RoHS
Available on commercial versions

3 Amp Axial Schottky Barrier Rectifiers

Qualified per MIL-PRF-19500/620

Qualified Levels:*
JAN, JANTX, JANTXV and JANS

DESCRIPTION

This series of 3 amp Schottky rectifiers in their axial-leaded "B" packaging offer flexible thru-hole mounting. The 1N5822 and 1N6864 are military qualified for high-reliability applications.

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

"B" Package

FEATURES

- JEDEC registered 1N5820 – 1N5822 and 1N6864 numbers.
- Hermetically sealed.
- Metallurgically bonded.
- Double plug construction.
- *JAN, JANTX, JANTXV and JANS qualifications are available per MIL-PRF-19500/620 for 1N6822 and 1N6864 only.
  (See Part Nomenclature for all available options.)
- RoHS compliant devices available (commercial grade only).

APPLICATIONS / BENEFITS

- Flexible axial leads for thru-hole mounting (see package illustration).
- Non-sensitive to ESD per MIL-STD-750 method 1020.

Also available in:

"B" MELF Package
(surface mount)
1N5820US – 1N5822US, 1N6864US

MAXIMUM RATINGS @ T_A = +25 °C unless otherwise noted.

Parameters/Test Conditions	Symbol	Value	Unit
Junction Temperature	T_J	-65 to +125	°C
Storage Temperature	T_{STG}	-65 to +150	°C
Thermal Resistance Junction-to-Lead @ .375 inch (9.52 mm) lead length	$R_{\Theta JL}$	30	°C/W
Surge Peak Forward Current @ T_A = +25 °C (Test pulse = 8.3 ms, half-sine wave.)	I_{FSM}	80	A
Average Rectified Output Current @ T_L = +55 °C (1)	I_O	3	A

NOTES: 1. See Figures 3 and 4 for derating curves and for effects of V_R on T_J. The maximum T_J depends on the voltage applied.

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MECHANICAL and PACKAGING

- CASE: Hermetically sealed voidless hard glass with tungsten slugs.
- TERMINALS: Tin/lead or RoHS compliant matte/tin on commercial grade only (no JAN levels) over nickel plate over copper.
- MARKING: Body coated in blue with part number.
- POLARITY: Cathode indicated by band.
- TAPE & REEL option: Standard per EIA-296. Consult factory for quantities.
- WEIGHT: Approximately 750 milligrams.
- See Package Dimensions on last page.

PART NOMENCLATURE

1N5820 – 1N5821

1N5820 (e3)

JEDEC type number
See Electrical Characteristics table

RoHS Compliance
e3 = RoHS compliant
Blank = non-RoHS compliant

1N5822 and 1N6864 only:

JAN 1N5822 (e3)

Reliability Level
JAN = JAN Level
JANTX = JANTX Level
JANTXV = JANTXV Level
JANS = JANS 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
C_T	Capacitance: The capacitance in pF at a frequency of 1 MHz and specified voltage.
f	frequency
I_R	Maximum Reverse Current: The maximum reverse (leakage) current that will flow at the specified voltage and temperature.
I_O	Average Rectified Output Current: The 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.
V_R	Reverse Voltage: The dc voltage applied in the reverse direction below the breakdown region.
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 NUMBER	WORKING PEAK REVERSE VOLTAGE	MAXIMUM FORWARD VOLTAGE	MAXIMUM FORWARD VOLTAGE	MAXIMUM FORWARD VOLTAGE	MAXIMUM REVERSE LEAKAGE CURRENT I_{RM} @ V_{RM}	
	V_{RWM}	I_{FM} = 1.0 A	I_{FM} = 3.0 A	I_{FM} = 9.4 A	T_J = +25 ºC	T_J = +100 ºC
	V (pk)	Volts	Volts	Volts	mA	mA
1N5820	20	0.40	0.50	0.70	0.10 @ 20 V	12.5 @ 20 V
1N5821	30	0.40	0.50	0.70	0.10 @ 30 V	12.5 @ 30 V
1N5822	40	0.40	0.50	0.70	0.10 @ 40 V	12.5 @ 40 V
1N6864	80	0.50	0.70	N/A	0.15 @ 80 V	18.0 @ 80 V

GRAPHS

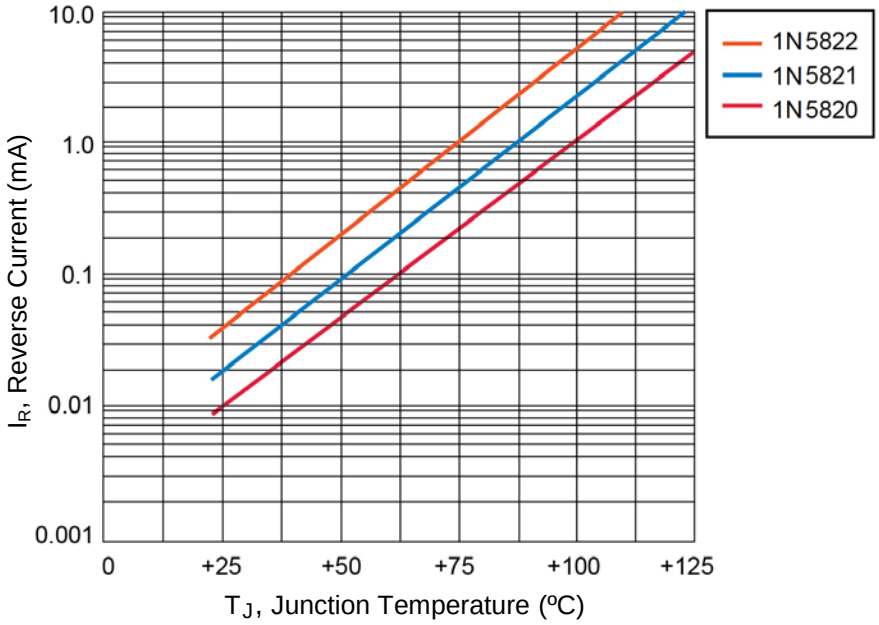


FIGURE 1
Typical Reverse Leakage Current at Rated PIV (PULSED)

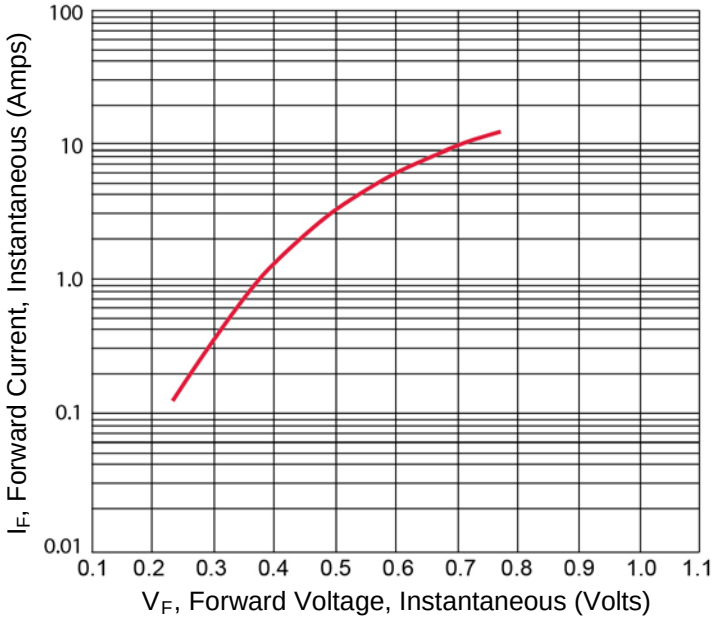


FIGURE 2
Typical Forward Voltage

GRAPHS (continued)

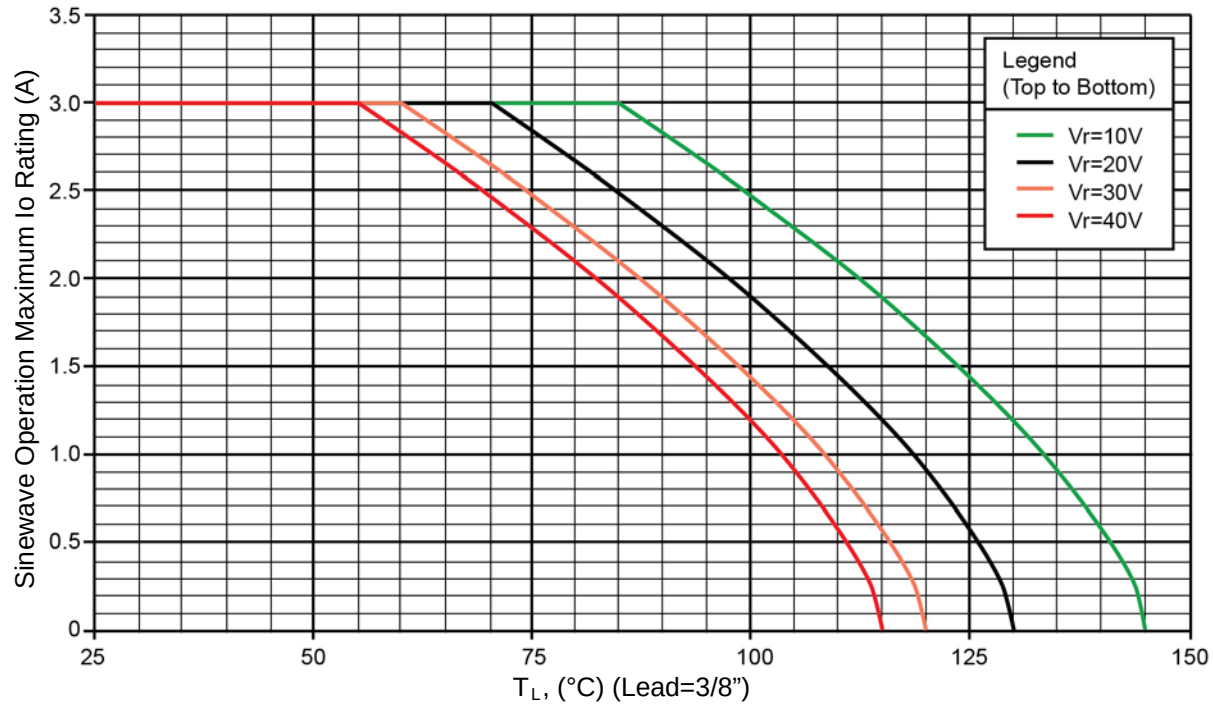


FIGURE 3

Temperature current derating for 1N5822

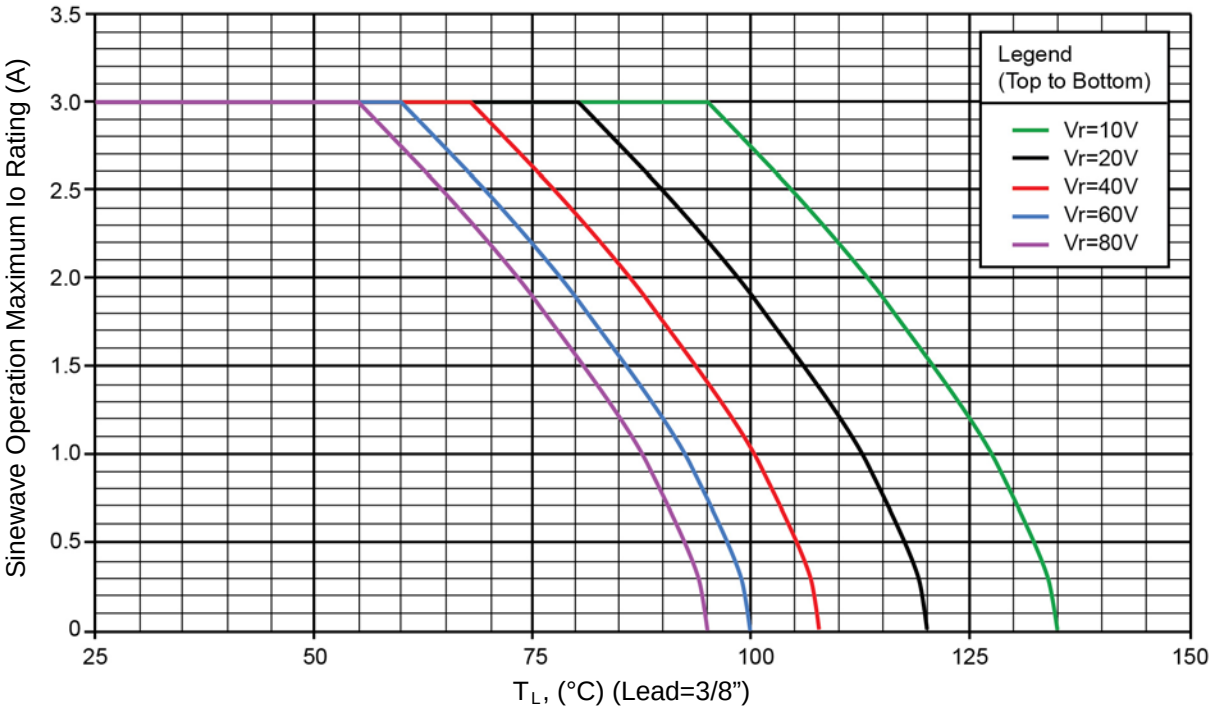


FIGURE 4

Temperature current derating for 1N6864

GRAPHS (continued)

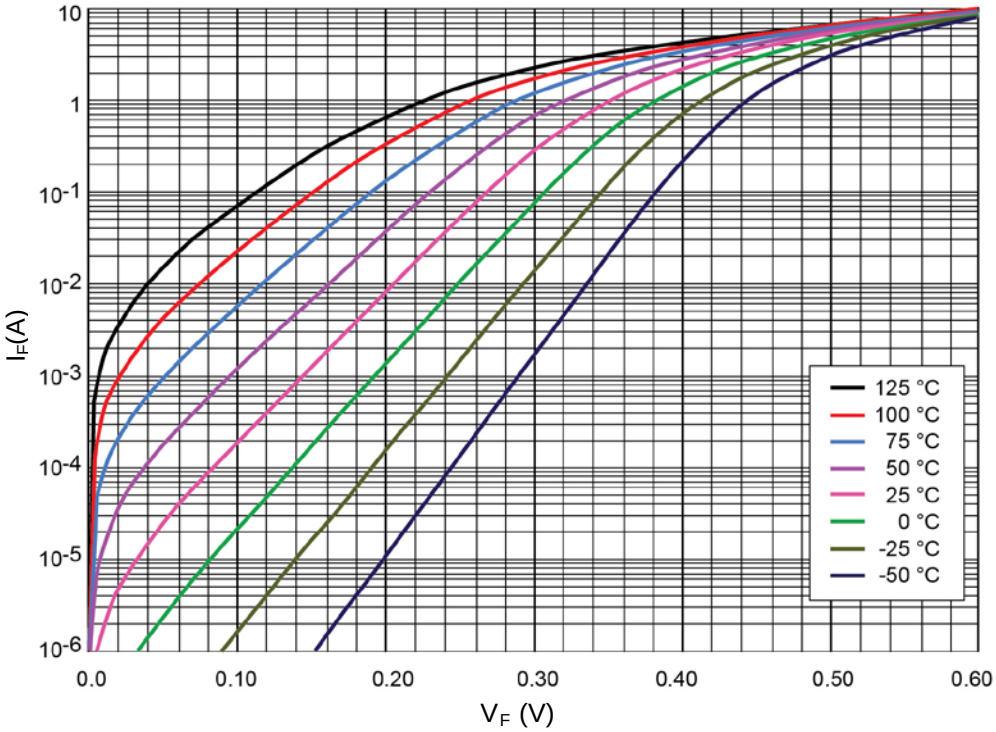


FIGURE 5

Schottky V_F – I_F Characteristics (Typical 1N5822)

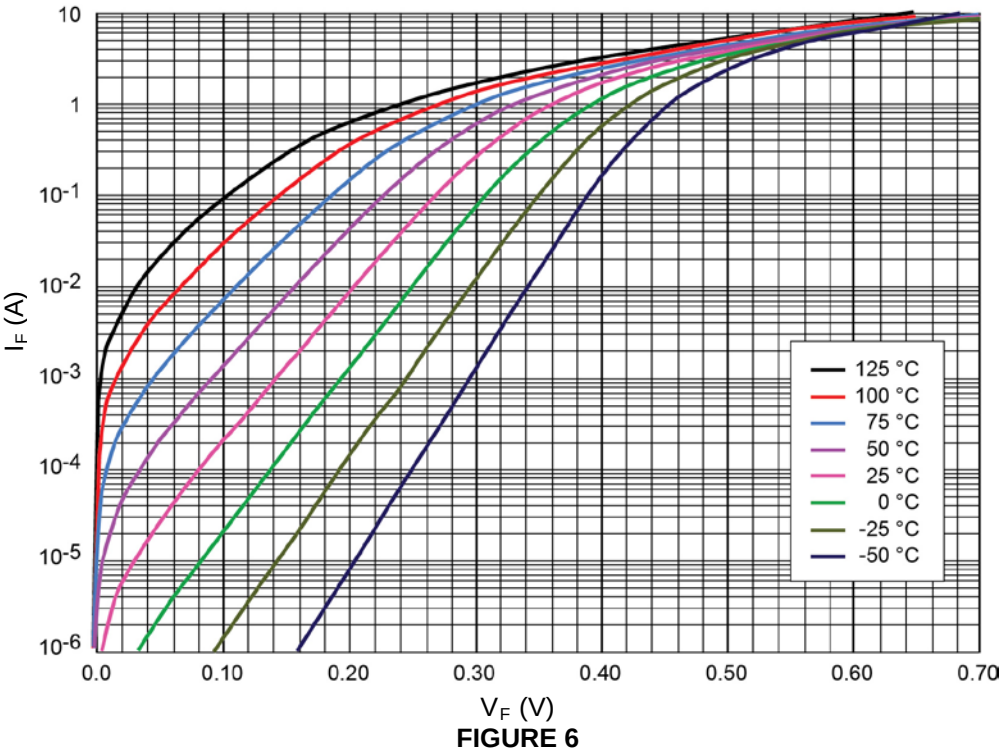


FIGURE 6

Schottky V_F – I_F Characteristics (Typical 1N6864)

GRAPHS (continued)

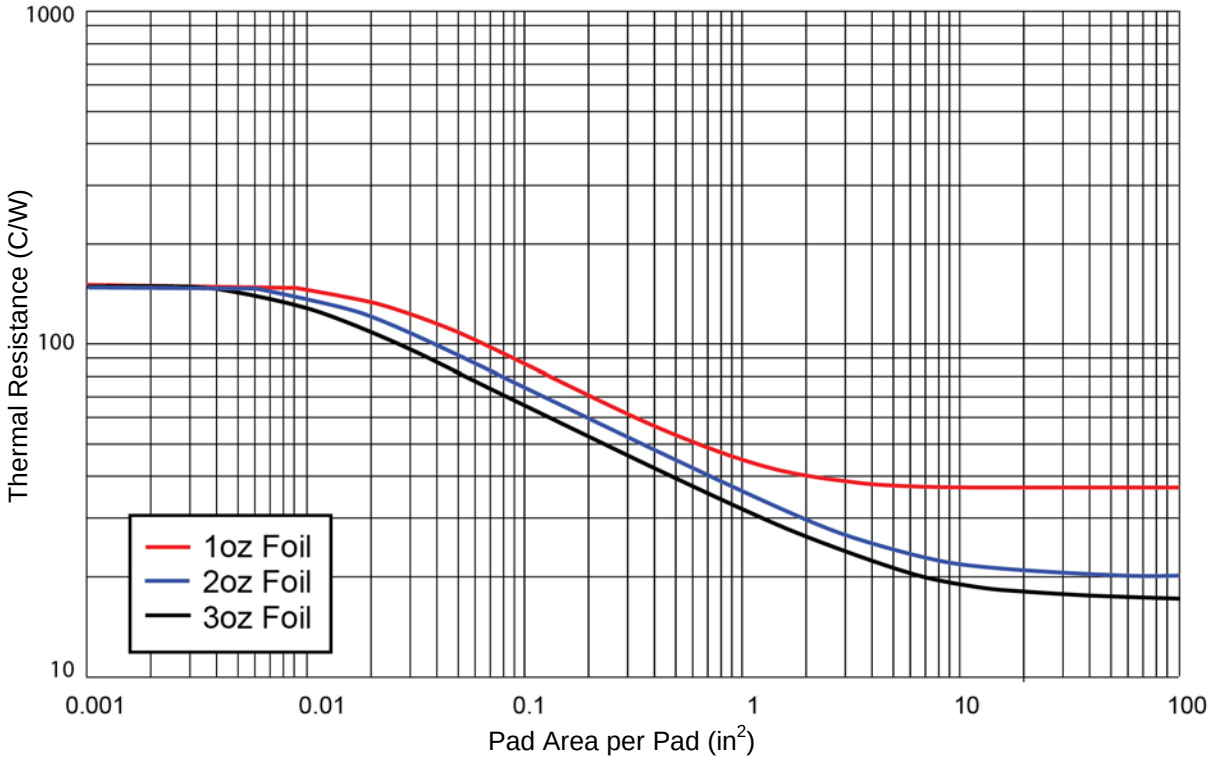
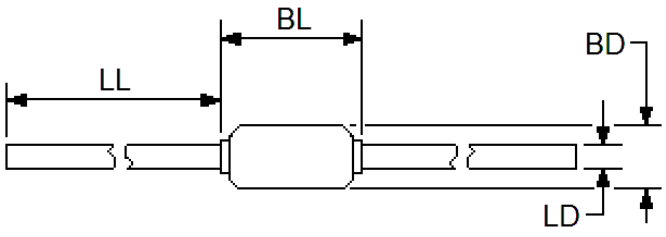


FIGURE 7
Thermal resistance vs FR4 Pad Area Still Air with the PCB horizontal
(At lead length = 0.187 inch)

PACKAGE DIMENSIONS



NOTES:

1. Dimensions are in inches.
2. Millimeters are given for 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.)

Ltr	DIMENSIONS				Notes
	INCH		MILLIMETERS		
	Min	Max	Min	Max	
BD	0.115	0.142	2.92	3.61	4
BL	0.130	0.300	3.30	7.62	3
LD	0.036	0.042	0.91	1.07	3
LL	0.900	1.30	22.86	33.02	

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1N5822