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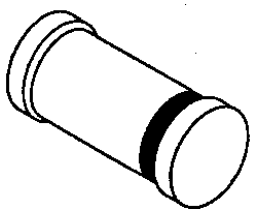
1N5913BUR-1 thru 1N5956BUR-1
(or MLL5913B thru MLL5956B)

METALLURGICALLY BONDED GLASS SURFACE MOUNT 1.5 WATT ZENERS

DESCRIPTION

This surface mountable 1.5 W Zener diode series in the JEDEC DO-213AB package is similar in electrical features to the JEDEC registered 1N5913B thru 1N5956B axial-leaded package for 3.3 to 200 V. It is an ideal selection for applications of high density and low parasitic requirements. Due to its glass hermetic qualities and metallurgically enhanced internal contacts, it may also be used for high reliability applications when required by a source control drawing (SCD) or screening in accordance with MIL-PRF-19500 as described in Features below. Zener voltage tolerance options are identified by part number suffix including tight-tolerance. A variety of other Zener product offerings and packages are available by Microsemi to meet higher or lower power and test current applications.

APPEARANCE



DO-213AB

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

FEATURES

- Electrically similar to the JEDEC registered 1N5913B thru 1N5956B zener series
- Zener voltages available 3.3V to 200V
- 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, e.g. MX1N5913BUR-1, MV1N5923CUR-1, MSP1N5952DUR-1, etc.
- Surface mount equivalents also available as SMBJ5913B to SMBJ5956B, SMBG5913B to SMBG5956B, SMAJ5913B to SMAJ5956B, or as 1PMT5913B to 1PMT5956B (see separate data sheets)
- Plastic body axial-leaded Zener equivalents are also available as 1N5913BP to 1N5956BP (see separate data sheet)

APPLICATIONS / BENEFITS

- Regulates voltage over a broad operating current and temperature range
- Wide selection from 3.3 to 200 V
- Leadless package for surface mounting
- Ideal for high density mounting
- Metallurgically enhanced internal contact design for greater reliability and lower thermal resistance
- Standard voltage tolerances are +/- 5% with B suffix and 10 % with A suffix identification
- Tight tolerances available in plus or minus 2% or 1% with C or D suffix respectively
- Nonsensitive to ESD
- Hermetically sealed glass package
- Specified capacitance (see Figure 2)
- Inherently radiation hard as described in Microsemi MicroNote 050

MAXIMUM RATINGS

- Power dissipation at 25°C: 1.5 watts (also see derating in Figure 1).
- Operating and Storage temperature: -65°C to +175°C
- Thermal Resistance: 40 °C/W junction to end cap, or 120°C/W junction to ambient when mounted on FR4 PC board (1 oz Cu) with recommended footprint (see last page)
- Steady-State Power: 1.50 watts at $T_{EC} \leq 115^{o}C$, or 1.25 watts at $T_A = 25^{o}C$ when mounted on FR4 PC board and recommended footprint as described for thermal resistance (also see Figure 1)
- Forward voltage @200 mA: 1.2 volts (maximum)
- Solder Temperatures: 260 °C for 10 s (max)

MECHANICAL AND PACKAGING

- CASE: Hermetically sealed DO-213AB glass MELF package
- TERMINALS: End caps, 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: Cathode band only
- TAPE & REEL optional: Standard per EIA-481-B with 12 mm tape, 1500 per 7 inch reel or 5000 per 13 inch reel (add "TR" suffix to part number)
- WEIGHT: 0.05 grams
- See package dimensions on last page

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ELECTRICAL CHARACTERISTICS @ T_{EC} = 25°C unless otherwise noted*

MICROSEMI PART NUMBER (Note 1 &4)	ZENER VOLTAGE V_Z (Note 2)	TEST CURRENT I_{ZT}	DYNAMIC IMPEDANCE Z_{ZT} (Note 3)	KNEE CURRENT I_{ZK}	KNEE IMPEDANCE Z_{ZK} (Note 3)	REVERSE CURRENT I_R	REVERSE VOLTAGE V_R	MAX. DC CURRENT I_{ZM}
	Volts	mA	Ohms	mA	Ohms	µAdc	Volts	mA
1N5913BUR-1	3.3	113.6	10	1.0	500	100	1.0	454
1N5914BUR-1	3.6	104.2	9.0	1.0	500	75	1.0	416
1N5915BUR-1	3.9	96.1	7.5	1.0	500	25	1.0	384
1N5916BUR-1	4.3	87.2	6.0	1.0	500	5.0	1.0	348
1N5917BUR-1	4.7	79.8	5.0	1.0	500	5.0	1.5	319
1N5918BUR-1	5.1	73.5	4.0	1.0	350	5.0	2.0	294
1N5919BUR-1	5.6	66.9	2.0	1.0	250	5.0	3.0	267
1N5920BUR-1	6.2	60.5	2.0	1.0	200	5.0	4.0	241
1N5921BUR-1	6.8	55.1	2.5	1.0	200	5.0	5.2	220
1N5922BUR-1	7.5	50.0	3.0	0.5	400	5.0	6.0	200
1N5923BUR-1	8.2	45.7	3.5	0.5	400	5.0	6.5	182
1N5924BUR-1	9.1	41.2	4.0	0.5	500	5.0	7.0	164
1N5925BUR-1	10	37.5	4.5	0.25	500	5.0	8.0	150
1N5926BUR-1	11	34.1	5.5	0.25	550	1.0	8.4	136
1N5927BUR-1	12	31.2	6.5	0.25	550	1.0	9.1	125
1N5928BUR-1	13	28.8	7.0	0.25	550	1.0	9.9	115
1N5929BUR-1	15	25.0	9.0	0.25	600	1.0	11.4	100
1N5930BUR-1	16	23.4	10	0.25	600	1.0	12.2	93
1N5931BUR-1	18	20.8	12	0.25	650	1.0	13.7	83
1N5932BUR-1	20	18.7	14	0.25	650	1.0	15.2	75
1N5933BUR-1	22	17.0	17.5	0.25	650	1.0	16.7	68
1N5934BUR-1	24	15.6	19	0.25	700	1.0	18.2	62
1N5935BUR-1	27	13.9	23	0.25	700	1.0	20.6	55
1N5936BUR-1	30	12.5	28	0.25	750	1.0	22.8	50
1N5937BUR-1	33	11.4	33	0.25	800	1.0	25.1	45
1N5938BUR-1	36	10.4	38	0.25	850	1.0	27.4	41
1N5939BUR-1	39	9.6	45	0.25	900	1.0	29.7	38
1N5940BUR-1	43	8.7	53	0.25	950	1.0	32.7	34
1N5941BUR-1	47	8.0	67	0.25	1000	1.0	35.8	31
1N5942BUR-1	51	7.3	70	0.25	1100	1.0	38.8	29
1N5943BUR-1	56	6.7	86	0.25	1300	1.0	42.6	26
1N5944BUR-1	62	6.0	100	0.25	1500	1.0	47.1	24
1N5945BUR-1	68	5.5	120	0.25	1700	1.0	51.2	22
1N5946BUR-1	75	5.0	140	0.25	2000	1.0	56.0	20
1N5947BUR-1	82	4.6	160	0.25	2500	1.0	62.2	18
1N5948BUR-1	91	4.1	200	0.25	3000	1.0	69.2	16
1N5949BUR-1	100	3.7	250	0.25	3100	1.0	76.0	15
1N5950BUR-1	110	3.4	300	0.25	4000	1.0	83.6	13
1N5951BUR-1	120	3.1	380	0.25	4500	1.0	91.2	12
1N5952BUR-1	130	2.9	450	0.25	5000	1.0	98.9	11
1N5953BUR-1	150	2.5	600	0.25	6000	1.0	114.0	10
1N5954BUR-1	160	2.3	700	0.25	6500	1.0	121.6	9
1N5955BUR-1	180	2.1	900	0.25	7000	1.0	136.8	8
1N5956BUR-1	200	1.9	1200	0.25	8000	1.0	152.0	7

* T_{EC} Maintained at 30°C, V_F = 1.2V max @ I_F = 200 mA (all types).

NOTE 1: No suffix indicates a +/-20% tolerance on nominal V_Z. The suffix A denotes +/-10%, the standard suffix B denotes +/-5%, C denotes +/-2%, and D denotes +/-1% tolerance.

NOTE 2: Zener voltage (V_Z) is measured at end cap temperatures T_{EC} = 30°C. Voltage measurement to be performed 90 seconds after application of dc current.

NOTE 3: The zener impedance is derived from the 60 Hz ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK}.

NOTE 4: This product series has also been previously identified as the MLL5913B thru MLL5956B series that included the enhanced metallurgical bond. This alternate name may still be used.

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GRAPHS

STEADY-STATE POWER DERATING

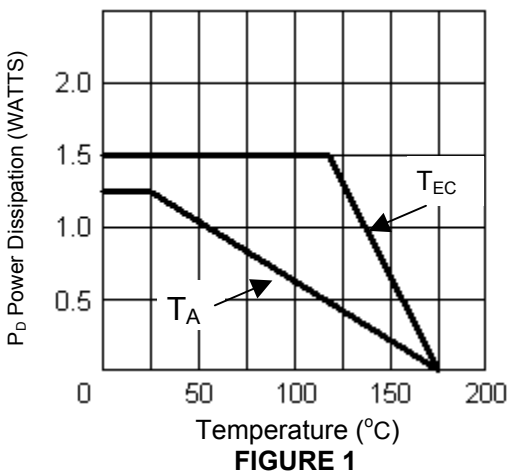


FIGURE 1

Power Derating Curve Where T_{EC} is End Cap Temp and T_A is Ambient Temperature on FR4 PC board.

CAPACITANCE vs. V_Z CURVE

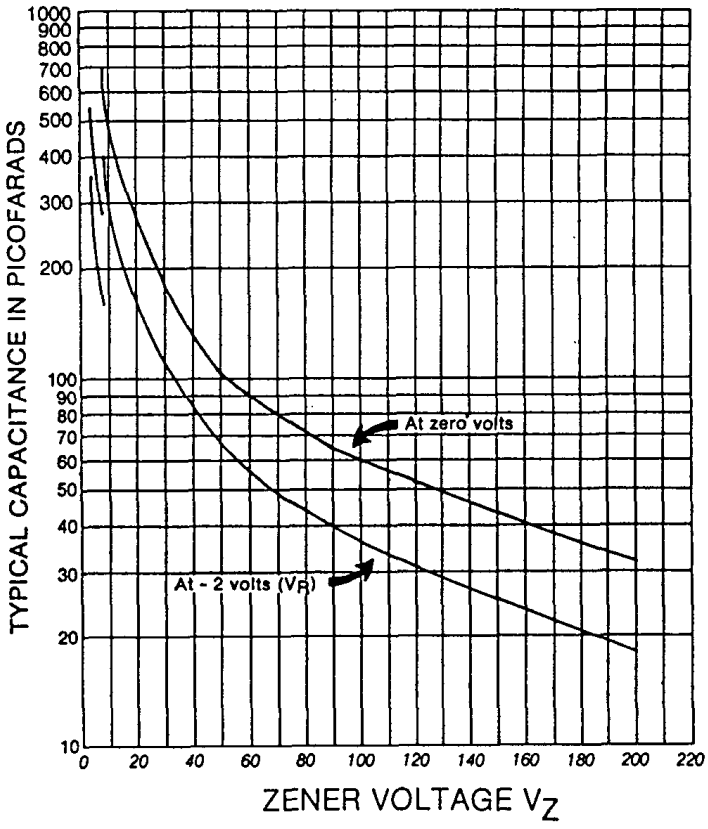
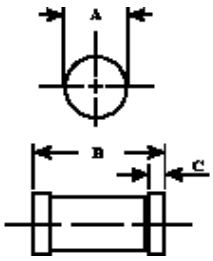
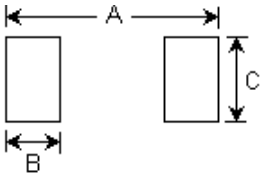


FIGURE 2

PACKAGE DIMENSIONS



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.094	0.105	2.39	2.66
B	0.189	0.205	4.80	5.20
C	0.016	0.022	0.41	0.55



PAD LAYOUT

	INCHES	mm
A	.276	7.00
B	0.070	1.8
C	0.110	2.8

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