

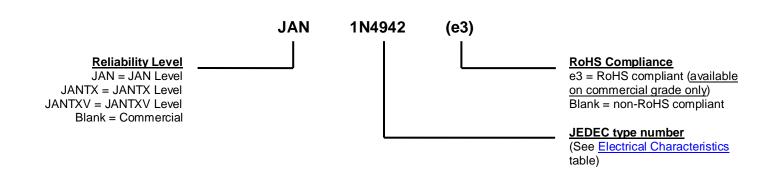
Noidless HerrAvailable on commercial versionsFast Recovery Qualified per M	<u>Qualified Levels</u> : JAN, JANTX, and JANTXV						
DESCRIPTI	ON						
This Series of industry recognized voidless, hermeti are military qualified to MIL-PRF-19500/359 and are a failure cannot be tolerated. They provide a workin to 600 Volts with a 1.0 amp current rating. They are also use an internal metallurgical bond identified as applications. These devices are similar in ratings to surface mount MELF package configurations are als separate data sheets). Important: For the latest information, visit our website http://www							
FEATURE	S			IT IT			
 Popular JEDEC registered 1N4942 through 1N4946 in Voidless hermetically sealed glass package. Triple-layer passivation. Internal "<i>Category 1</i>" metallurgical bonds. Working peak reverse voltage 200 to 600 volts. JAN, JANTX, and JANTXV qualifications are available RoHS compliant versions available (commercial grad 	"A" Package						
APPLICATIONS / I	APPLICATIONS / BENEFITS						
 Fast recovery 1 amp rectifiers 200 to 600 V. Military and other high reliability applications. General rectifier applications including bridges, half-b High forward surge current capability. Extremely robust construction. Low thermal construction. Controlled avalanche with peak power capability. Inherently radiation hard as described in Microsemi " 							
Parameters/Test Conditions	Symbol	Value	Unit				
Junction and Storage Temperature Thermal Resistance Junction-to-Lead (Lead length = .375 in) also see Figure 1 Thermal Resistance @ 10 ms heating time	T _J and T _{STG} R _{θJL} R _{θJX}	-65 to +175 38 115	°C °C/W				
Average Rectified Forward Current@ $T_A = +55^{\circ}$ @ $T_A = +100^{\circ}$	C I _O	1.0 ⁽¹⁾⁽²⁾ 0.750 ⁽²⁾	Amps	<u>MSC – Lawrence</u> 6 Lake Street,			
Working Peak Reverse Voltage 1N494 1N494 1N494	2 V _{RWM} 4	200 400 600	V	Lawrence, MA 01841 Tel: 1-800-446-1158 or (978) 620-2600 Fax: (978) 689-0803			
Maximum Forward Surge Current @ tp = 8.3 ms, I_0 = .750 A, T_A = +55 °C	I _{FSM}	15	Amps	MSC – Ireland			
Solder Temperature @ 10 s	T _{SP}	260	°C	Gort Road Business Park, Ennis, Co. Clare, Ireland			
 Notes: 1. Derate linearly from 1.0 A at T_A = +55 °C to 0.75 A a between +100 °C and +175 °C. 2. For the 1 amp rating at 55 °C ambient or 0.75 amp r thermal (PC boards or other) mounting methods what ambient is still sufficiently controlled where T_{J(MAX)} in ≤ 115 °C/W as shown. 	ating at 100 °C amb ere thermal resistance	ient, these I _o ratin ce from mounting	ngs are for point to	Tel: +353 (0) 65 6840044 Fax: +353 (0) 65 6822298 Website: www.microsemi.com			
T4-LDS-0295. Rev. 1 (130278) ©201	3 Microsemi Corp	oration		Page 1 of 5			



MECHANICAL and PACKAGING

- CASE: Hermetically sealed voidless hard glass with tungsten slugs.
- TERMINALS: Tin/lead or RoHS compliant matte/tin (commercial grade only) over nickel plate over copper.
- MARKING: Body painted with part number.
- POLARITY: Cathode indicated by band.
- TAPE & REEL option: Standard per EIA-296. Consult factory for quantities.
- WEIGHT: Approximately 340 milligrams.
- See Package Dimensions on last page.

PART NOMENCLATURE



	SYMBOLS & DEFINITIONS					
Symbol	Definition					
С	Capacitance: The capacitance in pF at a frequency of 1 MHz and specified voltage					
I _R	Reverse Current: The maximum reverse (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.					
VF	Maximum Forward Voltage: The maximum forward voltage the device will exhibit at a specified current.					
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). Also sometimes known as PIV.					
С	Capacitance: The capacitance in pF at a frequency of 1 MHz and specified voltage.					

ELECTRICAL CHARACTERISTICS

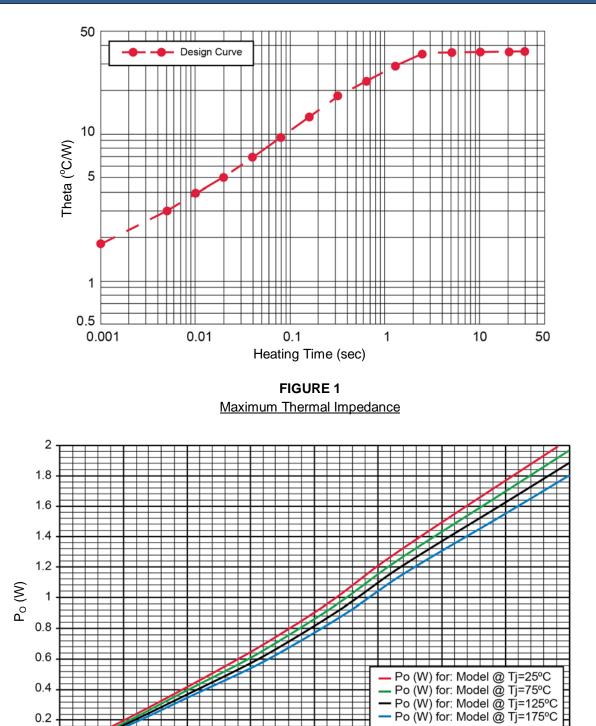
ТҮРЕ	MAXIMUM FORWARD VOLTAGE V _{FM} @ I _{FM} = 1A		MINIMUM BREAKDOWN VOLTAGE V _(BR)	MAXIMUM REVERSE CURRENT I _R @ V _{RWM}		$\begin{array}{l} \mbox{MAXIMUM} \\ \mbox{JUNCTION} \\ \mbox{CAPACITANCE} \\ \mbox{C}_{\rm J} @ \mbox{V}_{\rm R} = 12 \mbox{ V} \end{array}$	MAXIMUM REVERSE RECOVERY (NOTE 2) t _{rr}
	Volts		Volts	μA		pF	ns
	25°C	150°C		25°C	150°C		
1N4942	0.6 – 1.3	0.6 – 1.5	220	1.0	200	45	150
1N4944	0.6 – 1.3	0.6 – 1.5	440	1.0	200	35	150
1N4946	0.6 – 1.3	0.6 – 1.5	660	1.0	200	25	250

NOTE 1: $T_A = 100 \,^{\circ}C$, 8.3 ms surges

NOTE 2: $I_F = 0.5 \text{ A}, I_{RM} = 1 \text{ A}, I_{R(REC)} = 0.250 \text{ A}$



GRAPHS



1.00

1.20

1.40

1.60

Rectifier Power vs Io (Average Forward Current)

0.80

0.00

0.20

0.40

0.60



GRAPHS (continued)

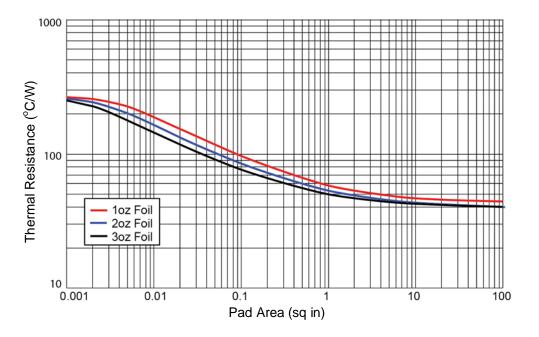


FIGURE 3 Thermal Resistance vs FR4 Pad Area At Ambient

PCB horizontal (for each pad) with 1, 2, and 3 oz copper

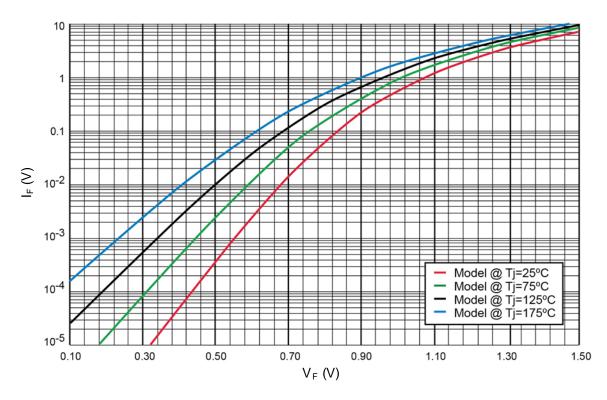
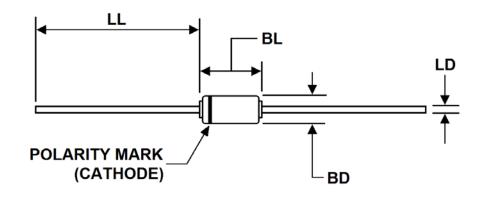


FIGURE 4 Forward Voltage vs Forward Current



PACKAGE DIMENSIONS



NOTES:

- 1. Dimensions are in inches.
- 2. Millimeters equivalents are given for general information only.
- 3. Dimension BD shall be measured at the largest diameter.
- 4. 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.
- 5. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.

Ltr	INCH		MILLIM	Notes	
	Min	Max	Min	Max	
BD	0.065	0.150	1.65	3.81	3, 4
BL	0.140	0.250	3.56	6.35	4
LD	0.027	0.033	0.69	0.84	
LL	1.00	1.50	25.4	38.1	