# MMBZ5221BTW~MMBZ5262BTW

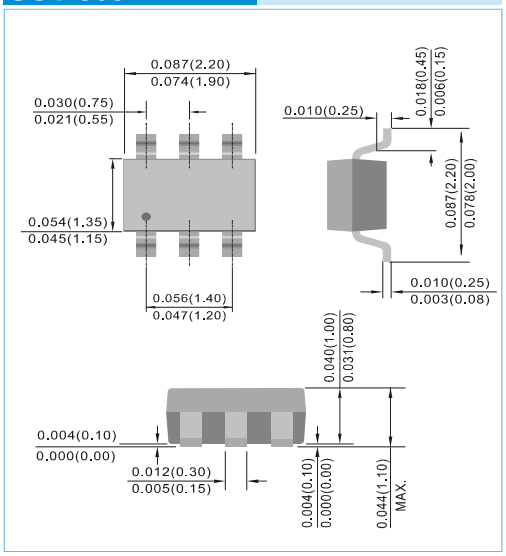
## SURFACE MOUNT SILICON ZENER DIODES

**VOLTAGE** 2.4 to 51 Volt **POWER** 200 mWatt

### FEATURES

- Planar Die Construction
- 200mW Power Dissipation
- Zener Voltages from 2.4~51V
- Ideally Suited for Automated Assembly Processes
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std. . (Halogen Free)

**SOT-363** Unit : inch(mm)

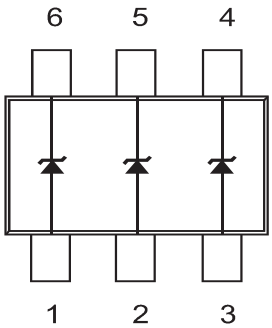



### MECHANICAL DATA

- Case: SOT-363, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0002 ounces, 0.006 grams

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS ($T_J$=25°C unless otherwise noted)

| PARAMETER | SYMBOL | VALUE | UNITS |
|---|---|---|---|
| Power Dissipation (Note A) | $P_D$ | 200 | mW |
| Peak Forward Surge Current, 8.3ms single half sine-wave superimposed on rated load (Notes B) | $I_{FSM}$ | 2 | A |
| Operating Junction Temperature and Storage Temperature Range | $T_J$ ,$T_{STG}$ | -55 to +150 | °C |




NOTES :

A. Mounted on 5mm$^2$ (0.013mm thick) land areas.

B. Measured on 8.3ms, single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.

# MMBZ5221BTW~MMBZ5262BTW

| Part Number | Nominal Zener Voltage | | | Max. Zener Impedance | | | | Max Reverse Leakage Current | | Marking Code |
|---|---|---|---|---|---|---|---|---|---|---|
| | $V_Z$ @ $I_{ZT}$ | | | $Z_{ZT}$ @ $I_{ZT}$ | | $Z_{ZK}$ @ $I_{ZK}$ | | $I_R$ @ $V_R$ | | |
| | Nom. V | Min. V | Max. V | Ω | mA | Ω | mA | μA | V | |
| **200 mWatts Zener Diodes** | | | | | | | | | | |
| MMBZ5221BTW | 2.4 | 2.28 | 2.52 | 30 | 20.0 | 1200 | 0.25 | 100 | 1.0 | C1 |
| MMBZ5222BTW | 2.5 | 2.38 | 2.63 | 30 | 20.0 | 1250 | 0.25 | 100 | 1.0 | C2 |
| MMBZ5223BTW | 2.7 | 2.57 | 2.84 | 30 | 20.0 | 1300 | 0.25 | 75 | 1.0 | C3 |
| MMBZ5224BTW | 2.8 | 2.66 | 2.94 | 30 | 20.0 | 1400 | 0.25 | 75 | 1.0 | C4 |
| MMBZ5225BTW | 3.0 | 2.85 | 3.15 | 30 | 20.0 | 1600 | 0.25 | 50 | 1.0 | C5 |
| MMBZ5226BTW | 3.3 | 3.14 | 3.47 | 28 | 20.0 | 1600 | 0.25 | 25 | 1.0 | D1 |
| MMBZ5227BTW | 3.6 | 3.42 | 3.78 | 24 | 20.0 | 1700 | 0.25 | 15 | 1.0 | D2 |
| MMBZ5228BTW | 3.9 | 3.71 | 4.10 | 23 | 20.0 | 1900 | 0.25 | 10 | 1.0 | D3 |
| MMBZ5229BTW | 4.3 | 4.09 | 4.52 | 22 | 20.0 | 2000 | 0.25 | 5.0 | 1.0 | D4 |
| MMBZ5230BTW | 4.7 | 4.47 | 4.94 | 19 | 20.0 | 1900 | 0.25 | 5.0 | 2.0 | D5 |
| MMBZ5231BTW | 5.1 | 4.85 | 5.36 | 17 | 20.0 | 1600 | 0.25 | 5.0 | 2.0 | E1 |
| MMBZ5232BTW | 5.6 | 5.32 | 5.88 | 11 | 20.0 | 1600 | 0.25 | 5.0 | 3.0 | E2 |
| MMBZ5233BTW | 6.0 | 5.70 | 6.30 | 7 | 20.0 | 1600 | 0.25 | 5.0 | 3.5 | E3 |
| MMBZ5234BTW | 6.2 | 5.89 | 6.51 | 7 | 20.0 | 1000 | 0.25 | 5.0 | 4.0 | E4 |
| MMBZ5235BTW | 6.8 | 6.46 | 7.14 | 5 | 20.0 | 750 | 0.25 | 3.0 | 5.0 | E5 |
| MMBZ5236BTW | 7.5 | 7.13 | 7.88 | 6 | 20.0 | 500 | 0.25 | 3.0 | 6.0 | F1 |
| MMBZ5237BTW | 8.2 | 7.79 | 8.61 | 8 | 20.0 | 500 | 0.25 | 3.0 | 6.5 | F2 |
| MMBZ5238BTW | 8.7 | 8.27 | 9.14 | 8 | 20.0 | 600 | 0.25 | 3.0 | 6.5 | F3 |
| MMBZ5239BTW | 9.1 | 8.65 | 9.56 | 10 | 20.0 | 600 | 0.25 | 3.0 | 7.0 | F4 |
| MMBZ5240BTW | 10 | 9.50 | 10.50 | 17 | 20.0 | 600 | 0.25 | 3.0 | 8.0 | F5 |
| MMBZ5241BTW | 11 | 10.45 | 11.55 | 22 | 20.0 | 600 | 0.25 | 2.0 | 8.4 | H1 |
| MMBZ5242BTW | 12 | 11.40 | 12.60 | 30 | 20.0 | 600 | 0.25 | 1.0 | 9.1 | H2 |
| MMBZ5243BTW | 13 | 12.35 | 13.65 | 13 | 9.5 | 600 | 0.25 | 0.5 | 9.9 | H3 |
| MMBZ5244BTW | 14 | 13.30 | 14.70 | 15 | 9.0 | 600 | 0.25 | 0.1 | 10.5 | H4 |
| MMBZ5245BTW | 15 | 14.25 | 15.75 | 16 | 8.5 | 600 | 0.25 | 0.1 | 11.0 | H5 |
| MMBZ5246BTW | 16 | 15.20 | 16.80 | 17 | 7.8 | 600 | 0.25 | 0.1 | 12.0 | J1 |
| MMBZ5247BTW | 17 | 16.15 | 17.85 | 19 | 7.5 | 600 | 0.25 | 0.1 | 13.0 | J2 |
| MMBZ5248BTW | 18 | 17.10 | 18.90 | 21 | 7.0 | 600 | 0.25 | 0.1 | 14.0 | J3 |
| MMBZ5249BTW | 19 | 18.05 | 19.95 | 23 | 6.6 | 600 | 0.25 | 0.1 | 14.0 | J4 |
| MMBZ5250BTW | 20 | 19.00 | 21.00 | 25 | 6.2 | 600 | 0.25 | 0.1 | 15.0 | J5 |
| MMBZ5251BTW | 22 | 20.90 | 23.10 | 29 | 5.6 | 600 | 0.25 | 0.1 | 17.0 | K1 |
| MMBZ5252BTW | 24 | 22.80 | 25.20 | 33 | 5.2 | 600 | 0.25 | 0.1 | 18.0 | K2 |
| MMBZ5253BTW | 25 | 23.75 | 26.25 | 35 | 5.0 | 600 | 0.25 | 0.1 | 19.0 | K3 |
| MMBZ5254BTW | 27 | 25.65 | 28.35 | 41 | 5.0 | 600 | 0.25 | 0.1 | 21.0 | K4 |
| MMBZ5255BTW | 28 | 26.60 | 29.40 | 44 | 4.5 | 600 | 0.25 | 0.1 | 21.0 | K5 |
| MMBZ5256BTW | 30 | 28.50 | 31.50 | 49 | 4.2 | 600 | 0.25 | 0.1 | 23.0 | M1 |
| MMBZ5257BTW | 33 | 31.35 | 34.65 | 58 | 3.8 | 700 | 0.25 | 0.1 | 25.0 | M2 |
| MMBZ5258BTW | 36 | 34.20 | 37.80 | 70 | 3.4 | 700 | 0.25 | 0.1 | 27.0 | M3 |
| MMBZ5259BTW | 39 | 37.05 | 40.95 | 80 | 3.2 | 800 | 0.25 | 0.1 | 30.0 | M4 |
| MMBZ5260BTW | 43 | 40.85 | 45.15 | 93 | 3.0 | 900 | 0.25 | 0.1 | 33.0 | M5 |
| MMBZ5261BTW | 47 | 44.65 | 49.35 | 105 | 2.7 | 1000 | 0.25 | 0.1 | 36.0 | N1 |
| MMBZ5262BTW | 51 | 48.45 | 53.55 | 125 | 2.5 | 1100 | 0.25 | 0.1 | 39.0 | N2 |

# MMBZ5221BTW~MMBZ5262BTW

## CHARACTERISTIC CURVES

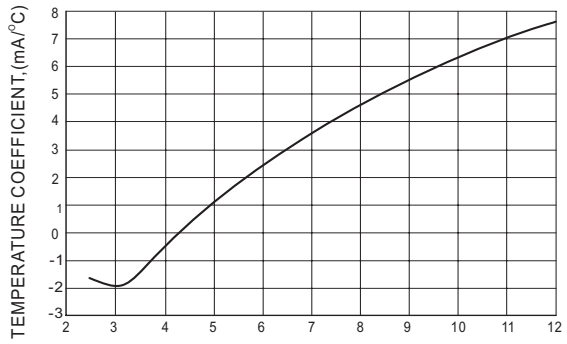



Fig.1 TEMPERATURE COEFFICENTS

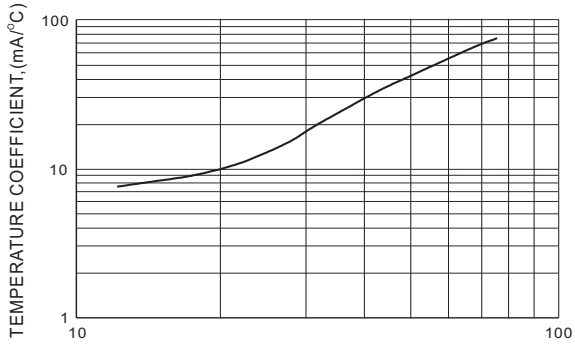



Fig.2 TEMPERATURE COEFFICENTS

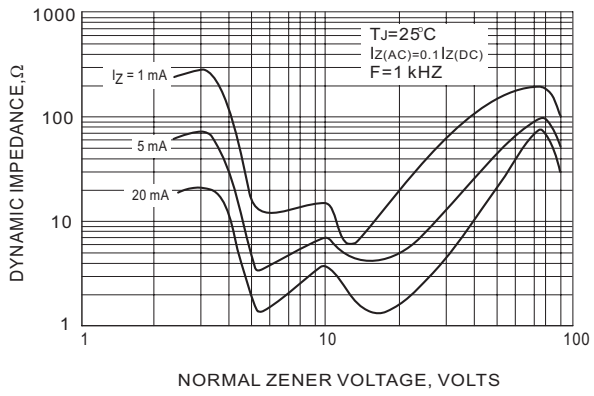



Fig.3 EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

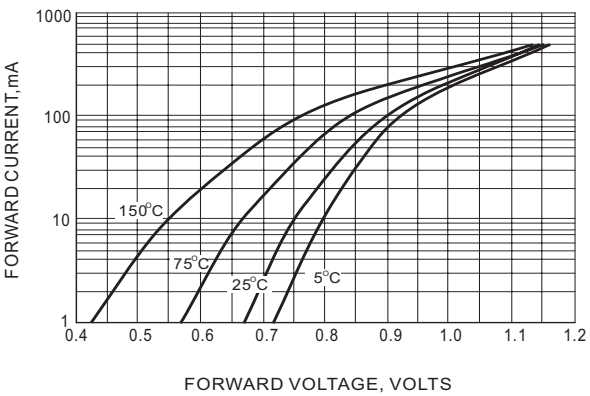



Fig.4 TYPICAL FORWARD VOLTAGE

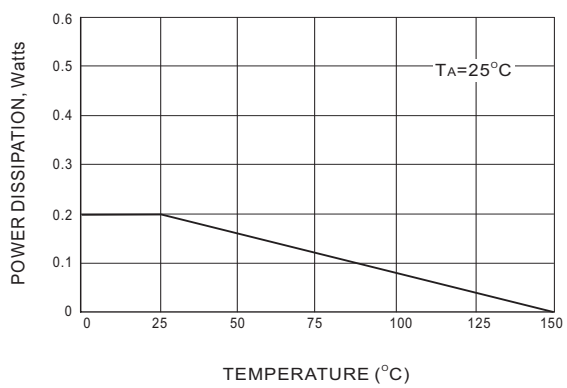



Fig.5 STEADY STATE POWER DERATING

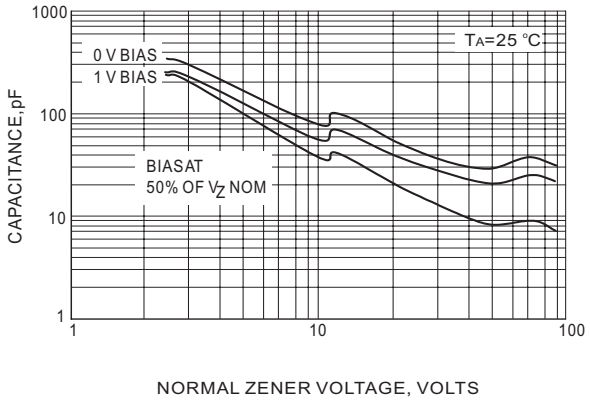



Fig.6 TYPICAL CAPACITANCE

# MMBZ5221BTW~MMBZ5262BTW

## CHARACTERISTIC CURVES

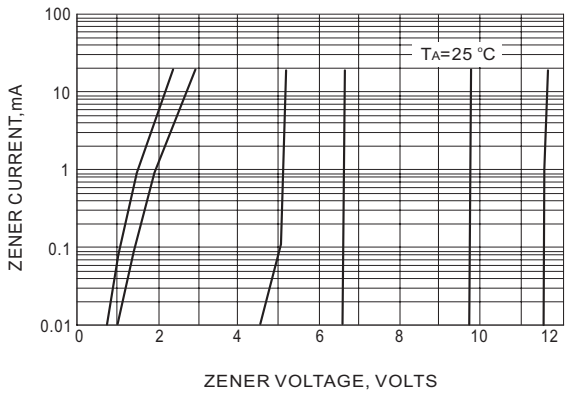



Fig.7 ZENER VOLTAGE VERSUS ZENER CURRENT

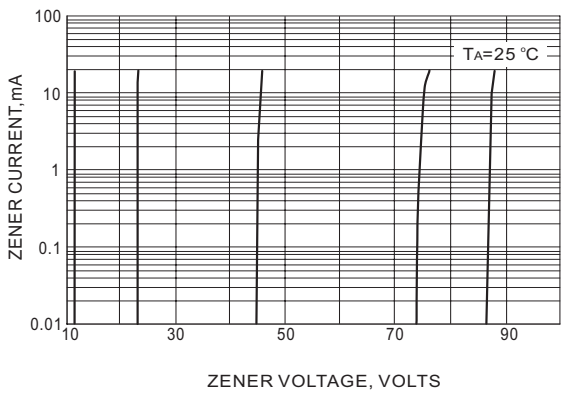



Fig.8 ZENER VOLTAGE VERSUS ZENER CURRENT

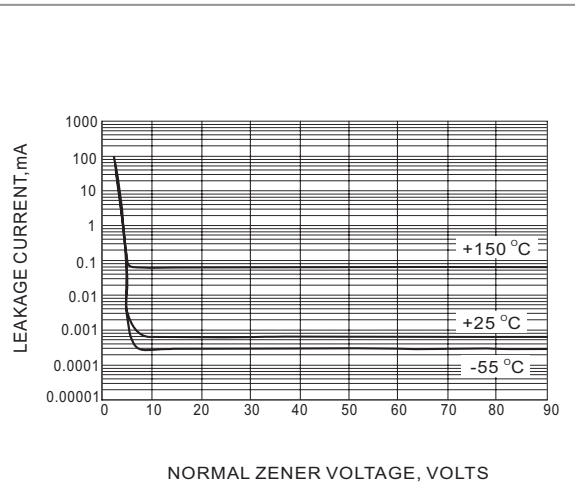
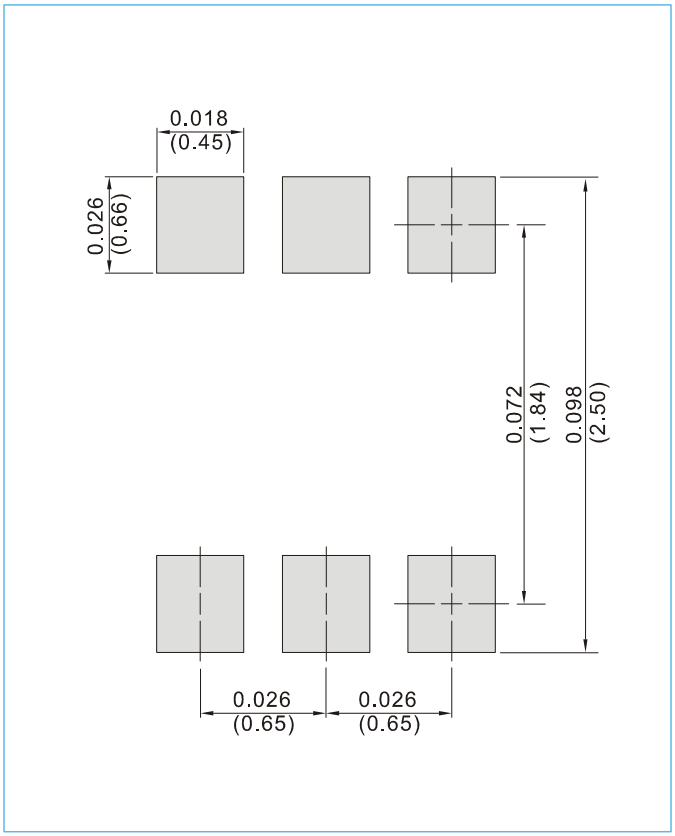



Fig.9 TYPICAL LEAKAGE CURRENT

# MMBZ5221BTW~MMBZ5262BTW

## MOUNTING PAD LAYOUT

SOT-363 Unit : inch(mm)




## ORDER INFORMATION

- Packing information

  T/R - 10K per 13" plastic Reel

  T/R - 3K per 7" plastic Reel

# MMBZ5221BTW~MMBZ5262BTW

**Part No_packing code_Version**

MMBZ5221BTW_R1_00001

MMBZ5221BTW_R2_00001

**For example :**

**RB500V-40_R2_00001**

**Part No.**

**Serial number**

**Version code means HF**

**Packing size code means 13"**

**Packing type means T/R**

| Packing Code XX | | | | Version Code XXXXX | | |
|---|---|---|---|---|---|---|
| Packing type | 1st Code | Packing size code | 2nd Code | HF or RoHS | 1st Code | 2nd~5th Code |
| Tape and Ammunition Box (T/B) | A | N/A | 0 | HF | 0 | serial number |
| Tape and Reel (T/R) | R | 7" | 1 | RoHS | 1 | serial number |
| Bulk Packing (B/P) | B | 13" | 2 | | | |
| Tube Packing (T/P) | T | 26mm | X | | | |
| Tape and Reel (Right Oriented) (TRR) | S | 52mm | Y | | | |
| Tape and Reel (Left Oriented) (TRL) | L | PANASERT T/B CATHODE UP (PBCU) | U | | | |
| FORMING | F | PANASERT T/B CATHODE DOWN (PBCD) | D | | | |

# MMBZ5221BTW~MMBZ5262BTW

## Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Panjit International Inc..

- Panjit International Inc. reserves the rights to make changes of the content herein the document anytime without notification. Please refer to our website for the latest document.

- Panjit International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.

- Panjit International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Panjit International Inc. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Panjit International Inc. for any damages resulting from such improper use or sale.

- Since Panjit uses lot number as the tracking base, please provide the lot number for tracking when complaining.