



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. Microsemi also offers numerous other rectifier products to meet higher and lower current ratings with various recovery time requirements including standard, fast and ultrafast device types in both through-hole and various surface mount packages.

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

FEATURES

- Miniature voidless hermetically sealed glass package.
- Continuous rating 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 rating to 100 amps.
- Low thermal resistance.
- Controlled avalanche 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	-195 to +175	$^\circ\text{C}$	
Storage Temperature	T_{STG}	-195 to +200	$^\circ\text{C}$	
Thermal Resistance Junction-to-Lead @ .375 in lead length from body	$R_{\theta JL}$	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	2 Amp Series 3 Amp Series 4 Amp Series	I_{FSM}	60 80 100	A
Average Rectified Output Current @ $T_L = +25^\circ\text{C}$	2 Amp Series 3 Amp Series 4 Amp Series	I_{O1}	2.0 3.0 4.0	A
Average Rectified Output-Current @ $T_A = +100^\circ\text{C}$	2 Amp Series 3 Amp Series 4 Amp Series	I_{O2}	1.0 1.5 2.0	A
Solder Temperature @ 10 s	T_{SP}	260	$^\circ\text{C}$	



B Package

MSC – Lawrence

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MSC – Ireland

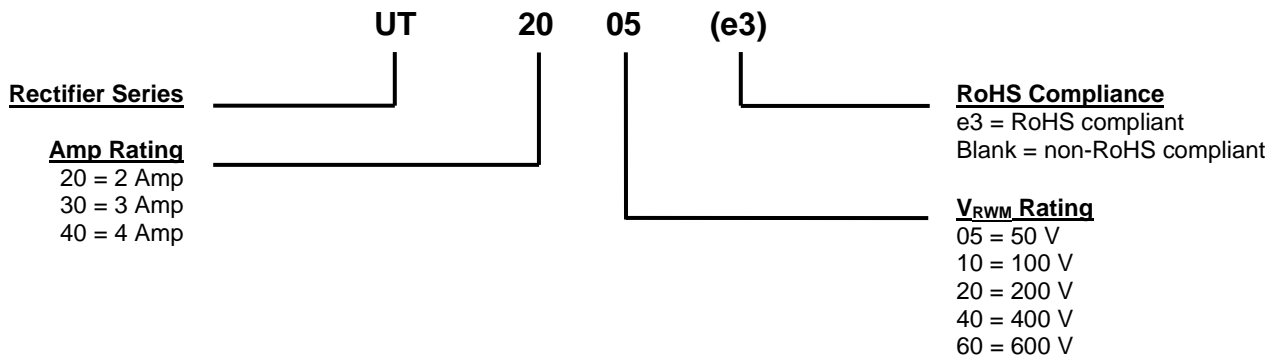
Gort Road Business Park,
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Fax: +353 (0) 65 6822298

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, typical.
- 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

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

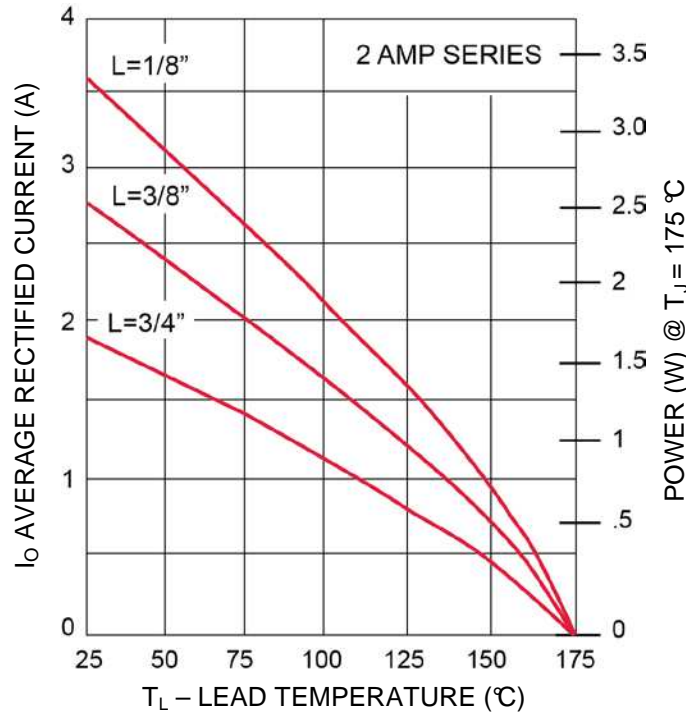
GRAPHS


FIGURE 1
Maximum Current vs Lead Temperature

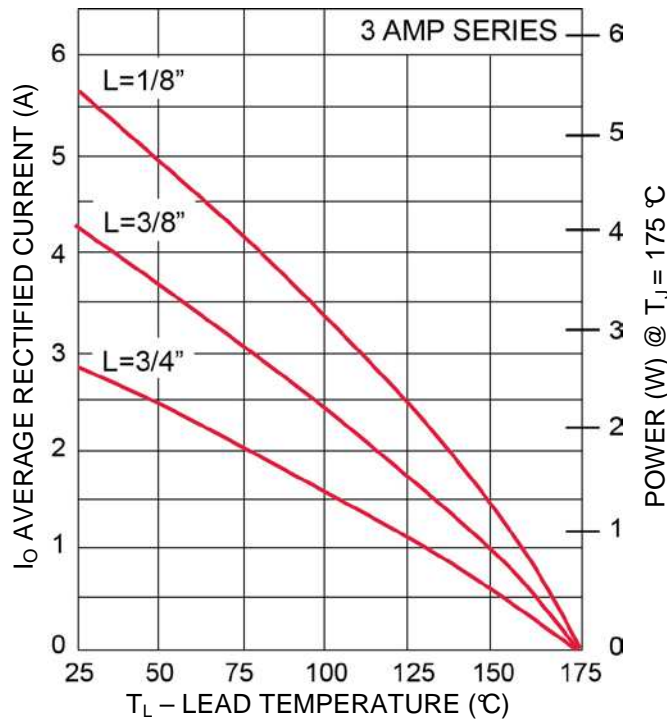


FIGURE 2
Maximum Current vs Lead Temperature

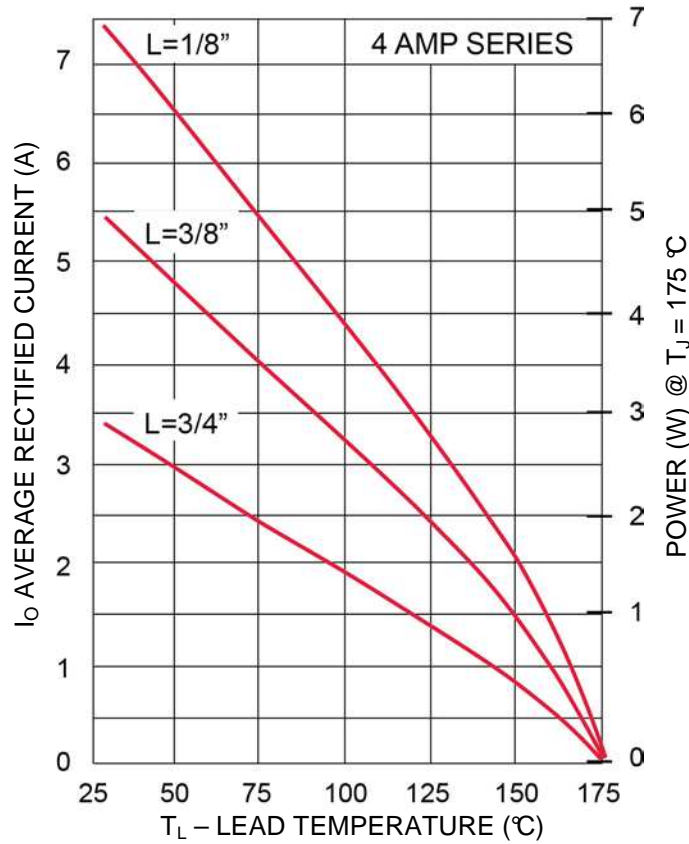
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FIGURE 3
Maximum Current vs Lead Temperature

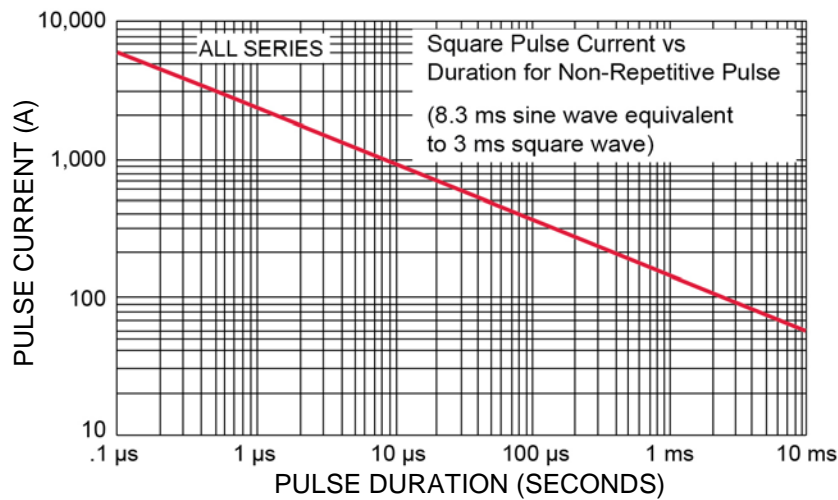


FIGURE 4
Forward Pulse Current vs Pulse Duration

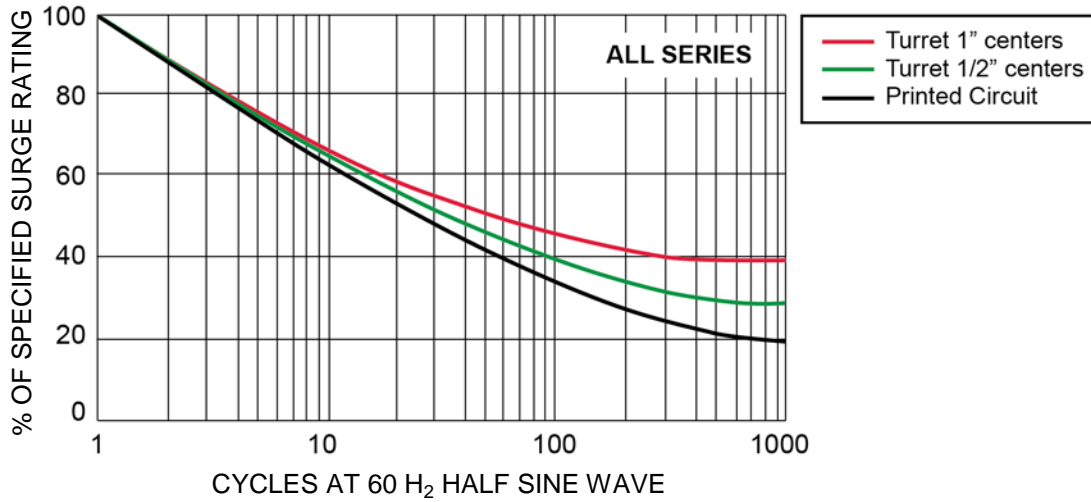
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FIGURE 5
Allowable Forward Surge vs Number of Cycles

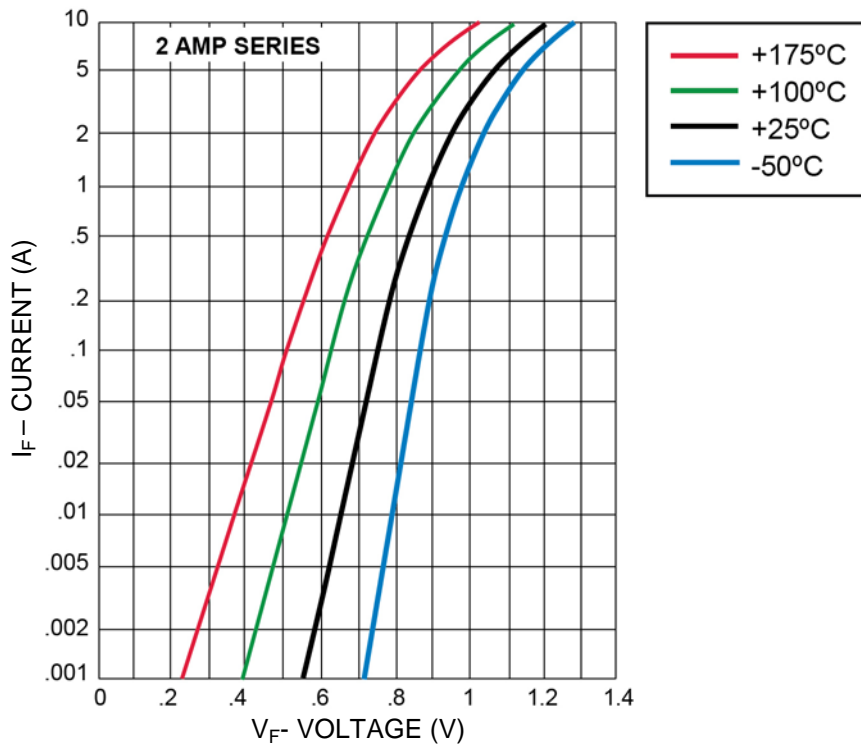


FIGURE 6
Typical Forward Current vs Forward Voltage

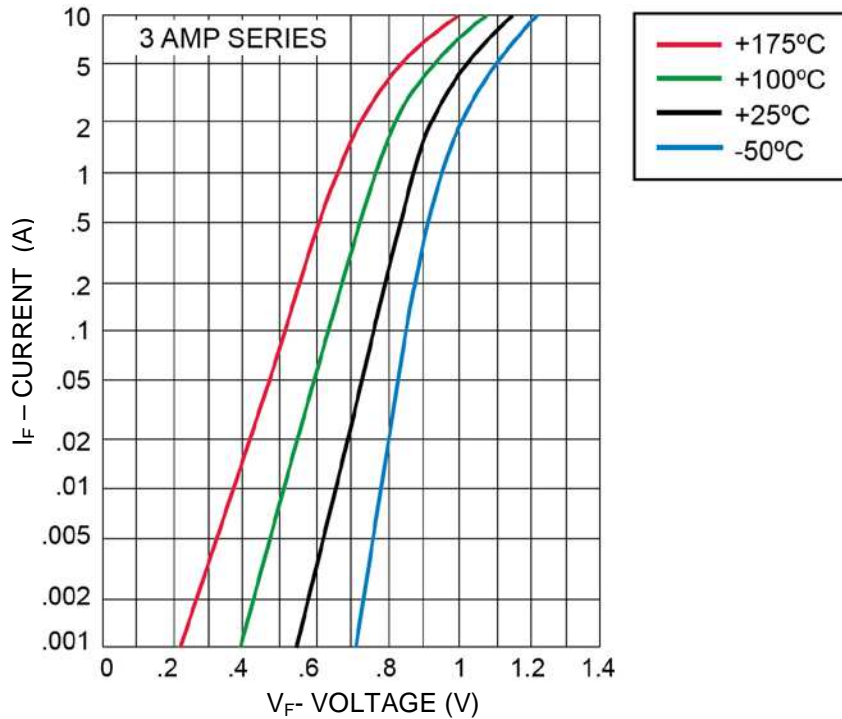
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FIGURE 7
Typical Forward Current vs Forward Voltage

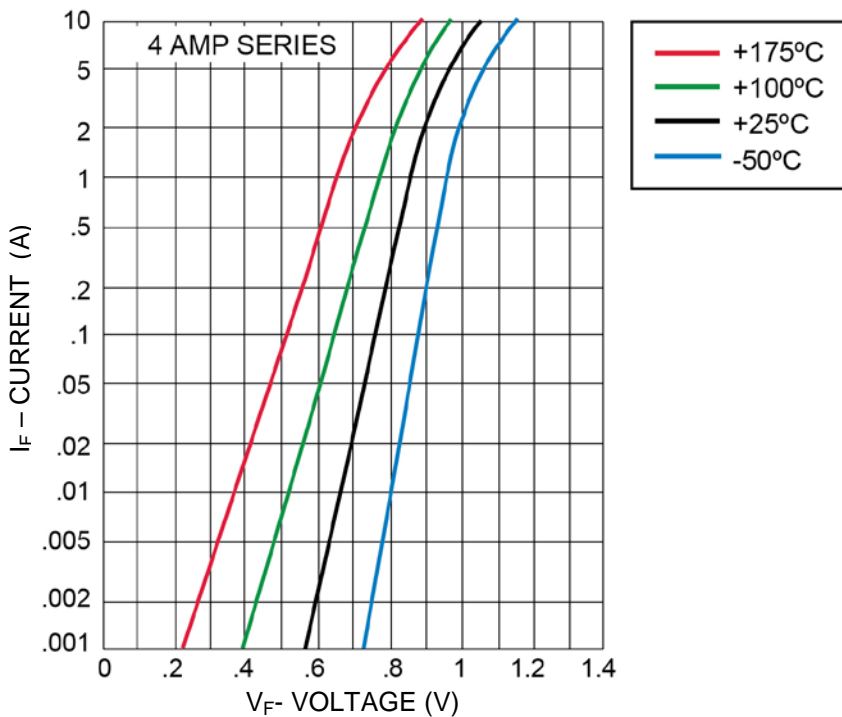


FIGURE 8
Typical Forward Current vs Forward Voltage

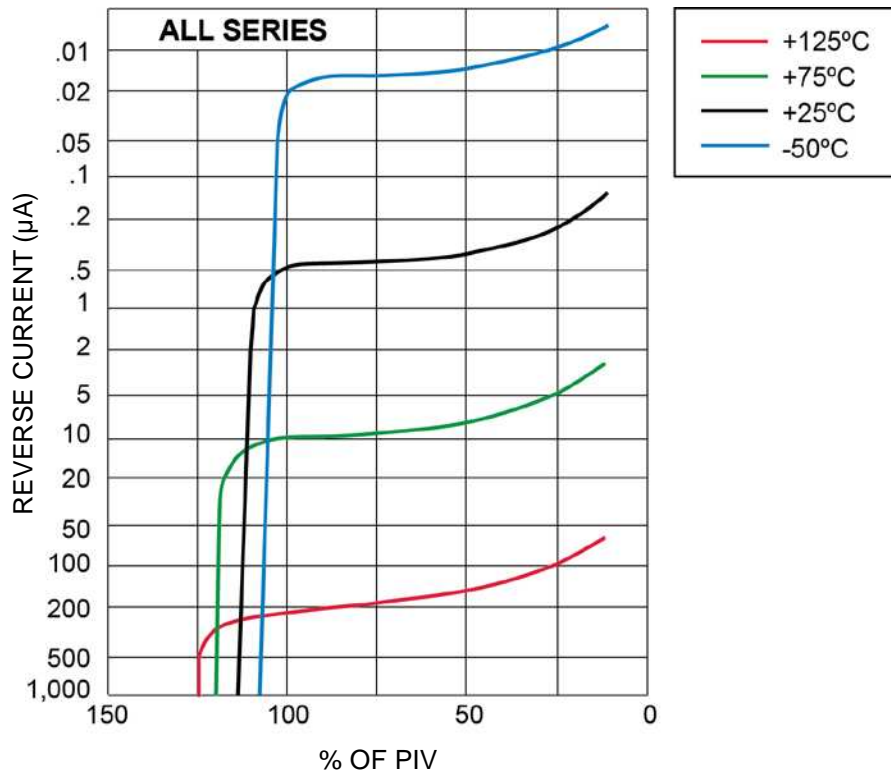
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FIGURE 9
Typical Reverse Current vs Working Peak Reverse Voltage

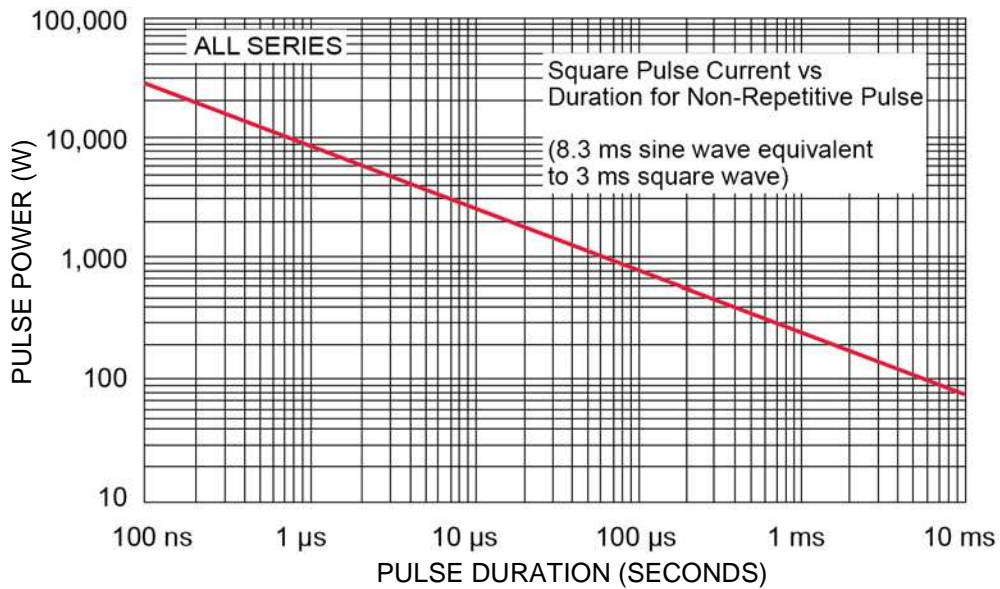
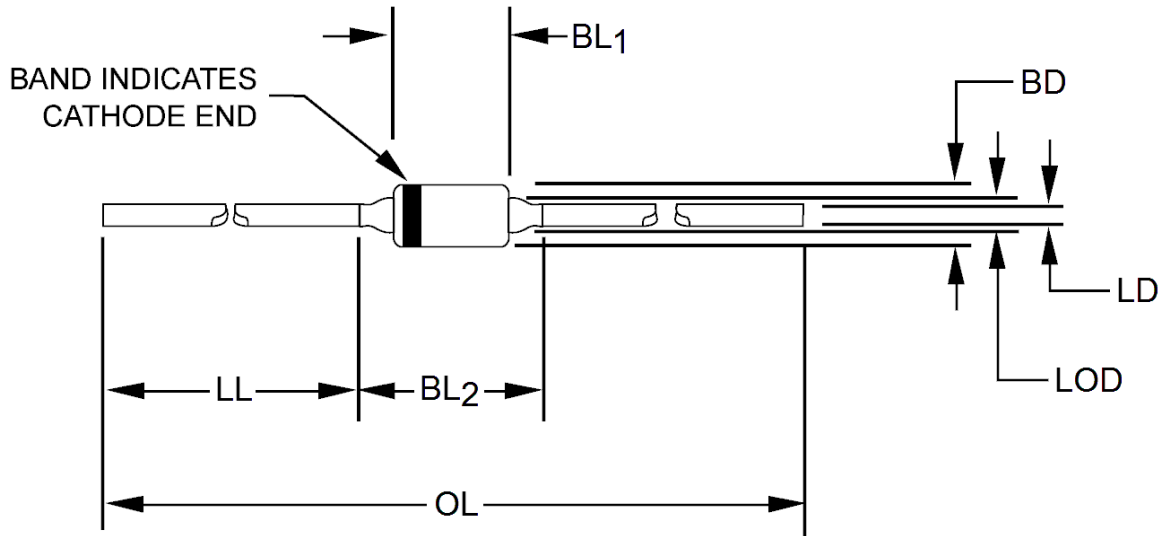


FIGURE 10
Reverse Pulse Power vs Pulse Duration

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
BL₁	.175 TYP		4.4 TYP		
BL₂	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	--	