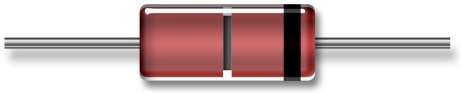
1N5518B-1 thru 1N5546B-1

Low Noise Zener Diode Series

Rev. V4

Features

- Available in JAN, JANTX and JANTXV PER MIL-PRF-19500/437
- Low Reverse Leakage Characteristics
- Low Noise Characteristics
- Double Plug Construction DO-35 Axial Lead Package
- Metallurgically Bonded
- Also available in DO-213AA MELF style package.



Electrical Specifications: T_A = +25°C (unless otherwise specified)

JEDEC TYPE Number (Note1)	Normal Zener Voltage Vz @ IZT	Zener Test Current IZT	Maximum Zener Impedance B-C-D Suffix ZZT @ IZT	Maximum Reverse Leakage Current			B-C-D Suffix Maximum DC Zener Current IZM	B-C-D Suffix Maximum Noise Density @ IZ=250 mA ND	Regulation Factor ΔVZ (Note 2)	Low VZ Current IZL
				IR	VR = Volts					
	Volts	mA	Ohms	m Adc	NON & A- Suffix	B-C-D-Suffix	mAdc	mV / √Hz	Volts	mAdc
1N5518B	3.3	20	26	5.0	0.90	1.0	115	0.5	0.90	2.0
1N5519B	3.6	20	24	3.0	0.90	1.0	105	0.5	0.90	2.0
1N5520B	3.9	20	22	1.0	0.90	1.0	98	0.5	0.85	2.0
1N5521B	4.3	20	18	3.0	1.0	1.5	88	0.5	0.75	2.0
1N5522B	4.7	10	22	2.0	1.5	2.0	81	0.5	0.60	1.0
1N5523B	5.1	5.0	26	2.0	2.0	2.5	75	0.5	0.65	0.25
1N5524B	5.6	3.0	30	2.0	3.0	3.5	68	1.0	0.30	0.25
1N5525B	6.2	1.0	30	1.0	4.5	5.0	61	1.0	0.20	0.01
1N5526B	6.8	1.0	30	1.0	5.5	6.2	56	1.0	0.10	0.01
1N5527B	7.5	1.0	35	0.5	6.0	6.8	51	2.0	0.05	0.01
1N5528B	8.2	1.0	40	0.5	6.5	7.5	46	4.0	0.05	0.01
1N5529B	9.1	1.0	45	0.1	7.0	8.2	42	4.0	0.05	0.01
1N5530B	10.0	1.0	60	0.05	8.0	9.1	38	4.0	0.10	0.01
1N5531B	11.0	1.0	80	0.05	9.0	9.9	35	5.0	0.20	0.01
1N5532B	12.0	1.0	90	0.05	9.5	0.8	32	10	0.20	0.01
1N5533B	13.0	1.0	90	0.01	10.5	11.7	29	15	0.20	0.01
1N5534B	14.0	1.0	100	0.01	11.5	12.6	27	20	0.20	0.01
1N5535B	15.0	1.0	100	0.01	12.5	13.5	25	20	0.20	0.01

(Continued next page)

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1N5518B-1 thru 1N5546B-1

Low Noise Zener Diode Series

Rev. V4

Electrical Specifications: T_A = +25°C (unless otherwise specified)

JEDEC TYPE Number (Note1)	Normal Zener Voltage Vz @ IZT	Zener Test Current IZT	Maximum Zener Impedance B-C-D Suffix ZZT @ IZT	Maximum Reverse Leakage Current			B-C-D Suffix Maximum DC Zener Current IZM	B-C-D Suffix Maximum Noise Density @ IZ=250 mA ND	Regulation Factor ΔVZ (Note 2)	Low VZ Current IZL
				IR	VR = Volts					
	Volts	mA	Ohms	m Adc	NON & A- Suffix	B-C-D-Suffix	mAdc	mV / √Hz	Volts	mAdc
1N5536B	16.0	1.0	100	0.01	13.0	14.4	24	20	0.20	0.01
1N5537B	17.0	1.0	100	0.01	14.0	15.3	22	20	0.20	0.01
1N5538B	18.0	1.0	100	0.01	15.0	16.2	21	20	0.20	0.01
1N5539B	19.0	1.0	100	0.01	16.0	17.1	20	20	0.20	0.01
1N5540B	20.0	1.0	100	0.01	17.0	18.0	19	20	0.20	0.01
1N5541B	22.0	1.0	100	0.01	18.0	19.8	17	20	0.25	0.01
1N5542B	24.0	1.0	100	0.01	20.0	21.6	16	20	0.30	0.01
1N5543B	25.0	1.0	100	0.01	21.0	22.4	15	20	0.35	0.01
1N5544B	28.0	1.0	100	0.01	23.0	25.2	14	20	0.40	0.01
1N5545B	30.0	1.0	100	0.01	24.0	27.0	13	20	0.45	0.01
1N5546B	33.0	1.0	100	0.01	28.0	29.7	12	20	0.50	0.01

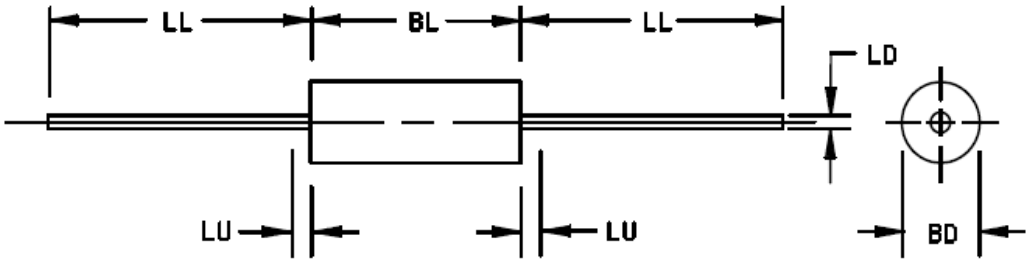
1. No Suffix type numbers are +20% with guaranteed limits for only V_Z, I_R, and V_F. Units with “A” suffix are +10% with guaranteed limits for V_Z, I_R, and V_F. Units with guaranteed limits for all six parameters are indicated by a “B” suffix for +5.0% units, “C” suffix for +2.0% and “D” suffix for +1.0%.
2. Delta V_Z is the maximum difference between V_Z @ I_{ZT} and V_Z @ I_{ZL} measured with the device junction in thermal equilibrium.

Absolute Maximum Ratings

Parameter	Absolute Maximum
Steady State Power Dissipation	500 mW @ +50°C
Forward Voltage	1.1 V @ 200 mA
DC Power Derating	4 mW / °C above +50°C
Operating & Storage Temperature	-65°C to +175°C

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Outline Drawing (DO-35)



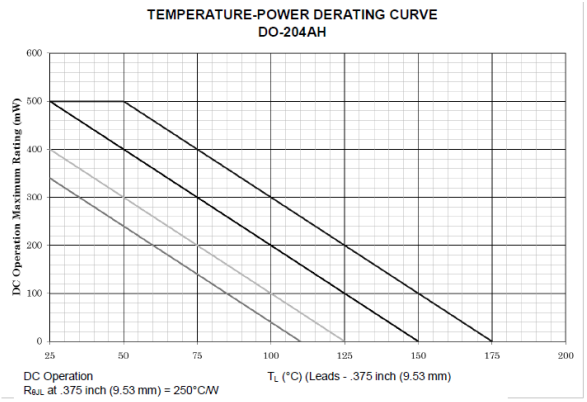
LTR	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
BD	.055	.090	1.40	2.29	3
BL	.120	.200	3.05	5.08	3
LD	.018	.022	0.46	0.56	
LL	1.000	1.500	25.40	38.10	
LU		.050		1.27	4

NOTES:
1. Dimensions are in inches. Millimeters are given for general information only.
2. Package contour optional within dimension BD and length dimension BL. Heat slugs, if any, shall be included within this cylinder but shall not be subject to minimum limit of dimension BD. The dimension BL shall include the entire body including slugs.
3. Within this zone lead, diameter may vary to allow for lead finishes and irregularities other than heat slugs.
4. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.

FIGURE 1. Physical dimensions for axial leaded DO-204AH package.

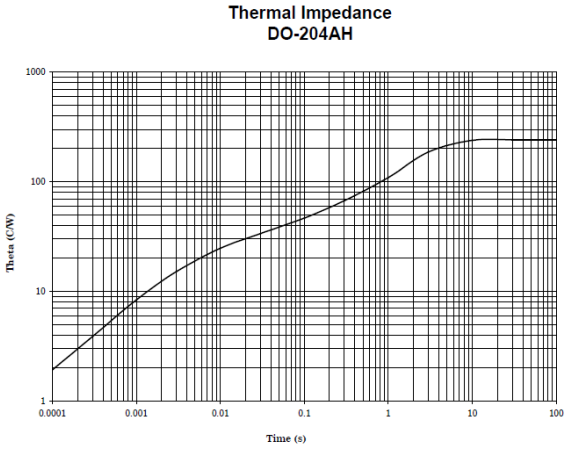
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Graphs



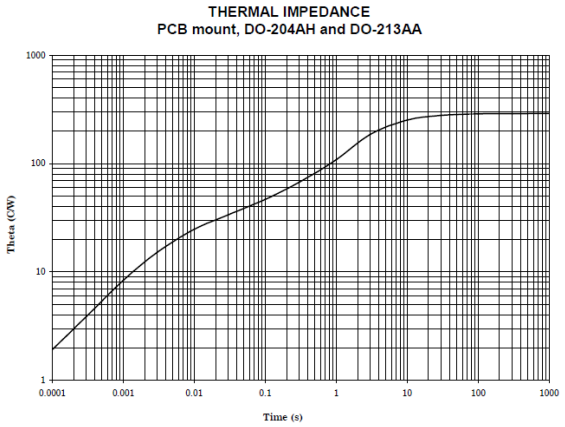
NOTES:
1. All devices are capable of operating at ≤ T_J specified on this curve. Any parallel line to this curve will intersect the appropriate power for the desired maximum T_J allowed.
2. Derate design curve constrained by the maximum junction temperature (T_J ≤ 175°C) and power rating specified. (See 1.3 herein.)
3. Derate design curve chosen at T_J ≤ 150°C, where the maximum temperature of electrical test is performed.
4. Derate design curve chosen at T_J ≤ 125°C, and 110°C to show power rating where most users want to limit T_J in their application.

FIGURE 4. Temperature-power derating curve (T_L) for DO-204AH.



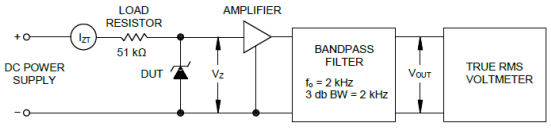
NOTE: Thermal resistance = 250°C/W. Maximum power rating = 500 mW at T_J = 50°C.

FIGURE 8. Thermal impedance (DO-204AH).



NOTE: Thermal resistance = 300°C/W. Maximum power rating = 400 mW at T_A = 55°C.

FIGURE 7. Thermal impedance (DO-204AH and DO-213AA) PCB mount.



NOTES:
1. Input voltage and lead resistance should be high so that zener can be driven from a constant current source.
2. Input impedance of band pass filter should be high compared with the dynamic impedance of the diode under test.
3. Filter bandwidth characteristics shall be as follows:
   a. f_0 = 2,000 Hz
   b. Shape factor, −40 db to −3 db, approximately 2.
   c. Passband at the −3 db is 1,000 Hz ±50 Hz to 3,000 Hz ±150 Hz.
   d. Passband at the −40 db is 500 Hz ±50 Hz to 6,000 Hz ±600 Hz.

FIGURE 10. Test circuit for determination of noise density.

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