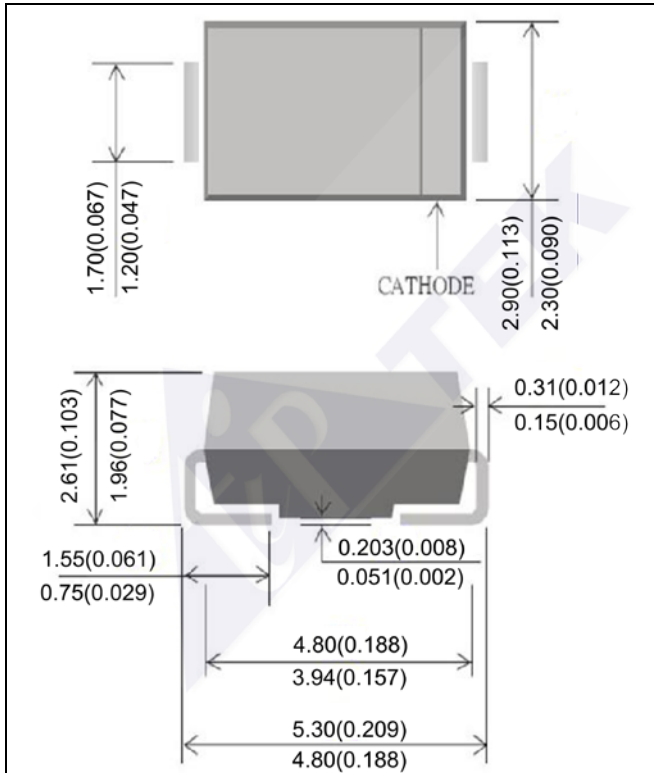


## 1W SURFACE MOUNT SILICON ZENER DIODE



CASE : DO-214AC(SMA)

DIMENSIONS IN MILLIMETERS AND (INCHES)

### FEATURES

- LOW PROFILE PACKAGE
- BUILT-IN STRAIN RELIEF
- LOW INDUCTANCE
- HIGH TEMPERATURE SOLDERING:260°C/10 SECONDS AT TERMINALS
- PLASTIC PACKAGE HAS UNDERWRITERS LABORATORY FLAMMABILITY CLASSIFICATION 94V-O

### MECHANICAL DATA

- CASE : MOLDED PLASTIC
- TERMINALS : SOLDER PLATED
- POLARITY : INDICATED BY CATHODE BAND
- WEIGHT : 0.066GRAMS
- Pb Free:1SMA4728 ~ ZS330A  
Halogen Free: 1SMA4728-H ~ ZS330A-H

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

| RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED |           |             |       |
|----------------------------------------------------------------|-----------|-------------|-------|
| PARAMETER                                                      | SYMBOL    | VALUE       | UNITS |
| MAXIMUM POWER DISSIPATION                                      | $P_D$     | 1           | W     |
| JUNCTION TEMPERATURE                                           | $T_J$     | -55 TO +150 | °C    |
| STORAGE TEMPERATURE RANGE                                      | $T_{STG}$ | -55 TO +150 | °C    |

| PARAMETER                                                  | SYMBOL          | MIN. | TYP. | MAX. | UNITS |
|------------------------------------------------------------|-----------------|------|------|------|-------|
| MAXIMUM THERMAL RESISTANCE JUNCTION TO AMBIENT AIR(NOTE 2) | $R_{\theta JA}$ | -    | -    | 170  | K /W  |
| MAXIMUM FORWARD VOLTAGE AT $I_F=200mA$                     | $V_F$           | -    | -    | 1.2  | V     |

NOTE: 2. VALID PROVIDED THAT LEADS ARE KEPT AT AMBIENT TEMPERATURE AT A DISTANCE OF 10mm FROM CASE.

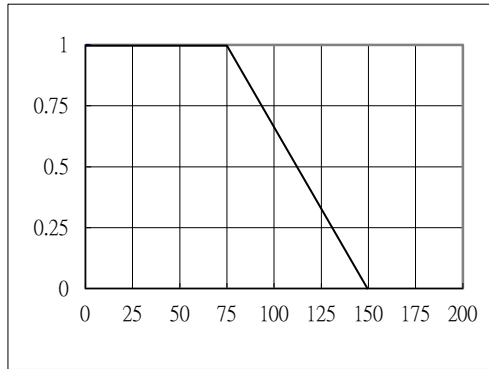
| Part Number | Nominal Zener Voltage |        |        | Max. Zener Impedance |      |                   |      | Max Reverse Leakage Current |      |
|-------------|-----------------------|--------|--------|----------------------|------|-------------------|------|-----------------------------|------|
|             | $V_Z @ I_{ZT}$        |        |        | $Z_{ZT} @ I_{ZT}$    |      | $Z_{ZK} @ I_{ZK}$ |      | $I_R @ V_R$                 |      |
|             | Nom. V                | Min. V | Max. V | $\Omega$             | mA   | $\Omega$          | mA   | $\mu A$                     | V    |
| 1SMA4728    | 3.30                  | 3.14   | 3.47   | 10.0                 | 76.0 | 400.0             | 1.00 | 100                         | 1.0  |
| 1SMA4729    | 3.60                  | 3.42   | 3.78   | 10.0                 | 69.0 | 400.0             | 1.00 | 100                         | 1.0  |
| 1SMA4730    | 3.90                  | 3.70   | 4.10   | 9.0                  | 64.0 | 400.0             | 1.00 | 50.0                        | 1.0  |
| 1SMA4731    | 4.30                  | 4.08   | 4.52   | 9.0                  | 58.0 | 400.0             | 1.00 | 10.0                        | 1.0  |
| 1SMA4732    | 4.70                  | 4.46   | 4.94   | 8.0                  | 53.0 | 500.0             | 1.00 | 10.0                        | 1.0  |
| 1SMA4733    | 5.10                  | 4.84   | 5.36   | 7.0                  | 49.0 | 550.0             | 1.00 | 10.0                        | 1.0  |
| 1SMA4734    | 5.60                  | 5.32   | 5.88   | 5.0                  | 45.0 | 600.0             | 1.00 | 10.0                        | 2.0  |
| 1SMA4735    | 6.20                  | 5.89   | 6.51   | 2.0                  | 41.0 | 700.0             | 1.00 | 10.0                        | 3.0  |
| 1SMA4736    | 6.80                  | 6.46   | 7.14   | 3.5                  | 37.0 | 700.0             | 1.00 | 5.0                         | 4.0  |
| 1SMA4737    | 7.50                  | 7.13   | 7.88   | 4.0                  | 34.0 | 700.0             | 0.50 | 5.0                         | 5.0  |
| 1SMA4738    | 8.20                  | 7.79   | 8.61   | 4.5                  | 31.0 | 700.0             | 0.50 | 5.0                         | 6.0  |
| 1SMA4739    | 9.10                  | 8.65   | 9.56   | 5.0                  | 28.0 | 700.0             | 0.50 | 0.5                         | 7.0  |
| 1SMA4740    | 10.00                 | 9.50   | 10.50  | 7.0                  | 25.0 | 700.0             | 0.25 | 0.5                         | 7.6  |
| 1SMA4741    | 11.00                 | 10.45  | 11.55  | 8.0                  | 23.0 | 700.0             | 0.25 | 0.1                         | 8.4  |
| 1SMA4742    | 12.00                 | 11.40  | 12.60  | 9.0                  | 21.0 | 700.0             | 0.25 | 0.1                         | 9.1  |
| 1SMA4743    | 13.00                 | 12.35  | 13.65  | 10.0                 | 19.0 | 700.0             | 0.25 | 0.1                         | 9.9  |
| 1SMA4744    | 15.00                 | 14.25  | 15.75  | 14.0                 | 17.0 | 700.0             | 0.25 | 0.1                         | 11.4 |
| 1SMA4745    | 16.00                 | 15.20  | 16.80  | 16.0                 | 15.5 | 700.0             | 0.25 | 0.1                         | 12.2 |
| 1SMA4746    | 18.00                 | 17.10  | 18.90  | 20.0                 | 14.0 | 750.0             | 0.25 | 0.1                         | 13.7 |
| 1SMA4747    | 20.00                 | 19.00  | 21.00  | 22.0                 | 12.5 | 750.0             | 0.25 | 0.1                         | 15.2 |
| 1SMA4748    | 22.00                 | 20.90  | 23.10  | 23.0                 | 11.5 | 750.0             | 0.25 | 0.1                         | 16.7 |
| 1SMA4749    | 24.00                 | 22.80  | 25.20  | 25.0                 | 10.5 | 750.0             | 0.25 | 0.1                         | 18.2 |
| 1SMA4750    | 27.00                 | 25.65  | 28.35  | 35.0                 | 9.5  | 750.0             | 0.25 | 0.1                         | 20.6 |
| 1SMA4751    | 30.00                 | 28.50  | 31.50  | 40.0                 | 8.5  | 1000.0            | 0.25 | 0.1                         | 22.8 |
| 1SMA4752    | 33.00                 | 31.35  | 34.65  | 45.0                 | 7.5  | 1000.0            | 0.25 | 0.1                         | 25.1 |
| 1SMA4753    | 36.00                 | 34.20  | 37.80  | 50.0                 | 7.0  | 1000.0            | 0.25 | 0.1                         | 27.4 |
| 1SMA4754    | 39.00                 | 37.05  | 40.95  | 60.0                 | 6.5  | 1000.0            | 0.25 | 0.1                         | 29.7 |
| 1SMA4755    | 43.00                 | 40.85  | 45.15  | 70.0                 | 6.0  | 1500.0            | 0.25 | 0.1                         | 32.7 |
| 1SMA4756    | 47.00                 | 44.65  | 49.35  | 80.0                 | 5.5  | 1500.0            | 0.25 | 0.1                         | 35.8 |
| 1SMA4757    | 51.00                 | 48.45  | 53.55  | 95.0                 | 5.0  | 1500.0            | 0.25 | 0.1                         | 38.8 |

NOTES: THE TYPE NUMBER LISTED HAVE A STANDARD TOLERANCE ON THE NOMINAL ZENER VOLTAGE OF  $\pm 5\%$ .

| Part Number | Nominal Zener Voltage |        |        | Max. Zener Impedance |     |                   |      | Max Reverse Leakage Current |       |
|-------------|-----------------------|--------|--------|----------------------|-----|-------------------|------|-----------------------------|-------|
|             | $V_Z @ I_{ZT}$        |        |        | $Z_{ZT} @ I_{ZT}$    |     | $Z_{ZK} @ I_{ZK}$ |      | $I_R @ V_R$                 |       |
|             | Nom. V                | Min. V | Max. V | $\Omega$             | mA  | $\Omega$          | mA   | $\mu A$                     | V     |
| 1SMA4758    | 56.00                 | 53.20  | 58.80  | 110.0                | 4.5 | 2000.0            | 0.25 | 0.1                         | 42.6  |
| 1SMA4759    | 62.00                 | 58.90  | 65.10  | 125.0                | 4.0 | 2000.0            | 0.25 | 0.1                         | 47.1  |
| 1SMA4760    | 68.00                 | 64.60  | 71.40  | 150.0                | 3.7 | 2000.0            | 0.25 | 0.1                         | 51.7  |
| 1SMA4761    | 75.00                 | 71.25  | 78.75  | 175.0                | 3.3 | 2000.0            | 0.25 | 0.1                         | 56.0  |
| 1SMA4762    | 82.00                 | 77.90  | 86.10  | 200.0                | 3.0 | 3000.0            | 0.25 | 0.1                         | 62.2  |
| 1SMA4763    | 91.00                 | 86.45  | 95.55  | 250.0                | 2.8 | 3000.0            | 0.25 | 0.1                         | 69.2  |
| 1SMA4764    | 100.00                | 95.00  | 105.00 | 350.0                | 2.5 | 3000.0            | 0.25 | 0.1                         | 76.0  |
| ZS110A      | 110.00                | 104.50 | 115.50 | 450.0                | 2.3 | 4000.0            | 0.25 | 0.1                         | 83.6  |
| ZS120A      | 120.00                | 114.00 | 126.00 | 550.0                | 2.0 | 4500.0            | 0.25 | 0.1                         | 91.2  |
| ZS130A      | 130.00                | 123.50 | 136.50 | 700.0                | 1.9 | 5000.0            | 0.25 | 0.1                         | 98.8  |
| ZS150A      | 150.00                | 142.50 | 157.50 | 1000.0               | 1.7 | 6000.0            | 0.25 | 0.1                         | 114.0 |
| ZS160A      | 160.00                | 152.00 | 168.00 | 1100.0               | 1.6 | 6500.0            | 0.25 | 0.1                         | 121.6 |
| ZS180A      | 180.00                | 171.00 | 189.00 | 1200.0               | 1.4 | 7000.0            | 0.25 | 0.1                         | 136.8 |
| ZS200A      | 200.00                | 190.00 | 210.00 | 1900.0               | 1.2 | 9990.0            | 0.25 | 0.1                         | 152.0 |
| ZS220A      | 220.00                | 209.00 | 231.00 | 1600.0               | 1.0 | 8000.0            | 0.25 | 0.1                         | 167.2 |
| ZS240A      | 240.00                | 228.00 | 252.00 | 1800.0               | 0.9 | 8500.0            | 0.25 | 0.1                         | 182.4 |
| ZS250A      | 250.00                | 237.50 | 262.50 | 2000.0               | 0.9 | 9000.0            | 0.25 | 0.1                         | 190.0 |
| ZS270A      | 270.00                | 256.50 | 283.50 | 2100.0               | 0.8 | 9000.0            | 0.25 | 0.1                         | 205.0 |
| ZS300A      | 300.00                | 285.00 | 315.00 | 2300.0               | 0.8 | 9500.0            | 0.25 | 0.1                         | 228.0 |
| ZS330A      | 330.00                | 313.50 | 346.50 | 2500.0               | 0.7 | 9500.0            | 0.25 | 0.1                         | 250.2 |

NOTES: THE TYPE NUMBER LISTED HAVE A STANDARD TOLERANCE ON THE NOMINAL ZENER VOLTAGE OF  $\pm 5\%$ .

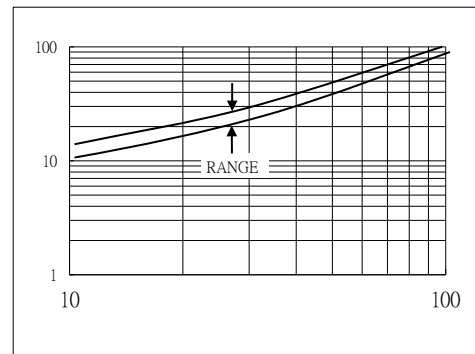
PD, MAXIMUM POWER DISSIPATION (WATTS)



TL, LEAD TEMPERATURE, °C

**Fig.1-POWER TEMPERATURE DERATING CURVE**

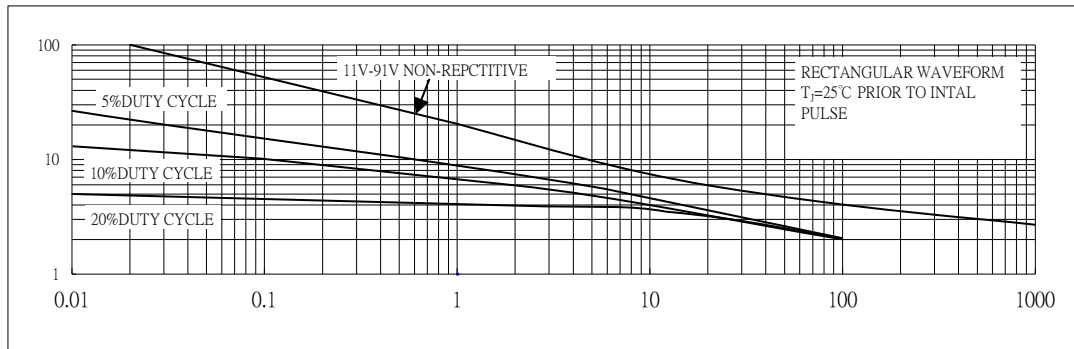
$\theta V_z$ , TEMPERATURE COEFFICIENT (mV/°C)



Vz, ZENER VOLTAGE (VOLTS)

**Fig.2-TEMPERATURE COEFFICIENTS V.S. ZENER VOLTAGE**

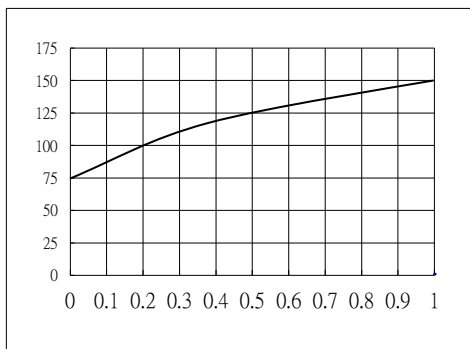
Ppk, PEAK SURGE POWER (WATTS)



Pw, PULSE WIDTH (ms)

**Fig.3-MAXIMUM SURGE POWER**

$\theta_{JL}$ , JUNCTION TO LEAD THERMAL RESISTANCE (°C/W)



L, LEAD LENGTH TO HEATSINK (INCHES)

**Fig.4-TYPICAL THERMAL RESISTANCE V.S. LEAD LENGTH**