RoHS

Available on commercial versions

VOIDLESS-HERMETICALLY SEALED FAST RECOVERY GLASS RECTIFIERS

Qualified per MIL-PRF-19500/424

Qualified Levels:
JAN, JANTX and JANTXV

DESCRIPTION

This "fast recovery" rectifier diode series is military qualified and is ideal for high-reliability applications where a failure cannot be tolerated. These industry-recognized 3.0 amp rated rectifiers for working peak reverse voltages from 100 to 600 volts are hermetically sealed with voidless-glass construction using an internal "*Category I*" metallurgical bond. 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 latest information, visit our website http://www.microsemi.com.



"B" Package

FEATURES

- JEDEC registered 1N5186 thru 1N5190 series.
- Voidless hermetically sealed glass package.
- Working Peak Reverse Voltage 100 to 600 volts.
- Internal "*Category I*" metallurgical bond.
- JAN, JANTX, and JANTXV qualifications are available per MIL-PRF-19500/424.
- RoHS compliant versions available (commercial grade only).

APPLICATIONS / BENEFITS

- Fast recovery 3 amp 100 to 600 volt rectifiers.
- 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

Parameters/Test Conditions		Symbol	Value	Unit
Junction and Storage Temperature		T_J and T_{STG}	-65 to +175	°C
Thermal Resistance Junction-to-Lead (1)		$R_{\Theta JL}$	20	°C/W
Forward Surge Current @ 8.3 ms half-sine, T_A = +150 °C		I_{FSM}	80	A
Working Peak Reverse Voltage	1N5186	V_{RWM}	100	V
	1N5187		200	
	1N5188		400	
	1N5190		600	
Average Rectified Forward Current	@ T_A = +25 °C	I_O	3.0	A
	@ T_A = +150 °C		0.700	
Maximum Reverse Recovery Time	1N5186	t_{rr}	150	ns
	1N5187		200	
	1N5188		250	
	1N5190		400	
Solder Temperature @ 10 s		T_{SP}	260	°C

Notes: 1. At 3/8 inch (10 mm) lead length from body.

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MECHANICAL and PACKAGING

- CASE: Hermetically sealed voidless hard glass with tungsten slugs.
- TERMINALS: Tin/lead (Sn/Pb) over nickel (Ni) coat or RoHS compliant matte-tin (commercial grade only) over copper.
- MARKING: Body is coated and marked with part number.
- POLARITY: Cathode band.
- TAPE & REEL option: Standard per EIA-296. Consult factory for quantities.
- WEIGHT: 797 milligrams.
- See Package Dimensions on last page.

PART NOMENCLATURE

JAN 1N5186 e3

Reliability Level
JAN = JAN Level
JANTX = JANTX Level
JANTXV = JANTXV Level
Blank = Commercial

RoHS Compliance
e3 = RoHS compliant (available on commercial grade only)
Blank = non-RoHS compliant

JEDEC type number
See Electrical Characteristics table

SYMBOLS & DEFINITIONS

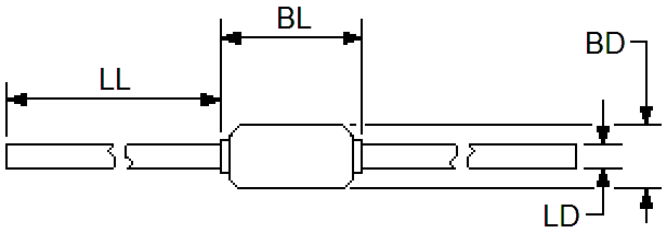
Symbol	Definition
$V_{(BR)}$	Minimum Breakdown Voltage: The minimum voltage the device will exhibit at a specified current.
V_{RWM}	Working Peak Reverse Voltage: The maximum peak voltage that can be applied over the operating temperature range.
V_F	Maximum Forward Voltage: The maximum forward voltage 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.
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 decay point after a peak reverse current occurs.

ELECTRICAL CHARACTERISTICS

TYPE	MINIMUM BREAKDOWN VOLTAGE $V_{(BR)}$ @ 100 µA	FORWARD VOLTAGE V_F @ 9 A (pulsed)		MAXIMUM REVERSE CURRENT I_R @ V_{RWM}	
	Volts	MIN Volts	MAX Volts	25 °C µA	100 °C µA
1N5186	120	0.9	1.5	2.0	100
1N5187	240	0.9	1.5	2.0	100
1N5188	480	0.9	1.5	2.0	100
1N5190	660	0.9	1.5	2.0	100

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PACKAGE DIMENSIONS



Symbol	Dimension				Notes
	Inch		Millimeters		
	Min	Max	Min	Max	
BD	0.115	0.155	2.92	3.94	3
LD	0.038	0.042	0.97	1.07	
BL	0.150	0.300	3.81	7.62	4
LL	1.00	1.50	25.40	38.10	

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Dimension BD shall be measured at the largest diameter. The BL dimension shall include the entire body including slugs.
4. Dimension BL shall include the 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.
5. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.

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