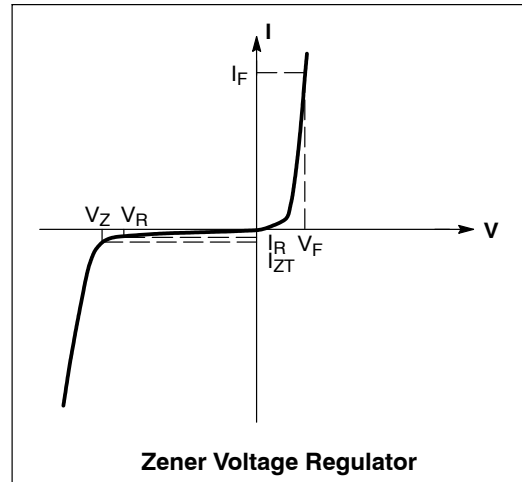


# MMBZ52xxBLT1 Series, SZMMBZ52xxBLT1G Series

## ELECTRICAL CHARACTERISTICS

(Pinout: 1-Anode, 2-No Connection, 3-Cathode) ( $T_A = 25^\circ\text{C}$  unless otherwise noted,  $V_F = 0.95\text{ V Max. @ } I_F = 10\text{ mA}$ )

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 @ $V_R$
$V_R$	Reverse Voltage
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$



## MMBZ52xxBLT1 Series, SZMMBZ52xxBLT1G Series

**ELECTRICAL CHARACTERISTICS** (Pinout: 1-Anode, 2-NC, 3-Cathode) ( $V_F = 0.9\text{ V Max @ }I_F = 10\text{ mA}$  for all types.)

Device	Device Marking	Zener Voltage (Note 3)				Zener Impedance			Leakage Current	
		$V_Z$ (Volts)			@ $I_{ZT}$	$Z_{ZT}$ @ $I_{ZT}$	$Z_{ZK}$ @ $I_{ZK}$		$I_R$ @ $V_R$	
		Min	Nom	Max	mA	$\Omega$	$\Omega$	mA	$\mu\text{A}$	Volts
SZ/MMBZ5221BL, G	18A	2.28	2.4	2.52	20	30	1200	0.25	100	1
SZ/MMBZ5222BL, G	18B	2.37	2.5	2.63	20	30	1250	0.25	100	1
MMBZ5223BL, G	18C	2.56	2.7	2.84	20	30	1300	0.25	75	1
MMBZ5224BL, G	18D	2.66	2.8	2.94	20	30	1400	0.25	75	1
SZ/MMBZ5225BL, G	18E	2.85	3	3.15	20	29	1600	0.25	50	1
SZ/MMBZ5226BL, G	8A	3.13	3.3	3.47	20	28	1600	0.25	25	1
SZ/MMBZ5227BL, G	8B	3.42	3.6	3.78	20	24	1700	0.25	15	1
SZ/MMBZ5228BL, G	8C	3.70	3.9	4.10	20	23	1900	0.25	10	1
SZ/MMBZ5229BL, G	8D	4.08	4.3	4.52	20	22	2000	0.25	5	1
SZ/MMBZ5230BL, G	8E	4.46	4.7	4.94	20	19	1900	0.25	5	2
<b>SZ/MMBZ5231BL, G</b>	<b>8F</b>	<b>4.84</b>	<b>5.1</b>	<b>5.36</b>	<b>20</b>	<b>17</b>	<b>1600</b>	<b>0.25</b>	<b>5</b>	<b>2</b>
<b>SZ/MMBZ5232BL, G</b>	<b>8G</b>	<b>5.32</b>	<b>5.6</b>	<b>5.88</b>	<b>20</b>	<b>11</b>	<b>1600</b>	<b>0.25</b>	<b>5</b>	<b>3</b>
SZ/MMBZ5233BL, G	8H	5.70	6	6.30	20	7	1600	0.25	5	3.5
<b>SZ/MMBZ5234BL, G</b>	<b>8J</b>	<b>5.89</b>	<b>6.2</b>	<b>6.51</b>	<b>20</b>	<b>7</b>	<b>1000</b>	<b>0.25</b>	<b>5</b>	<b>4</b>
<b>SZ/MMBZ5235BL, G</b>	<b>8K</b>	<b>6.46</b>	<b>6.8</b>	<b>7.14</b>	<b>20</b>	<b>5</b>	<b>750</b>	<b>0.25</b>	<b>3</b>	<b>5</b>
SZ/MMBZ5236BL, G	8L	7.12	7.5	7.88	20	6	500	0.25	3	6
SZ/MMBZ5237BL, G	8M	7.79	8.2	8.61	20	8	500	0.25	3	6.5
SZ/MMBZ5238BL, G	8N	8.26	8.7	9.14	20	8	600	0.25	3	6.5
SZ/MMBZ5239BL, G	8P	8.64	9.1	9.56	20	10	600	0.25	3	7
<b>SZ/MMBZ5240BL, G</b>	<b>8Q</b>	<b>9.50</b>	<b>10</b>	<b>10.50</b>	<b>20</b>	<b>17</b>	<b>600</b>	<b>0.25</b>	<b>3</b>	<b>8</b>
SZ/MMBZ5241BL, G	8R	10.4	11	11.55	20	22	600	0.25	2	8.4
<b>SZ/MMBZ5242BL, G</b>	<b>8S</b>	<b>11.40</b>	<b>12</b>	<b>12.60</b>	<b>20</b>	<b>30</b>	<b>600</b>	<b>0.25</b>	<b>1</b>	<b>9.1</b>
SZ/MMBZ5243BL, G	8T	12.35	13	13.65	9.5	13	600	0.25	0.5	9.9
SZ/MMBZ5244BL, G	8U	13.30	14	14.70	9	15	600	0.25	0.1	10
<b>SZ/MMBZ5245BL, G</b>	<b>8V</b>	<b>14.25</b>	<b>15</b>	<b>15.75</b>	<b>8.5</b>	<b>16</b>	<b>600</b>	<b>0.25</b>	<b>0.1</b>	<b>11</b>
SZ/MMBZ5246BL, G	8W	15.20	16	16.80	7.8	17	600	0.25	0.1	12
MMBZ5247BL, G	8X	16.15	17	17.85	7.4	19	600	0.25	0.1	13
<b>SZ/MMBZ5248BL, G</b>	<b>8Y</b>	<b>17.10</b>	<b>18</b>	<b>18.90</b>	<b>7</b>	<b>21</b>	<b>600</b>	<b>0.25</b>	<b>0.1</b>	<b>14</b>
SZ/MMBZ5249BL, G	8Z	18.05	19	19.95	6.6	23	600	0.25	0.1	14
<b>SZ/MMBZ5250BL, G</b>	<b>81A</b>	<b>19.00</b>	<b>20</b>	<b>21.00</b>	<b>6.2</b>	<b>25</b>	<b>600</b>	<b>0.25</b>	<b>0.1</b>	<b>15</b>
MMBZ5251BL, G	81B	20.90	22	23.10	5.6	29	600	0.25	0.1	17
MMBZ5252BL, G	81C	22.80	24	25.20	5.2	33	600	0.25	0.1	18
SZ/MMBZ5253BL, G	81D	23.75	25	26.25	5	35	600	0.25	0.1	19
<b>SZ/MMBZ5254BL, G</b>	<b>81E</b>	<b>25.65</b>	<b>27</b>	<b>28.35</b>	<b>4.6</b>	<b>41</b>	<b>600</b>	<b>0.25</b>	<b>0.1</b>	<b>21</b>
MMBZ5255BL, G	81F	26.60	28	29.40	4.5	44	600	0.25	0.1	21
SZ/MMBZ5256BL, G	81G	28.50	30	31.50	4.2	49	600	0.25	0.1	23
<b>MMBZ5257BL, G</b>	<b>81H</b>	<b>31.35</b>	<b>33</b>	<b>34.65</b>	<b>3.8</b>	<b>58</b>	<b>700</b>	<b>0.25</b>	<b>0.1</b>	<b>25</b>
SZ/MMBZ5258BL, G	81J	34.20	36	37.80	3.4	70	700	0.25	0.1	27
SZ/MMBZ5259BL, G	81K	37.05	39	40.95	3.2	80	800	0.25	0.1	30
SZ/MMBZ5260BL, G	81L	40.85	43	45.15	3	93	900	0.25	0.1	33
SZ/MMBZ5261BL, G	81M	44.65	47	49.35	2.7	105	1000	0.25	0.1	36
MMBZ5262BL, G	81N	48.45	51	53.55	2.5	125	1100	0.25	0.1	39
SZ/MMBZ5263BL, G	81P	53.20	56	58.80	2.2	150	1300	0.25	0.1	43
SZ/MMBZ5264BL, G	81Q	57.00	60	63.00	2.1	170	1400	0.25	0.1	46
MMBZ5265BL, G	81R	58.90	62	65.10	2	185	1400	0.25	0.1	47
MMBZ5266BL, G	81S	64.60	68	71.40	1.8	230	1600	0.25	0.1	52
MMBZ5267BL, G	81T	71.25	75	78.75	1.7	270	1700	0.25	0.1	56
MMBZ5268BL, G	81U	77.90	82	86.10	1.5	330	2000	0.25	0.1	62
MMBZ5270BL, G	81W	86.45	91	95.55	1.4	400	2300	0.25	0.1	69

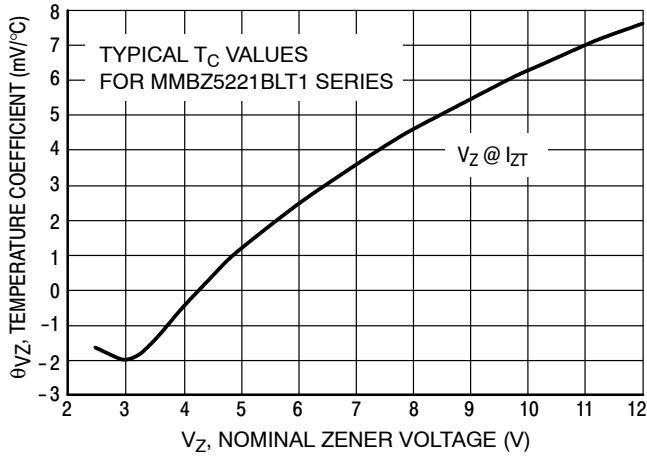
3. Zener voltage is measured with a pulse test current  $I_Z$  at an ambient temperature of 25°C

NOTE: MMBZ5233BLT1, MMBZ5246BLT1, MMBZ5251BLT1, and MMBZ5252BLT1 Not Available in 10,000/Tape & Reel.

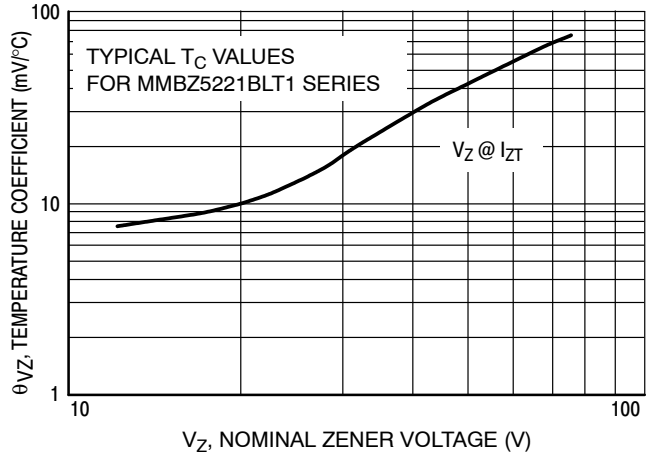
†The "G" suffix indicates Pb-Free package available.

# MMBZ52xxBLT1 Series, SZMMBZ52xxBLT1G Series

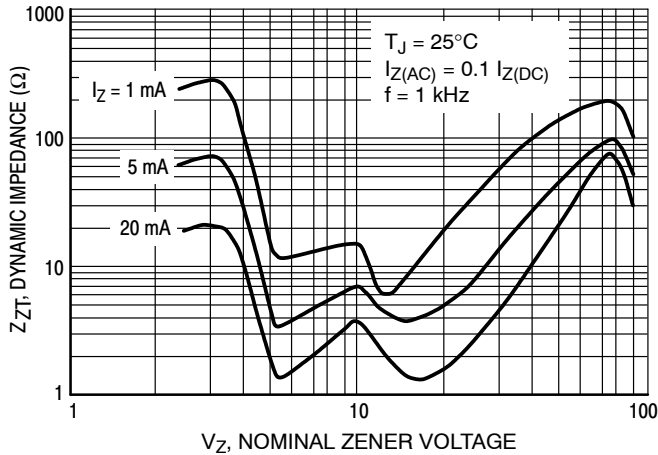
## TYPICAL CHARACTERISTICS



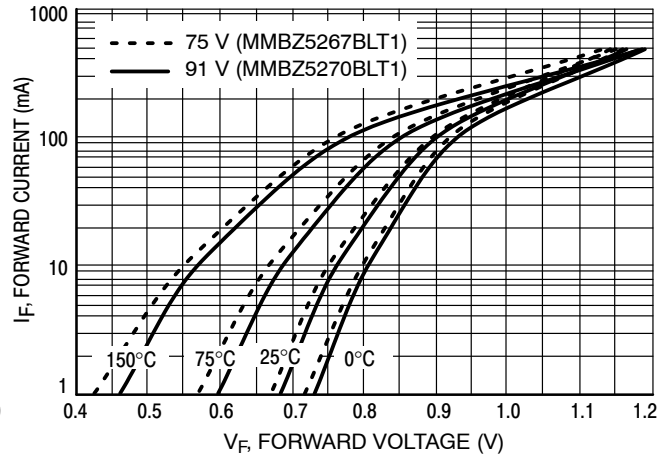
**Figure 1. Temperature Coefficients**  
(Temperature Range -55°C to +150°C)



**Figure 2. Temperature Coefficients**  
(Temperature Range -55°C to +150°C)



**Figure 3. Effect of Zener Voltage on Zener Impedance**



**Figure 4. Typical Forward Voltage**

TYPICAL CHARACTERISTICS

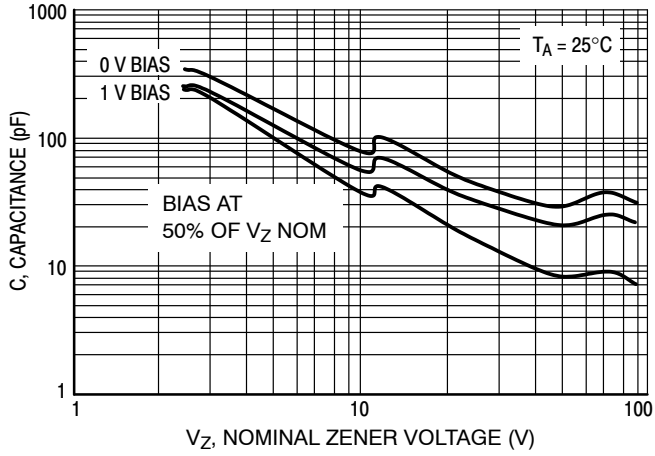


Figure 5. Typical Capacitance

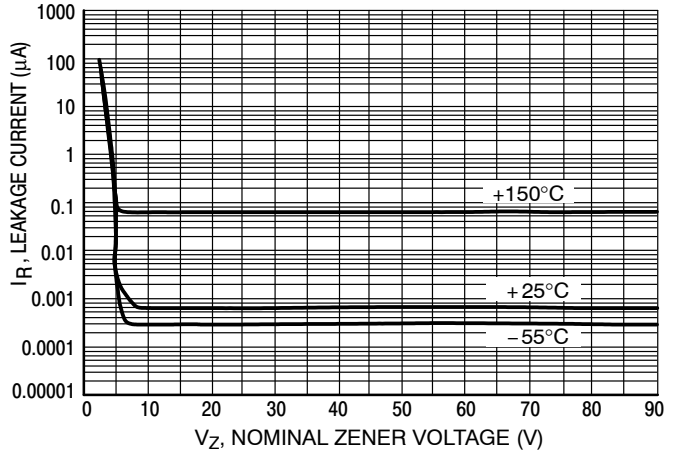


Figure 6. Typical Leakage Current

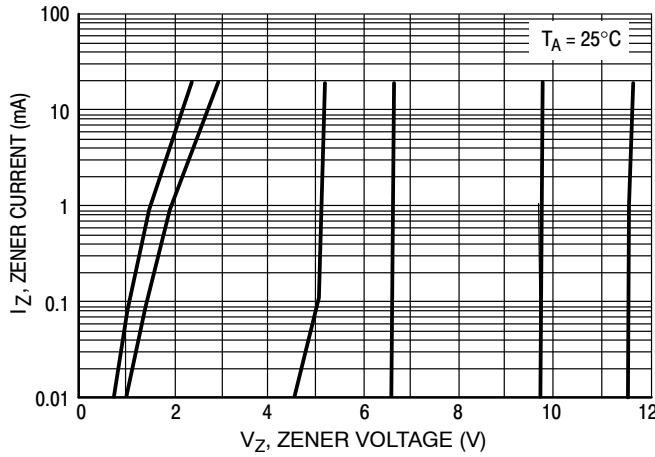


Figure 7. Zener Voltage versus Zener Current ( $V_Z$  Up to 12 V)

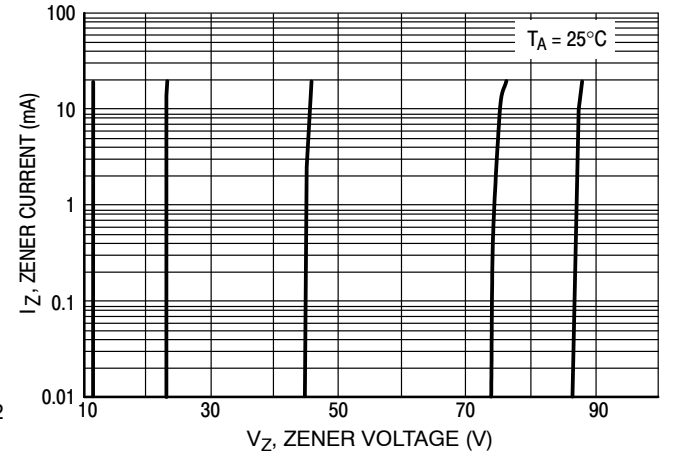
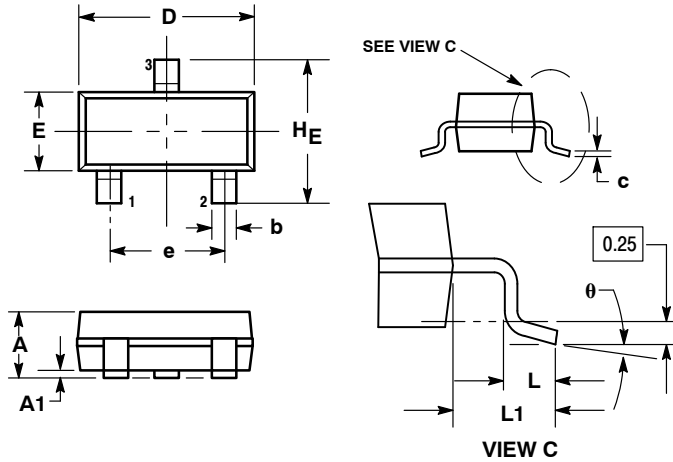


Figure 8. Zener Voltage versus Zener Current (12 V to 91 V)

# MMBZ52xxBLT1 Series, SZMMBZ52xxBLT1G Series

## PACKAGE DIMENSIONS

SOT-23 (TO-236)  
CASE 318-08  
ISSUE AP



NOTES:

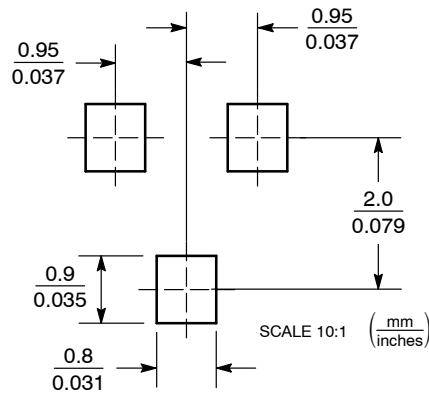
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.40	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

STYLE 8:

1. ANODE
2. NO CONNECTION
3. CATHODE

### SOLDERING FOOTPRINT\*



\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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