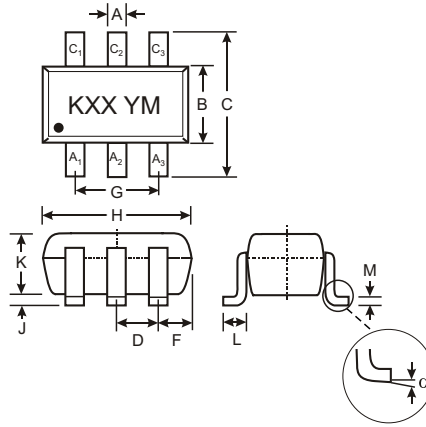


### Features

- Three Isolated Zeners in Ultra-Small Surface Mount Package
- Ideally Suited for Automated Assembly Processes

### Mechanical Data

- Case: SOT-363, Molded Plastic
- Case material - UL Flammability Rating Classification 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Orientation: See Diagram
- Marking: Marking Code (See Table on Page 2)
- Weight: 0.006 grams (approx.)



| SOT-363              |              |      |
|----------------------|--------------|------|
| Dim                  | Min          | Max  |
| A                    | 0.10         | 0.30 |
| B                    | 1.15         | 1.35 |
| C                    | 2.00         | 2.20 |
| D                    | 0.65 Nominal |      |
| F                    | 0.30         | 0.40 |
| H                    | 1.80         | 2.20 |
| J                    | —            | 0.10 |
| K                    | 0.90         | 1.00 |
| L                    | 0.25         | 0.40 |
| M                    | 0.10         | 0.25 |
| $\alpha$             | 0°           | 8°   |
| All Dimensions in mm |              |      |

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic                                       | Symbol          | Value       | Unit               |
|------------------------------------------------------|-----------------|-------------|--------------------|
| Forward Voltage (Note 2) @ $I_F = 10\text{mA}$       | $V_F$           | 0.9         | V                  |
| Power Dissipation (Note 1)                           | $P_d$           | 200         | mW                 |
| Thermal Resistance, Junction to Ambient Air (Note 1) | $R_{\theta JA}$ | 625         | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range              | $T_j, T_{STG}$  | -65 to +150 | $^\circ\text{C}$   |

### Ordering Information (Note 4)

| Device           | Packaging | Shipping         |
|------------------|-----------|------------------|
| (Type Number)-7* | SOT-363   | 3000/Tape & Reel |

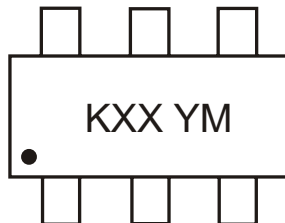
\* Add "-7" to the appropriate type number in Table 1 from Sheet 2 example: 6.2V Zener = MMBZ5234BTS-7.

- Notes:
1. Mounted on FR4 PC Board with recommended pad layout which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  2. Short duration test pulse used to minimize self-heating effect.
  3.  $f = 1\text{KHz}$ .
  4. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Electrical Characteristics** @ T<sub>A</sub> = 25°C unless otherwise specified

| Type Number | Marking Code | Zener Voltage Range (Note 2)     |         |         |                 | Maximum Zener Impedance (Note 3)  |                                               | Maximum Reverse Leakage Current (Note 2) |                  |
|-------------|--------------|----------------------------------|---------|---------|-----------------|-----------------------------------|-----------------------------------------------|------------------------------------------|------------------|
|             |              | V <sub>Z</sub> @ I <sub>ZT</sub> |         |         | I <sub>ZT</sub> | Z <sub>KT</sub> @ I <sub>ZT</sub> | Z <sub>KK</sub> @ I <sub>ZK</sub><br>= 0.25mA | I <sub>R</sub>                           | @ V <sub>R</sub> |
|             |              | Nom (V)                          | Min (V) | Max (V) | mA              | Ω                                 |                                               | μA                                       | V                |
| MMBZ5221BTS | KSB          | 2.4                              | 2.28    | 2.52    | 20              | 30                                | 1200                                          | 100                                      | 1.0              |
| MMBZ5223BTS | KSC          | 2.7                              | 2.57    | 2.84    | 20              | 30                                | 1300                                          | 75                                       | 1.0              |
| MMBZ5225BTS | KSD          | 3.0                              | 2.85    | 3.15    | 20              | 30                                | 1600                                          | 50                                       | 1.0              |
| MMBZ5226BTS | KSE          | 3.3                              | 3.14    | 3.47    | 20              | 28                                | 1600                                          | 25                                       | 1.0              |
| MMBZ5227BTS | KSF          | 3.6                              | 3.42    | 3.78    | 20              | 24                                | 1700                                          | 15                                       | 1.0              |
| MMBZ5228BTS | KSG          | 3.9                              | 3.71    | 4.10    | 20              | 23                                | 1900                                          | 10                                       | 1.0              |
| MMBZ5229BTS | KSH          | 4.3                              | 4.09    | 4.52    | 20              | 22                                | 2000                                          | 5.0                                      | 1.0              |
| MMBZ5230BTS | KS1          | 4.7                              | 4.47    | 4.94    | 20              | 19                                | 1900                                          | 5.0                                      | 2.0              |
| MMBZ5231BTS | KS2          | 5.1                              | 4.85    | 5.36    | 20              | 17                                | 1600                                          | 5.0                                      | 2.0              |
| MMBZ5232BTS | KS3          | 5.6                              | 5.32    | 5.88    | 20              | 11                                | 1600                                          | 5.0                                      | 3.0              |
| MMBZ5233BTS | KRF          | 6.0                              | 5.70    | 6.30    | 20              | 7                                 | 1600                                          | 5.0                                      | 3.5              |
| MMBZ5234BTS | KS4          | 6.2                              | 5.89    | 6.51    | 20              | 7                                 | 1000                                          | 5.0                                      | 4.0              |
| MMBZ5235BTS | KS5          | 6.8                              | 6.46    | 7.14    | 20              | 5                                 | 750                                           | 3.0                                      | 5.0              |
| MMBZ5236BTS | KS6          | 7.5                              | 7.13    | 7.88    | 20              | 6                                 | 500                                           | 3.0                                      | 6.0              |
| MMBZ5237BTS | KS7          | 8.2                              | 7.79    | 8.61    | 20              | 8                                 | 500                                           | 3.0                                      | 6.5              |
| MMBZ5238BTS | KRG          | 8.7                              | 8.27    | 9.14    | 20              | 8                                 | 600                                           | 3.0                                      | 6.5              |
| MMBZ5239BTS | KS8          | 9.1                              | 8.65    | 9.56    | 20              | 10                                | 600                                           | 3.0                                      | 7.0              |
| MMBZ5240BTS | KS9          | 10                               | 9.50    | 10.50   | 20              | 17                                | 600                                           | 3.0                                      | 8.0              |
| MMBZ5241BTS | KR1          | 11                               | 10.45   | 11.55   | 20              | 22                                | 600                                           | 2.0                                      | 8.4              |
| MMBZ5242BTS | KR2          | 12                               | 11.40   | 12.60   | 20              | 30                                | 600                                           | 1.0                                      | 9.1              |
| MMBZ5243BTS | KR3          | 13                               | 12.35   | 13.65   | 9.5             | 13                                | 600                                           | 0.5                                      | 9.9              |
| MMBZ5245BTS | KR4          | 15                               | 14.25   | 15.75   | 8.5             | 16                                | 600                                           | 0.1                                      | 11               |
| MMBZ5246BTS | KR5          | 16                               | 15.20   | 16.80   | 7.8             | 17                                | 600                                           | 0.1                                      | 12               |
| MMBZ5248BTS | KR6          | 18                               | 17.10   | 18.90   | 7.0             | 21                                | 600                                           | 0.1                                      | 14               |
| MMBZ5250BTS | KR7          | 20                               | 19.00   | 21.00   | 6.2             | 25                                | 600                                           | 0.1                                      | 15               |
| MMBZ5251BTS | KR8          | 22                               | 20.90   | 23.10   | 5.6             | 29                                | 600                                           | 0.1                                      | 17               |
| MMBZ5252BTS | KR9          | 24                               | 22.80   | 25.20   | 5.2             | 33                                | 600                                           | 0.1                                      | 18               |
| MMBZ5254BTS | KRA          | 27                               | 25.65   | 28.35   | 5.0             | 41                                | 600                                           | 0.1                                      | 21               |
| MMBZ5255BTS | KRH          | 28                               | 26.60   | 29.40   | 4.5             | 44                                | 600                                           | 0.1                                      | 21               |
| MMBZ5256BTS | KRB          | 30                               | 28.50   | 31.50   | 4.2             | 49                                | 600                                           | 0.1                                      | 23               |
| MMBZ5257BTS | KRC          | 33                               | 31.35   | 34.65   | 3.8             | 58                                | 700                                           | 0.1                                      | 25               |
| MMBZ5258BTS | KRD          | 36                               | 34.20   | 37.80   | 3.4             | 70                                | 700                                           | 0.1                                      | 27               |
| MMBZ5259BTS | KRE          | 39                               | 37.05   | 40.95   | 3.2             | 80                                | 800                                           | 0.1                                      | 30               |

Notes: 2. Short duration test pulse used to minimize self-heating effect.  
 3. f = 1KHz.

**Marking Information**


KXX = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year ex: N = 2002  
 M = Month ex: 9 = September

Date Code Key

| Year | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------|------|------|------|------|------|------|------|------|
| Code | N    | P    | R    | S    | T    | U    | V    | W    |

| Month | Jan | Feb | March | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3     | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

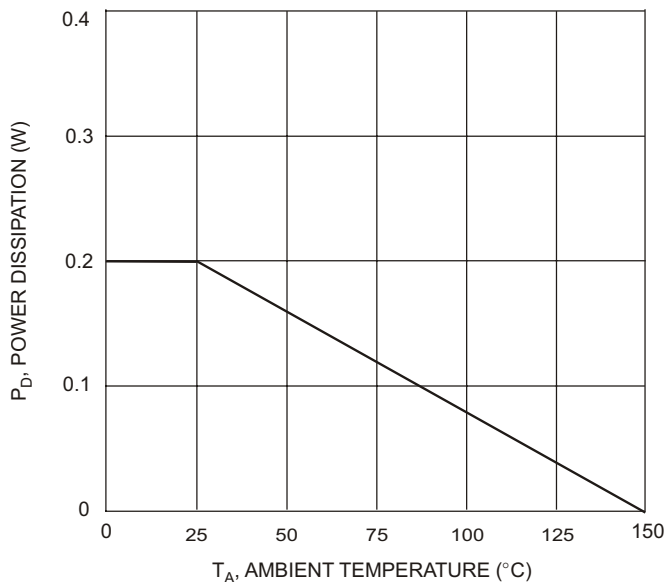


Fig. 1 Power Dissipation vs Ambient Temperature

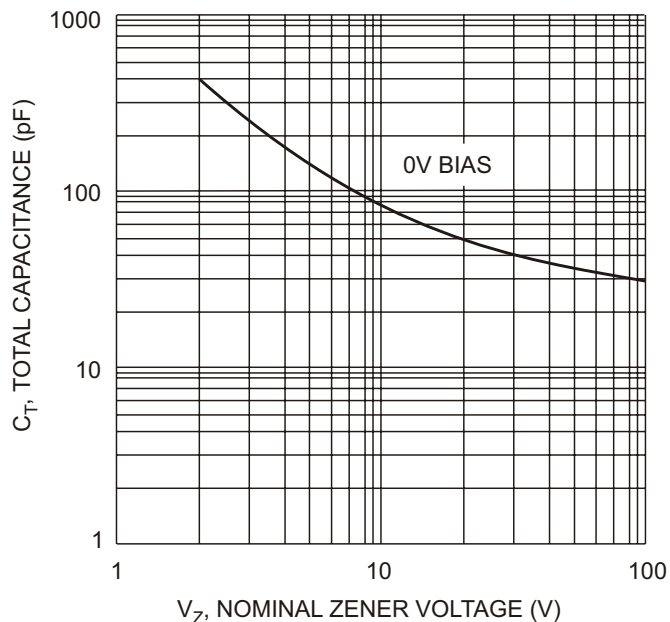


Fig. 2 Typical Capacitance

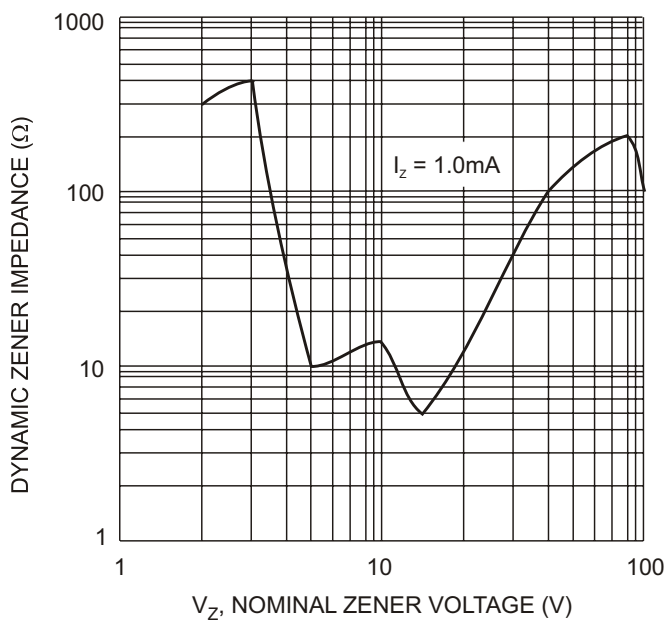


Fig. 3 Zener Voltage vs. Zener Impedence

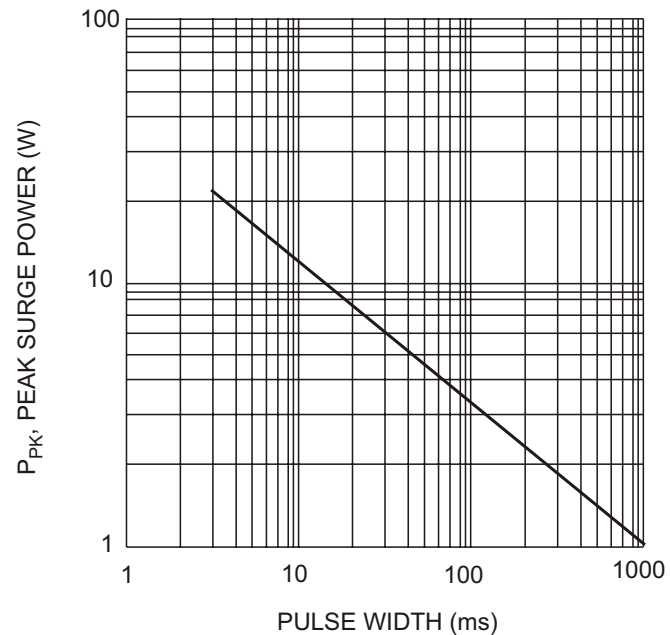


Fig. 4 Maximum Non-repetitive Surge Power