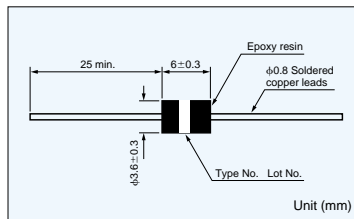


**Z1 type VRD has bipolar electrical characteristics.**

Maximum ratings  
 Peak pulse power: 250 W (10/1000 $\mu$ s)  
 3.00 kW (8/20 $\mu$ s)  
 Steady state power dissipation: 500 mW  
 Operating and storage temperature  
 : -40°C to 125°C

Symbol mark

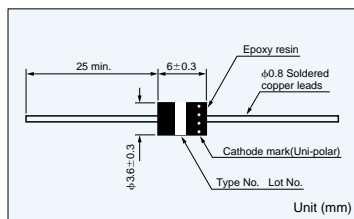
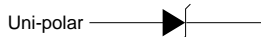


| Bi-polar type | Stand-off voltage<br>$V_s$<br>V | Maximum leakage current<br>$I_L$<br>$\mu$ A | Breakdown voltage<br>$V_B$<br>V | Test current<br>$I_T$<br>mA | Maximum clamping voltage & Maximum peak pulse current |            |              |            | Max. temp. coef.<br>%/°C | Capacitance (TYP)<br>pF |
|---------------|---------------------------------|---|---------------------------------|-----------------------------|---|------------|--------------|------------|--------------------------|-------------------------|
|               |                                 |   |                                 |                             | 10/1000 $\mu$ s                                       |            | 8/20 $\mu$ s |            |                          |                         |
|               |                                 |   |                                 |                             | $V_C$<br>V  | $I_P$<br>A | $V_C$<br>V   | $I_P$<br>A |                          |                         |
| Z1015         | 12.1                            | 5   | 13.5-16.5                       | 1                           | 22.0  | 11.3       | 28.4         | 106.       | 0.075                    | 450                     |
| Z1018         | 14.5                            | 5   | 16.2-19.8                       | 1                           | 26.5  | 9.43       | 34.0         | 89.1       | 0.079                    | 360                     |
| Z1022         | 17.8                            | 5   | 19.8-24.2                       | 1                           | 31.9  | 7.83       | 41.2         | 73.5       | 0.082                    | 290                     |
| Z1027         | 21.8                            | 5   | 24.3-29.7                       | 1                           | 39.1  | 6.39       | 50.5         | 60.0       | 0.085                    | 240                     |
| Z1033         | 26.8                            | 5   | 29.7-36.3                       | 1                           | 47.7  | 5.24       | 61.7         | 49.1       | 0.087                    | 200                     |
| Z1039         | 31.6                            | 5   | 35.1-42.9                       | 1                           | 56.4  | 4.43       | 73.0         | 41.5       | 0.090                    | 170                     |
| Z1047         | 38.1                            | 5   | 42.3-51.7                       | 1                           | 67.8  | 3.69       | 88.0         | 34.4       | 0.092                    | 140                     |
| Z1056         | 45.4                            | 5   | 50.4-61.6                       | 1                           | 80.5  | 3.10       | 105.0        | 28.8       | 0.094                    | 110                     |
| Z1068         | 55.1                            | 5   | 61.2-74.8                       | 1                           | 98.0  | 2.55       | 127.0        | 23.8       | 0.096                    | 90                      |
| Z1082         | 66.4                            | 5   | 73.8-90.2                       | 1                           | 118.0   | 2.14       | 153.0        | 19.8       | 0.099                    | 80                      |
| Z1100         | 81.0                            | 5   | 90.0-110                        | 1                           | 144.0   | 1.73       | 187.0        | 16.2       | 0.101                    | 65                      |
| Z1120         | 97.0                            | 5   | 108-132                         | 1                           | 173.0   | 1.44       | 222.0        | 13.6       | 0.103                    | 53                      |
| Z1150         | 121.0                           | 5   | 135-165                         | 1                           | 215.0   | 1.16       | 277.0        | 10.9       | 0.105                    | 42                      |

**Z2 type VRD has bipolar or unipolar electrical characteristics.**

Maximum ratings  
 Peak pulse power: 500 W (10/1000 $\mu$ s)  
 6.00 kW (8/20 $\mu$ s)  
 Steady state power dissipation: 1W  
 Operating and storage temperature  
 : -40°C to 125°C

Symbol mark



| Bi-polar type | Uni-polar type | Stand-off voltage<br>$V_s$<br>V | Maximum leakage current<br>$I_L$<br>$\mu$ A | Breakdown voltage<br>$V_B$<br>V | Test current<br>$I_T$<br>mA | Maximum clamping voltage & Maximum peak pulse current |            |              |            | Max. temp. coef.<br>%/°C | Capacitance (TYP)<br>pF |
|---------------|----------------|---------------------------------|---|---------------------------------|-----------------------------|---|------------|--------------|------------|--------------------------|-------------------------|
|               |                |                                 |   |                                 |                             | 10/1000 $\mu$ s                                       |            | 8/20 $\mu$ s |            |                          |                         |
|               |                |                                 |   |                                 |                             | $V_C$<br>V  | $I_P$<br>A | $V_C$<br>V   | $I_P$<br>A |                          |                         |
| Z2008         | -              | 6.63                            | 500   | 7.38-9.02                       | 10                          | 12.5  | 40.0       | 16.3         | 372        | 0.045                    | 1200                    |
| -             | Z2008U         | 6.63                            | 500   | 7.38-9.02                       | 10                          | 12.5  | 40.0       | 16.3         | 372        | 0.063                    | 2400                    |
| Z2010         | -              | 8.10                            | 100   | 9.00-11.0                       | 1                           | 15.0  | 33.4       | 19.5         | 311        | 0.055                    | 950                     |
| -             | Z2010U         | 8.10                            | 20  | 9.00-11.0                       | 1                           | 15.0  | 33.4       | 19.5         | 311        | 0.071                    | 1900                    |
| Z2012         | -              | 9.72                            | 5   | 10.8-13.2                       | 1                           | 17.3  | 28.9       | 22.7         | 267        | 0.066                    | 790                     |
| -             | Z2012U         | 9.72                            | 5   | 10.8-13.2                       | 1                           | 17.3  | 28.9       | 22.7         | 267        | 0.074                    | 1580                    |
| Z2015         | -              | 12.1                            | 5   | 13.5-16.5                       | 1                           | 22.0  | 22.7       | 28.4         | 213        | 0.075                    | 640                     |
| -             | Z2015U         | 12.1                            | 5   | 13.5-16.5                       | 1                           | 22.0  | 22.7       | 28.4         | 213        | 0.079                    | 1280                    |
| Z2018         | -              | 14.5                            | 5   | 16.2-19.8                       | 1                           | 26.5  | 18.8       | 34.0         | 178        | 0.079                    | 520                     |
| -             | Z2018U         | 14.5                            | 5   | 16.2-19.8                       | 1                           | 26.5  | 18.8       | 34.0         | 178        | 0.083                    | 1040                    |
| Z2022         | -              | 17.8                            | 5   | 19.8-24.2                       | 1                           | 31.9  | 15.7       | 41.2         | 147        | 0.082                    | 420                     |
| -             | Z2022U         | 17.8                            | 5   | 19.8-24.2                       | 1                           | 31.9  | 15.7       | 41.2         | 147        | 0.086                    | 840                     |
| Z2027         | -              | 21.8                            | 5   | 24.3-29.7                       | 1                           | 39.1  | 12.8       | 50.5         | 120        | 0.085                    | 340                     |
| -             | Z2027U         | 21.8                            | 5   | 24.3-29.7                       | 1                           | 39.1  | 12.8       | 50.5         | 120        | 0.089                    | 680                     |
| Z2033         | -              | 26.8                            | 5   | 29.7-36.3                       | 1                           | 47.7  | 10.5       | 61.7         | 98.2       | 0.087                    | 280                     |
| -             | Z2033U         | 26.8                            | 5   | 29.7-36.3                       | 1                           | 47.7  | 10.5       | 61.7         | 98.2       | 0.092                    | 560                     |
| Z2039         | -              | 31.6                            | 5   | 35.1-42.9                       | 1                           | 56.4  | 8.86       | 73.0         | 83.0       | 0.090                    | 240                     |
| -             | Z2039U         | 31.6                            | 5   | 35.1-42.9                       | 1                           | 56.4  | 8.86       | 73.0         | 83.0       | 0.095                    | 480                     |
| Z2047         | -              | 38.1                            | 5   | 42.3-51.7                       | 1                           | 67.8  | 7.37       | 88.0         | 68.9       | 0.092                    | 200                     |
| -             | Z2047U         | 38.1                            | 5   | 42.3-51.7                       | 1                           | 67.8  | 7.37       | 88.0         | 68.9       | 0.097                    | 400                     |
| Z2056         | -              | 45.4                            | 5   | 50.4-61.6                       | 1                           | 80.5  | 6.21       | 105.0        | 57.7       | 0.094                    | 160                     |
| -             | Z2056U         | 45.4                            | 5   | 50.4-61.6                       | 1                           | 80.5  | 6.21       | 105.0        | 57.7       | 0.099                    | 320                     |
| Z2068         | -              | 55.1                            | 5   | 61.2-74.8                       | 1                           | 98.0  | 5.10       | 127.0        | 47.7       | 0.096                    | 130                     |
| -             | Z2068U         | 55.1                            | 5   | 61.2-74.8                       | 1                           | 98.0  | 5.10       | 127.0        | 47.7       | 0.100                    | 260                     |
| Z2082         | -              | 66.4                            | 5   | 73.8-90.2                       | 1                           | 118.0   | 4.24       | 153.0        | 39.6       | 0.099                    | 110                     |
| -             | Z2082U         | 66.4                            | 5   | 73.8-90.2                       | 1                           | 118.0   | 4.24       | 153.0        | 39.6       | 0.102                    | 220                     |
| Z2100         | -              | 81.0                            | 5   | 90.0-110                        | 1                           | 144.0   | 3.47       | 187.0        | 32.4       | 0.101                    | 90                      |
| -             | Z2100U         | 81.0                            | 5   | 90.0-110                        | 1                           | 144.0   | 3.47       | 187.0        | 32.4       | 0.104                    | 180                     |
| Z2120         | -              | 97.2                            | 5   | 108-132                         | 1                           | 173.0   | 2.89       | 222.0        | 27.3       | 0.103                    | 75                      |
| -             | Z2120U         | 97.2                            | 5   | 108-132                         | 1                           | 173.0   | 2.89       | 222.0        | 27.3       | 0.106                    | 150                     |
| Z2150         | -              | 121.0                           | 5   | 135-165                         | 1                           | 215.0   | 2.32       | 277.0        | 21.9       | 0.105                    | 60                      |
| -             | Z2150U         | 121.0                           | 5   | 135-165                         | 1                           | 215.0   | 2.32       | 277.0        | 21.9       | 0.107                    | 120                     |
| Z2180         | -              | 146.0                           | 5   | 162-198                         | 1                           | 258.0   | 1.94       | 333.0        | 18.2       | 0.106                    | 49                      |
| -             | Z2180U         | 146.0                           | 5   | 162-198                         | 1                           | 258.0   | 1.94       | 333.0        | 18.2       | 0.108                    | 98                      |

NOTE: Nonsuffix: bi-polar, suffix "U" : uni-polar.

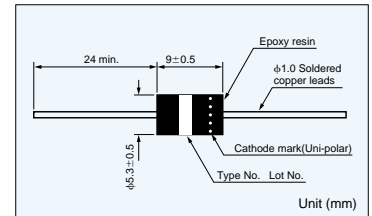
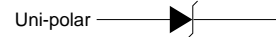
| Bi-polar type | Uni-polar type | Stand-off voltage<br>V <sub>s</sub><br>V | Maximum leakage current<br>I <sub>L</sub><br>μA | Breakdown voltage<br>V <sub>B</sub><br>V | Test current<br>I <sub>T</sub><br>mA | Maximum clamping voltage & Maximum peak pulse current |                     |                     |                     | Max. temp. coef.<br>%/°C | Capacitance (TYP)<br>pF |
|---------------|----------------|--|---|--|--------------------------------------|---|---------------------|---------------------|---------------------|--------------------------|-------------------------|
|               |                |  |   |  |                                      | 10/1000μs   |                     | 8/20μs              |                     |                          |                         |
|               |                |  |   |  |                                      | V <sub>C</sub><br>V                                   | I <sub>p</sub><br>A | V <sub>C</sub><br>V | I <sub>p</sub><br>A |                          |                         |
| -             | Z6008U         | 6.63                                     | 500   | 7.38-9.02                                | 10                                   | 12.5  | 120                 | 16.3                | 1120                | 0.063                    | 14600                   |
| Z6010         | -              | 8.10                                     | 200   | 9.00-11.0                                | 1                                    | 15.0  | 100                 | 19.5                | 933                 | 0.055                    | 5600                    |
| -             | Z6010U         | 8.10                                     | 50  | 9.00-11.0                                | 1                                    | 15.0  | 100                 | 19.5                | 933                 | 0.071                    | 11200                   |
| Z6012         | -              | 9.72                                     | 10  | 10.8-13.2                                | 1                                    | 17.3  | 86.7                | 22.7                | 802                 | 0.066                    | 4400                    |
| -             | Z6012U         | 9.72                                     | 5   | 10.8-13.2                                | 1                                    | 17.3  | 86.7                | 22.7                | 802                 | 0.074                    | 8800                    |
| Z6015         | -              | 12.1                                     | 5   | 13.5-16.5                                | 1                                    | 22.0  | 68.2                | 28.4                | 641                 | 0.075                    | 3300                    |
| -             | Z6015U         | 12.1                                     | 5   | 13.5-16.5                                | 1                                    | 22.0  | 68.2                | 28.4                | 641                 | 0.079                    | 6600                    |
| Z6018         | -              | 14.5                                     | 5   | 16.2-19.8                                | 1                                    | 26.5  | 56.6                | 34.0                | 535                 | 0.079                    | 2700                    |
| -             | Z6018U         | 14.5                                     | 5   | 16.2-19.8                                | 1                                    | 26.5  | 56.6                | 34.0                | 535                 | 0.083                    | 5400                    |
| Z6022         | -              | 17.8                                     | 5   | 19.8-24.2                                | 1                                    | 31.9  | 47.0                | 41.2                | 442                 | 0.082                    | 2400                    |
| -             | Z6022U         | 17.8                                     | 5   | 19.8-24.2                                | 1                                    | 31.9  | 47.0                | 41.2                | 442                 | 0.086                    | 4400                    |
| Z6027         | -              | 21.8                                     | 5   | 24.3-29.7                                | 1                                    | 39.1  | 38.5                | 50.5                | 360                 | 0.085                    | 1700                    |
| -             | Z6027U         | 21.8                                     | 5   | 24.3-29.7                                | 1                                    | 39.1  | 38.4                | 50.5                | 360                 | 0.089                    | 3300                    |
| Z6033         | -              | 26.8                                     | 5   | 29.7-36.3                                | 1                                    | 47.7  | 31.4                | 61.7                | 295                 | 0.087                    | 1400                    |
| -             | Z6033U         | 26.8                                     | 5   | 29.7-36.3                                | 1                                    | 47.7  | 31.4                | 61.7                | 295                 | 0.092                    | 2800                    |
| Z6039         | -              | 31.6                                     | 5   | 35.1-42.9                                | 1                                    | 56.4  | 26.6                | 73.0                | 249                 | 0.090                    | 1200                    |
| -             | Z6039U         | 31.6                                     | 5   | 35.1-42.9                                | 1                                    | 56.4  | 26.6                | 73.0                | 249                 | 0.095                    | 2400                    |
| Z6047         | -              | 38.1                                     | 5   | 42.3-51.7                                | 1                                    | 67.8  | 22.1                | 88.0                | 207                 | 0.092                    | 1000                    |
| -             | Z6047U         | 38.1                                     | 5   | 42.3-51.7                                | 1                                    | 67.8  | 22.1                | 88.0                | 207                 | 0.097                    | 2000                    |
| Z6056         | -              | 45.4                                     | 5   | 50.4-61.6                                | 1                                    | 80.5  | 18.6                | 105.0               | 173                 | 0.094                    | 850                     |
| -             | Z6056U         | 45.4                                     | 5   | 50.4-61.6                                | 1                                    | 80.5  | 18.6                | 105.0               | 173                 | 0.099                    | 1700                    |
| Z6068         | -              | 55.1                                     | 5   | 61.2-74.8                                | 1                                    | 98.0  | 15.3                | 127.0               | 143                 | 0.096                    | 720                     |
| -             | Z6068U         | 55.1                                     | 5   | 61.2-74.8                                | 1                                    | 98.0  | 15.3                | 127.0               | 143                 | 0.100                    | 1440                    |
| Z6082         | -              | 66.4                                     | 5   | 73.8-90.2                                | 1                                    | 118.0   | 12.7                | 153.0               | 119                 | 0.099                    | 610                     |
| -             | Z6082U         | 66.4                                     | 5   | 73.8-90.2                                | 1                                    | 118.0   | 12.7                | 153.0               | 119                 | 0.102                    | 1220                    |
| Z6100         | -              | 81.0                                     | 5   | 90.0-110                                 | 1                                    | 144.0   | 10.4                | 187.0               | 97.3                | 0.101                    | 520                     |
| -             | Z6100U         | 81.0                                     | 5   | 90.0-110                                 | 1                                    | 144.0   | 10.4                | 187.0               | 97.3                | 0.104                    | 1040                    |
| Z6120         | -              | 97.2                                     | 5   | 108-132                                  | 1                                    | 173.0   | 8.67                | 222.0               | 82.0                | 0.103                    | 440                     |
| -             | Z6120U         | 97.2                                     | 5   | 108-132                                  | 1                                    | 173.0   | 8.67                | 222.0               | 82.0                | 0.106                    | 880                     |
| -             | Z6150U         | 121.0                                    | 5   | 135-165                                  | 1                                    | 215.0   | 6.98                | 277.0               | 65.7                | 0.107                    | 720                     |

NOTE : Nonsuffix : Bi-polar, suffix "U" : Uni-polar.

**Z6 type VRD has bipolar or unipolar electrical characteristics.**

Maximum ratings  
 Peak pulse power:1.5kW(10/1000μs)  
 18.0kW(8/20μs)  
 Steady state power dissipation:2W  
 Operating and storage temperature  
 :-40°C to 125°C

Symbol mark

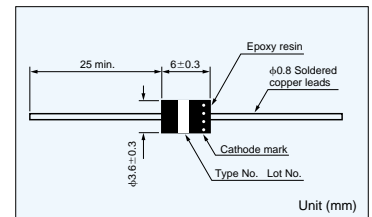


| VRD type No. | Stand-off voltage<br>V <sub>s</sub><br>V | Maximum leakage current<br>I <sub>L</sub><br>μA | Breakdown voltage<br>V <sub>B</sub><br>V | Test current<br>I <sub>T</sub><br>mA | Maximum clamping voltage & Maximum peak pulse current |                     |                     |                     | Max. temp. coef.<br>%/°C | Capacitance (TYP)<br>pF |
|--------------|--|---|--|--------------------------------------|---|---------------------|---------------------|---------------------|--------------------------|-------------------------|
|              |  |   |  |                                      | 10/1000μs   |                     | 8/20μs              |                     |                          |                         |
|              |  |   |  |                                      | V <sub>C</sub><br>V                                   | I <sub>p</sub><br>A | V <sub>C</sub><br>V | I <sub>p</sub><br>A |                          |                         |
| ZD015        | 11.4                                     | 10  | 12.8-17.2                                | 1                                    | 24.0  | 10.4                | 31.0                | 96.7                | 0.075                    | 31.5                    |
| ZD018        | 13.7                                     | 10  | 15.3-20.7                                | 1                                    | 28.0  | 8.93                | 36.0                | 83.3                | 0.079                    | 31.0                    |
| ZD022        | 16.8                                     | 5   | 18.7-25.3                                | 1                                    | 33.2  | 7.53                | 43.0                | 69.7                | 0.082                    | 29.0                    |
| ZD027        | 20.6                                     | 5   | 23.0-31.0                                | 1                                    | 40.0  | 6.25                | 52.0                | 57.7                | 0.085                    | 28.2                    |
| ZD033        | 25.2                                     | 5   | 28.1-37.9                                | 1                                    | 48.6  | 5.14                | 63.0                | 47.6                | 0.087                    | 27.2                    |
| ZD039        | 29.8                                     | 5   | 33.2-44.8                                | 1                                    | 57.4  | 4.35                | 74.0                | 40.5                | 0.090                    | 26.3                    |
| ZD047        | 35.9                                     | 5   | 40.0-54.0                                | 1                                    | 68.5  | 3.65                | 89.0                | 33.7                | 0.092                    | 25.0                    |
| ZD056        | 42.8                                     | 5   | 47.6-64.4                                | 1                                    | 81.0  | 3.08                | 106.0               | 28.6                | 0.094                    | 24.1                    |
| ZD068        | 52.0                                     | 5   | 57.8-78.2                                | 1                                    | 98.0  | 2.55                | 127.0               | 23.8                | 0.096                    | 22.0                    |

**Low capacitance type**

Maximum ratings  
 Reverse voltage:200 VDC  
 Peak pulse power:250 W(10/1000μs)  
 3.00 kW(8/20μs)  
 Steady state power dissipation:500 mW  
 Operating and storage temperature  
 :-40°C to 125°C

Symbol mark



## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [ESD Suppressors / TVS Diodes](#) category:*

*Click to view products by [Semitec](#) manufacturer:*

Other Similar products are found below :

[60KS200C](#) [D12V0H1U2WS-7](#) [D18V0L1B2LP-7B](#) [82356050220](#) [D5V0M5U6V-7](#) [NTE4902](#) [P4KE27CA](#) [P6KE11CA](#) [P6KE39CA-TP](#)  
[P6KE8.2A](#) [SA110CA](#) [SA60CA](#) [SA64CA](#) [SMBJ12CATR](#) [SMBJ8.0A](#) [SMLJ30CA-TP](#) [ESD101-B1-02ELS E6327](#) [ESD112-B1-02EL E6327](#)  
[ESD119B1W01005E6327XTSA1](#) [ESD5V0L1B02VH6327XTSA1](#) [ESD7451N2T5G](#) [19180-510](#) [CPDT-5V0USP-HF](#) [3.0SMCJ33CA-F](#)  
[3.0SMCJ36A-F](#) [HSPC16701B02TP](#) [D3V3Q1B2DLP3-7](#) [D55V0M1B2WS-7](#) [DESD5V0U1BL-7B](#) [DRTR5V0U4SL-7](#) [SCM1293A-04SO](#)  
[ESD200-B1-CSP0201 E6327](#) [ESD203-B1-02EL E6327](#) [SM12-7](#) [SMF8.0A-TP](#) [SMLJ45CA-TP](#) [CEN955 W/DATA](#) [82350120560](#)  
[82356240030](#) [VESD12A1A-HD1-GS08](#) [CPDUR5V0R-HF](#) [CPDUR24V-HF](#) [CPDQC5V0U-HF](#) [CPDQC5V0USP-HF](#) [CPDQC5V0-HF](#)  
[D1213A-01LP4-7B](#) [D1213A-02WL-7](#) [ESDLIN1524BJ-HQ](#) [5KP100A](#) [5KP15A](#)