



## 1.3 W Surface Mounted Glass Passivated Zener Diode

| Dimensions in mm. | CASE:<br>SMA/DO-214AC | Voltage<br>6.2 to 200 V                                                                                                                             | Power<br>1.3 W                                                                                                                                                                                                                                     |
|-------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   |                       |                                                                                                                                                     | <ul style="list-style-type: none"> <li>• Glass passivated junction</li> <li>• The plastic material carries U/L 94 V-0</li> <li>• Low profile package</li> <li>• Easy pick and place</li> <li>• High temperature soldering 260 °C 10 sec</li> </ul> |
|                   |                       | <b>MECHANICAL DATA</b><br>Terminals: Solder plated, solderable per IEC 68-2-20.<br>Standard Packaging: 4 mm. tape (EIA-RS-481).<br>Weight: 0.064 g. |                                                                                                                                                                                                                                                    |

## Maximum Ratings and Electrical Characteristics at 25 °C

|               |                                                                                  |                  |
|---------------|----------------------------------------------------------------------------------|------------------|
| $P_{tot}$     | Power dissipation at $T_{amb} = 25\text{ °C}$<br>$R_{th\ j-a} = 100\text{ °C/W}$ | 1.3 W            |
| $P_{tot}$     | Power dissipation at $T_{amb} = 25\text{ °C}$<br>$R_{th\ j-a} = 25\text{ °C/W}$  | 3.25 W           |
| $T_j$         | Operating temperature range                                                      | - 65 to + 175 °C |
| $T_{stg}$     | Storage temperature range                                                        | - 65 to + 175 °C |
| $V_F$         | Max. forward voltage drop at $I_F = 0.5\text{ A}$                                | 1.0 V            |
| $R_{th\ j-c}$ |                                                                                  | 25 °C/W          |
| $R_{th\ j-a}$ | PCB epoxy-glass path 1.5 mm                                                      | 150 °C/W         |
|               | PCB epoxy-glass path 5 x 10 mm                                                   | 125 °C/W         |
|               | Ceramic Plate ( $Al_2O_3$ ) path 5 x 10 mm                                       | 100 °C/W         |

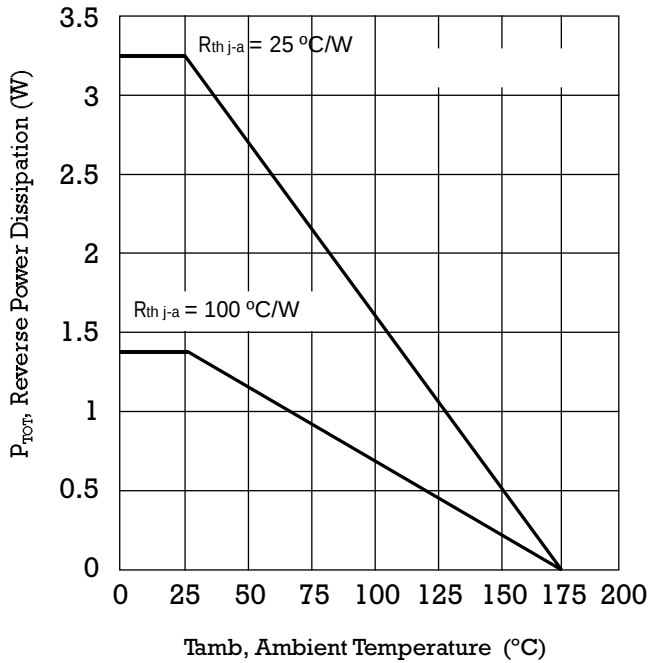
Other voltages upon request

| Type     | Marking Code | Zener <sup>(1)</sup><br>Voltage Range<br>$V_Z$ at $I_{ZT}$ | Maximum<br>Zener<br>Impedance<br>$Z_{ZT}$ at $I_{ZT}$ | Typical<br>Temperature<br>Coefficient<br>at $I_{ZT}$ | Test<br>Current<br>$I_{ZT}$ | Max Reverse<br>Leakage Current<br>$I_R$ @ $V_R$ |     | Max<br>Regulator<br>Current at 45 °C<br>$I_{ZM}$ |
|----------|--------------|------------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------|-----------------------------|-------------------------------------------------|-----|--------------------------------------------------|
|          |              | (V)                                                        | (W)                                                   | (% / °C)                                             | (mA)                        | ( $\mu$ A)                                      | (V) | (mA)                                             |
| Z1SMA6V2 | EC           | 5.8-6.6                                                    | 2                                                     | +0.025                                               | 100                         | 5                                               | 3   | 161                                              |
| Z1SMA6V8 | EE           | 6.4-7.2                                                    | 2.5                                                   | +0.035                                               | 100                         | 5                                               | 4   | 147                                              |
| Z1SMA7V5 | ED           | 7.0-7.9                                                    | 3                                                     | +0.035                                               | 100                         | 5                                               | 5   | 133                                              |
| Z1SMA8V2 | EF           | 7.7-8.7                                                    | 3.5                                                   | +0.055                                               | 100                         | 5                                               | 6   | 122                                              |
| Z1SMA9V1 | EG           | 8.5-9.6                                                    | 4                                                     | +0.055                                               | 50                          | 5                                               | 7   | 110                                              |
| Z1SMA10  | EH           | 9.4-10.6                                                   | 4                                                     | +0.070                                               | 50                          | 1                                               | 7.5 | 105                                              |
| Z1SMA11  | EK           | 10.4-11.6                                                  | 7                                                     | +0.075                                               | 50                          | 1                                               | 8.2 | 97                                               |
| Z1SMA12  | EL           | 11.4-12.7                                                  | 7                                                     | +0.075                                               | 50                          | 1                                               | 9.1 | 88                                               |
| Z1SMA13  | EM           | 12.4-14.1                                                  | 10                                                    | +0.075                                               | 50                          | 1                                               | 10  | 79                                               |
| Z1SMA15  | EN           | 13.8-15.8                                                  | 10                                                    | +0.075                                               | 50                          | 1                                               | 11  | 71                                               |
| Z1SMA16  | EP           | 15.3-17.1                                                  | 15                                                    | +0.085                                               | 25                          | 1                                               | 12  | 66                                               |
| Z1SMA18  | EQ           | 16.8-19.1                                                  | 15                                                    | +0.085                                               | 25                          | 1                                               | 13  | 62                                               |
| Z1SMA20  | ER           | 18.8-21.2                                                  | 15                                                    | +0.085                                               | 25                          | 1                                               | 15  | 56                                               |
| Z1SMA22  | ES           | 20.8-23.3                                                  | 15                                                    | +0.085                                               | 25                          | 1                                               | 16  | 52                                               |
| Z1SMA24  | ET           | 22.8-25.6                                                  | 15                                                    | +0.085                                               | 25                          | 1                                               | 18  | 47                                               |
| Z1SMA27  | EU           | 25.1-28.9                                                  | 15                                                    | +0.085                                               | 25                          | 1                                               | 20  | 41                                               |
| Z1SMA30  | EV           | 28-32                                                      | 15                                                    | +0.085                                               | 25                          | 1                                               | 22  | 36                                               |
| Z1SMA33  | EW           | 31-35                                                      | 15                                                    | +0.085                                               | 25                          | 1                                               | 24  | 33                                               |
| Z1SMA36  | EX           | 34-38                                                      | 40                                                    | +0.085                                               | 10                          | 1                                               | 27  | 30                                               |
| Z1SMA39  | EY           | 37-41                                                      | 40                                                    | +0.085                                               | 10                          | 1                                               | 30  | 28                                               |
| Z1SMA43  | EZ           | 40-46                                                      | 45                                                    | +0.095                                               | 10                          | 1                                               | 33  | 26                                               |
| Z1SMA47  | FD           | 44-50                                                      | 45                                                    | +0.095                                               | 10                          | 1                                               | 36  | 23                                               |
| Z1SMA51  | FF           | 48-54                                                      | 60                                                    | +0.095                                               | 10                          | 1                                               | 39  | 21                                               |
| Z1SMA56  | FG           | 52-60                                                      | 60                                                    | +0.095                                               | 10                          | 1                                               | 43  | 19                                               |
| Z1SMA62  | FH           | 58-66                                                      | 80                                                    | +0.105                                               | 10                          | 1                                               | 47  | 16                                               |
| Z1SMA68  | FK           | 64-72                                                      | 80                                                    | +0.105                                               | 10                          | 1                                               | 51  | 15                                               |
| Z1SMA75  | FL           | 70-80                                                      | 100                                                   | +0.105                                               | 10                          | 1                                               | 56  | 14                                               |
| Z1SMA82  | FM           | 77-87                                                      | 100                                                   | +0.105                                               | 10                          | 1                                               | 62  | 12                                               |
| Z1SMA91  | FN           | 85-96                                                      | 200                                                   | +0.110                                               | 5                           | 1                                               | 68  | 10                                               |
| Z1SMA100 | FP           | 94-106                                                     | 200                                                   | +0.110                                               | 5                           | 1                                               | 75  | 9.4                                              |
| Z1SMA110 | FQ           | 104-116                                                    | 250                                                   | +0.110                                               | 5                           | 1                                               | 82  | 8.6                                              |
| Z1SMA120 | FR           | 114-127                                                    | 250                                                   | +0.110                                               | 5                           | 1                                               | 91  | 7.8                                              |
| Z1SMA130 | FS           | 124-141                                                    | 300                                                   | +0.110                                               | 5                           | 1                                               | 100 | 7.0                                              |
| Z1SMA150 | FT           | 138-156                                                    | 300                                                   | +0.110                                               | 5                           | 1                                               | 110 | 6.4                                              |
| Z1SMA160 | FU           | 153-171                                                    | 350                                                   | +0.110                                               | 5                           | 1                                               | 120 | 5.8                                              |
| Z1SMA180 | FV           | 168-191                                                    | 400                                                   | +0.110                                               | 5                           | 1                                               | 130 | 5.2                                              |
| Z1SMA200 | FW           | 188-212                                                    | 500                                                   | +0.110                                               | 5                           | 1                                               | 150 | 4.7                                              |

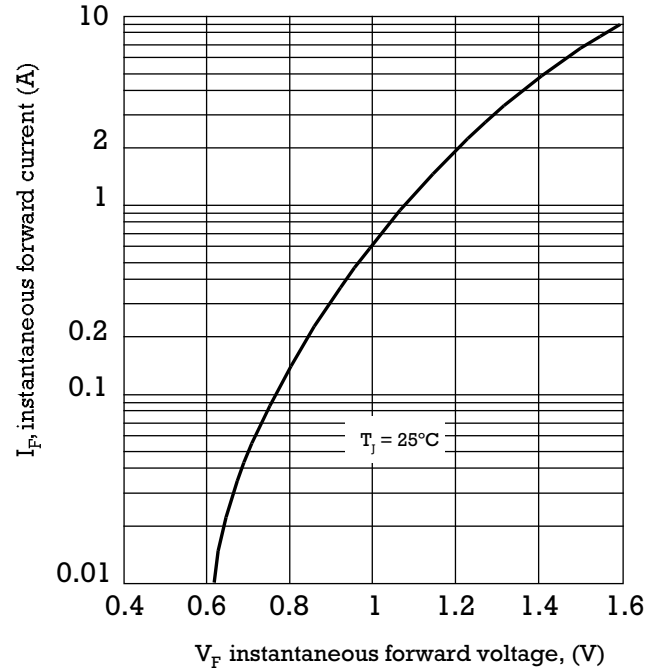
(1) Tested with pulses.  
Pulse test:  $t_p \leq 50$  ms;  $d < 2\%$

## Rating And Characteristic Curves

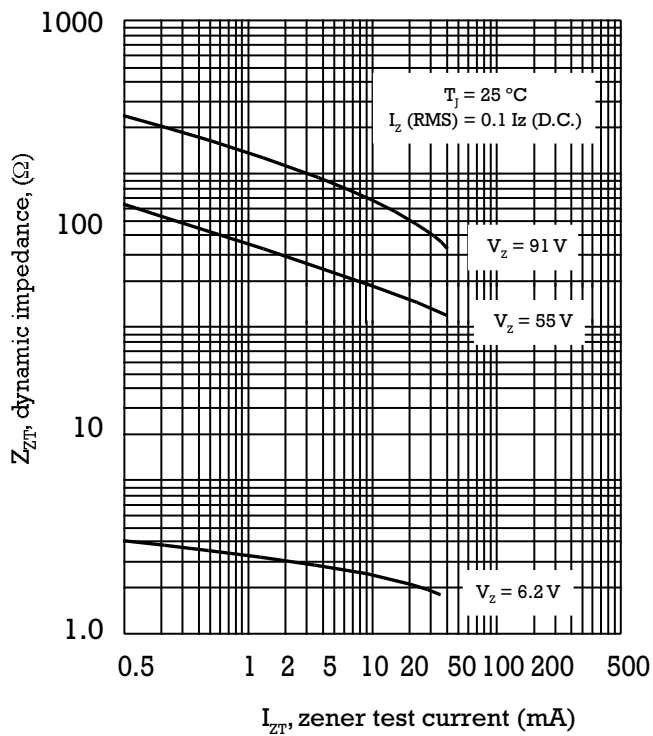
MAXIMUM CONTINUOUS POWER DISSIPATION



TYPICAL FORWARD CHARACTERISTIC



TYPICAL ZENER IMPEDANCE



TYPICAL REVERSE CHARACTERISTIC

