

1N746 thru 1N759A, -1 and 1N4370 thru 1N4372A, -1 DO-35

Silicon 500 mW Zener Diodes

DESCRIPTION

The popular 1N746 thru 1N759A and 1N4370 thru 1N4372A series of 0.5 watt Zener Voltage Regulators provides a selection from 2.4 to 12 volts in standard 5% or 10% tolerances as well as tighter tolerances identified by different suffix letters 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. These are also available in JAN, JANTX, and JANTXV military qualifications. Microsemi also offers numerous other Zener products to meet higher and lower power applications.

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

DO-35 (DO-204AH)

FEATURES

- JEDEC registered 1N746 thru 1N759A and 1N4370 thru 1N4372A series
- Internal metallurgical bond option available by adding a "-1" suffix
- Also available in JAN, JANTX, and JANTXV qualifications per MIL-PRF-19500/127 by adding the JAN, JANTX, or JANTXV prefixes to part numbers for desired level of screening as well as –1" suffix; (e.g. JANTX1N751A-1, JANTXV1N758C-1, etc.)
- Military Surface Mount equivalents also available in DO-213AA by adding a UR-1 suffix in addition to the JAN, JANTX, and JANTXV prefix; e.g. JANTX1N962BUR-1 (see separate data sheet)
- Commercial Surface Mount equivalents available as MLL746 to MLL759A and MLL4370 to MLL4372A including the "-1" suffix in the DO-213AA MELF style package (consult factory for others)
- 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 ≤ 50°C 3/8 inch (10 mm) from body or 0.48 W at T_A ≤ 25°C when mounted on FR4 PC board as described for thermal resistance above (also see Figure 1)
- Forward voltage @200 mA: 1.1 volts
- Solder Temperatures: 260 °C for 10 s (max)

APPLICATIONS / BENEFITS

- Regulates voltage over a broad operating current and temperature range
- Selection from 2.4 to 12 V
- Standard voltage tolerances are plus/minus 5% with A suffix identification and 10 % with no 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

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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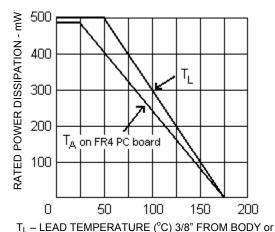
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ELECTRICAL CHARACTERISTICS* @ 25°C							
JEDEC TYPE NO.	NOMINAL ZENER VOLTAGE	ZENER TEST CURRENT	MAXIMUM ZENER IMPEDANCE	MAXIMUM REVERSE CURRENT I_R @ $V_R = 1$ VOLT		MAXIMUM ZENER CURRENT	TYPICAL TEMP COEFF. OF ZENER
(NOTE1)	V _Z @ I _{ZT} (NOTE 2)	I _{ZT}	Z _{ZT} @ I _{ZT} (NOTE 3)	@25°C	@+150°C	I _{ZM} (NOTE 4)	VOLTAGE ανz
	VOLTS	mA	OHMS	μΑ	μΑ	mA	%/°C
1N4370	2.4	20	30	100	200	150	085
1N4371	2.7	20	30	75	150	135	080
1N4372	3.0	20	29	50	100	120	075
1N746	3.3	20	28	10	30	110	066
1N747	3.6	20	24	10	30	100	058
1N748	3.9	20	23	10	30	95	046
1N749	4.3	20	22	2	30	85	033
1N750	4.7	20	19	2	30	75	015
1N751	5.1	20	17	1	20	70	+/010
1N752	5.6	20	11	1	20	65	+.030
1N753	6.2	20	7	.1	20	60	+.049
1N754	6.8	20	5	.1	20	55	+.053
1N755	7.5	20	6	.1	20	50	+.057
1N756	8.2	20	8	.1	20	45	+.060
1N757	9.1	20	10	.1	20	40	+.061
1N758	10.0	20	17	.1	20	35	+.062
1N759	12 0	20	30	1	20	30	+ 062

* JEDEC Registered Data

- NOTE 1: Standard tolerance on JEDEC types shown is +/- 10%. Suffix letter A denotes +/- 5% tolerance; suffix letter C denotes +/- 2%; and suffix letter D denotes +/- 1% tolerance.
- NOTE 2: Voltage measurements to be performed 20 seconds after application of dc test current.
- NOTE 3: Zener impedance derived by superimposing on I_{ZT} , a 60 cps, rms ac current equal to 10% I_{ZT} (2mA ac). See MicroNote 202 for typical zener Impedance variation with different operating currents.
- **NOTE 4:** Allowance has been made for the increase in V_Z due to Z_Z and for the increase in junction temperature as the unit approaches thermal equilibrium at the power dissipation of 400 mW.

GRAPHS



T_A on FR4 PC BOARD

FIGURE 1
POWER DERATING CURVE

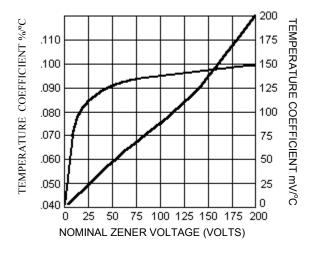


FIGURE 2
ZENER VOLTAGE TEMPERATURE
COEFFICIENT vs. ZENER VOLTAGE



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