



DATA SHEET

SEMICONDUCTOR

ZMxxB Series

500 mW LL-34 Hermetically Sealed Glass Zener Voltage Regulators



SURFACE MOUNT
LL34

Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

Parameter	Value	Units
Power Dissipation	500	mW
Storage Temperature Range	-65 to +200	$^\circ\text{C}$
Operating Junction Temperature	+200	$^\circ\text{C}$

DEVICE MARKING DIAGRAM

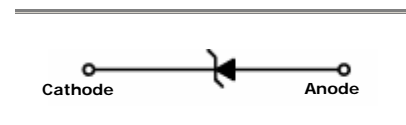


Cathode Band Color : Blue

These ratings are limiting values above which the serviceability of the diode may be impaired.

Specification Features:

- Zener Voltage Range 2.4 to 75 Volts
- ZMxxxB - VZ tolerance $\pm 2\%$
- ZMxxxC - VZ tolerance $\pm 5\%$
- LL-34 (Mini-MELF) Package
- Surface Device Type Mounting
- Hermetically Sealed Glass
- Compression Bonded Construction
- All external surfaces are corrosion resistant and leads are readily solderable
- 1st band indicates negative polarity



ELECTRICAL SYMBOL

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Device Type	$V_Z @ I_{ZT}$ (Volts)			I_{ZT} (mA)	$Z_{ZT} @ I_{ZT}$ (Ω) Max	I_{ZK} (mA)	$Z_{ZK} @ I_{ZK}$ (Ω) Max	$I_R @ V_R$ (μA) Max	V_R (Volts)
	Min	Nom	Max						
ZM2V4B	2.35	2.4	2.45	5	94	1	564	45	1
ZM2V7B	2.65	2.7	2.75	5	94	1	564	18	1
ZM3V0B	2.94	3.0	3.06	5	89	1	564	9	1
ZM3V3B	3.23	3.3	3.37	5	89	1	564	4.5	1
ZM3V6B	3.53	3.6	3.67	5	84	1	564	4.5	1
ZM3V9B	3.82	3.9	3.98	5	84	1	564	2.7	1
ZM4V3B	4.21	4.3	4.39	5	84	1	564	2.7	1
ZM4V7B	4.61	4.7	4.79	5	75	1	470	2.7	2
ZM5V1B	5.00	5.1	5.20	5	56	1	451	1.8	2
ZM5V6B	5.49	5.6	5.71	5	37	1	376	0.9	2
ZM6V2B	6.08	6.2	6.32	5	9	1	141	2.7	4
ZM6V8B	6.66	6.8	6.94	5	14	1	75	1.8	4
ZM7V5B	7.33	7.5	7.63	5	14	1	75	0.9	5
ZM8V2B	8.04	8.2	8.36	5	14	1	75	0.63	5
ZM9V1B	8.92	9.1	9.28	5	14	1	94	0.45	6
ZM10B	9.80	10	10.20	5	18	1	141	0.18	7
ZM11B	10.78	11	11.22	5	18	1	141	0.09	8

ZMxxB Series

Electrical Characteristics T_A = 25°C unless otherwise noted

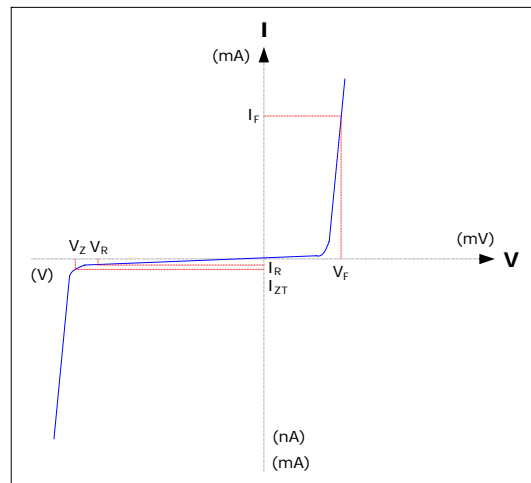
Device Type	V _Z @ I _{ZT} (Volts)			I _{ZT} (mA)	Z _{ZT} @ I _{ZT} (Ω) Max	I _{ZK} (mA)	Z _{ZK} @ I _{ZK} (Ω) Max	I _R @ V _R (μA) Max	V _R (Volts)
	Min	Nom	Max						
ZM12B	11.76	12	12.24	5	23	1	141	0.09	8
ZM13B	12.74	13	13.26	5	28	1	160	0.09	8
ZM15B	14.70	15	15.30	5	28	1	188	0.045	10.5
ZM16B	15.68	16	16.32	5	37	1	188	0.045	11.2
ZM18B	17.64	18	18.36	5	42	1	212	0.045	12.6
ZM20B	19.60	20	20.40	5	51	1	212	0.045	14.0
ZM22B	21.56	22	22.44	5	51	1	235	0.045	15.4
ZM24B	23.52	24	24.48	5	65	1	235	0.045	16.8
ZM27B	26.46	27	27.54	5	75	0.5	282	0.045	18.9
ZM30B	29.40	30	30.60	5	75	0.5	282	0.045	21.0
ZM33B	32.34	33	33.66	5	75	0.5	306	0.045	23.0
ZM36B	35.28	36	36.72	5	84	0.5	329	0.045	25.2
ZM39B	38.22	39	39.78	5	122	0.5	329	0.045	27.3
ZM43B	42.14	43	43.86	5	141	0.5	353	0.045	30.1
ZM47B	46.06	47	47.94	5	160	0.5	353	0.045	33.0
ZM51B	49.98	51	52.02	5	169	0.5	376	0.045	35.7
ZM56B	54.88	56	57.12	5	188	0.5	400	0.045	39.2
ZM62B	60.76	62	63.24	5	202	0.5	423	0.045	43.4
ZM68B	66.64	68	69.36	5	226	0.5	447	0.045	47.6
ZM75B	73.50	75	76.50	5	240	0.5	470	0.045	52.5

V_F Forward Voltage = 1 V Maximum @ I_F = 100 mA for all types

Electrical Symbol Definition

Symbol	Parameter
V _Z	Reverse Zener Voltage @ I _{ZT}
I _{ZT}	Reverse Current
Z _{ZT}	Maximum Zener Impedance @ I _{ZT}
I _{ZK}	Reverse Current
Z _{ZK}	Maximum Zener Impedance @ I _{ZK}
I _R	Reverse Leakage Current @ V _R
V _R	Breakdown Voltage
I _F	Forward Current
V _F	Forward Voltage @ I _F

Typical Characteristics



DEVICE CHARACTERISTICS

ZMxxB Series

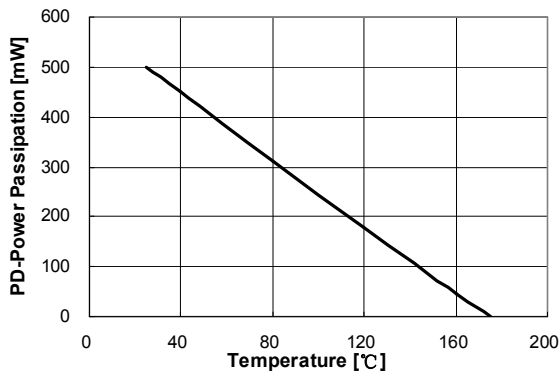


Figure 1. Power Dissipation vs Ambient Temperature
Valid provided leads at a distance of 0.8mm from case are kept at ambient temperature

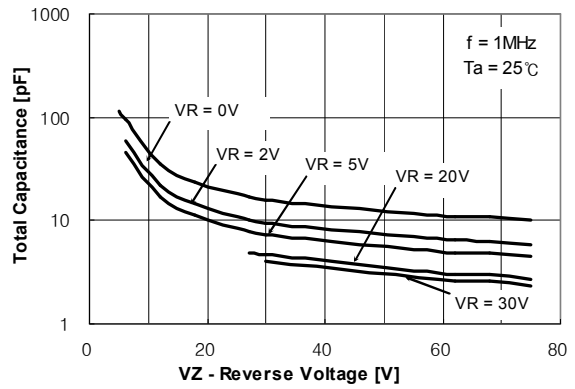


Figure 2. Total Capacitance

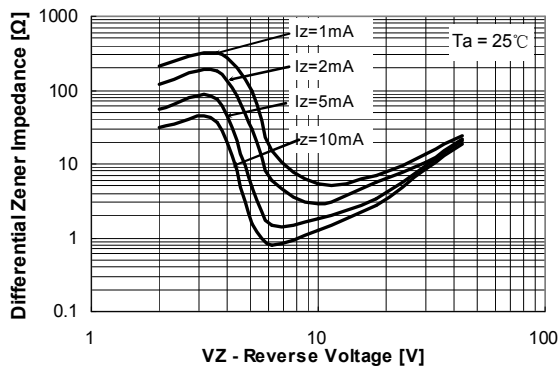


Figure 3. Differential Impedance vs. Zener Voltage

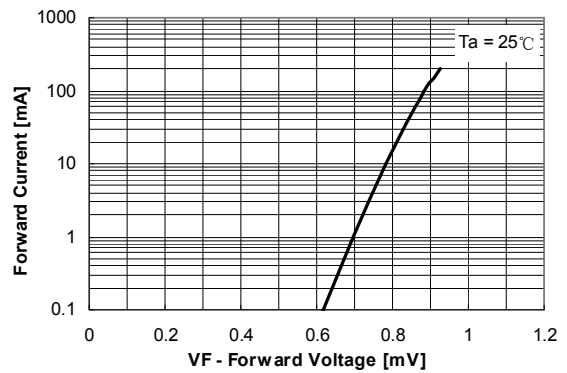


Figure 4. Forward Current vs. Forward Voltage

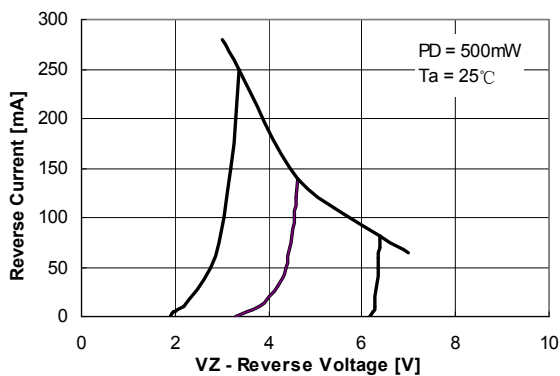


Figure 5. Reverse Current vs. Reverse Voltage

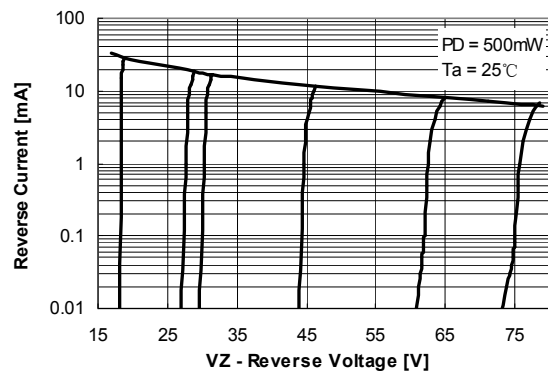
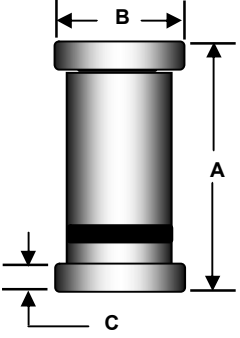


Figure 6. Reverse Current vs. Reverse Voltage

PACKAGE OUTLINE & DIMENSIONS

Package	Case Outline																																
LL34		<table border="1"> <thead> <tr> <th data-bbox="737 479 852 629" rowspan="3">DIM</th> <th colspan="4" data-bbox="852 479 1433 524">LL-34</th> </tr> <tr> <th colspan="2" data-bbox="852 524 1142 577">Millimeters</th> <th colspan="2" data-bbox="1142 524 1433 577">Inches</th> </tr> <tr> <th data-bbox="852 577 999 629">Min</th> <th data-bbox="999 577 1142 629">Max</th> <th data-bbox="1142 577 1289 629">Min</th> <th data-bbox="1289 577 1433 629">Max</th> </tr> </thead> <tbody> <tr> <td data-bbox="737 629 852 680">A</td> <td data-bbox="852 629 999 680">3.30</td> <td data-bbox="999 629 1142 680">3.60</td> <td data-bbox="1142 629 1289 680">0.130</td> <td data-bbox="1289 629 1433 680">0.142</td> </tr> <tr> <td data-bbox="737 680 852 732">B</td> <td data-bbox="852 680 999 732">1.40</td> <td data-bbox="999 680 1142 732">1.50</td> <td data-bbox="1142 680 1289 732">0.055</td> <td data-bbox="1289 680 1433 732">0.059</td> </tr> <tr> <td data-bbox="737 732 852 784">C</td> <td data-bbox="852 732 999 784">0.35</td> <td data-bbox="999 732 1142 784">0.50</td> <td data-bbox="1142 732 1289 784">0.014</td> <td data-bbox="1289 732 1433 784">0.020</td> </tr> </tbody> </table>				DIM	LL-34				Millimeters		Inches		Min	Max	Min	Max	A	3.30	3.60	0.130	0.142	B	1.40	1.50	0.055	0.059	C	0.35	0.50	0.014	0.020
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Notes:

1. All dimensions are within DO213AC JEDEC standard.
2. LL-34 polarity denoted by cathode band.