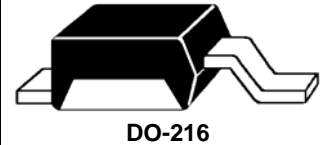


**DESCRIPTION**

This surface mountable 3.0 W Zener diode series in the JEDEC DO-216 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 requiring low profile and high-density mounting that are also RoHS Compliant. When properly heat sunk, these zener diodes provide power-handling capabilities only found in larger packages. In addition to its size advantages, Powermite<sup>®</sup> package features include a full metallic bottom that eliminates the possibility of solder flux entrapment during assembly, and a unique locking tab acts as an integral heat sink. Its innovative design makes this device ideal for use with automatic insertion equipment.

**APPEARANCE**



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

**FEATURES**

- Very low profile surface mount package (1.1 mm)
- Integral Heat Sink Locking Tabs
- Compatible with automatic insertion equipment
- Full metallic bottom eliminates flux entrapment
- RoHS Compliant
- Zener voltage 3.3 to 200 Volts
- Low reverse leakage
- Tight tolerance available

**APPLICATIONS / BENEFITS**

- Regulates voltage over a broad operating current and temperature range
- Wide selection from 3.3 to 200 V
- Flexible axial-lead mounting terminals
- Nonsensitive to ESD
- Moisture classification is Level 1 per IPC/JEDEC J-STD-020B with no dry pack required
- ESD Rating of >16kV per human body model

**MAXIMUM RATINGS**

- Junction and storage temperatures: -55°C to +150°C
- DC power dissipation: 3.0 watt with case bottom (TAB 1) ≤ 60°C (also see derating in Figure 1).
- Forward voltage @200 mA: 1.2 volts (maximum)
- Thermal Resistance: 30°C/W junction to Case bottom (Tab 1), or 230°C/W junction to ambient when mounted on FR4 PC board (1 oz Cu) with recommended footprint (see last page).
- Steady-State Power: 3.0 watts at T<sub>C</sub> ≤ 60°C, or 0.54 watts at T<sub>A</sub> = 25°C when mounted on FR4 PC board and recommended footprint as described for thermal resistance (see Figure 1 and last page)
- Solder Temperatures: 260°C for 10 s (max)

**MECHANICAL AND PACKAGING**

- Terminals: Annealed matte-Tin plating over copper and readily solderable per MIL-STD-750 method 2026 (consult factory for Tin-Lead plating)
- Polarity: Cathode designated by TAB 1 (backside)
- Case: Molded epoxy package meets UL94V-0
- Marking: Last three numerical digits of part number (see device marking code in Electrical Characteristics table below with dot “•” suffix for RoHS Compliant)
- Weight: 0.016 gram (approximate)
- Tape & Reel option: Standard per EIA-481-B  
7 inch reel 3,000 pieces  
13 inch reel 12,000 pieces

**ELECTRICAL CHARACTERISTICS @ T<sub>L</sub> = 30°C**

Microsemi Number	Device Marking (4)	Zener Voltage	Test Current	Dynamic Impedance	Knee Current	Knee Impedance	Maximum Reverse Current	Reverse Voltage	Maximum Zener Current
		V <sub>Z</sub> (1)	I <sub>ZT</sub>	Z <sub>ZT</sub> (2)	I <sub>ZK</sub>	Z <sub>ZK</sub>	I <sub>R</sub>	V <sub>R</sub>	I <sub>ZM</sub> (3)
		VOLTS	mA	OHMS	mA	OHMS	μA <sub>dc</sub>	VOLTS	mA
1PMT5913B	913•	3.3	113.6	10	1.0	500	100	1.0	749.1
1PMT5914B	914•	3.6	104.2	9.0	1.0	500	75	1.0	686.4
1PMT5915B	915•	3.9	96.1	7.5	1.0	500	25	1.0	633.6
1PMT5916B	916•	4.3	87.2	6.0	1.0	500	5	1.0	547.2
1PMT5917B	917•	4.7	79.8	5.0	1.0	500	5	1.5	526.4
1PMT5918B	918•	5.1	73.5	4.0	1.0	350	5	2.0	481.8
1PMT5919B	919•	5.6	66.9	2.0	1.0	250	5	3.0	432.3
1PMT5920B	920•	6.2	60.5	2.0	1.0	200	5	4.0	397.7

Microsemi Number	Device Marking	Zener Voltage	Test Current	Dynamic Impedance	Knee Current	Knee Impedance	Maximum Reverse Current	Reverse Voltage	Maximum Zener Current
		$V_Z$ (1)	$I_{ZT}$	$Z_{ZT}$ (2)	$I_{ZK}$	$Z_{ZK}$	$I_R$	$V_R$	$I_{ZM}$ (3)
		Volts	mA	Ohms	mA	Ohms	$\mu$ A	Volts	mA
1PMT5921B	921•	6.8	55.1	2.5	1.0	200	5	5.2	363.0
1PMT5922B	922•	7.5	50	3.0	0.5	400	5	6.0	330.0
1PMT5923B	923•	8.2	45.7	3.5	0.5	400	5	6.5	300.3
1PMT5924B	924•	9.1	41.2	4.0	0.5	500	5	7.0	270.6
1PMT5925B	925•	10	37.5	4.5	0.25	500	5	8.0	247.5
1PMT5926B	926•	11	34.1	5.5	0.25	550	1	8.4	224.4
1PMT5927B	927•	12	31.2	6.5	0.25	550	1	9.1	206.2
1PMT5928B	928•	13	28.8	7.0	0.25	550	1	9.9	189.8
1PMT5929B	929•	15	25	9.0	0.25	600	1	11.4	165.0
1PMT5930B	930•	16	23.4	10	0.25	600	1	12.2	153.5
1PMT5931B	931•	18	20.8	12	0.25	650	1	13.7	137.0
1PMT5932B	932•	20	18.7	14	0.25	650	1	15.2	123.8
1PMT5933B	933•	22	17	17.5	0.25	650	1	16.7	112.2
1PMT5934B	934•	24	15.6	19	0.25	700	1	18.2	102.3
1PMT5935B	935•	27	13.9	23	0.25	700	1	20.6	90.8
1PMT5936B	936•	30	12.5	28	0.25	750	1	22.8	82.5
1PMT5941B	941•	47	8.0	67	0.25	1000	1	35.8	51.2
1PMT5942B	942•	51	7.3	70	0.25	1100	1	38.8	47.9
1PMT5943B	943•	56	6.7	86	0.25	1300	1	42.6	42.9
1PMT5944B	944•	62	6.0	100	0.25	1500	1	47.1	38.6
1PMT5945B	945•	68	5.5	120	0.25	1700	1	51.2	36.3
1PMT5946B	946•	75	5.0	140	0.25	2000	1	56	33.0
1PMT5947B	947•	82	4.6	160	0.25	2500	1	62.2	29.7
1PMT5948B	948•	91	4.1	200	0.25	3000	1	69.2	26.4
1PMT5949B	949•	100	3.7	250	0.25	3100	1	76	24.8
1PMT5950B	950•	110	3.4	300	0.25	4000	1	83.6	21.5
1PMT5951B	951•	120	3.1	380	0.25	4500	1	91.2	19.8
1PMT5952B	952•	130	2.9	450	0.25	5000	1	98.8	18.1
1PMT5953B	953•	150	2.5	600	0.25	6000	1	114	16.5
1PMT5954B	954•	160	2.3	700	0.25	6500	1	121.6	14.9
1PMT5955B	955•	180	2.1	900	0.25	7000	1	136.8	13.2
1PMT5956B	956•	200	1.9	1200	0.25	8000	1	152	11.6

**NOTE 1:** Product shown has a standard tolerance of  $\pm 5\%$  on the nominal zener voltage and is also available in 2% and 1% tolerance with suffix C and D respectively.  $V_Z$  is measured at  $I_{ZT}$  with  $T_C$  (TAB 1)  $30^\circ\text{C}$  and 20 seconds after application of dc current.

**NOTE 2:** Zener impedance is derived by superimposing on  $I_{ZT}$  a 60 Hz rms ac current equal to 10% of  $I_{ZT}$ .

**NOTE 3:** Based upon 3 W maximum power dissipation. Allowance has been made for the higher voltage associated with operation at higher currents and temperature. For determination of voltage change with current deviations from  $I_{ZT}$  see Micro Note 202.

GRAPHS AND CIRCUIT

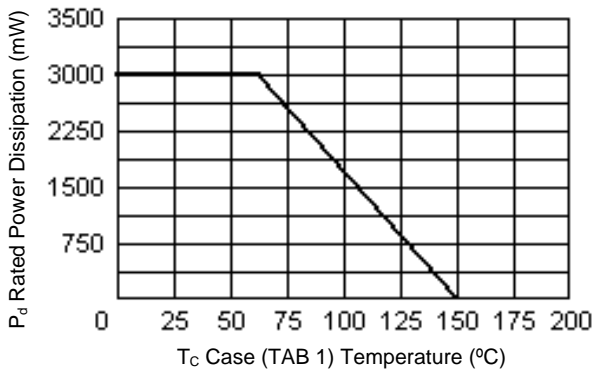
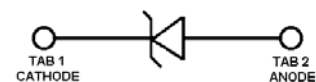
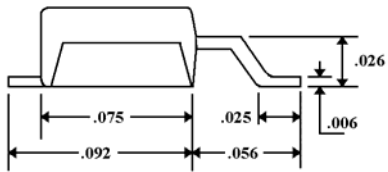
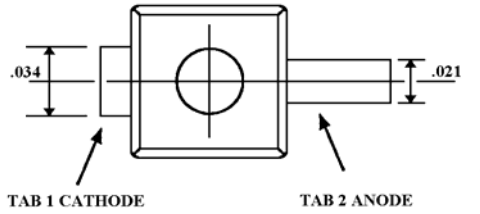


FIGURE 1

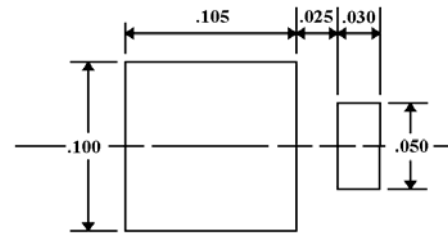
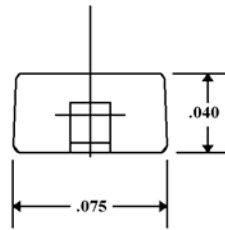
CIRCUIT DIAGRAM



DIMENSIONS



All dimensions +/- .005 inches



MOUNTING PAD