Microsemi
SCOTTSDALE DIVISION

1N746UR-1 thru 1N759AUR-1 and 1N4370UR-1 thru 1N4372AUR-1 (or MLL746-1 thru MLL759A-1 and MLL4370-1 thru MLL4372A-1)

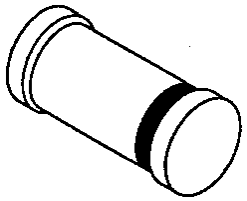
Surface Mount 500 mW Zener Diodes

DESCRIPTION

The 1N746UR-1 thru 1N759AUR-1 and 1N4370UR-1 thru 1N4372AUR-1 series of 0.5 watt Zener Voltage Regulators provides a surface mount equivalent to the popular JEDEC registered 1N746 to 1N759A and 1N4370 to 1N4372A for 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 surface mount DO-213AA Zeners have internal-metallurgical-bonding and 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

APPEARANCE



DO-213AA

FEATURES

- Surface mount equivalents to the JEDEC registered 1N746 thru 1N759A and 1N4370 thru 1N4372A series
- Internal metallurgical bonding
- 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; (e.g. JANTX1N751AUR-1, JANTXV1N758CUR-1, etc.)
- Axial-leaded equivalents also available in DO-35 including JAN, JANTX, and JANTXV military qualified options to MIL-PRF-19500/127; e.g. JANTX1N753A-1 (see separate data sheet)
- DO-7 glass body axial-leaded Zener equivalents are also available

APPLICATIONS / BENEFITS

- Regulates voltage over a broad operating current and temperature range
- Selection from 2.4 to 12 V
- Hermetically sealed surface mount package
- 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
- Nonsensitive to ESD per MIL-STD-750 Method 1020
- Minimal capacitance (see Figure 2)
- Inherently radiation hard as described in Microsemi MicroNote 050

MAXIMUM RATINGS

- Operating and Storage temperature: -65°C to +175°C
- Thermal Resistance: 100 °C/W junction to end or 250°C/W junction to ambient when mounted on FR4 PC board (1 oz Cu) with recommended footprint (see last page)
- Steady-State Power: 0.5 watts at end cap temperature $T_{EC} \leq 125^{\circ}C$ or 0.5 watts at ambient $T_A \leq 50^{\circ}C$ when mounted on FR4 PC board as described for thermal resistance above (also see Figure 2)
- Forward voltage @200 mA: 1.1 volts
- Solder Temperatures: 260 °C for 10 s (max)

MECHANICAL AND PACKAGING

- CASE: Hermetically sealed glass DO-213AA (SOD80 or MLL34) MELF style package
- TERMINALS: End caps tin-lead plated solderable per MIL-STD-750, method 2026
- POLARITY: Cathode indicated by band where diode is to be operated with the banded end positive with respect to the opposite end for Zener regulation
- MARKING: cathode band only
- TAPE & REEL option: Standard per EIA-481-B with 12 mm tape, 2000 per 7 inch reel or 5000 per 13 inch reel (add "TR" suffix to part number)
- WEIGHT: 0.04 grams
- See package dimensions on last page

Microsemi
Scottsdale Division
8700 E. Thomas Rd. PO Box 1390, Scottsdale, AZ 85252 USA, (480) 941-6300, Fax: (480) 947-1503

1N746UR-1 thru 1N759AUR-1 and 1N4370UR-1 thru 1N4372AUR-1 (or MLL746-1 thru MLL759A-1 and MLL4370-1 thru MLL4370-1 thru MLL4372A-1)

Surface Mount 500 mW Zener Diodes

ELECTRICAL CHARACTERISTICS* @ 25°C

INDUSTRY PART NUMBER (NOTES 1 & 5)	NOMINAL ZENER VOLTAGE V_Z @ I_{ZT} (NOTE 2)	ZENER TEST CURRENT I_{ZT}	MAXIMUM ZENER IMPEDANCE Z_{ZT} @ I_{ZT} (NOTE 3)	MAXIMUM REVERSE CURRENT I_R @ V_R = 1 VOLT		MAXIMUM ZENER CURRENT I_{ZM} (NOTE 4)	TYPICAL TEMP COEFF. OF ZENER VOLTAGE α_{VZ}
				@25°C	@+150°C		
	VOLTS	mA	OHMS	µA	µA	mA	%/°C
1N4370UR-1	2.4	20	30	100	200	150	-.085
1N4371UR-1	2.7	20	30	75	150	135	-.080
1N4372UR-1	3.0	20	29	50	100	120	-.075
1N746UR-1	3.3	20	28	10	30	110	-.066
1N747UR-1	3.6	20	24	10	30	100	-.058
1N748UR-1	3.9	20	23	10	30	95	-.046
1N749UR-1	4.3	20	22	2	30	85	-.033
1N750UR-1	4.7	20	19	2	30	75	-.015
1N751UR-1	5.1	20	17	1	20	70	+/-.010
1N752UR-1	5.6	20	11	1	20	65	+.030
1N753UR-1	6.2	20	7	.1	20	60	+.049
1N754UR-1	6.8	20	5	.1	20	55	+.053
1N755UR-1	7.5	20	6	.1	20	50	+.057
1N756UR-1	8.2	20	8	.1	20	45	+.060
1N757UR-1	9.1	20	10	.1	20	40	+.061
1N758UR-1	10.0	20	17	.1	20	35	+.062
1N759UR-1	12.0	20	30	.1	20	30	+.062

* JEDEC Registered Data

NOTE 1: Standard tolerance on types shown is +/- 10%. Suffix letter A denotes +/- 5% tolerance; suffix letter C denotes +/- 2%; and suffix letter D denotes +/- 1% tolerance.

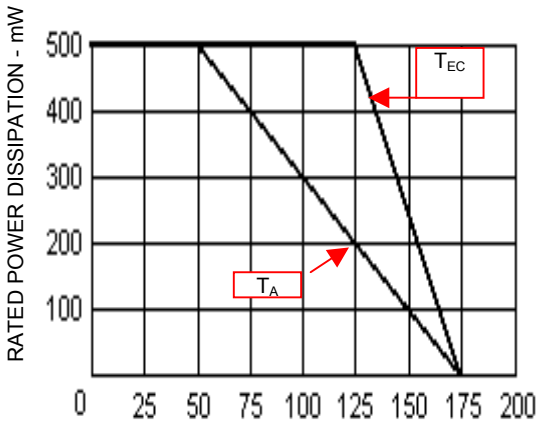
NOTE 2: Voltage measurements to be performed 20 seconds after application of dc test current.

NOTE 3: Zener impedance derived by superimposing on I_{ZT}, a 60 cps, rms ac current equal to 10% I_{ZT} (2 mA 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.

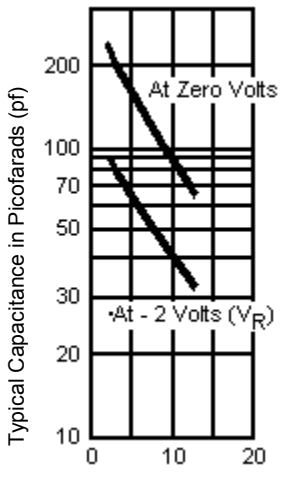
NOTE 5: These may be ordered as either 1N4370UR-1 thru 1N4372AUR-1 and 1N746UR-1 thru 1N758AUR-1, or as MLL4370-1 thru MLL4372A-1 and MLL746-1 thru MLL758A-1. For military types, use the 1NxxxUR-1 format and also include JAN, JANTX, or JANTXV prefix for desired screening level, e.g. JANTX1N4370UR-1, JANTXV1N746AUR-1, JANTXV1N758UR-1, etc.

GRAPHS



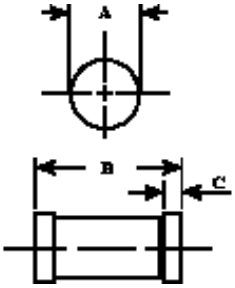
T_{EC} End Cap Temperature (°C), or
T_A Ambient Temperature on FR4 PC BOARD

FIGURE 1
POWER DERATING CURVE

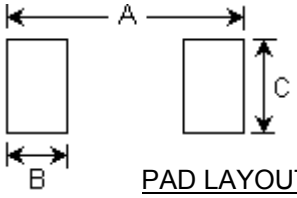


Zener Voltage V_Z

FIGURE 2
CAPACITANCE vs. ZENER VOLTAGE (TYPICAL)



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.063	0.067	1.60	1.70
B	0.130	0.146	3.30	3.70
C	0.016	0.022	0.41	0.55



PAD LAYOUT

	INCHES	mm
A	.200	5.08
B	.055	1.40
C	.080	2.03