

**VOIDLESS-HERMETICALLY-SEALED  
 STANDARD RECOVERY GLASS RECTIFIERS**  
*Qualified per MIL-PRF-19500/228*

**DEVICES**

**1N3611 thru 1N3613  
 \*1N3614 and 1N3957**

**LEVELS**

**JAN, JANTX  
 \* JAN, TX, TXV**

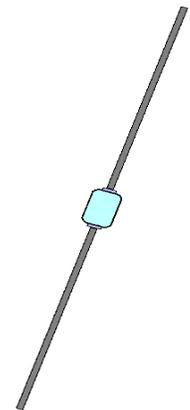
**DESCRIPTION**

This “standard recovery” rectifier diode series is military qualified to MIL-PRF-19500/228 and is ideal for high-reliability applications where a failure cannot be tolerated. These industry-recognized 1.0 Amp rated rectifiers for working peak reverse voltages from 200 to 1000 volts are hermetically sealed with voidless-glass construction using an internal “Category I” metallurgical bond. These devices are similar in ratings to the 1N5614 thru 1N5622 series where surface mount MELF package configurations are available by adding a “US” suffix (see separate data sheet for 1N5614US thru 1N5622US). Microsemi also offers numerous other rectifier products to meet higher and lower current ratings with various recovery time speed requirements including fast and ultrafast device types in both through-hole and surface mount packages.

**IMPORTANT:** For the most current data, consult *MICROSEMI’s* website:

<http://www.microsemi.com>

**“A” Package**



**FEATURES**

- Popular JEDEC registered 1N3611 thru 1N3614 and 1N3957 series
- Voidless hermetically sealed glass package
- Internal “*Category I*” Metallurgical bonds
- Working Peak Reverse Voltage 200 to 1000 Volts.
- JAN, JANTX, and JANTXV available per MIL-PRF-19500/286 (for JANS, see 1N5614-5622 series)
- Surface mount equivalents also available in a square end-cap MELF configuration with “US” suffix (also see 1N5614US thru 1N5622US)

## APPLICATIONS / BENEFITS

- Standard recovery 1 Amp rectifiers 200 to 1000 V
- Military and other high-reliability applications
- General rectifier applications including bridges, half-bridges, catch diodes, etc.
- High forward surge current capability
- Extremely robust construction
- Low thermal resistance
- Controlled avalanche with peak reverse power capability
- Inherently radiation hard as described in Microsemi MicroNote 050

## MAXIMUM RATINGS

- Junction & Storage Temperature:  $-65^{\circ}\text{C}$  to  $+175^{\circ}\text{C}$
- Thermal Resistance:  $38^{\circ}\text{C/W}$  junction to lead at 3/8 inch (10 mm) lead length from body
- Average Rectified Forward Current ( $I_{\text{O}}$ ): 1.0 Amps @  $T_{\text{A}} = 100^{\circ}\text{C}$  and 0.30 Amps at  $150^{\circ}\text{C}$
- Forward Surge Current: 30 Amps @ 8.3 ms half-sine
- Solder Temperatures:  $260^{\circ}\text{C}$  for 10 s (maximum)

## MECHANICAL AND PACKAGING

- CASE: Hermetically sealed voidless hard glass with Tungsten slugs
- TERMINATIONS: Axial leads are copper with Tin/Lead (Sn/Pb) finish
- MARKING: Body paint and part number, etc.
- POLARITY: Cathode band
- TAPE & REEL option: Standard per EIA-296
- WEIGHT: 500 mg (approx)
- See package dimensions on last page

## ELECTRICAL CHARACTERISTICS @ 30°C Case Temperature

TYPE	WORKING PEAK REVERSE VOLTAGE $V_{RWM}$	MINIMUM BREAKDOWN VOLTAGE $V_{BR}$ @ 100 $\mu$ A	AVERAGE RECTIFIED CURRENT (NOTE 2) $I_O$		MAXIMUM FORWARD VOLTAGE $V_F$ @ 1 A (PULSED)	MAXIMUM REVERSE CURRENT $I_R$ @ $V_{RWM}$		MAXIMUM SURGE CURRENT (NOTE1) $I_{FSM}$
			AMPS			$\mu$ A		
	VOLTS	VOLTS	100°C	150°C	VOLTS	25°C	150°C	AMPS
JAN1N3611	200	240	1.0	0.30	1.1	1.0	300	30
JAN1N3612	400	480	1.0	0.30	1.1	1.0	300	30
JAN1N3613	600	720	1.0	0.30	1.1	1.0	300	30
JAN1N3614	800	920	1.0	0.30	1.1	1.0	300	30
JAN1N3957	1000	1150	1.0	0.30	1.1	1.0	300	30

**NOTE 1:**  $T_A = 25^\circ\text{C}$ ,  $I_O = 1.0$  A, 10 surges of 8.3 ms @ 1 minute intervals

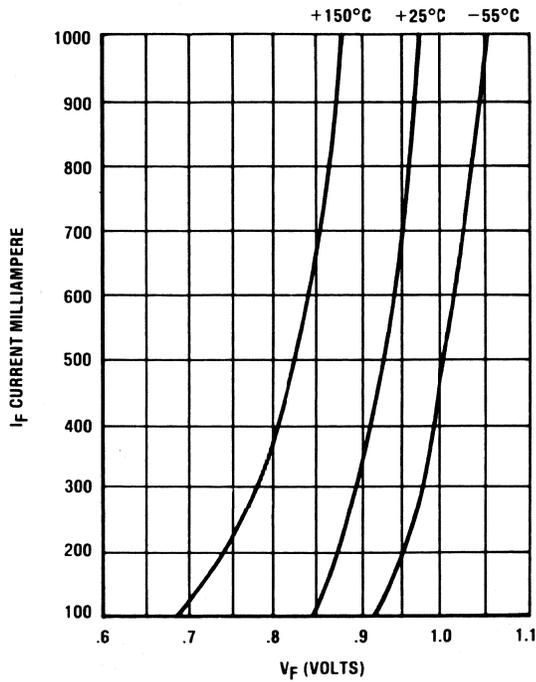
**NOTE 2:** Linearly derate at 13.3 mA/°C between  $T_A=100^\circ\text{C}$  and  $175^\circ\text{C}$

## SYMBOLS & DEFINITIONS

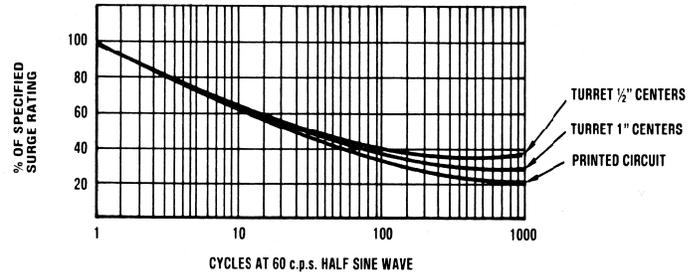
Symbol	Definition
$V_{BR}$	Minimum Breakdown Voltage: The minimum voltage the device will exhibit at a specified current.
$V_{RWM}$	Working Peak Reverse Voltage: The maximum peak voltage that can be applied over the operating temperature range.
$V_F$	Maximum Forward Voltage: The maximum forward voltage the device will exhibit at a specified current.
$I_R$	Maximum Leakage Current: The maximum leakage current that will flow at the specified voltage and temperature.

## ▶ GRAPHS

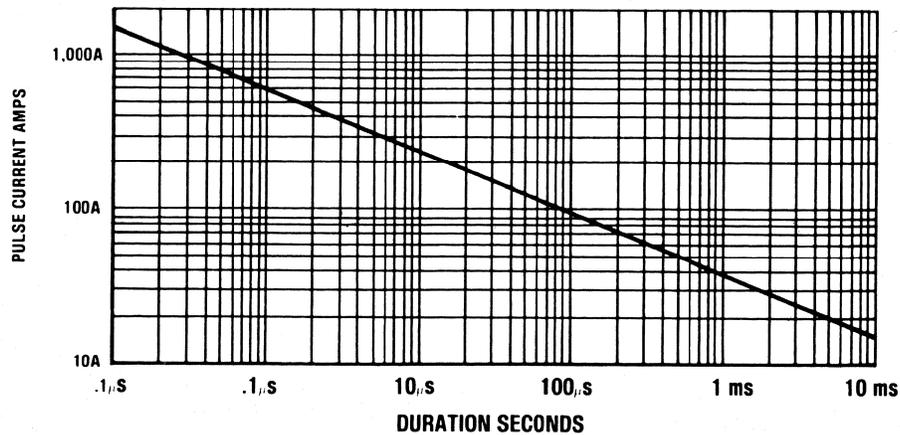
**FIGURE 1**  
 TYPICAL FORWARD CONDUCTANCE CURVE



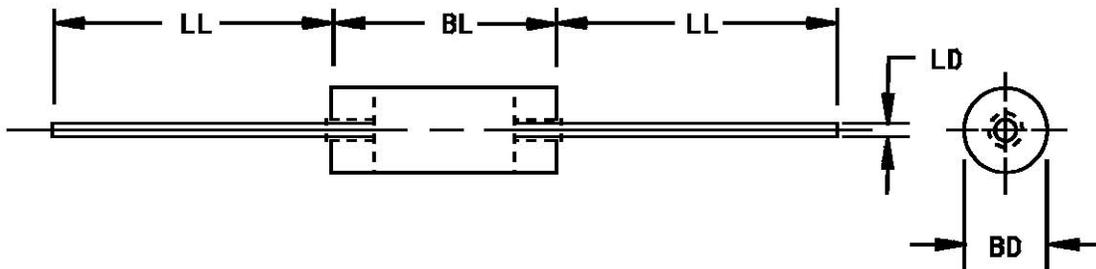
**FIGURE 2**  
 ALLOWABLE PEAK SURGE vs DURATION



**FIGURE 3**  
 SURGE DURATION vs PULSE CURRENT  
 Square Pulse Current vs Duration for Non-Repetitive Pulse



**PACKAGE DIMENSIONS**



**NOTE:**

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Dimension BL 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.

Ltr	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
BD	.060	.110	1.52	2.79	4
BL	.125	.205	3.18	5.21	3
LD	.025	.034	0.64	0.86	3
LL	.600	1.500	15.24	38.10	