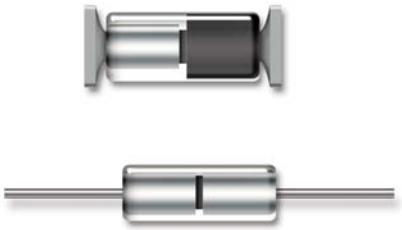
Switching Diodes 1N6638 Series

1N6638, 1N6639, 1N6640, 1N6641, 1N6642, 1N6643, 1N6638U & US, 1N6639U & US, 1N6640U & US, 1N6641U & US 1N6642U & US, 1N6643U & US

AEROFLEX
A passion for performance.

Features

- Available in JAN, JANS, JANTX, JANTXV per MIL-PRF-19500/578 & /609
- Switching Diodes
- Non-Cavity Glass Plackage
- Category I Metallurgically Bonded



Maximum Ratings

Operating Temperature: -65°C to +175°C

Storage Temperature: -65°C to +175°C

Operating Current: 300mA

Derating: See Figure 5

Surge Current: I_{FSM} = 2.5A, half sine wave, P_W = 8.3ms

Thermal Resistance:

($R_{\Theta JEC}$): U & US 40 °C/W maximum at L = 0" See Figure 6

($R_{\Theta JL}$): Leaded 150 °C/W maximum at L = .375" See Figure 7

Thermal Impedance: ($Z_{\Theta JX}$): 25 °C/W maximum

Electrical Specifications @ TA = + 25 °C (Unless Otherwise Specified)

TYPES	V_{BR} @ I_R		V_{WRM}	V_{FR} / t_{fr} @ I_F = 200 mA		C_{T1} V_R=0 V	C_{T2} V_R=1.5 V	t_{rr} I_R = 10mA I_F = 10mA	I_{R1} V_R=V_{RWM} T_A = 150°C	I_{R2} V_R=20V T_A = 150°C	I_{R3} V_R=20V	I_{R4} V_R = V_{RWM}
	V(pk)	µA	V(pk)	V_{FR} V(pk)	t_{fr} ns	pF	pF	ns	nA dc	nA dc	µA dc	µA dc
1N6638, U & US	150	100	125	5.0	20	2.5	2.0	4.5	35	500	50	100
1N6639, U & US	100	10	75	5.0	10	2.5	-	4.0	-	100	-	90
1N6640, U & US	75	10	50	5.0	10	2.5	-	4.0	-	100	-	90
1N6641, U & US	75	10	50	5.0	10	3.0	-	5.0	-	100	-	90
1N6642, U & US	100	100	75	5.0	20	5.0	2.8	5.0	25	500	50	100
1N6643, U & US	75	100	50	5.0	20	5.0	2.8	6.0	50	500	75	100

TYPES	V_F @ I_F		V_{F2} @ I_F T_A = -55°C	I_F
	V dc (min)	V dc (max)	V dc (max)	mA (pulsed)
1N6638, U & US	- -	1.1 0.8	1.2 -	200 10
1N6639, U & US	-	1.2	1.3	500
1N6640, U & US	0.54 0.76 0.82 0.87	0.62 0.86 0.92 1.0	- - - 1.1	1 50 100 200
1N6641, U & US	-	1.1	1.2	200
1N6642, U & US	- -	0.8 1.2	- 1.2	10 100
1N6643, U & US	- -	0.8 1.2	- 1.4	10 100

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METELICS

Revision Date: 2/5/2013

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Outline Drawing

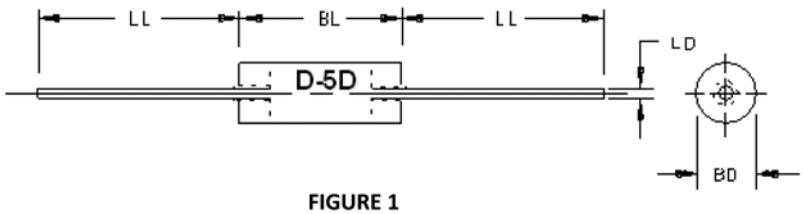


FIGURE 1

Symbol	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
BD	.056	.080	1.42	2.03	2
BL	.130	.180	3.30	4.57	
LD	.018	.022	.046	0.56	3
LL	1.00	1.50	25.40	38.10	

LEADED DESIGN DATA

CASE: D-5D, Hermetically sealed glass case, per MIL-PRF-19500/578 & /609

LEAD FINISH: Tin/Lead

LEAD MATERIAL: Copper clad steel

POLARITY: Cathode end is banded.

PACKAGE WEIGHT: 0.150g

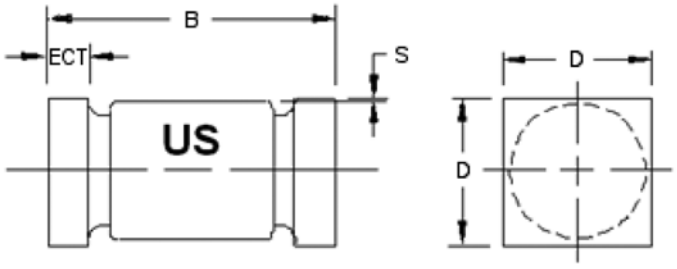


FIGURE 2

Symbol	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
D	.070	.085	1.78	2.16
B	.165	.195	4.19	4.95
ECT	.019	.028	.048	0.71
S	.003		0.08	

U & US DESIGN DATA

CASE: D-5D, Hermetically sealed glass case, per MIL-PRF-19500/578 & /609

LEAD FINISH: Tin/Lead

END CAP MATERIAL (U, US): Copper

POLARITY: Cathode end is banded.

PACKAGE WEIGHT: 0.095g

MOUNTING SURFACE SELECTION: The Axial Coefficient of Expansion (COE) of this device is approximately +4PPM/°C. The COE of the Mounting Surface System should be selected to provide a suitable match with this device.

NOTES:

1. Dimensions are in inches. Millimeters are given for general information only.
2. Dimension BD shall be measured at the largest diameter.
3. The specified lead diameter applies in the zone between .050 inch (1.27 mm) from the diode body to the end of the lead. Outside of this zone lead shall not exceed BD.
4. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.
5. U-suffix parts are structurally identical to the US-suffix parts.

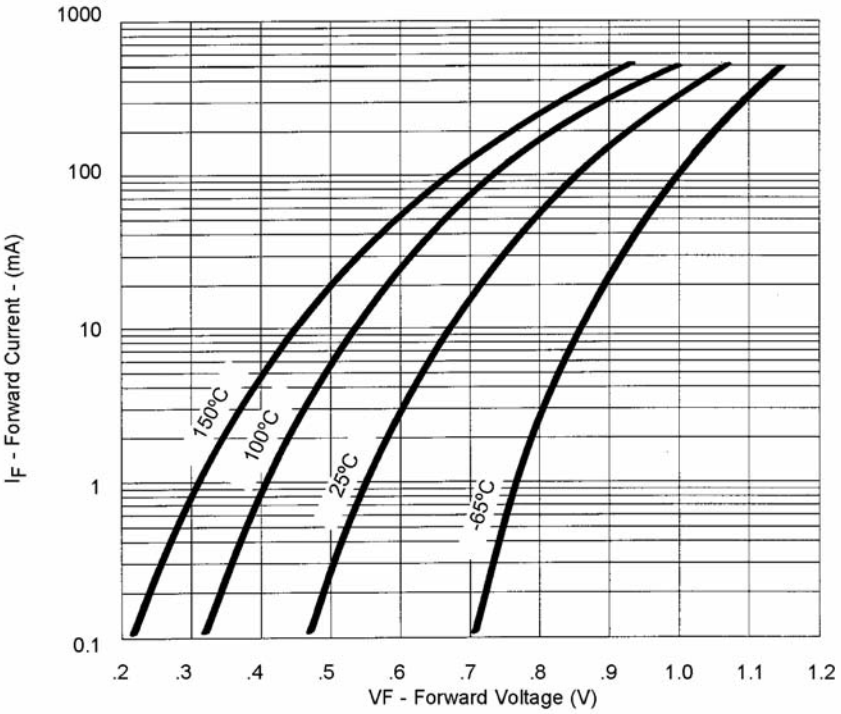


FIGURE 3
Typical Forward Current vs Forward Voltage

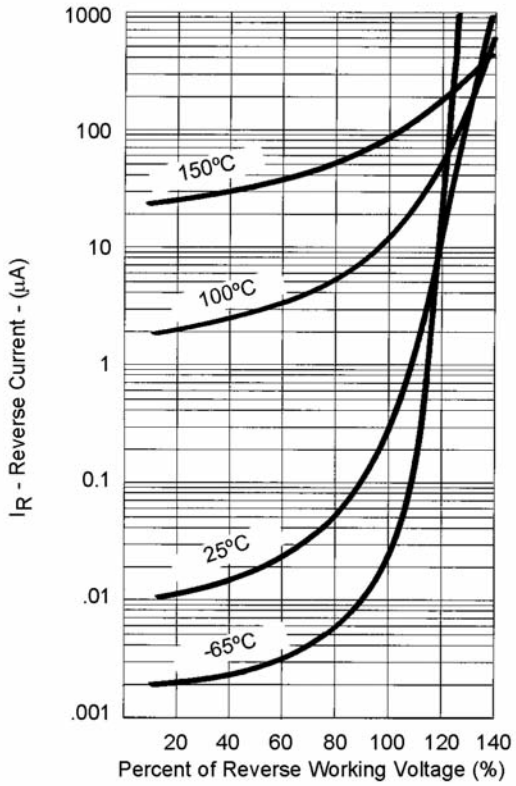
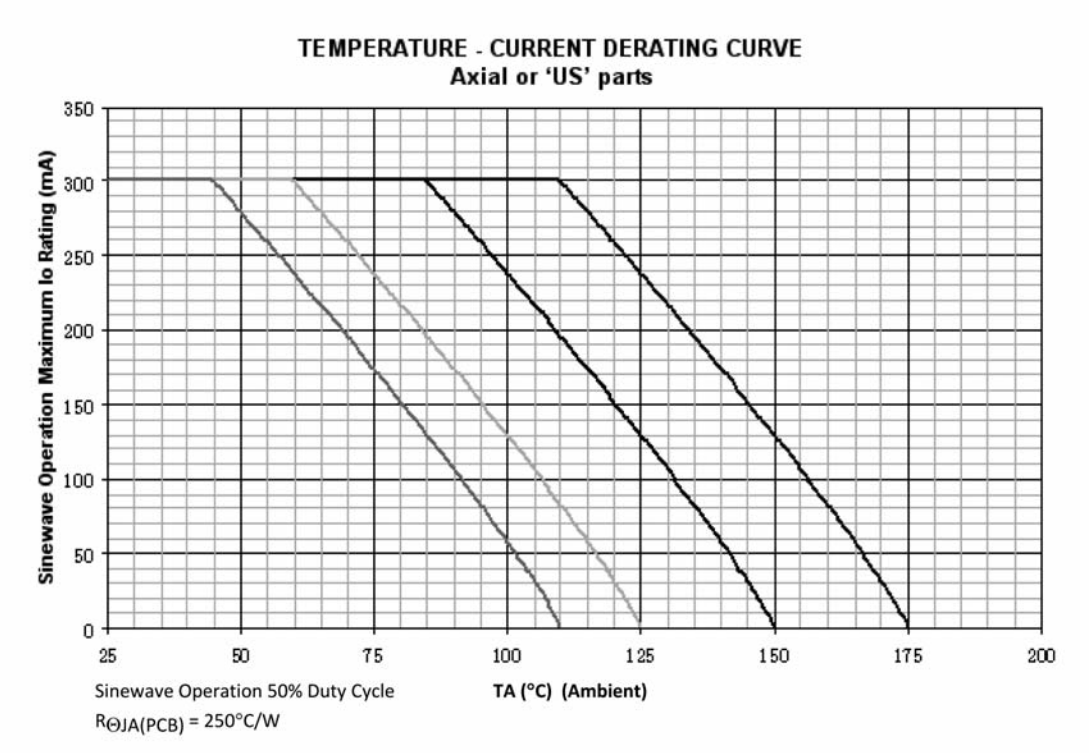


FIGURE 4
Typical Reverse Current vs Reverse Voltage

Note:
All temperatures shown on graphs are junction temperatures



NOTES:

1. All devices are capable of operating at ≤ TJ specified on this curve. Any parallel line to this curve will intersect the appropriate current for the desired maximum TJ allowed.
2. Derate design curve constrained by the maximum junction temperatures and current rating specified. (See 1.3.)
3. Derate design curve chosen at TJ ≤ 150°C, where the maximum temperature of electrical test is performed.
4. Derate design curves chosen at TJ ≤ 125°C, and 110°C to show current rating where most users want to limit TJ intheir application.

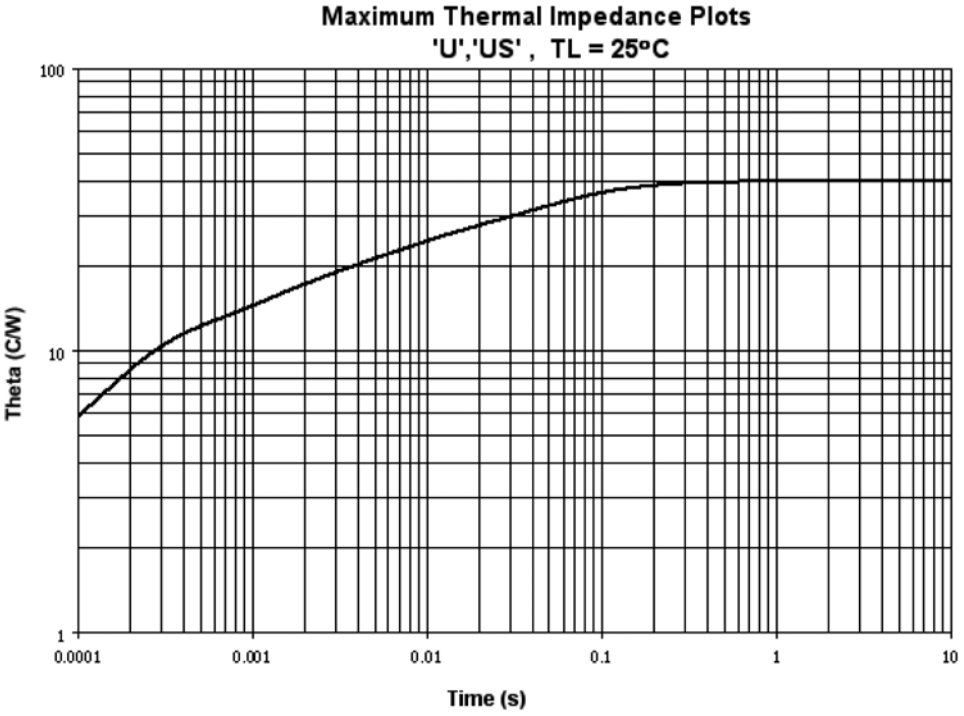


FIGURE 6. Thermal impedance – all U and US devices.

$R_{\Theta JL}$= 40°C/W

$Z_{\Theta JX}$ = 25°C/W maximum at t_H = 10ms

Lead spacing = .375 inch mounted to an infinite heat dissipater

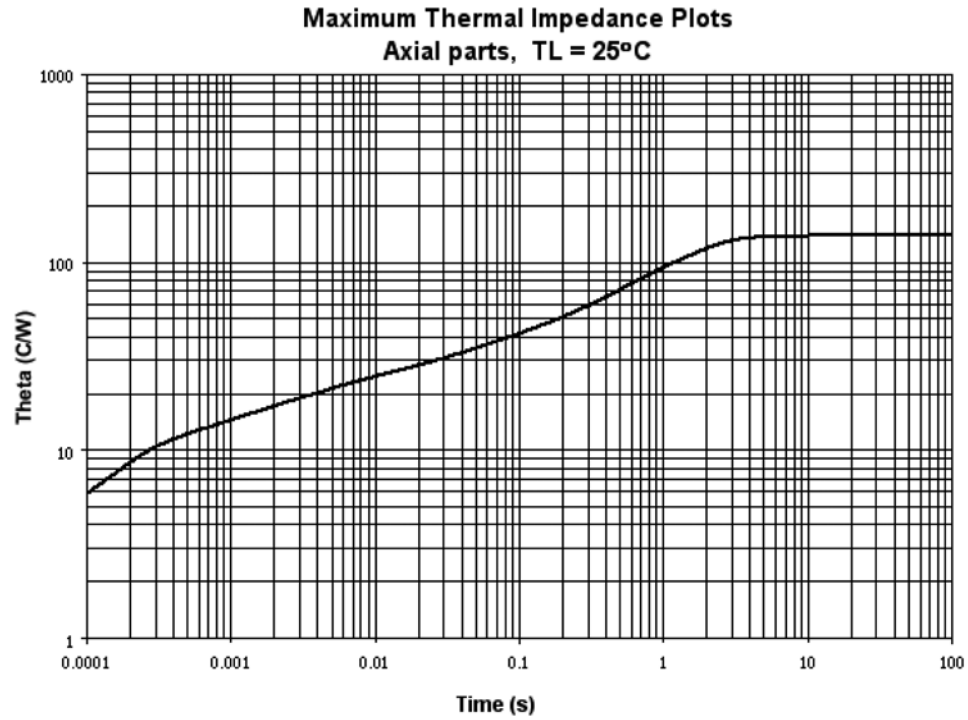


FIGURE 7. Thermal impedance (axial leads).

$R_{\Theta JL}$= 150°C/W

$Z_{\Theta JX}$ = 25°C/W maximum at t_H = 10ms

Lead spacing = 0 inch mounted to an infinite heat dissipater

Suggested Minimum Footprints

D-5D (D-BODY) U, US DIODES

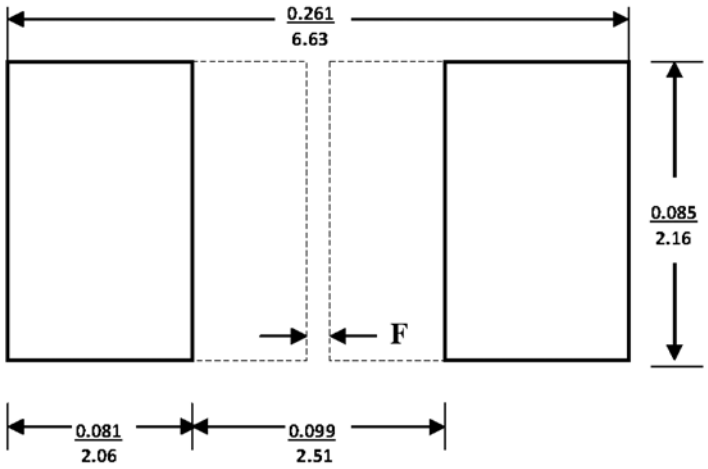


FIGURE 8

NOTES:

1. Dimensions are in inches / mm.
2. The dimensions listed will match the device terminals based on worst-case package outline drawings and assuming accuracy of device placements is within 0.005 inches. Footprints also provide for solder filets at the outer ends of the device at least as wide as the terminals.
3. F designates recommendation to fill unused area with an extended copper pad in order to reduce the CTE difference between the device and the PC board. The extended area may be3 coated with a solder mask. the width of F depends upon your PCB design rules.

Aeroflex / Metelics, Inc.

ISO 9001:2008 certified companies

975 Stewart Drive,
Sunnyvale, CA 94085
Tel: (408) 737-8181
Fax: (408) 733-7645

54 Grenier Field Road,
Londonderry, NH 03053
Tel: (603) 641-3800
Fax: (603)-641-3500

Sales: 888-641-SEMI (7364)

Hi-Rel Components
9 Hampshire Street,
Lawrence, MA 01840
Tel: (603) 641-3800
Fax: (978) 683-3264

www.aeroflex.com/MetelicsHRC

www.aeroflex.com/metelics ***metelics-sales@aeroflex.com***

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