward Current @ T _A = +75 °C (Derate at 4.6 mA/°C Above T _{EC} = + 110 °C)	I _O	300	mA	
Breakdown Voltage:	1N6638US	V _{BR}	150	V
	1N6642US		100	
	1N6643US		75	
Working Peak Reverse Voltage:	1N6638US	V _{RWM}	125	V
	1N6642US		75	
	1N6643US		50	


NOTES: 1. T_A = +75 °C on printed circuit board (PCB), PCB = FR4 - .0625 inch (1.59 mm) 1-layer 1-Oz Cu, horizontal, in still air; pads for US = .061 inch (1.55 mm) x .105 inch (2.67 mm); R_{θJA} with a defined PCB thermal resistance condition included, is measured at I_O = 300 mA.



"D" SQ-MELF (D-5D) Package

Also available in:

"D" Package
(axial-leaded)

 [1N6638 42 43](#)

MSC – Lawrence

6 Lake Street,
Lawrence, MA 01841
1-800-446-1158
Tel: (978) 620-2600
Fax: (978) 689-0803

MSC – Ireland

Gort Road Business Park,
Ennis, Co. Clare, Ireland
Tel: +353 (0) 65 6840044
Fax: +353 (0) 65 6822298

Website:

www.microsemi.com

MECHANICAL and PACKAGING

- CASE: Voidless hermetically sealed hard glass.
- TERMINALS: Tin-Lead plate with >3% Lead. Solder dip is available upon request.
- MARKING: Body painted and alpha numeric.
- POLARITY: Cathode indicated by band.
- Tape & Reel option: Standard per EIA-481-1-A with 12 mm tape. Consult factory for quantities.
- See [Package Dimensions](#) on last page.

PART NOMENCLATURE

JAN 1N6638 US (e3)

Reliability Level

JAN = JAN Level
 JANTX = JANTX Level
 JANTXV = JANTXV Level
 JANS = JANS Level
 Blank = commercial

JEDEC type number

See [Electrical Characteristics](#) table

RoHS Compliance

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

Surface Mount Package
SYMBOLS & DEFINITIONS

Symbol	Definition
V_{BR}	Minimum Breakdown Voltage: The minimum 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.
V_F	Maximum Forward Voltage: The maximum forward voltage the device will exhibit at a specified current.
I_R	Maximum Reverse Current: The maximum reverse (leakage) current that will flow at the specified voltage and temperature.
C	Capacitance: The capacitance in pF at a frequency of 1 MHz and specified voltage.
t_{rr}	Reverse Recovery Time: The time interval between the instant the current passes through zero when changing from the forward direction to the reverse direction and a specified recovery decay point after a peak reverse current is reached.

ELECTRICAL CHARACTERISTICS @ 25°C unless otherwise noted.

TYPE NUMBER	MAXIMUM FORWARD VOLTAGE $V_F @ I_F$		MAXIMUM DC REVERSE CURRENT				REVERSE RECOVERY TIME t_{rr} (Note 1)	MAXIMUM FORWARD RECOVERY VOLTAGE AND TIME $I_F=200mA, t_r=1ns$		MAXIMUM JUNCTION CAPACITANCE $f = 1 MHz$ $V_{sig} = 50 mV$ (p-p)	
			I_{R1}	I_{R2}	I_{R3}	I_{R4}		V_{FRM}	t_{fr}	$V_R=0 V$	$V_R=1.5 V$
			$V_R=20 V$	$V_R=V_{RWM}$	$V_R=20 V$ $T_A=+150 ^\circ C$	$V_R=V_{RWM}$ $T_A=+150 ^\circ C$					
	V @ mA	V @ mA	nA	nA	μA	μA	ns	V	ns	pf	pf
1N6638US	0.8 V @ 10 mA	1.1 V @ 200 mA	35	500	50	100	4.5	5.0	20	2.5	2.0
1N6642US	0.8 V @ 10 mA	1.2 V @ 100 mA	25	500	50	100	5.0	5.0	20	5.0	2.8
1N6643US	0.8 V @ 10 mA	1.2 V @ 100 mA	50	500	75	100	6.0	5.0	20	5.0	2.8

NOTE: 1. Reverse Recovery Time Test Conditions – $I_F=I_R=10 mA$, $I_{R(REC)} = 1.0 mA$, $C=3 pF$, $R_L = 100 ohms$.

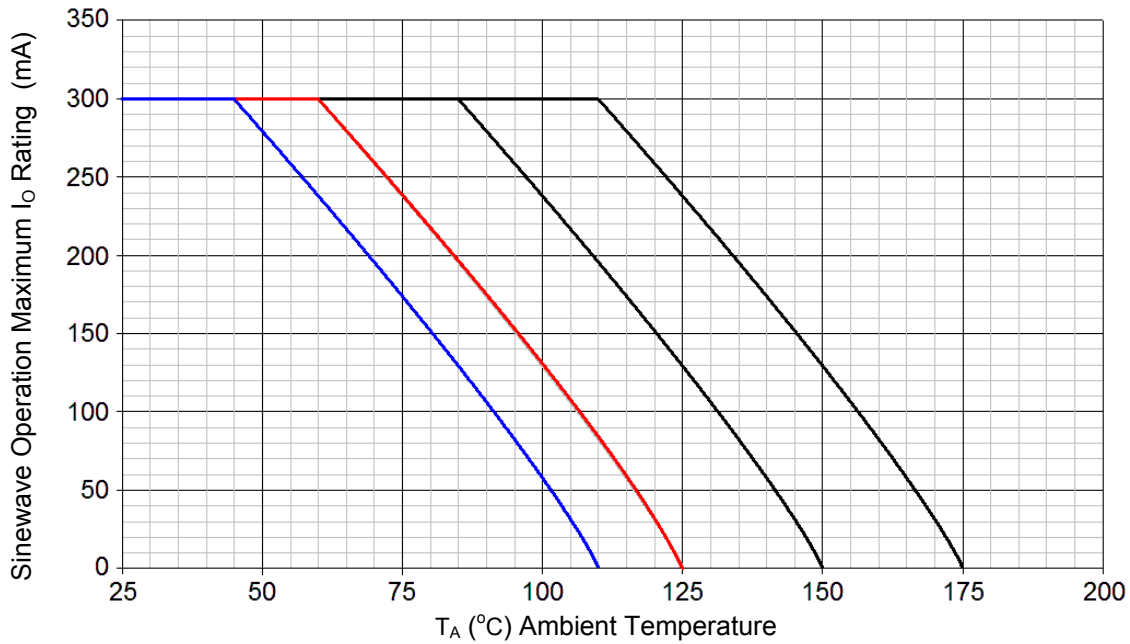
GRAPHS


FIGURE 1
Temperature - Current Derating

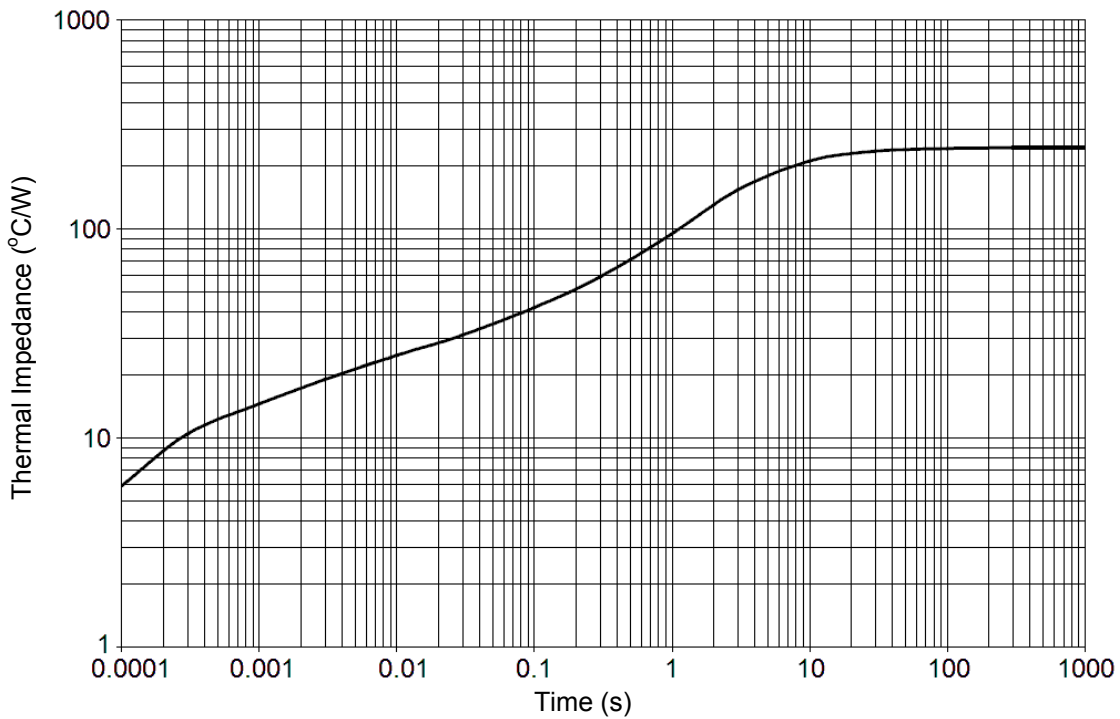


FIGURE 2
Maximum Thermal Impedance at T_A = 55 °C

GRAPHS (continued)

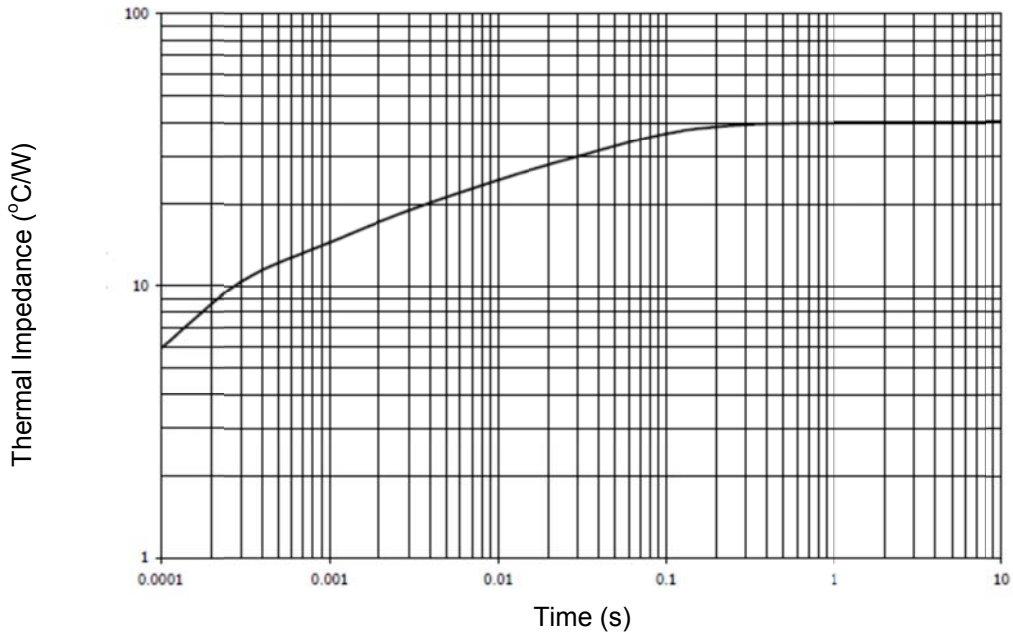
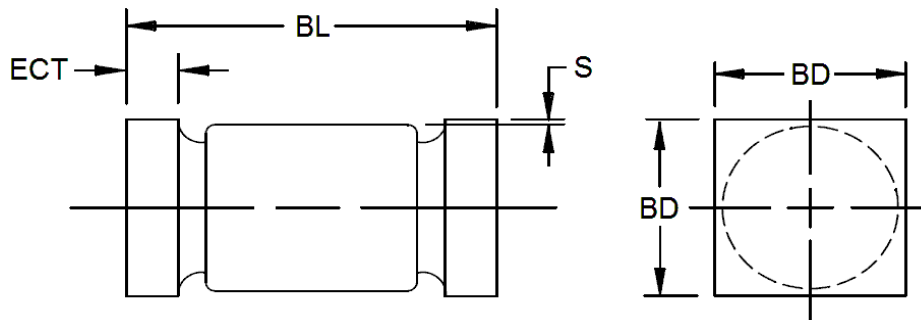


FIGURE 3
Maximum Thermal Impedance at $T_{EC} = 25\text{ }^{\circ}\text{C}$

PACKAGE DIMENSIONS
D-5D


DIM	INCH		MILLIMETERS	
	MIN	MAX	MIN	MAX
BD	0.070	0.085	1.78	2.16
ECT	0.019	0.028	0.48	0.71
BL	0.165	0.195	4.19	4.95
S	0.003 MIN.		0.08 MIN.	

NOTES:

1. Dimensions are in inches. Millimeters are given for general information only.
2. Dimensions are pre-solder dip.
3. U-suffix parts are structurally identical to the US-suffix parts.
4. In accordance with ASME Y14.5M, diameters are equivalent to Φ x symbology.