

# Zener Diodes

## MM3Z2V4B-MM3Z75VB

### Features

- Wide Zener Voltage Range Selection, 2.4 V to 75 V
- $V_Z$  Tolerance Selection of  $\pm 2\%$  (B Series)
- Very Small and Thin SMD Package
- Matte Tin(Sn) Finish, Pb-Free

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Symbol    | Parameter                    | Value       | Unit             |
|-----------|------------------------------|-------------|------------------|
| $P_D$     | Power Dissipation            | 200         | mW               |
| $T_{STG}$ | Storage Temperature Range    | -65 to +150 | $^\circ\text{C}$ |
| $T_J$     | Maximum Junction Temperature | 150         | $^\circ\text{C}$ |
| $I_{ZM}$  | Maximum Regulator Current    | $P_D/V_Z$   | mA               |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### THERMAL CHARACTERISTICS

| Symbol          | Parameter                               | Value | Unit                      |
|-----------------|---|-------|---------------------------|
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 595   | $^\circ\text{C}/\text{W}$ |

### ELECTRICAL CHARACTERISTICS

( $T_A = 25^\circ\text{C}$  unless otherwise specified)

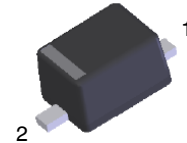
| Symbol | Parameter/Test Condition               | Min | Typ | Max | Unit |
|--------|--|-----|-----|-----|------|
| $V_F$  | Forward Voltage / $I_F = 10\text{ mA}$ | -   | -   | 1.0 | V    |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



ON Semiconductor®

[www.onsemi.com](http://www.onsemi.com)

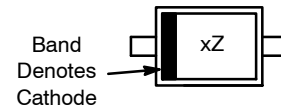


SOD-323FL  
CASE 477AB

### CONNECTION DIAGRAM



### MARKING DIAGRAM



xZ = Specific Device Code  
x = 0-9, A-Z, -, =, ≡, <, >

### ORDERING INFORMATION

See detailed ordering and shipping information on page 5 of this data sheet.

# MM3Z2V4B–MM3Z75VB

**PRODUCT TABLE** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

| Device Type | Device Marking | $V_Z$ (V) @ $I_{ZT}$ |     |       | $Z_{ZT}(\wedge)$<br>@ $I_{ZT}$ | $I_{ZT}$<br>(mA) | $Z_{ZK}(\wedge)$<br>@ $I_{ZK}$ | $I_{ZK}$<br>(mA) | $I_R$ ( $\mu\text{A}$ )<br>@ $V_R$ | $V_R$<br>(V) |
|-------------|----------------|----------------------|-----|-------|--------------------------------|------------------|--------------------------------|------------------|------------------------------------|--------------|
|             |                | Min                  | Typ | Max   | Max                            | –                | Max                            | –                | Max                                | –            |
| MM3Z2V4B    | 0Z             | 2.35                 | 2.4 | 2.45  | 94                             | 5                | 564                            | 1                | 45                                 | 1            |
| MM3Z2V7B    | 1Z             | 2.65                 | 2.7 | 2.75  | 94                             | 5                | 564                            | 1                | 18                                 | 1            |
| MM3Z3V0B    | 2Z             | 2.94                 | 3.0 | 3.06  | 89                             | 5                | 564                            | 1                | 9                                  | 1            |
| MM3Z3V3B    | 3Z             | 3.23                 | 3.3 | 3.37  | 89                             | 5                | 564                            | 1                | 4.5                                | 1            |
| MM3Z3V6B    | 4Z             | 3.53                 | 3.6 | 3.67  | 84                             | 5                | 564                            | 1                | 4.5                                | 1            |
| MM3Z3V9B    | 5Z             | 3.82                 | 3.9 | 3.98  | 84                             | 5                | 564                            | 1                | 2.7                                | 1            |
| MM3Z4V3B    | 6Z             | 4.21                 | 4.3 | 4.39  | 84                             | 5                | 564                            | 1                | 2.7                                | 1            |
| MM3Z4V7B    | 7Z             | 4.61                 | 4.7 | 4.79  | 75                             | 5                | 470                            | 1                | 2.7                                | 2            |
| MM3Z5V1B    | 8Z             | 5.00                 | 5.1 | 5.20  | 56                             | 5                | 451                            | 1                | 1.8                                | 2            |
| MM3Z5V6B    | 9Z             | 5.49                 | 5.6 | 5.71  | 37                             | 5                | 376                            | 1                | 0.9                                | 2            |
| MM3Z6V2B    | AZ             | 6.08                 | 6.2 | 6.32  | 9                              | 5                | 141                            | 1                | 2.7                                | 4            |
| MM3Z6V8B    | BZ             | 6.66                 | 6.8 | 6.94  | 14                             | 5                | 75                             | 1                | 1.8                                | 4            |
| MM3Z7V5B    | CZ             | 7.35                 | 7.5 | 7.65  | 14                             | 5                | 75                             | 1                | 0.9                                | 5            |
| MM3Z8V2B    | DZ             | 8.04                 | 8.2 | 8.36  | 14                             | 5                | 75                             | 1                | 0.63                               | 5            |
| MM3Z9V1B    | EZ             | 8.92                 | 9.1 | 9.28  | 14                             | 5                | 94                             | 1                | 0.45                               | 6            |
| MM3Z10VB    | FZ             | 9.80                 | 10  | 10.20 | 18                             | 5                | 141                            | 1                | 0.18                               | 7            |
| MM3Z11VB    | GZ             | 10.78                | 11  | 11.22 | 18                             | 5                | 141                            | 1                | 0.09                               | 8            |
| MM3Z12VB    | HZ             | 11.76                | 12  | 12.24 | 23                             | 5                | 141                            | 1                | 0.09                               | 8            |
| MM3Z13VB    | JZ             | 12.74                | 13  | 13.26 | 28                             | 5                | 160                            | 1                | 0.09                               | 8            |
| MM3Z15VB    | KZ             | 14.70                | 15  | 15.30 | 28                             | 5                | 188                            | 1                | 0.045                              | 10.5         |
| MM3Z16VB    | LZ             | 15.68                | 16  | 16.32 | 37                             | 5                | 188                            | 1                | 0.045                              | 11.2         |
| MM3Z18VB    | MZ             | 17.64                | 18  | 18.36 | 42                             | 5                | 212                            | 1                | 0.045                              | 12.6         |
| MM3Z20VB    | NZ             | 19.60                | 20  | 20.40 | 51                             | 5                | 212                            | 1                | 0.045                              | 14.0         |
| MM3Z22VB    | PZ             | 21.56                | 22  | 22.44 | 51                             | 5                | 235                            | 1                | 0.045                              | 15.4         |
| MM3Z24VB    | RZ             | 23.52                | 24  | 24.48 | 65                             | 5                | 235                            | 1                | 0.045                              | 16.8         |
| MM3Z27VB    | SZ             | 26.46                | 27  | 27.54 | 75                             | 2                | 282                            | 0.5              | 0.045                              | 18.9         |
| MM3Z30VB    | TZ             | 29.40                | 30  | 30.60 | 75                             | 2                | 282                            | 0.5              | 0.045                              | 21.0         |
| MM3Z33VB    | UZ             | 32.34                | 33  | 33.66 | 75                             | 2                | 306                            | 0.5              | 0.045                              | 23.0         |
| MM3Z36VB    | VZ             | 35.28                | 36  | 36.72 | 84                             | 2                | 329                            | 0.5              | 0.045                              | 25.2         |
| MM3Z39VB    | WZ             | 38.22                | 39  | 39.78 | 122                            | 2                | 329                            | 0.5              | 0.045                              | 27.3         |
| MM3Z43VB    | XZ             | 42.14                | 43  | 43.86 | 141                            | 2                | 353                            | 0.5              | 0.045                              | 30.1         |
| MM3Z47VB    | YZ             | 46.06                | 47  | 47.94 | 160                            | 2                | 353                            | 0.5              | 0.045                              | 33.0         |
| MM3Z51VB    | _Z             | 49.98                | 51  | 52.02 | 169                            | 2                | 376                            | 0.5              | 0.045                              | 35.7         |
| MM3Z56VB    | =Z             | 54.88                | 56  | 57.12 | 188                            | 2                | 400                            | 0.5              | 0.045                              | 39.2         |
| MM3Z62VB    | ≡Z             | 60.76                | 62  | 63.24 | 202                            | 2                | 423                            | 0.5              | 0.045                              | 43.4         |
| MM3Z68VB    | >Z             | 66.64                | 68  | 69.36 | 226                            | 2                | 447                            | 0.5              | 0.045                              | 47.6         |
| MM3Z75VB    | <Z             | 73.5                 | 75  | 76.50 | 240                            | 2                | 470                            | 0.5              | 0.045                              | 52.5         |

1. The Zener voltage ( $V_Z$ ) is tested under pulse condition of 10 mS.
2. The device numbers listed have a standard tolerance on the nominal Zener voltage of  $\pm 2\%$ .
3. The Zener impedance is derived from the 60-cycle ac voltage, which results when an ac current having an rms value equal to 10% of the dc Zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed to  $I_{ZT}$  or  $I_{ZK}$ .

# MM3Z2V4B-MM3Z75VB

## TYPICAL PERFORMANCE CHARACTERISTICS

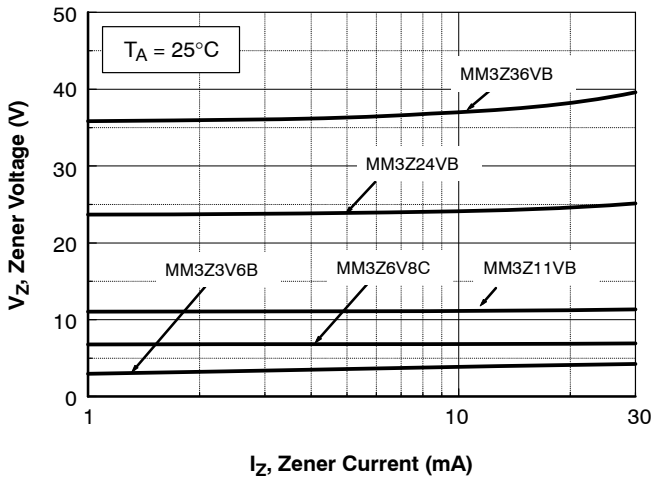


Figure 1. Zener Current vs. Zener Voltage

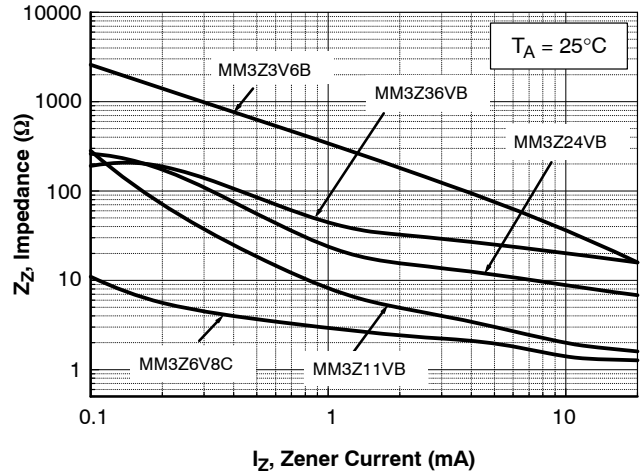


Figure 2. Zener Current vs. Zener Impedance

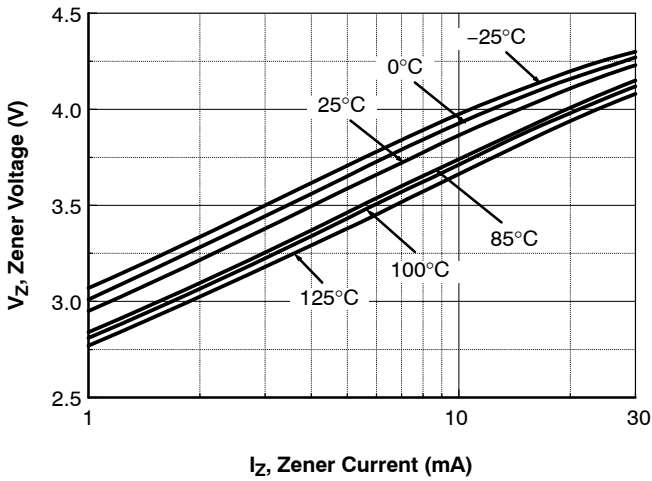


Figure 3. MM3Z3V6B - Zener Current vs. Zener Voltage

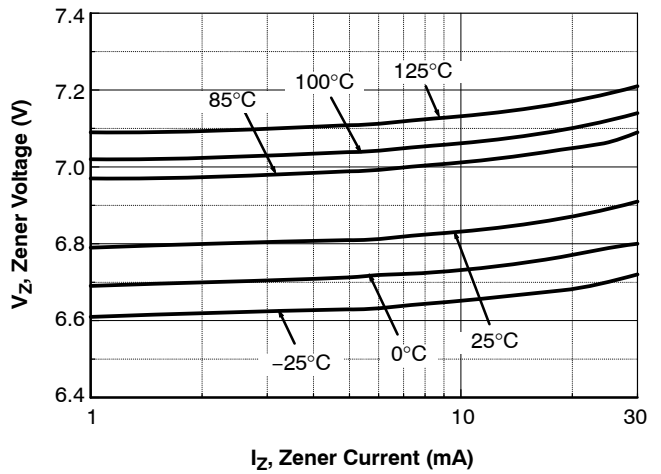


Figure 4. MM3Z6V8C - Zener Current vs. Zener Voltage

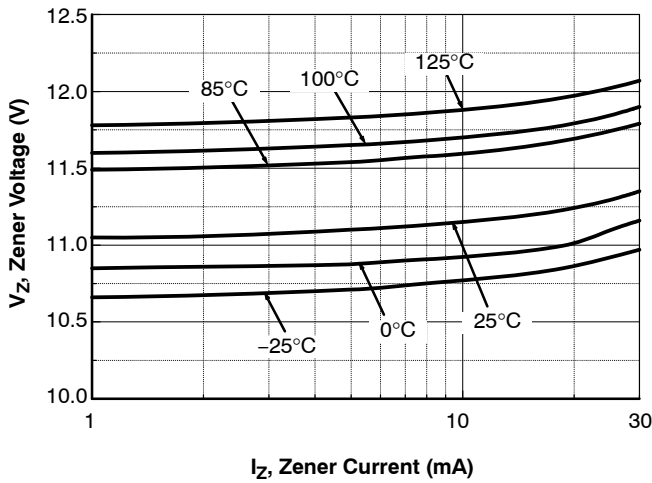


Figure 5. MM3Z11VB - Zener Current vs. Zener Voltage

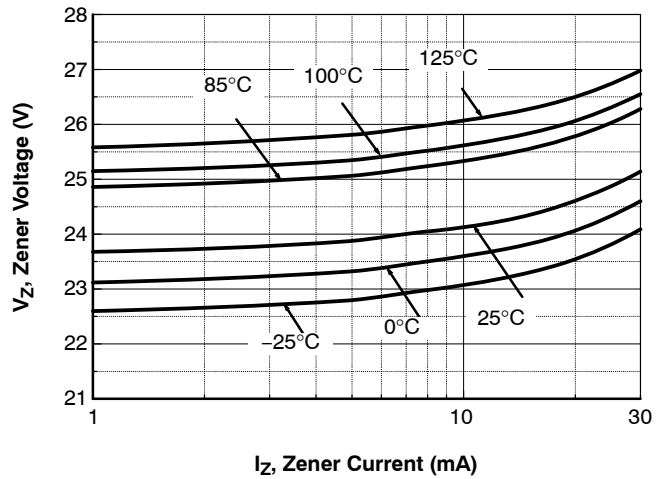


Figure 6. MM3Z24VB - Zener Current vs. Zener Voltage

# MM3Z2V4B-MM3Z75VB

## TYPICAL PERFORMANCE CHARACTERISTICS (Continued)

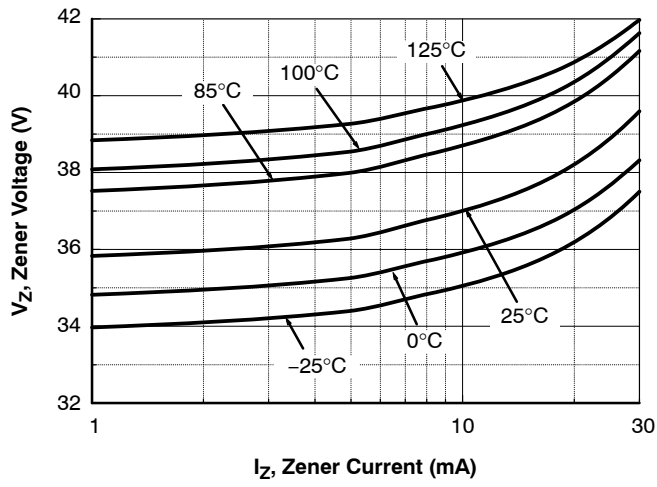


Figure 7. MM3Z36VB – Zener Current vs. Zener Voltage

## MM3Z2V4B–MM3Z75VB

### ORDERING INFORMATION

| Device   | Package                | Shipping†          |
|----------|------------------------|--------------------|
| MM3Z10VB | SOD-323FL<br>(Pb-Free) | 3000 / Tape & Reel |
| MM3Z11VB |                        |                    |
| MM3Z12VB |                        |                    |
| MM3Z13VB |                        |                    |
| MM3Z15VB |                        |                    |
| MM3Z16VB |                        |                    |
| MM3Z18VB |                        |                    |
| MM3Z20VB |                        |                    |
| MM3Z22VB |                        |                    |
| MM3Z24VB |                        |                    |
| MM3Z27VB |                        |                    |
| MM3Z2V4B |                        |                    |
| MM3Z2V7B |                        |                    |
| MM3Z30VB |                        |                    |
| MM3Z33VB |                        |                    |
| MM3Z36VB |                        |                    |
| MM3Z39VB |                        |                    |
| MM3Z3V0B |                        |                    |
| MM3Z3V3B |                        |                    |
| MM3Z3V6B |                        |                    |
| MM3Z3V9B |                        |                    |
| MM3Z43VB |                        |                    |
| MM3Z47VB |                        |                    |
| MM3Z4V3B |                        |                    |
| MM3Z4V7B |                        |                    |
| MM3Z51VB |                        |                    |
| MM3Z56VB |                        |                    |
| MM3Z5V1B |                        |                    |
| MM3Z5V6B |                        |                    |
| MM3Z62VB |                        |                    |
| MM3Z68VB |                        |                    |
| MM3Z6V2B |                        |                    |
| MM3Z6V8B |                        |                    |
| MM3Z75VB |                        |                    |
| MM3Z7V5B |                        |                    |
| MM3Z8V2B |                        |                    |
| MM3Z9V1B |                        |                    |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

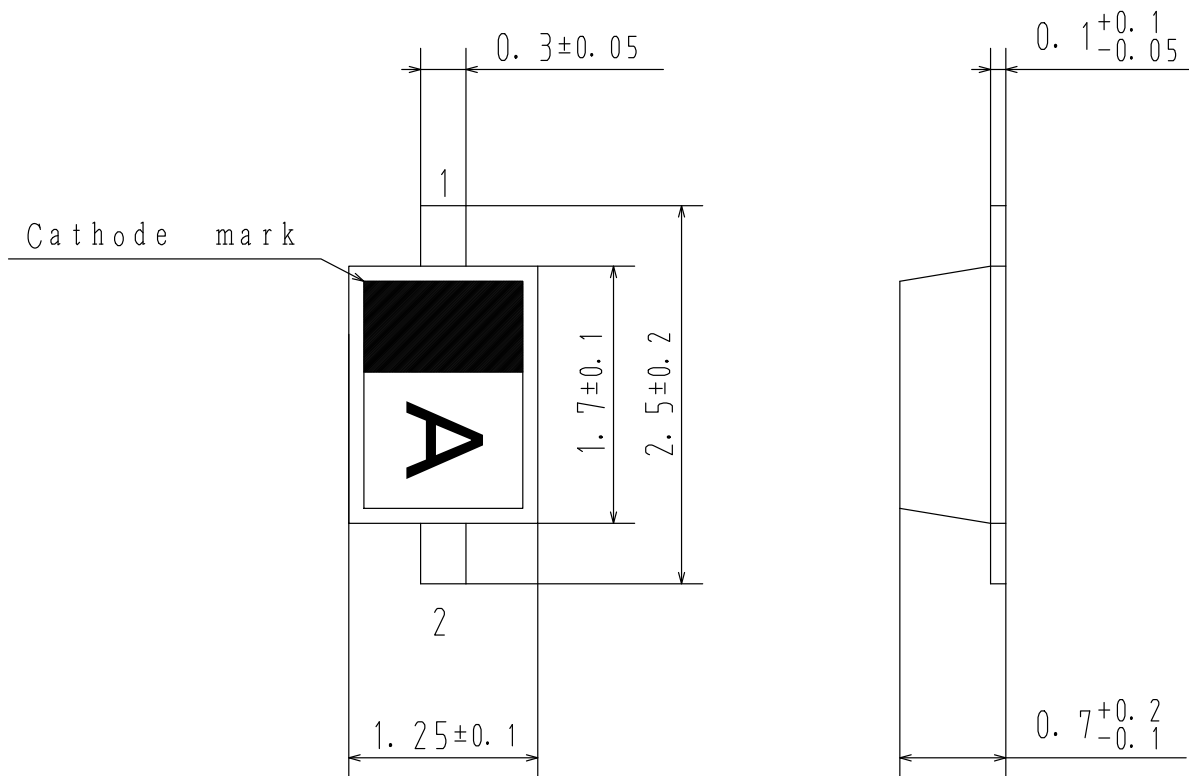
**MECHANICAL CASE OUTLINE**  
**PACKAGE DIMENSIONS**

ON Semiconductor®



SOD-323FL  
CASE 477AB  
ISSUE O

DATE 30 APR 2012



|                         |                    |   |
|-------------------------|--------------------|---|
| <b>DOCUMENT NUMBER:</b> | <b>98AON79864E</b> | Electronic versions are uncontrolled except when accessed directly from the Document Repository.<br>Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red. |
| <b>DESCRIPTION:</b>     | <b>SOD-323FL</b>   | <b>PAGE 1 OF 1</b>  |

ON Semiconductor and are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. ON Semiconductor does not convey any license under its patent rights nor the rights of others.

**onsemi**, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

## PUBLICATION ORDERING INFORMATION

### LITERATURE FULFILLMENT:

Email Requests to: [orderlit@onsemi.com](mailto:orderlit@onsemi.com)

**onsemi Website:** [www.onsemi.com](http://www.onsemi.com)

### TECHNICAL SUPPORT

**North American Technical Support:**

Voice Mail: 1 800-282-9855 Toll Free USA/Canada

Phone: 011 421 33 790 2910

**Europe, Middle East and Africa Technical Support:**

Phone: 00421 33 790 2910

For additional information, please contact your local Sales Representative

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[onsemi:](#)

[MM3Z10VB](#) [MM3Z11VB](#) [MM3Z12VB](#) [MM3Z13VB](#) [MM3Z15VB](#) [MM3Z16VB](#) [MM3Z18VB](#) [MM3Z20VB](#) [MM3Z22VB](#)  
[MM3Z24VB](#) [MM3Z27VB](#) [MM3Z2V4B](#) [MM3Z2V7B](#) [MM3Z30VB](#) [MM3Z33VB](#) [MM3Z36VB](#) [MM3Z39VB](#) [MM3Z3V0B](#)  
[MM3Z3V3B](#) [MM3Z3V6B](#) [MM3Z3V9B](#) [MM3Z43VB](#) [MM3Z47VB](#) [MM3Z4V3B](#) [MM3Z4V7B](#) [MM3Z51VB](#) [MM3Z56VB](#)  
[MM3Z5V1B](#) [MM3Z5V6B](#) [MM3Z62VB](#) [MM3Z68VB](#) [MM3Z6V2B](#) [MM3Z6V8B](#) [MM3Z75VB](#) [MM3Z7V5B](#) [MM3Z8V2B](#)  
[MM3Z9V1B](#)