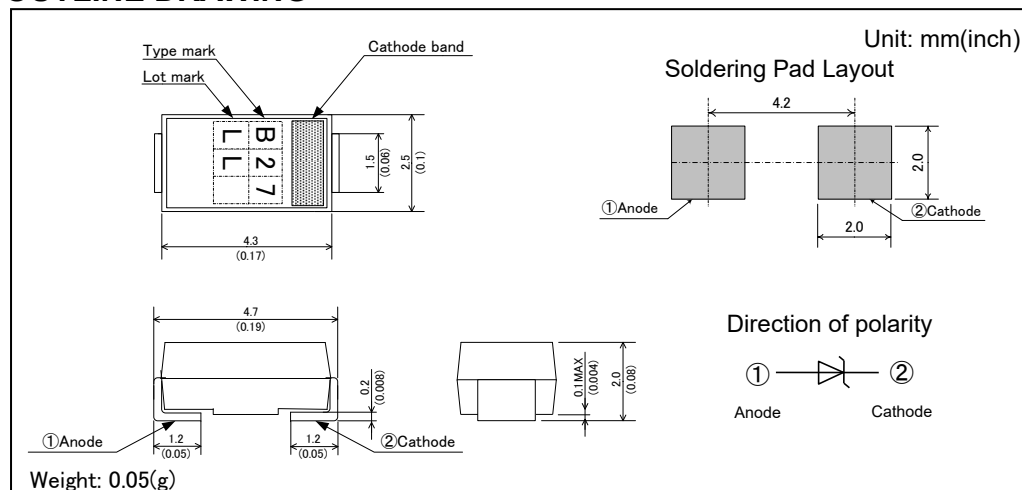


# DAM1MB

## FEATURES

- High transient reverse power capability suitable
- Available for automotive use
- AEC-Q101 qualified
- RoHS compliant
- Molding compound equivalent to UL 94 V-0
- MSL equivalent to level 1
- Type of packaging: 1500pcs/tape and reel

## OUTLINE DRAWING



## ABSOLUTE MAXIMUM RATINGS

| Items   | Symbols   | Units            | Rated   |
|---|-----------|------------------|---|
| Non-Repetitive Peak Reverse One-Cycle Dissipation | $P_{RSM}$ | W                | 400 (10/1000 $\mu$ s waveform, $T_j=25^\circ\text{C}$ start)          |
| Surge(Non-Repetitive) Forward Current             | $I_{FSM}$ | A                | 600 (Rectangular pulse $t=0.1\text{ms}$ $T_j=25^\circ\text{C}$ start) |
| Operating Junction Temperature                    | $T_j$     | $^\circ\text{C}$ | 40 (8.3ms single half sine-wave, $T_j=40^\circ\text{C}$ start)        |
| Storage Temperature                               | $T_{stg}$ | $^\circ\text{C}$ | -65 ~ +185  |
| Stand-off Voltage                                 | $V_{RM}$  | V                | -65 ~ +185  |
|   |           |                  | Refer to characteristics column                                       |

## CHARACTERISTICS $V_z=12\sim 51\text{V}(T_L=25^\circ\text{C})$

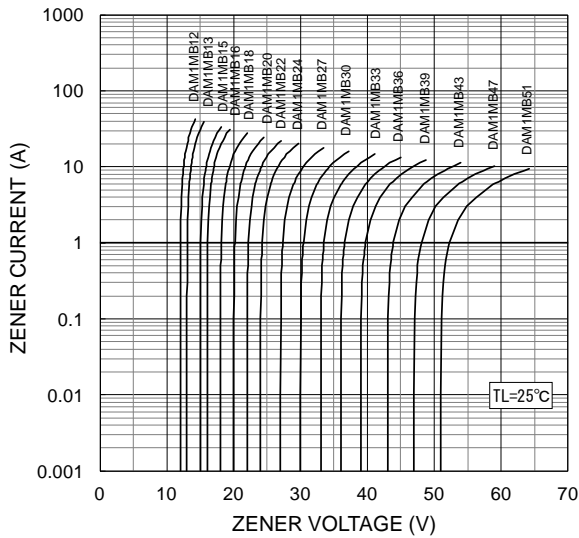
| Type     | Stand-off Voltage $V_{RM}$ (V) | Characteristics         |         |                         |   | Maximum Peak Pulse Surge Current $I_{PPM}$ (A) | Maximum Clamping Voltage at $I_{PPM}$ $V_C$ (V) |
|----------|--------------------------------|-------------------------|---------|-------------------------|---|--|---|
|          |                                | Zener Voltage $V_z$ (V) |         | Test Current $I_z$ (mA) | Maximum Reverse Leakage at $V_{RM}$ $I_{RRM}$ ( $\mu\text{A}$ ) |  |   |
|          |                                | Minimum                 | Maximum |                         |   |  |   |
| DAM1MB12 | 9.7                            | 11.4                    | 12.7    | 1                       | 5   | 23.1   | 17.3  |
| DAM1MB13 | 10.5                           | 12.4                    | 14.1    | 1                       | 5   | 21.1   | 19.0  |
| DAM1MB15 | 12.1                           | 13.5                    | 15.6    | 1                       | 1   | 18.2   | 22.0  |
| DAM1MB16 | 12.9                           | 15.3                    | 17.1    | 1                       | 1   | 17.0   | 23.5  |
| DAM1MB18 | 14.5                           | 16.8                    | 19.1    | 1                       | 1   | 15.1   | 26.5  |
| DAM1MB20 | 16.2                           | 18.8                    | 21.2    | 1                       | 1   | 13.7   | 29.1  |
| DAM1MB22 | 17.8                           | 20.8                    | 23.3    | 1                       | 1   | 12.5   | 31.9  |
| DAM1MB24 | 19.4                           | 22.7                    | 25.6    | 1                       | 1   | 11.5   | 34.7  |
| DAM1MB27 | 21.8                           | 25.1                    | 28.9    | 1                       | 1   | 10.2   | 39.1  |
| DAM1MB30 | 24.3                           | 28.0                    | 32.0    | 1                       | 1   | 9.2  | 43.5  |
| DAM1MB33 | 26.8                           | 31.0                    | 35.0    | 1                       | 1   | 8.4  | 47.7  |
| DAM1MB36 | 29.1                           | 33.4                    | 38.6    | 1                       | 1   | 7.7  | 52.0  |
| DAM1MB39 | 31.6                           | 36.1                    | 41.9    | 1                       | 1   | 7.1  | 56.4  |
| DAM1MB43 | 34.8                           | 39.8                    | 46.2    | 1                       | 1   | 6.5  | 61.9  |
| DAM1MB47 | 38.0                           | 43.3                    | 50.7    | 1                       | 1   | 5.9  | 67.7  |
| DAM1MB51 | 41.3                           | 46.9                    | 55.1    | 1                       | 1   | 5.4  | 74.0  |

# DAM1MB

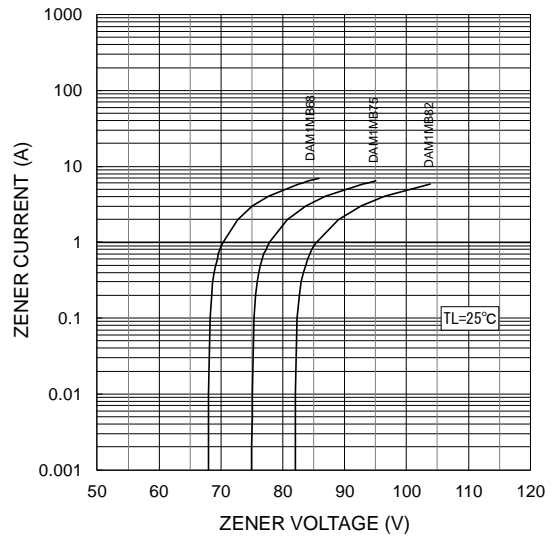
## CHARACTERISTICS Vz=68~82V(TL=25°C)

| Type     | Stand-off Voltage $V_{RM}$ (V) | Characteristics         |         |                         |  | Maximum Peak Pulse Surge Current $I_{PPM}$ (A) | Maximum Clamping Voltage at $I_{PPM}$ $V_C$ (V) |
|----------|--------------------------------|-------------------------|---------|-------------------------|--|--|---|
|          |                                | Zener Voltage $V_Z$ (V) |         | Test Current $I_Z$ (mA) | Maximum Reverse Leakage at $V_{RM}$ $I_{RRM}$ ( $\mu$ A) |  |   |
|          |                                | Minimum                 | Maximum |                         |  |  |   |
| DAM1MB68 | 55.1                           | 61.2                    | 74.8    | 1                       | 1  | 4.1  | 98.0  |
| DAM1MB75 | 60.7                           | 67.5                    | 82.5    | 1                       | 1  | 3.7  | 107.6   |
| DAM1MB82 | 66.4                           | 73.8                    | 90.2    | 1                       | 1  | 3.4  | 117.9   |

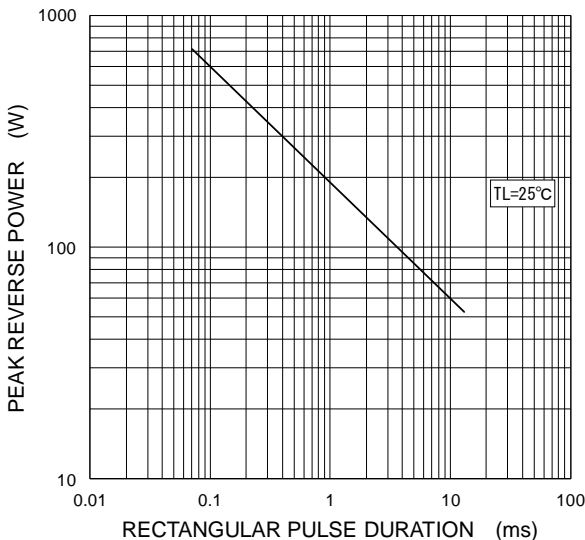
Typical zener characteristics (  $V_Z$  : 12 – 51V )



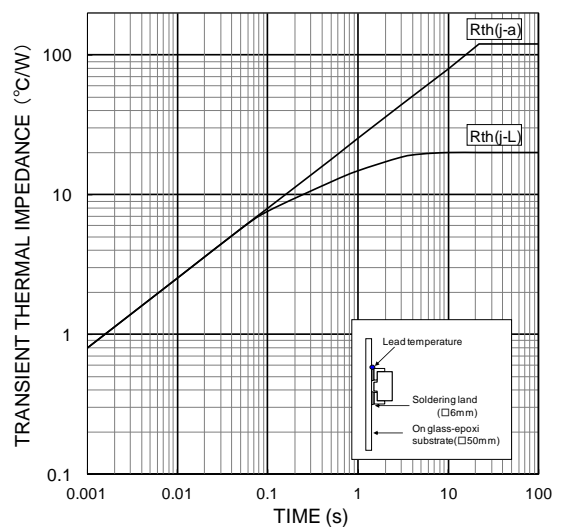
Typical zener characteristics (  $V_Z$  : 68 – 82V )



Typical reverse power characteristics (Rectangular pulse non-repetitive)

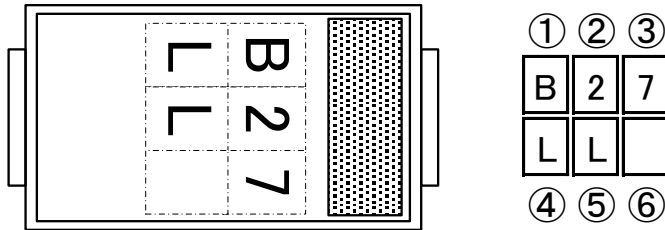


Transient thermal impedance



# DAM1MB

## Part number description



|   |               |                                      |
|---|---------------|--------------------------------------|
| ① | Type mark     | "B" : DAM"B" series                  |
| ② | Zener voltage | Zener voltage (two digits)           |
| ③ |               | e.g. 27 → 27V                        |
| ④ | Year          | Year of manufacture (the last digit) |
| ⑤ | Month         | Month of manufacture                 |
| ⑥ | Blank         | Here is blank.                       |

|   | Mark                                    | A | B | C | D | E | K | L | M | N | X  | Y  | Z  |
|---|---|---|---|---|---|---|---|---|---|---|----|----|----|
| ④ | Year of manufacture<br>(the last digit) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0  | -  | -  |
| ⑤ | Month of manufacture                    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

e.g. B27    Type: DAM"B" series  
 LL        Zener voltage: 27V  
             Manufacturing date: Jul. 2017

## Precautions for Safe Use and Notices

If semiconductor devices are handled in inappropriate manner, failures may result. For this reason, be sure to read "Precaution for Use" before use.



This mark indicates an item about which caution is required.



### CAUTION

This mark indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and damage to property.

## CAUTION

- (1) Regardless of changes in external conditions during use "absolute maximum ratings" should never be exceeded in designing electronic circuits that employ semiconductors. In the case of pulse use, furthermore, "safe operating area(SOA)" precautions should be observed.
- (2) Semiconductor devices may experience failures due to accident or unexpected surge voltages. Accordingly, adopt safe design features, such as redundancy or prevention of erroneous action, to avoid extensive damage in the event of a failure.
- (3) In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, life-support-related medical equipment, fuel control equipment and various kinds of safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of user's fail-safe precautions or other arrangement. Or consult Hitachi's sales department staff.

(If a semiconductor device fails, there may be cases in which the semiconductor device, wiring or wiring pattern will emit smoke or cause a fire or in which the semiconductor device will burst)

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