

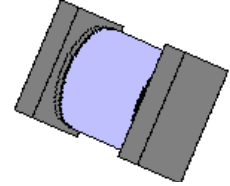
**VOIDLESS HERMITICALLY SEALED  
SURFACE MOUNT STANDARD  
RECOVERY GLASS RECTIFIERS**

**DESCRIPTION**

This "standard recovery" surface mount rectifier diode series is military qualified to MIL-PRF-19500/420 and is ideal for high-reliability applications where a failure cannot be tolerated. These industry-recognized 5.0 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 also available in axial-leaded packages for thru-hole mounting (see separate data sheet for 1N5550 thru 1N5554). Microsemi also offers numerous other rectifier products to meet higher and lower current ratings with various recovery time speeds.

**APPEARANCE**

**Package "E"  
or D-5B**



**IMPORTANT:** For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

**FEATURES**

- Surface mount package series equivalent to the JEDEC registered 1N5550 to 1N5554 series
- Voidless hermetically sealed glass package
- Extremely robust construction
- Triple-layer passivation
- Internal "Category I" Metallurgical bonds
- JAN, JANTX, JANTXV, and JANS available per MIL-PRF-19500/420
- Axial-leaded equivalents also available (see separate data sheet for 1N5550 thru 1N5554)

**APPLICATIONS / BENEFITS**

- Standard recovery 5 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
- Low thermal resistance
- Controlled avalanche with peak reverse power capability
- Inherently radiation hard as described in Microsemi MicroNote 050

**MAXIMUM RATINGS**

- Junction Temperature: -65°C to +200°C
- Storage Temperature: -65°C to +175°C
- Thermal Resistance: 11°C/W junction to endcap
- Thermal Impedance: 1.5°C/W @ 10 ms heating time
- Average Rectified Forward Current (I<sub>O</sub>): 5 Amps @ T<sub>EC</sub> = 55°C (see Note 1)
- Forward Surge Current (8.3 ms half sine): 100 Amps
- Solder temperatures: 260°C for 10 s (maximum)

**MECHANICAL AND PACKAGING**

- CASE: Hermetically sealed voidless hard glass with Tungsten slugs
- TERMINALS: End caps are Copper with Tin/Lead (Sn/Pb) finish. Note: Previous inventory had solid Silver end caps with Tin/Lead (Sn/Pb) finish.
- MARKING: Cathode band only
- POLARITY: Cathode indicated by band
- TAPE & REEL option: Standard per EIA-481-B
- WEIGHT: 539 mg
- See package dimensions and recommended pad layout on last page

**ELECTRICAL CHARACTERISTICS**

TYPE	MINIMUM BREAKDOWN VOLTAGE V <sub>BR</sub> @50μA VOLTS	WORKING PEAK REVERSE VOLTAGE V <sub>RWM</sub> VOLTS	AVERAGE RECTIFIED CURRENT I <sub>O1</sub> @ T <sub>EC</sub> =+55° C Note 1 AMPS	AVERAGE RECTIFIED CURRENT I <sub>O2</sub> @ T <sub>A</sub> =+55°C Note 2 AMPS	FORWARD VOLTAGE V <sub>F</sub> @ 9A (pk)		REVERSE CURRENT I <sub>R</sub> @ V <sub>RWM</sub> μA	REVERSE RECOVERY t <sub>rr</sub> Note 3 μs
					MIN. VOLTS	MAX. VOLTS		
1N5550US	220	200	5	3	0.6V (pk)	1.2V (pk)	1.0	2.0
1N5551US	440	400	5	3	0.6V (pk)	1.2V (pk)	1.0	2.0
1N5552US	660	600	5	3	0.6V (pk)	1.2V (pk)	1.0	2.0
1N5553US	880	800	5	3	0.6V (pk)	1.3V (pk)	1.0	2.0
1N5554US	1100	1000	5	3	0.6V (pk)	1.3V (pk)	1.0	2.0

**NOTE 1:** Derate linearly at 66.6 mA/°C above T<sub>EC</sub> = 100°C. An I<sub>O</sub> of up to 6 Amps is allowable provided that appropriate heat sinking or forced air cooling maintains the junction temperature at or below +200C.

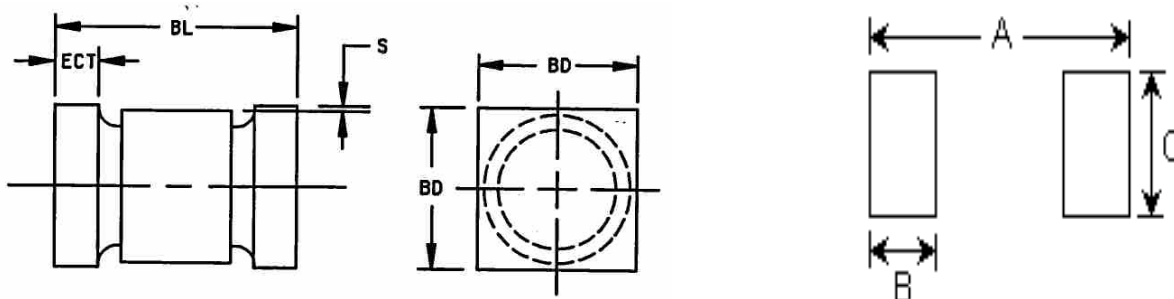
**NOTE 2:** Derate linearly at 25 mA/°C above T<sub>A</sub> = 55°C. This rating is typical for PC boards where thermal resistance from mounting point to ambient is sufficient controlled where T<sub>J(MAX)</sub> rating is not exceeded.

**NOTE 3:** I<sub>F</sub> = 0.5 A, I<sub>RM</sub> = 1.0 A, I<sub>R(REC)</sub> = .250 A

**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 excluding all transient voltages (ref JESD282-B).
$I_O$	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
$V_F$	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.
$t_{rr}$	Reverse Recovery Time: The time interval between the instant the current passes through zero when changing from the forward direction to the reverse direction and then a specified recovery decay point after a peak reverse current occurs.

**PACKAGE DIMENSIONS AND PAD LAYOUT**



NOTE: This Package Outline has also previously been identified as "D-5B"

**PAD LAYOUT**

	INCHES		mm	
	MIN	MAX	MIN	MAX
<b>BL</b>	.205	.225	5.21	5.72
<b>BD</b>	.137	.142	3.48	3.61
<b>ECT</b>	.019	.028	0.48	0.711
<b>S</b>	.003	---	0.08	---

	INCHES		mm	
	MIN	MAX	MIN	MAX
<b>A</b>	0.288	---	7.32	---
<b>B</b>	0.070	---	1.78	---
<b>C</b>	0.155	---	3.94	---

Note: If mounting requires adhesive separate from the solder, an additional 0.080 inch diameter contact may be placed in the center between the pads as an optional spot for cement.