6 Lake Street, Lawrence, MA 01841
1-800-446-1158 / (978) 620-2600 / Fax: (978) 689-0803
Website: http://www.microsemi.com

TECHNICAL DATA SHEET

VOIDLESS - HERMETICALLY- SEALED ULTRAFAST RECOVERY GLASS RECTIFIERS

Reference MIL-PRF-19500/477

DEVICES

MV7654
Bare copper lead version of 1N5811

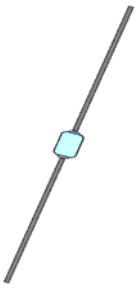
LEVELS

TXV
Equivalent

DESCRIPTION

This "Ultrafast Recovery" rectifier diode series is military qualified to MIL-PRF-19500/477 and is ideal for high-reliability applications where a failure cannot be tolerated. These industry-recognized 6.0 Amp rated rectifiers for working peak reverse voltages from 50 to 150 volts are hermetically sealed with voidless-glass construction using an internal "Category I" metallurgical bond. These devices are available in both leaded and surface mount MELF package configurations. Microsemi also offers numerous other rectifier products to meet higher and lower current ratings with various recovery time speed requirements including standard, 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**



B-Body
Leaded Package

FEATURES

- Voidless hermetically sealed glass package
- Extremely robust construction
- Internal "*Category I*" Metallurgical bonds

MAXIMUM RATINGS

- Junction Temperature: -65°C to +175°C
- Storage Temperature: -65°C to +175°C
- Average Rectified Forward Current (I_O): 6 A @ T_L = 75ºC at 3/8 inch lead length (see note 1)
- Thermal Resistance: 22 ºC/W junction to lead (L=.375 in)
- Thermal Impedance: 1.5 ºC/W @ 10 ms heating time
- Forward Surge Current (8.3 ms half sine) 125 Amps
- Capacitance: 60 pF at 10 volts, f = 1 MHz
- Solder temperature: 260ºC for 10 s (maximum)

MECHANICAL AND PACKAGING

- CASE: Hermetically sealed voidless hard glass with Tungsten slugs
- TERMINATIONS: Axial-leads are Bare Copper.
- MARKING: Body painted and part number, etc.
- POLARITY: Cathode indicated by band
- Tape & Reel option: Standard per EIA-296
- Weight: 750 mg
- See package dimensions on last page

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ELECTRICAL CHARACTERISTICS @ 30oC Case Temperature

TYPE	WORKING PEAK REVERSE VOLTAGE V_{RWM}	BREAKDOWN VOLTAGE (MIN.) @ 100µA V_{BR}	AVERAGE RECTIFIED CURRENT I_{O1} @T_L=75°C (Note 1)	AVERAGE RECTIFIED CURRENT I_{O2} @T_A=55°C Note 2	MAXIMUM FORWARD VOLTAGE @ 4A (8.3 ms pulse) V_F		REVERSE CURRENT (MAX) @ V_{RWM} I_R		SURGE CURRENT (MAX) I_{FSM} (NOTE 3)	REVERSE RECOVERY TIME (MAX) (NOTE 4) t_{rr}
	VOLTS	VOLTS	AMPS		VOLTS		µA		AMPS	ns
					25°C	100°C	25°C	125°C		
MV7654	150	160	6.0	3.0	0.875	0.800	5	525	125	30

NOTE 1: Leaded: Rated at T_L = 75ºC at 3/8 inch lead length. Derate at 60 mA/ºC for T_L above 75ºC.

NOTE 2: Derate linearly at 25 mA/ºC above T_A = 55ºC. This rating is typical for PC boards where thermal resistance from mounting point to ambient is sufficiently controlled where $T_{J(max)}$ does not exceed 175ºC

NOTE 3: T_A = 25°C @ I_O = 3.0 A and V_{RWM} for ten 8.3 ms surges at 1 minute intervals

NOTE 4: I_F = 1.0 A, I_{RM} = 1.0 A, $I_{R(REC)}$ = 0.10 A and di/dt = 100 A/µs min

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.
C	Capacitance: The capacitance in pF at a frequency of 1 MHz and specified voltage
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 a specified recovery decay point after a peak reverse current is reached.

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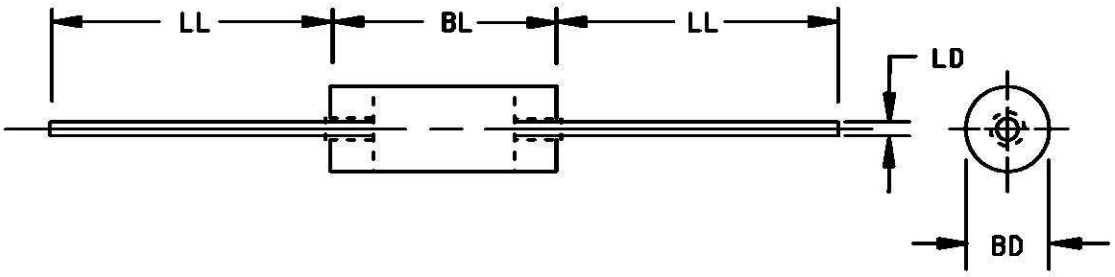
PACKAGE DIMENSIONS



Ltr	Dimensions				Notes
	MV7654				
	Inches		Millimeters		
	Min	Max	Min	Max	
BD	.115	.142	2.92	3.61	4
BL	.130	.300	3.30	7.62	3
LD	.036	.042	0.91	1.07	3
LL	.900	1.30	22.86	33.02	

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.
4. Dimension BD shall be measured at the largest diameter.
5. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.

Lead Tolerance = + .002 -.003 in
*Includes sections of the lead or fillet over which the lead diameter is uncontrolled.