



2 Amp To 4 Amp Standard Recovery Rectifiers

DESCRIPTION

High average power and surge capability make these series of devices attractive in many high-reliability applications. All Microsemi rectifiers have a sleeve of pure hard glass fused to the silicon junction. Since the silicon sees only this glass, electrical characteristics are permanently stable. This voidless, monolithic package is totally unaffected by the most severe moisture or temperature testing. Consult factory for surface mount option.

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

FEATURES

- Miniature voidless hermetically sealed glass package.
- Continuous current ratings up to 4 amps.
- Extremely robust construction.
- Internal "Category 1" metallurgical bonds.
- RoHS compliant versions available.

APPLICATIONS / BENEFITS

- Standard recovery 2 amp to 4 amp rectifier series with a V_{RWM} range from 50 to 600 V.
- Surge current rating to 100 amps.
- Low thermal resistance.
- Controlled avalanche breakdown with peak reverse power capability.
- Inherently radiation hard as described in Microsemi [MicroNote 050](#).

MAXIMUM RATINGS @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Parameters/Test Conditions	Symbol	Value	Unit
Junction Temperature	T_J	-65 to +175	$^\circ\text{C}$
Storage Temperature	T_{STG}	-65 to +200	$^\circ\text{C}$
Thermal Resistance Junction-to-Lead ⁽¹⁾	$R_{\theta JL}$	See Derating Curves	
Working Peak Reverse Voltage: 2 Amp 3 Amp 4 Amp			
UT2005, UT3005, UT4005	V_{RWM}	50	V
UT2010, UT3010, UT4010		100	
UT2020, UT3020, UT4020		200	
UT2040, UT3040, UT4040		400	
UT2060, UT3060, UT4060		600	
Forward Surge Current (Peak) @ 8.3 ms	I_{FSM}	60	A
2 Amp Series		80	
3 Amp Series		100	
Average Rectified Output Current @ $T_L = +25^\circ\text{C}$	I_{O1}	2.0	A
2 Amp Series		3.0	
3 Amp Series		4.0	
Average Rectified Output-Current @ $T_A = +100^\circ\text{C}$	I_{O2}	1.0	A
2 Amp Series		1.5	
3 Amp Series		2.0	
Solder Temperature @ 10 s	T_{SP}	260	$^\circ\text{C}$

NOTE: 1. At 0.375 inch (9.53 mm) lead length from body.



"B" Package

MSC – Lawrence

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

MSC – Ireland

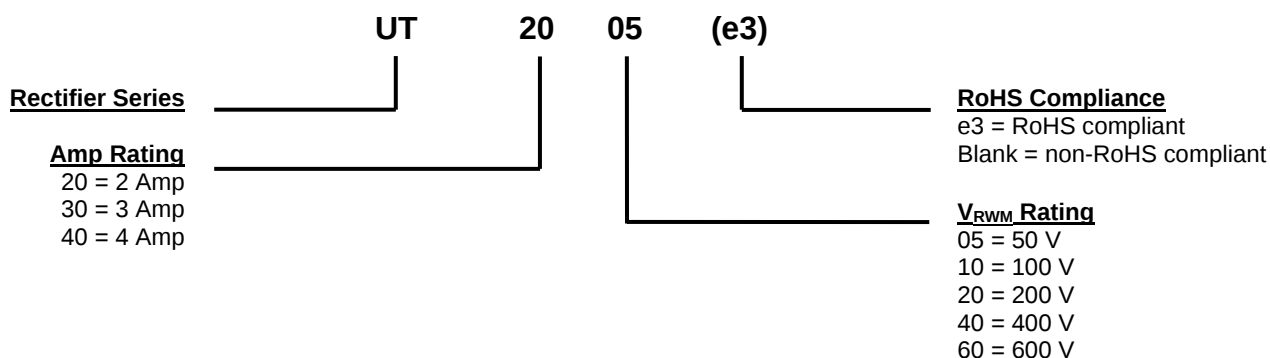
Gort Road Business Park,
Ennis, Co. Clare, Ireland
Tel: +353 (0) 65 6840044
Fax: +353 (0) 65 6822298

Website:

www.microsemi.com

MECHANICAL and PACKAGING

- CASE: Hermetically sealed voidless hard glass with tungsten slugs.
- TERMINALS: Tin/lead or RoHS compliant matte/tin over nickel plate over copper.
- MARKING: Orange band indicates “UT”, part number printed on body.
- POLARITY: Indicated by orange band.
- TAPE & REEL option: Standard per EIA-296. Consult factory for quantities.
- WEIGHT: 0.75 grams approximate.
- See [Package Dimensions](#) on last page.

PART NOMENCLATURE

SYMBOLS & DEFINITIONS

Symbol	Definition
I_F	Forward Current: The forward current dc value, no alternating component.
I_{FSM}	Maximum Forward Surge Current: The forward current, surge peak or rated forward surge current.
I_O	Average Rectified Output Current: Output current averaged over a full cycle with a 50 Hz or 60 Hz sine-wave input and a 180 degree conduction angle.
T_J	Junction Temperature: The temperature of a semiconductor junction.
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.

ELECTRICAL CHARACTERISTICS @ 25°C unless otherwise noted

	WORKING PEAK REVERSE VOLTAGE V_{RWM}	MAXIMUM FORWARD VOLTAGE DROP	MAXIMUM LEAKAGE CURRENT @ V_{RWM}	
TYPE	Volts	Volts	μA	
			25 °C	125 °C
UT4005 UT4010 UT4020 UT4040 UT4060	50 100 200 400 600	1 V @ 3 A	5	100
UT3005 UT3010 UT3020 UT3040 UT3060	50 100 200 400 600	1 V @ 2 A	5	100
UT2005 UT2010 UT2020 UT2040 UT2060	50 100 200 400 600	1 V @ 1 A	5	100

GRAPHS

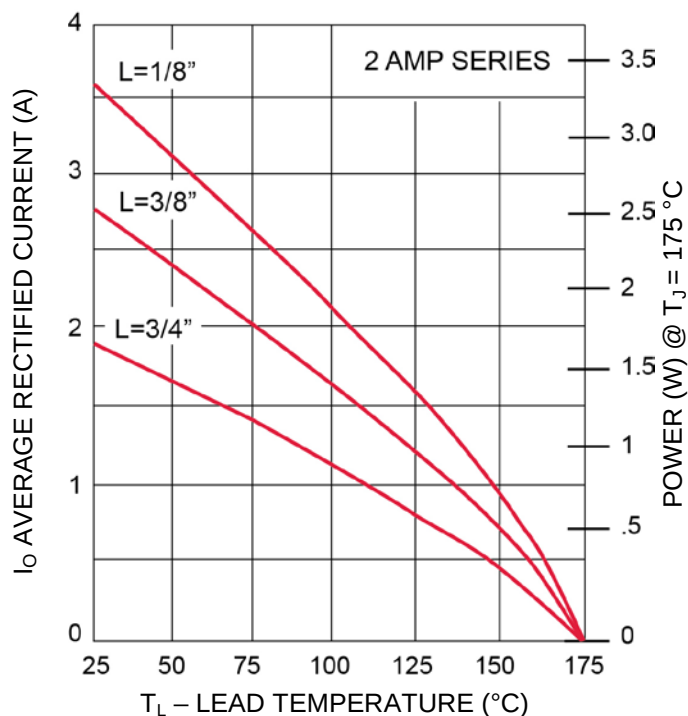


FIGURE 1
Maximum Current vs Lead Temperature

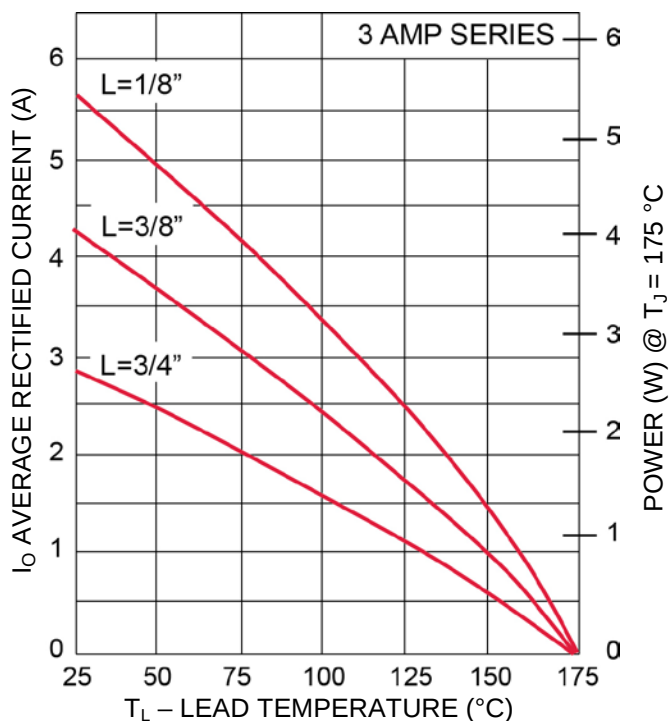


FIGURE 2
Maximum Current vs Lead Temperature

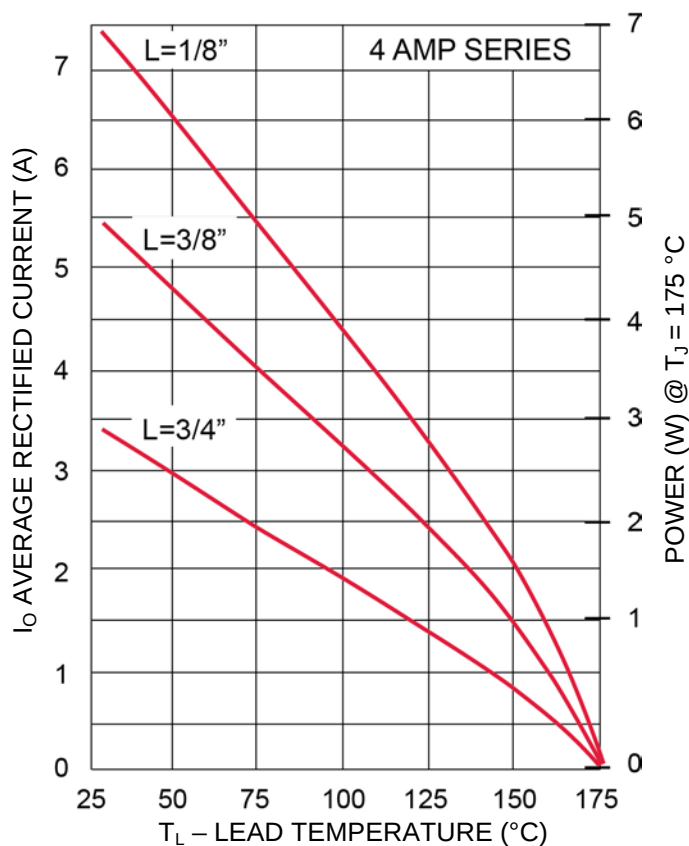
GRAPHS


FIGURE 3
Maximum Current vs Lead Temperature

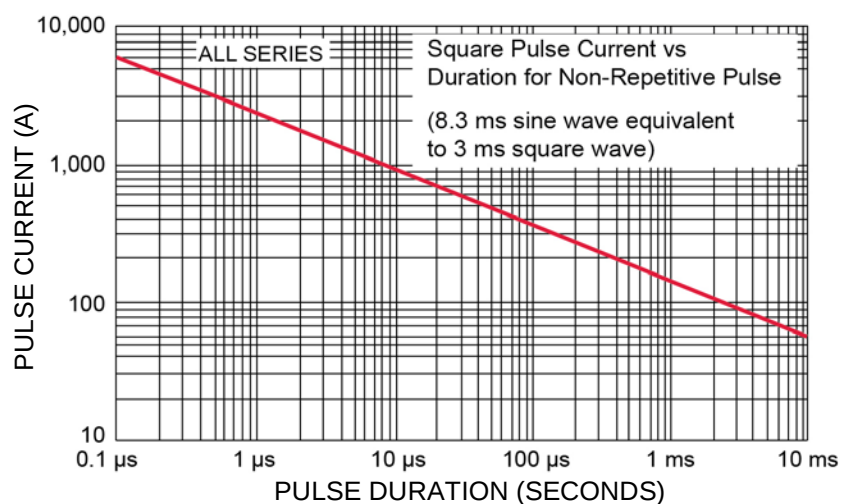


FIGURE 4
Forward Pulse Current vs Pulse Duration

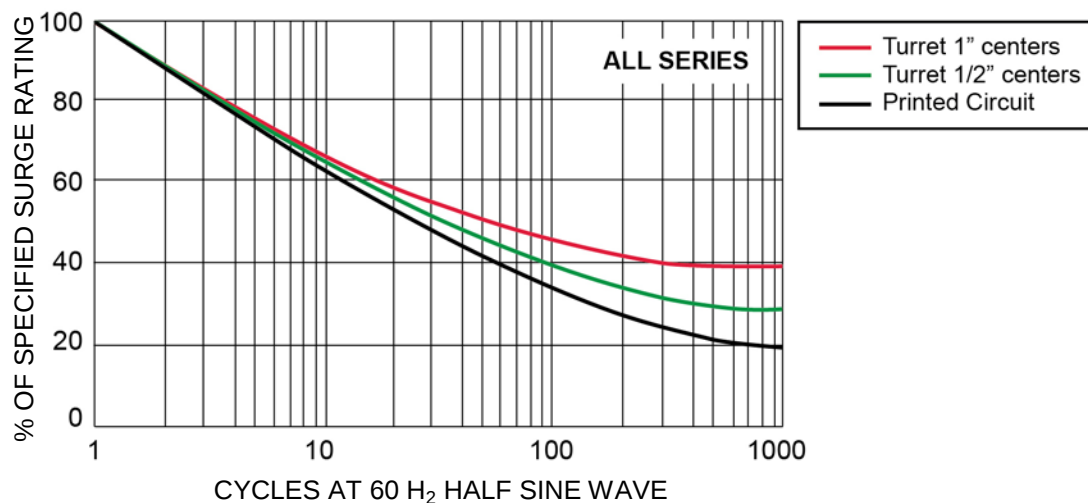
GRAPHS


FIGURE 5
Allowable Forward Surge vs Number of Cycles

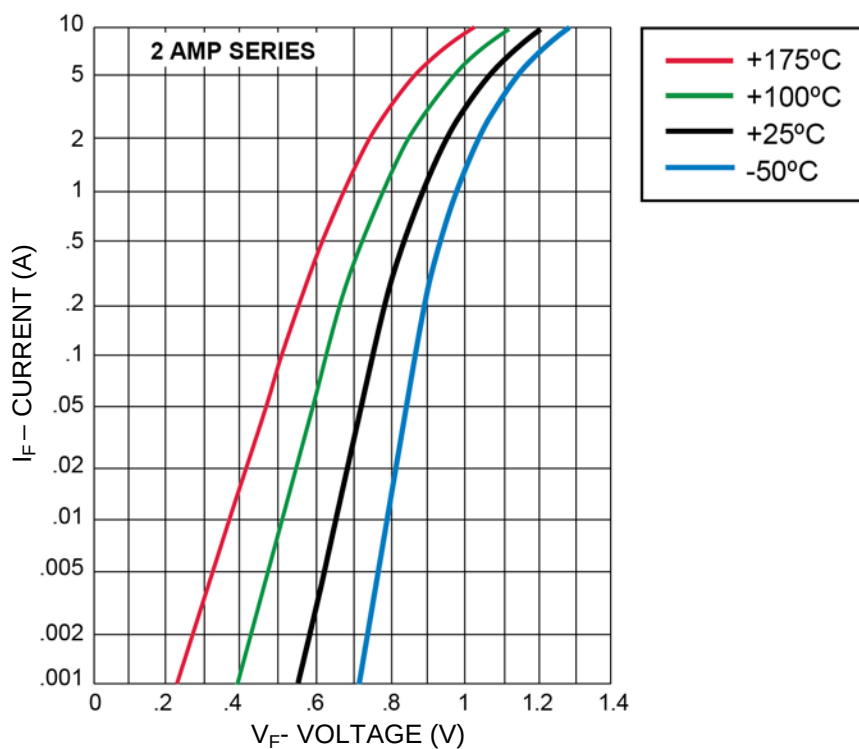


FIGURE 6
Typical Forward Current vs Forward Voltage

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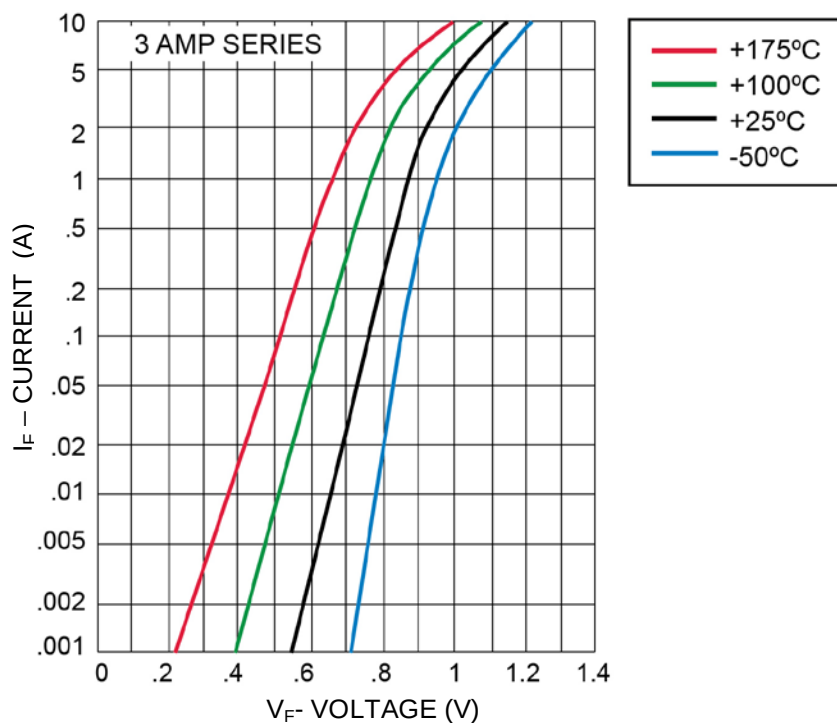


FIGURE 7
Typical Forward Current vs Forward Voltage

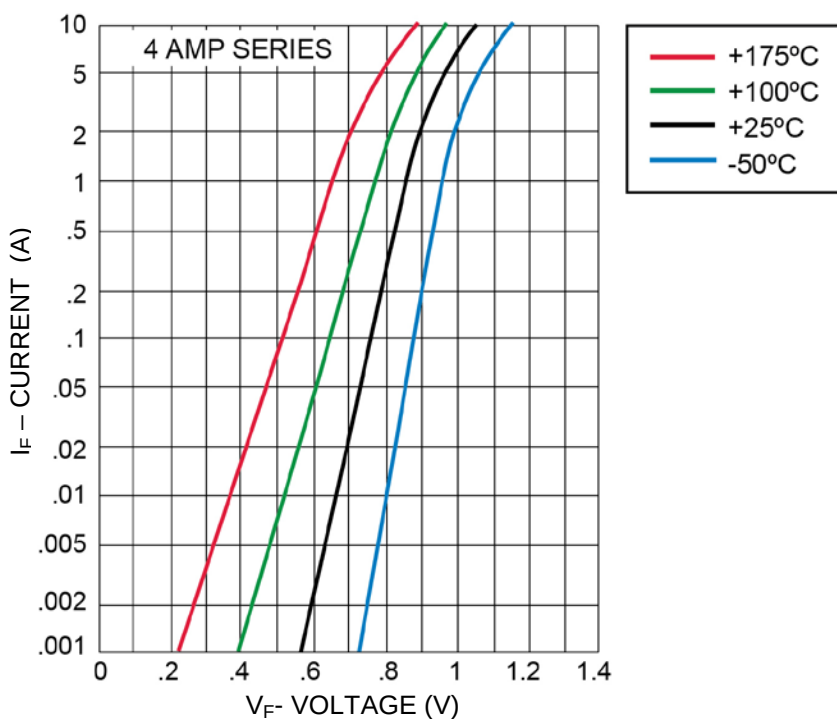
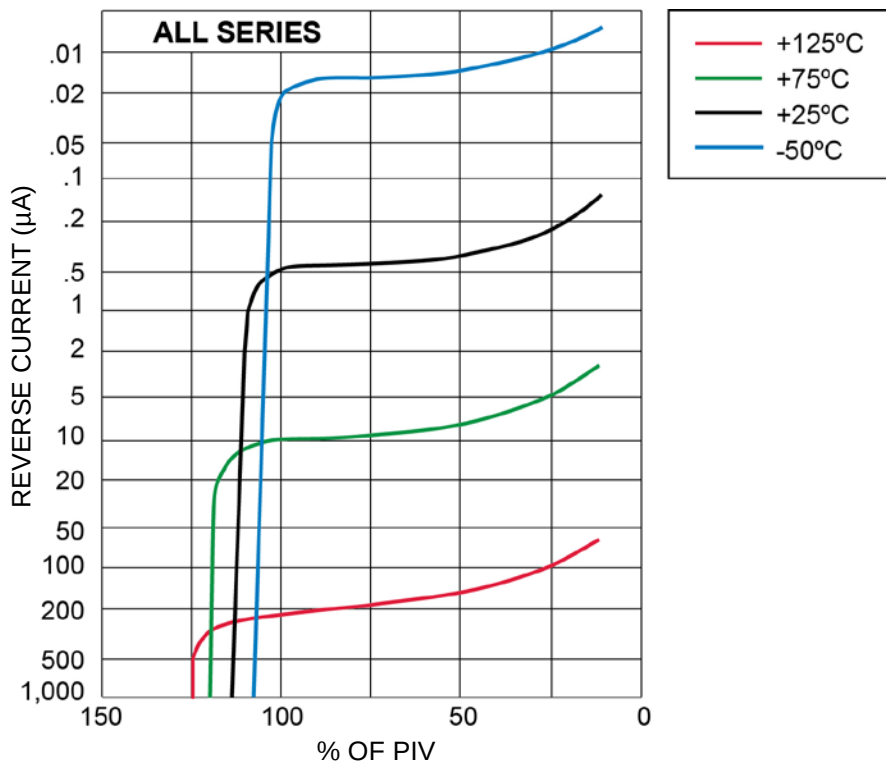
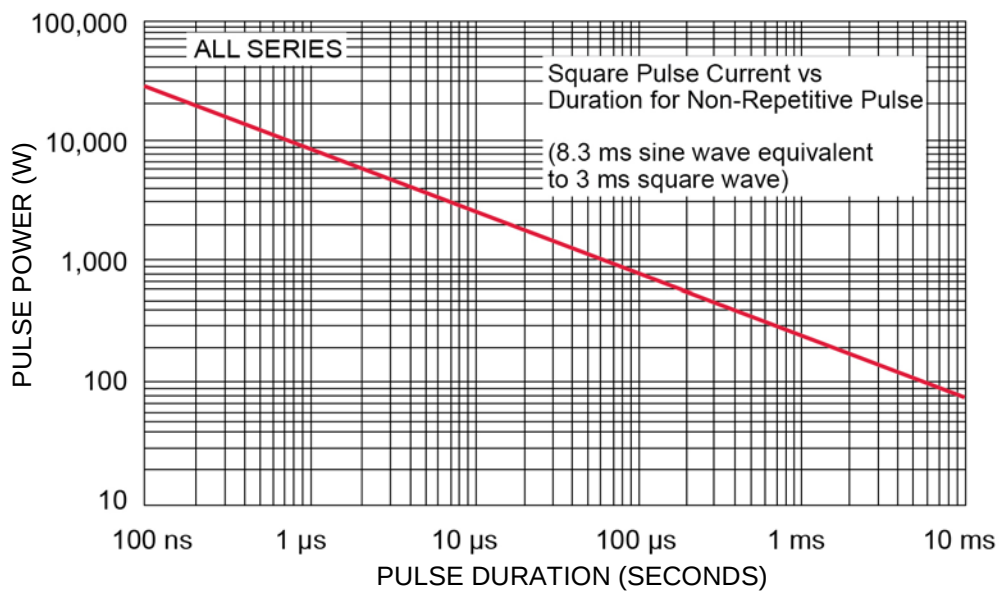


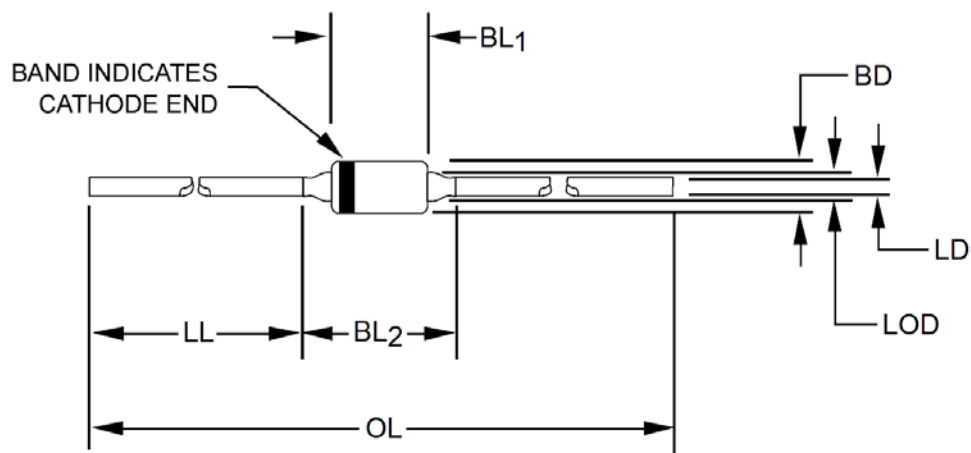
FIGURE 8
Typical Forward Current vs Forward Voltage

GRAPHS

FIGURE 9

Typical Reverse Current vs Working Peak Reverse Voltage


FIGURE 10

Reverse Pulse Power vs Pulse Duration

PACKAGE DIMENSIONS

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Dimension BL₂ shall include the entire body including slugs and sections of the lead over which the diameter is uncontrolled. This uncontrolled area is defined as the zone between the edge of the diode body and extending .050 inch (1.27 mm) onto the leads.
4. Dimension BD shall be measured at the largest diameter.
5. In accordance with ASME Y14.5M, diameters are equivalent to Φ x symbology.

Ltr	DIMENSIONS				Notes
	INCH		MILLIMETERS		
	Min	Max	Min	Max	
BD	0.115	0.145	2.92	3.68	4
BL ₁	.175 TYP		4.4 TYP		
BL ₂	0.150	0.300	3.81	7.62	3
LD	.039	.041	.99	1.05	3
LL	.975	--	24.8	--	
LOD	.115 TYP		2.9 TYP		
OL	2.30	--	58.4	--	