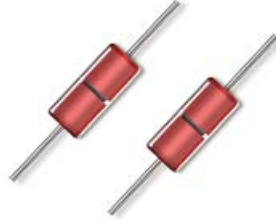


# Low Noise Zener Diode Series

1N4099-1 thru 1N4135-1 and 1N4614-1 thru 1N4627-1



## Features

- Available in JAN, JANTX, JANTXV and JANS per MIL-PRF-19500/435
- Tight tolerances available in plus or minus 2% or 1% with C or D suffix respectively.
- 500 mW power handling
- Hermetically sealed axial-leaded glass DO-35 package.
- Also available in DO-213 MELF style package.

## Maximum Ratings

Operating & Storage Temperature: -65 to +175°C  
 Thermal Resistance: 250°C/W  
 Steady-State Power: 0.5 watts  
 Forward Voltage @200 MA: 1.1 V

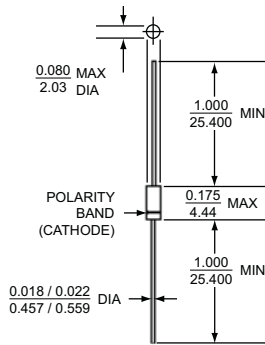
## Electrical Specifications @ +25 °C (Unless Otherwise Specified)

JEDEC TYPE No. (Note 1)	Normal Zener Voltage	Zener Test Current	Maximum Zener Impedance	Maximum Reverse Current		Maximum Noise Density	Maximum Zener Current
	$V_z @ I_{ZT}$	$I_{ZT}$	$Z_{ZT}$	$I_R @ V_R$	$I_R @ V_R$	$N_D @ I_{ZT}$	$I_{ZM}$
	Volts	$\mu A$	Ohms	$\mu A$	Volts	$\mu V / \sqrt{Hz}$	mA
1N4614-1	1.8	250	1200	7.5	1	1	120
1N4615-1	2.0	250	1250	5.0	1	1	110
1N4616-1	2.2	250	1300	4.0	1	1	100
1N4617-1	2.4	250	1400	2.0	1	1	95
1N4618-1	2.7	250	1500	1.0	1	1	90
1N4619-1	3.0	250	1600	0.8	1	1	87
1N4620-1	3.3	250	1650	7.5	1.5	1	85
1N4621-1	3.6	250	1700	7.5	2	1	83
1N4622-1	3.9	250	1650	5.0	2	1	80
1N4623-1	4.3	250	1600	4.0	2	1	77
1N4624-1	4.7	250	1550	10.0	2	1	75
1N4625-1	5.1	250	1500	10.0	3	2	70
1N4626-1	5.6	250	1400	10.0	4	4	65
1N4627-1	6.2	250	1200	10.0	5	5	61
1N4099-1	6.8	250	200	10.0	5.17	40	56
1N4100-1	7.5	250	200	10.0	5.70	40	51
1N4101-1	8.2	250	200	1.0	6.24	40	46
1N4102-1	8.7	250	200	1.0	6.61	40	44
1N4103-1	9.1	250	200	1.0	6.92	40	42
1N4104-1	10	250	200	1.0	7.60	40	38
1N4105-1	11	250	200	0.05	8.44	40	35
1N4106-1	12	250	200	0.05	8.12	40	32
1N4107-1	13	250	200	0.05	9.857	40	29
1N4108-1	14	250	200	0.05	10.65	40	27
1N4109-1	15	250	100	0.05	11.40	40	25
1N4110-1	16	250	100	0.05	12.15	40	24
1N4111-1	17	250	100	0.05	12.92	40	22
1N4112-1	18	250	100	0.05	13.67	40	21
1N4113-1	19	250	150	0.05	14.44	40	20
1N4114-1	20	250	150	0.01	15.20	40	19
1N4115-1	22	250	150	0.01	16.72	40	17
1N4116-1	24	250	150	0.01	18.25	40	16
1N4117-1	25	250	150	0.01	19.00	40	15
1N4118-1	27	250	150	0.01	20.45	40	14
1N4119-1	29	250	200	0.01	21.28	40	14
1N4120-1	30	250	200	0.01	22.80	40	13
1N4121-1	33	250	200	0.01	25.08	40	12
1N4122-1	36	250	200	0.01	27.38	40	11
1N4123-1	39	250	200	0.01	29.65	40	9.8
1N4124-1	43	250	250	0.01	32.65	40	8.9
1N4125-1	47	250	250	0.01	35.75	40	8.1
1N4126-1	51	250	300	0.01	38.76	40	7.5
1N4127-1	56	250	300	0.01	42.60	40	6.7
1N4128-1	60	250	400	0.01	45.60	40	6.4
1N4129-1	62	250	500	0.01	47.10	40	6.1
1N4130-1	68	250	700	0.01	51.68	40	5.6
1N4131-1	75	250	700	0.01	57.00	40	5.1
1N4132-1	82	250	800	0.01	62.32	40	4.6
1N4133-1	87	250	1000	0.01	66.12	40	4.4
1N4134-1	91	250	1200	0.01	69.16	40	4.2
1N4135-1	100	250	1500	0.01	76.00	40	3.0

NOTE 1: The JEDEC type numbers shown with no suffix have a standard tolerance of  $\pm 5\%$  on the nominal Zener voltage; suffix C is used to identify  $\pm 2\%$ ; and suffix D is used to identify  $\pm 1\%$  tolerance.  $V_z$  is measured with the diode in thermal equilibrium in 25°C still air.



Outline Drawing



All dimensions in  $\frac{\text{INCH}}{\text{mm}}$

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LEADED DESIGN DATA

CASE: Hermetically sealed, DO – 35

LEAD MATERIAL: Copper clad steel

LEAD FINISH: Tin / Lead

THERMAL RESISTANCE: ( $R_{\theta JEC}$ ): 70 °C/W maximum at L = 0.375 in

THERMAL IMPEDANCE: ( $Z_{\theta JX}$ ): 12 °C/W maximum

POLARITY: Cathode end is banded.

MOUNTING POSITION: Any

Circuits & Graphs

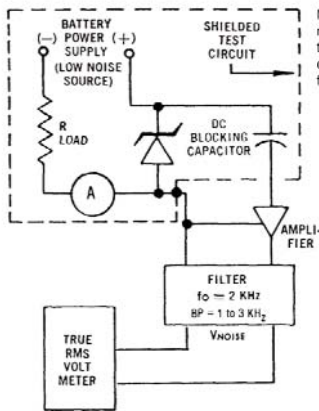


FIGURE 1  
NOISE DENSITY MEASUREMENT CIRCUIT

Noise density, ( $N_n$ ) is specified in microvolt-rms per square-root-hertz. Actual measurement is performed using a 1 KHz to 3 KHz frequency bandpass filter at a constant Zener test current ( $I_{Tz}$ ) AT 25°C ambient temperature.  $N_n$  is calculated from the formula.

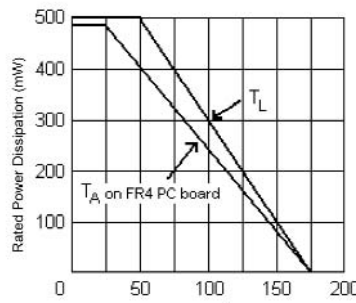


FIGURE 2 – POWER DERATING CURVE

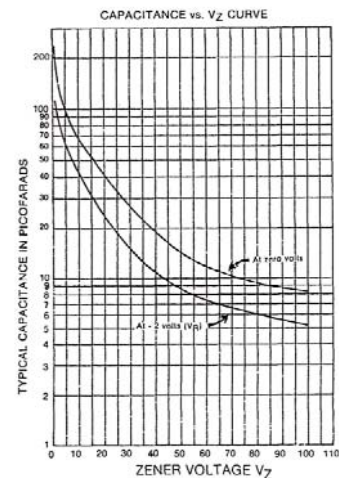


FIGURE 3  
CAPACITANCE vs. ZENER VOLTAGE (TYPICAL)

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