1N5728B thru 1N5757B-1 DO-35

Axial-Leaded 500 mW Zener Diodes

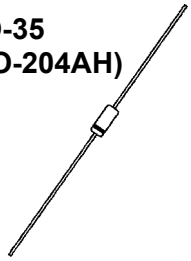
ALSO AVAILABLE IN SURFACE MOUNT

DESCRIPTION

The 1N5728 thru 1N5757 series of 0.5 watt Zener Voltage Regulators provides a selection from 4.7 to 75 volts in standard 5% tolerances as well as tighter tolerances identified by a "C" or "D" suffix letter on the part number. These glass axial-leaded DO-35 Zeners are also available with an internal-metallurgical-bond option by adding a "-1" suffix. Microsemi also offers numerous other Zener products to meet higher and lower power applications.

APPEARANCE

DO-35
(DO-204AH)



IMPORTANT: For the most current data, consult *MICROSEMI's* website: http://www.microsemi.com

FEATURES

- JEDEC registered 1N5728 to 1N5757 series
- Internal metallurgical bond option available by adding a "-1" suffix
- Options for screening in accordance with MIL-PRF-19500 for JAN, JANTX, JANTXV, and JANS are available by adding MQ, MX, MV, or MSP prefixes respectively to part numbers with "-1" suffix
- Surface Mount equivalents are also available in DO-213AA by adding a UR or UR-1 suffix, e.g. 1N5728UR, 1N5746UR-1, etc. (see separate data sheets)
- DO-7 glass body axial-leaded Zener equivalents are also available

APPLICATIONS / BENEFITS

- Regulates voltage over a broad operating current and temperature range
- Extensive selection from 4.7 to 75 V
- Standard voltage tolerances of plus/minus 5% with a B suffix
- Tight tolerances available in plus or minus 2% or 1% with C or D suffix respectively
- Flexible axial-lead mounting terminals
- Nonsensitive to ESD per MIL-STD-750 Method 1020
- Minimal capacitance (see Figure 3)
- Inherently radiation hard as described in Microsemi MicroNote 050

MAXIMUM RATINGS

- Operating and Storage temperature: -65°C to +175°C
- Thermal Resistance: 250°C/W junction to lead at 3/8 (10 mm) lead length from body, or 310°C/W junction to ambient when mounted on FR4 PC board (1 oz Cu) with 4 mm^2 copper pads and track width 1 mm, length 25 mm
- Steady-State Power: 0.5 watts at $T_L \leq 50°C$ 3/8 inch (10 mm) from body or 0.48 W at $T_A \leq 25°C$ when mounted on FR4 PC board as described for thermal resistance above (also see Figure1)
- Forward voltage @10 mA: 0.9 volts (maximum)
- Solder Temperatures: 260°C for 10 s (max)

MECHANICAL AND PACKAGING

- CASE: Hermetically sealed axial-lead glass DO-35 (DO-204AH) package
- TERMINALS: Leads, tin-lead plated solderable per MIL-STD-750, method 2026
- POLARITY: Cathode indicated by band. Diode to be operated with the banded end positive with respect to the opposite end for Zener regulation
- MARKING: Part number
- TAPE & REEL option: Standard per EIA-296 (add "TR" suffix to part number)
- WEIGHT: 0.2 grams
- See package dimensions on last page

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ELECTRICAL CHARACTERISTICS*

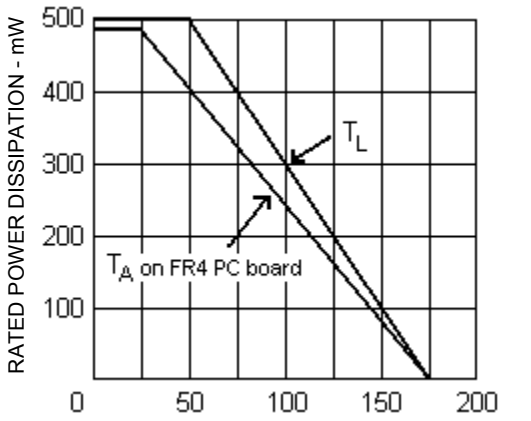
TYPE NUMBER (Note 1)	REGULATOR VOLTAGE	TEST CURRENT	DYNAMIC IMPEDANCE	REVERSE CURRENT	I_R TEST VOLTAGE	MAXIMUM REGULATOR CURRENT	TEMPERATURE COEFFICIENT
	(V_Z) Volts	(I_Z) Amps	(Z_Z) Ohms	I_R μA	(V_R) Volts	(I_{ZM}) mA	(α_{VZ}) mV/°C
1N5728B	4.7	10	70	3.0	2	70	-1.0
1N5729B	5.1	10	50	3.0	2	65	-0.2
1N5730B	5.6	10	25	3.0	2	60	+1.2
1N5731B	6.2	10	10	3.0	4	55	+2.3
1N5732B	6.8	10	10	3.0	4	50	+3.0
1N5733B	7.5	10	10	2.0	5	45	+4.0
1N5734B	8.2	10	15	1.0	5	40	+5.0
1N5735B	9.1	10	15	0.5	6	40	+6.0
1N5736B	10	10	20	0.2	7	35	+7.0
1N5737B	11	5	20	0.1	8	30	+8.0
1N5738B	12	5	25	0.1	8	30	+9.0
1N5739B	13	5	30	0.1	9	25	+10.5
1N5740B	15	5	30	0.1	10	25	+12.9
1N5741B	16	5	40	0.1	11	20	+13
1N5742B	18	5	45	0.1	12	20	+15
1N5743B	20	5	55	0.1	14	15	+17
1N5744B	22	5	55	0.1	15	15	+19
1N5745B	24	5	70	0.1	17	15	+21
1N5746B	27	2	80	0.1	19	10	+23.5
1N5747B	30	2	80	0.1	21	10	+26
1N5748B	33	2	90	0.1	23	10	+29
1N5749B	36	2	90	0.1	25	10	+31
1N5750B	39	2	130	0.1	27	9	+34
1N5751B	43	2	150	0.1	30	9	+37
1N5752B	47	2	170	0.1	33	8	+40
1N5753B	51	2	180	0.1	36	7	+44
1N5754B	56	2	200	0.1	39	6	+47
1N5755B	62	2	215	0.1	43	6	+51
1N5756B	68	2	240	0.1	48	5	+56
1N5757B	75	2	255	0.1	53	5	+60

*JEDEC Registered Data. The Type Number indicates 5% Tolerance. (See Note 1.)

NOTES:

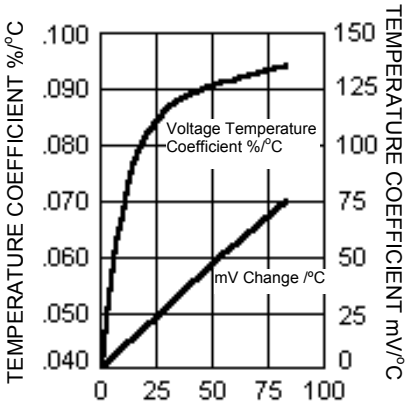
1. Devices listed have a +/-5% voltage tolerance on nominal Vz with a B suffix. An A suffix is +/-10% and no suffix is +/-20%. Suffix C denotes a +/-2% tolerance and suffix D denotes a +/-1% tolerance.
2. All static parameters measured under pulsed conditions, tp = 300 μs.
3. Dynamic Impedance is derived by measuring the ac voltage when superimposing an ac rms current of 0.2 mA at 1000 Hz on to the dc level of I_{ZT}.

GRAPHS



T_L – LEAD TEMPERATURE (°C) 3/8" FROM BODY or
T_A on FR4 PC BOARD

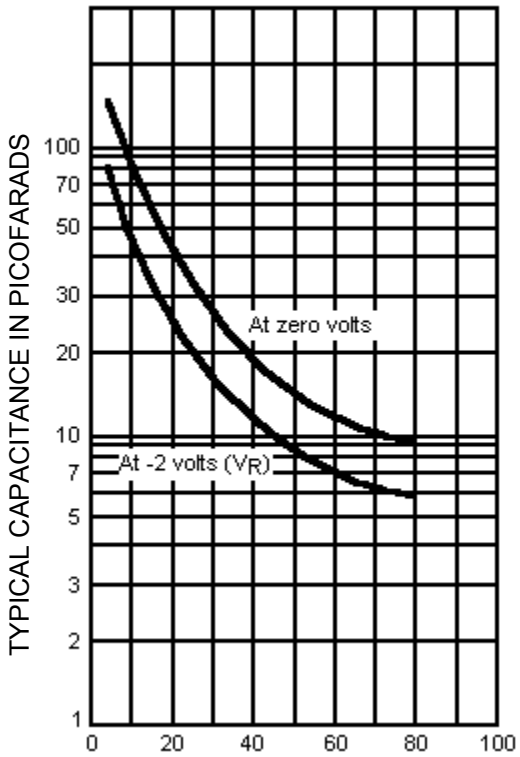
FIGURE 1
POWER DERATING CURVE



NOMINAL ZENER VOLTAGE (VOLTS)

FIGURE 2
ZENER VOLTAGE TEMPERATURE COEFFICIENT vs. ZENER VOLTAGE

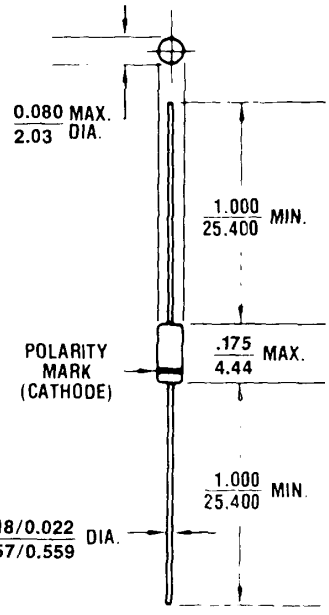
CAPACITANCE vs. V_Z CURVE



ZENER VOLTAGE V_Z

FIGURE 3

PACKAGE DIMENSIONS



All dimensions in: INCH
mm

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1N5748B 1N5733C 1N5731B 1N5735D 1N5751C 1N5744B 1N5728B 1N5754D 1N5750C 1N5730D 1N5745C
1N5743C 1N5747B 1N5746C 1N5739D 1N5729C 1N5746D 1N5752C 1N5740D 1N5741B 1N5729B 1N5731C
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