

Axial-Leaded 500 mW Zener Diodes

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

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 mm² copper pads and track width 1 mm, length 25 mm
- Steady-State Power: 0.5 watts at $T_L \le 50^{\circ}C$ 3/8 inch (10 mm) from body or 0.48 W at $T_A < 25^{\circ}C$ when mounted on FR4 PC board as described for thermal resistance above (also see Figure 1)
- Forward voltage @10 mA: 0.9 volts (maximum)
- Solder Temperatures: 260 °C for 10 s (max)

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
- Minimal capacitance (see Figure 3)
- Inherently radiation hard as described in Microsemi MicroNote 050

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



Axial-Leaded 500 mW Zener Diodes

ELECTRICAL CHARACTERISTICS* MAXIMUM REGULATOR **TEST DYNAMIC REVERSE TEMPERATURE** I_R TEST TYPE REGULATOR **VOLTAGE CURRENT IMPEDANCE** CURRENT VOLTAGE COEFFICIENT NUMBER **CURRENT** (Note 1) (V_z) (I_z) (\mathbf{Z}_{z}) I_R (V_R) (I_{ZM}) (avz) Ohms **Volts** mV/°C Volts Amps μΑ mΑ 1N5728B 4.7 10 70 3.0 2 70 -1.0 2 1N5729B 5.1 10 50 3.0 65 -0.2 1N5730B 25 2 5.6 10 3.0 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 5 1N5734B 82 10 15 10 40 +50 1N5735B 9.1 10 15 0.5 6 40 +6.0 1N5736B 10 10 20 0.2 35 +7.0 7 1N5737B 5 20 0.1 8 30 +8.0 5 1N5738B 12 25 8 30 +9.0 0.1 1N5739B 13 5 30 0.1 9 25 +10.5 5 1N5740B 30 15 0.1 10 25 +12.9 1N5741B 16 5 40 0.1 11 20 +13 5 1N5742B 45 20 18 0.1 12 +15 1N5743B 20 5 55 0.1 14 15 +17 5 55 1N5744B 22 15 15 0.1 +19 1N5745B 24 5 70 0.1 17 15 +21 2 1N5746B 27 80 0.1 19 10 +23.5 1N5747B 30 2 80 21 10 0.1 +26 2 1N5748B 23 33 90 0.1 10 +29 1N5749B 2 25 36 90 0.1 10 +31 2 1N5750B 39 130 27 0.1 9 +34 43 2 30 9 1N5751B 150 0.1 +37 1N5752B 47 170 0.1 33 8 +40 1N5753B 51 2 180 0.1 36 +44 7 2 1N5754B 56 200 0.1 39 6 +47 1N5755B 62 2 215 0.1 43 6 +51 2 1N5756B 68 240 0.1 48 5 +56

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

255

NOTES:

75

1N5757B

 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.

0.1

53

5

- 2. All static parameters measured under pulsed conditions, tp = $300 \mu s$.
- 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}.

+60



1N5728B thru 1N5757B-1 DO-35

Axial-Leaded 500 mW Zener Diodes

GRAPHS

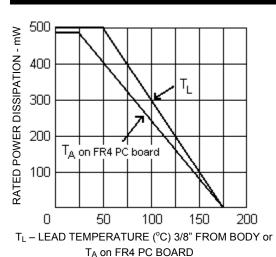
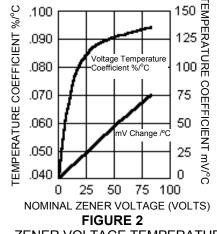


FIGURE 1
POWER DERATING CURVE



ZENER VOLTAGE TEMPERATURE COEFFICIENT vs. ZENER VOLTAGE

