COMPUTER DIODE SWITCHING, UNIBOND SERIES

1N6638, JTX, JTXV 1N6638U, JTX, JTXV
1N6642, JTX, JTXV 1N6642U, JTX, JTXV
1N6643, JTX, JTXV 1N6643U, JTX, JTXV

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FEATURES

- Metallurgical Bond
- Qualified to MIL-S-19500/578
- Planar Passivated Chip
- Available in MELF Configuration
- Thermally Matched Construction
- Non-Cavity Design

DESCRIPTION

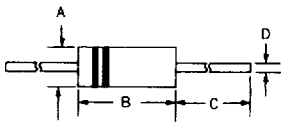
This specification details the capabilities of a superior mechanically rugged diode. Designed to replace silver button 1N4148-1 and 1N4150-1 small signal diodes used in harsh environments such as coated, potted or multilayer circuit board applications.

ABSOLUTE MAXIMUM RATINGS, AT 25°C

	1N6638	1N6642	1N6643
Peak Reverse Voltage	150V	100V	75V
Reverse Working Voltage	125V	75V	50V
Average Rectified Current	300mAdc	300mAdc	300mAdc
Surge Current, 8.3ms	2.5A	2.5A	2.5A
Operating Temperature Range	−65°C to +200°C		
Storage Temperature Range	−65°C to +200°C		
Power Dissipation @ T_A = 25°C with $R_{\theta LA}$ @ ℓ = ⅜ inches, 100°C/W	750mW		
Power Derating Factor	4.25mW/°C		
Thermal Resistance, Junction to Lead, ⅜ inch	120°C/W		

MECHANICAL SPECIFICATIONS

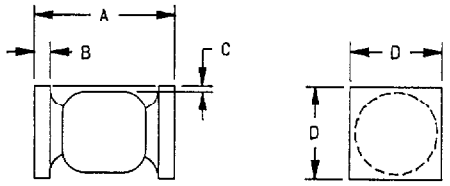
1N6638, 1N6642, 1N6643



	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.056	.075	1.42	1.91
B	.140	.180	3.56	4.57
C	1.0	1.5	25.4	38.10
D	.018	.022	.46	.56

DO-35

1N6638U, 1N6642U, 1N6643U



	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.165	.195	4.19	4.95
B	.019	.028	0.48	0.71
C	.003	—	0.08	—
D	.070	.085	1.78	2.16

Microsemi Corp.
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The diode experts

ELECTRICAL SPECIFICATIONS (at 25°C unless noted)

Type*	Maximum Reverse Current				Minimum Breakdown Voltage @100μA	Maximum Forward Voltage		
	@ V_R as noted		at 150°C			@ I_F (pulsed) noted		at 150°C
1N6638	25nA @ 20Vdc	0.5μA @ 125Vdc	40μA @20V	100μA @ 125Vdc	150V_{pk}	0.8Vdc @ 10mA	1.1Vdc @ 200mA	0.65Vdc @10mA
1N6642	25nA @ 20Vdc	0.5μA @ 75Vdc	50μA @ 20Vdc	100μA @ 75Vdc	100V_{pk}	1.0Vdc @ 10mA	1.2Vdc @ 100mA	0.8Vdc @ 10mA
1N6643	50nA @ 20Vdc	0.5μA @ 50Vdc	75μA @20Vdc	160μA @ 50Vdc	75V_{pk}	1.0Vdc @ 10mA	1.2Vdc @ 100mA	—

ELECTRICAL SPECIFICATIONS (at 25°C unless noted)

Type*	Maximum Forward Voltage @ −55°C	Maximum Capacitance @ 1MHz with V_{sig} = 50mV (pk-pk)	Maximum Forward Recovery Voltage and Time (@ I_F = 50 with I_F = 50mA, t_r = 1ns)		Maximum Reverse Recovery Time (@ I_F = I_R = 10mA, I_{REC} = 1mA)
1N6638	1.2Vdc @ 200mA	2pf @ V_R = 0 1.4pf @ V_R = 1.4Vdc	5.0V_{pk}	20ns	4.5ns
1N6642	1.2Vdc @ 100mA	5.0pf @ V_R = 0 2.8pf @ V_R = 1.4Vdc	5.0V_{pk}	20ns	5.0ns
1N6643	1.4Vdc @ 100mA	5.0pf @ V_R = 0 2.8pf @ V_R = 1.4Vdc	5.0V_{pk}	20ns	6.0ns

*Military U-suffix (surface mount) types have the same specifications.

MECHANICAL INTEGRITY:

These devices have been specifically designed to eliminate intermittent opens over the entire operating temperature range which might result from thermal or mechanical stress.

Intended to replace 1N4148-1 and 1N4150-1 types in harsh environments, these devices have a unique die and package design. The die is manufactured using a process that provides anode contact over the complete pin diameter and equal to the cathode contact area.

The terminal pins, silicon die and glass are thermally matched. The passivated die is sealed in a non-cavity glass body.

This device is capable of passing the most severe mechanical tests of MIL-STD-750 including monitored lead pull, mission profile testing and a hard potting environment.

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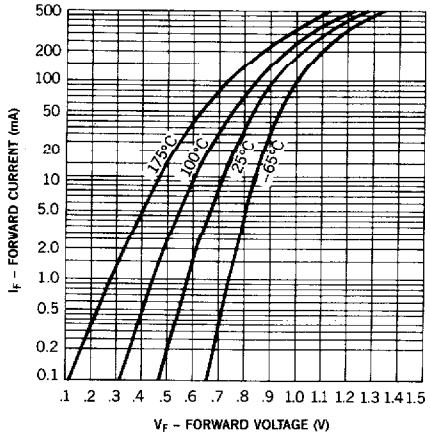
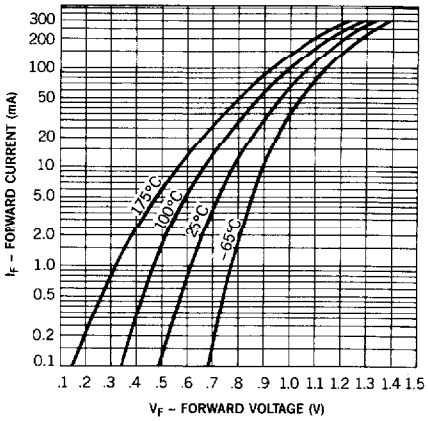
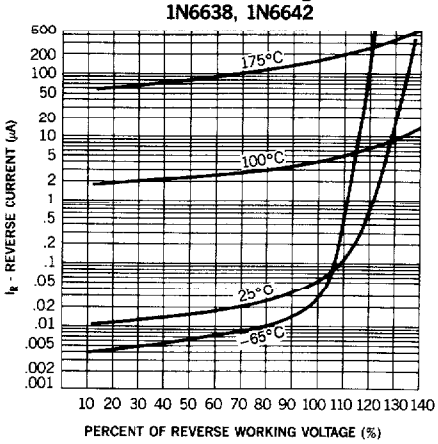
Typical Forward Current vs Forward Voltage 1N6638



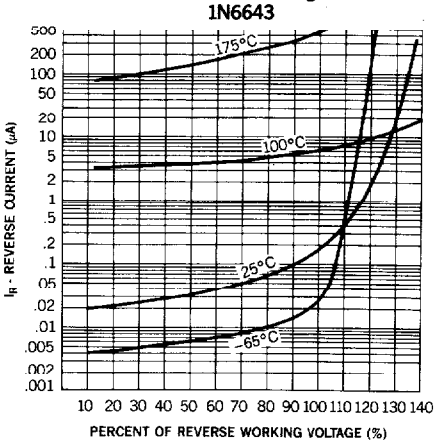
Typical Forward Current vs Forward Voltage 1N6642, 1N6643



Typical Reverse Current vs Reverse Voltage 1N6638, 1N6642



Typical Reverse Current vs Reverse Voltage 1N6643



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