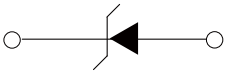
# FEATURES

- Glass passivated chip
- Built-in strain relief
- Low inductance
- High peak reverse power dissipation
- Low reverse leakage
- For use in stabilizing and clipping with high power rating
- Meet AEC-Q101 Requirements

DO-214AC(SMA)



Schematic Symbol

# MECHANICAL DATA

- Case: DO-214AC Molded plastic
- Polarity: Color band denotes cathode end
- Mounting position: Any

# APPROVALS

| | |
|---|---|
| **RoHS** | Compliance with 2011/65/EU |
| **HF** | Compliance with IEC61249-2-21:2003 |

# MAXIMUM RATINGS ($T_A$=25°C )

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| DC Power dissipation at $T_L$ = 75 °C(1) | $P_D$ | 1.5 | W |
| Maximum forward voltage at If=200mA | $V_F$ | 1.2 | V |
| Junction temperature range | $T_J$,$T_{STG}$ | -55 to +150 | °C |
| Storage temperature range | $T_J$,$T_{STG}$ | -55 to +150 | °C |

Note:

(1) $T_L$=Lead temperature at 3/8'' (9.5mm)from body

# ELECTRICAL CHARACTERISTICS

| Part Number | Device Marking Code | Nominal Zener Voltage @$I_T$ | | | $I_{ZT}$(mA) | Maximum Zener Impedance | | | Maximum Reverse Leakage Current | | Maximum DC Zener Current |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $V_{Z\,AVE.}$ (V) | $V_{Z\,MIN.}$ (V) | $V_{Z\,MAX.}$ (V) | | $Z_{ZT\,MAX.}$(Ω) @$I_{ZT}$ | $Z_{ZK\,MAX.}$(Ω) @$I_{ZK}$ | $I_{ZK}$(mA) | $I_R$(uA)@$V_R$ | $V_R$(V) | $I_{ZM}$(mA) @50°C @$V_{(BR)}$ |
| SMA5913AQ | 913A | 3.3 | 3.14 | 3.47 | 113.6 | 10.0 | 500.0 | 1.00 | 100.0 | 1.0 | 455.0 |
| SMA5914AQ | 914A | 3.6 | 3.42 | 3.78 | 104.2 | 9.0 | 500.0 | 1.00 | 100.0 | 1.0 | 417.0 |
| SMA5915AQ | 915A | 3.9 | 3.71 | 4.10 | 96.1 | 7.5 | 500.0 | 1.00 | 50.0 | 1.0 | 385.0 |
| SMA5916AQ | 916A | 4.3 | 4.09 | 4.52 | 87.2 | 6.0 | 500.0 | 1.00 | 10.0 | 1.0 | 349.0 |
| SMA5917AQ | 917A | 4.7 | 4.47 | 4.94 | 79.8 | 5.0 | 500.0 | 1.00 | 10.0 | 1.5 | 319.0 |
| SMA5918AQ | 918A | 5.1 | 4.85 | 5.36 | 73.5 | 4.0 | 350.0 | 1.00 | 10.0 | 2.0 | 294.0 |
| SMA5919AQ | 919A | 5.6 | 5.32 | 5.88 | 66.9 | 2.0 | 250.0 | 1.00 | 10.0 | 3.0 | 268.0 |
| SMA5920AQ | 920A | 6.2 | 5.89 | 6.51 | 60.5 | 2.0 | 200.0 | 1.00 | 10.0 | 4.0 | 242.0 |
| SMA5921AQ | 921A | 6.8 | 6.46 | 7.14 | 55.1 | 2.5 | 200.0 | 1.00 | 10.0 | 5.2 | 221.0 |
| SMA5922AQ | 922A | 7.5 | 7.13 | 7.88 | 50.0 | 3.0 | 400.0 | 0.50 | 10.0 | 6.0 | 200.0 |
| SMA5923AQ | 923A | 8.2 | 7.79 | 8.61 | 45.7 | 3.5 | 400.0 | 0.50 | 10.0 | 6.5 | 183.0 |
| SMA5924AQ | 924A | 9.1 | 8.65 | 9.56 | 41.2 | 4.0 | 500.0 | 0.50 | 10.0 | 7.0 | 165.0 |
| SMA5925AQ | 925A | 10.0 | 9.5 | 10.5 | 37.5 | 4.5 | 500.0 | 0.25 | 10.0 | 8.0 | 150.0 |
| SMA5926AQ | 926A | 11.0 | 10.45 | 11.55 | 34.1 | 5.5 | 550.0 | 0.25 | 0.5 | 8.4 | 136.0 |
| SMA5927AQ | 927A | 12.0 | 11.4 | 12.6 | 31.2 | 6.5 | 550.0 | 0.25 | 0.5 | 9.1 | 125.0 |
| SMA5928AQ | 928A | 13.0 | 12.35 | 13.65 | 28.8 | 7.0 | 550.0 | 0.25 | 0.5 | 9.9 | 115.0 |
| SMA5929AQ | 929A | 15.0 | 14.25 | 15.75 | 25.0 | 9.0 | 600.0 | 0.25 | 0.5 | 11.4 | 100.0 |
| SMA5930AQ | 930A | 16.0 | 15.2 | 16.8 | 23.4 | 10.0 | 600.0 | 0.25 | 0.5 | 12.2 | 94.0 |
| SMA5931AQ | 931A | 18.0 | 17.1 | 18.9 | 20.8 | 12.0 | 650.0 | 0.25 | 0.5 | 13.7 | 83.0 |
| SMA5932AQ | 932A | 20.0 | 19.0 | 21.0 | 18.7 | 14.0 | 650.0 | 0.25 | 0.5 | 15.2 | 75.0 |
| SMA5933AQ | 933A | 22.0 | 20.9 | 23.1 | 17.0 | 17.5 | 650.0 | 0.25 | 0.5 | 16.7 | 68.0 |
| SMA5934AQ | 934A | 24.0 | 22.8 | 25.2 | 15.6 | 19.0 | 700.0 | 0.25 | 0.5 | 18.2 | 63.0 |
| SMA5935AQ | 935A | 27.0 | 25.65 | 28.35 | 13.9 | 23.0 | 700.0 | 0.25 | 0.5 | 20.6 | 56.0 |
| SMA5936AQ | 936A | 30.0 | 28.5 | 31.5 | 12.5 | 26.0 | 750.0 | 0.25 | 0.5 | 22.8 | 50.0 |
| SMA5937AQ | 937A | 33.0 | 31.35 | 34.65 | 11.4 | 33.0 | 800.0 | 0.25 | 0.5 | 25.1 | 45.0 |
| SMA5938AQ | 938A | 36.0 | 34.2 | 37.8 | 10.4 | 38.0 | 850.0 | 0.25 | 0.5 | 27.4 | 42.0 |
| SMA5939AQ | 939A | 39.0 | 37.05 | 40.95 | 9.6 | 45.0 | 900.0 | 0.25 | 0.5 | 29.7 | 38.0 |
| SMA5940AQ | 940A | 43.0 | 40.85 | 45.15 | 8.7 | 53.0 | 950.0 | 0.25 | 0.5 | 32.7 | 35.0 |
| SMA5941AQ | 941A | 47.0 | 44.65 | 49.35 | 8.0 | 67.0 | 1000.0 | 0.25 | 0.5 | 35.8 | 32.0 |
| SMA5942AQ | 942A | 51.0 | 48.45 | 53.55 | 7.3 | 70.0 | 1100.0 | 0.25 | 0.5 | 38.8 | 29.0 |
| SMA5943AQ | 943A | 56.0 | 53.2 | 58.8 | 6.7 | 86.0 | 1300.0 | 0.25 | 0.5 | 42.6 | 27.0 |

| Part Number | Device Marking Code | Nominal Zener Voltage @$I_T$ | | | $I_{ZT}$(mA) | Maximum Zener Impedance | | | Maximum Reverse Leakage Current | | Maximum DC Zener Current |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | $V_{Z\,AVE.}$ (V) | $V_{Z\,MIN.}$ (V) | $V_{Z\,MAX.}$ (V) | | $Z_{ZT\,MAX.}$(Ω) @$I_{ZT}$ | $Z_{ZK\,MAX.}$(Ω) @$I_{ZK}$ | $I_{ZK}$(mA) | $I_R$(uA)@$V_R$ | $V_R$(V) | $I_{ZM}$(mA) @50°C @$V_{(BR)}$ |
| SMA5944AQ | 944A | 62.0 | 58.9 | 65.1 | 6.0 | 100.0 | 1500.0 | 0.25 | 0.5 | 47.1 | 24.0 |
| SMA5945AQ | 945A | 68.0 | 64.6 | 71.4 | 5.5 | 120.0 | 1700.0 | 0.25 | 0.5 | 51.7 | 22.0 |
| SMA5946AQ | 946A | 75.0 | 71.25 | 78.75 | 5.0 | 140.0 | 2000.0 | 0.25 | 0.5 | 56.0 | 20.0 |
| SMA5947AQ | 947A | 82.0 | 77.9 | 86.1 | 4.6 | 160.0 | 2500.0 | 0.25 | 0.5 | 62.2 | 18.0 |
| SMA5948AQ | 948A | 91.0 | 86.45 | 95.55 | 4.1 | 200.0 | 3000.0 | 0.25 | 0.5 | 69.2 | 16.0 |
| SMA5949AQ | 949A | 100.0 | 95.0 | 105.0 | 3.7 | 250.0 | 3100.0 | 0.25 | 0.5 | 76.0 | 15.0 |
| SMA5950AQ | 950A | 110.0 | 104.5 | 115.5 | 3.4 | 300.0 | 4000.0 | 0.25 | 0.5 | 83.6 | 14.0 |
| SMA5951AQ | 951A | 120.0 | 114.0 | 126.0 | 3.1 | 380.0 | 4500.0 | 0.25 | 0.5 | 91.2 | 13.0 |
| SMA5952AQ | 952A | 130.0 | 123.5 | 136.5 | 2.9 | 450.0 | 5000.0 | 0.25 | 0.5 | 98.8 | 12.0 |
| SMA5953AQ | 953A | 150.0 | 142.5 | 157.5 | 2.5 | 600.0 | 6000.0 | 0.25 | 0.5 | 114.0 | 10.0 |
| SMA5954AQ | 954A | 160.0 | 152.0 | 168.0 | 2.3 | 700.0 | 6500.0 | 0.25 | 0.5 | 121.6 | 9.4 |
| SMA5955AQ | 955A | 180.0 | 171.0 | 189.0 | 2.1 | 900.0 | 7000.0 | 0.25 | 0.5 | 136.8 | 8.3 |
| SMA5956AQ | 956A | 200.0 | 190.0 | 210.0 | 1.9 | 1200.0 | 8000.0 | 0.25 | 0.5 | 152.0 | 7.5 |

# CHARACTERISTIC CURVES

Fig.1-Power Temperature Derating Curve

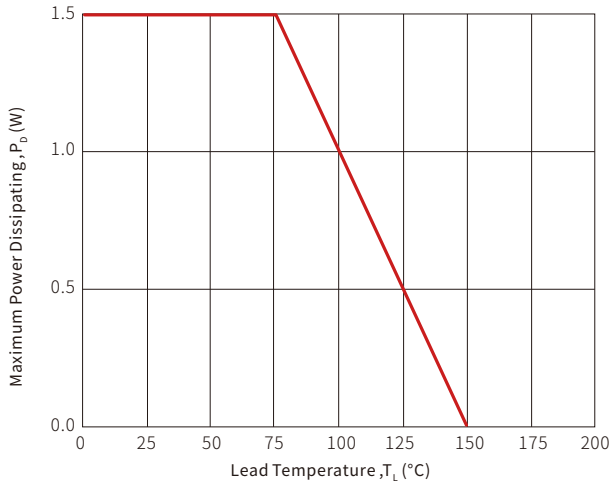
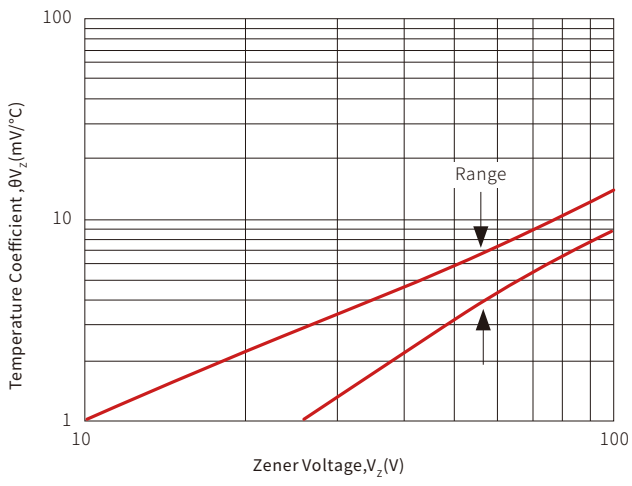
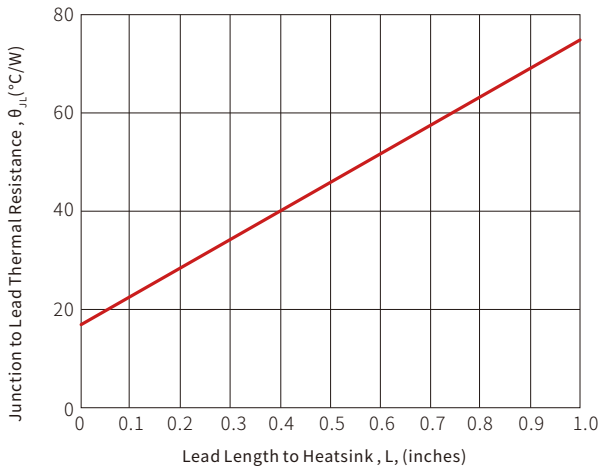


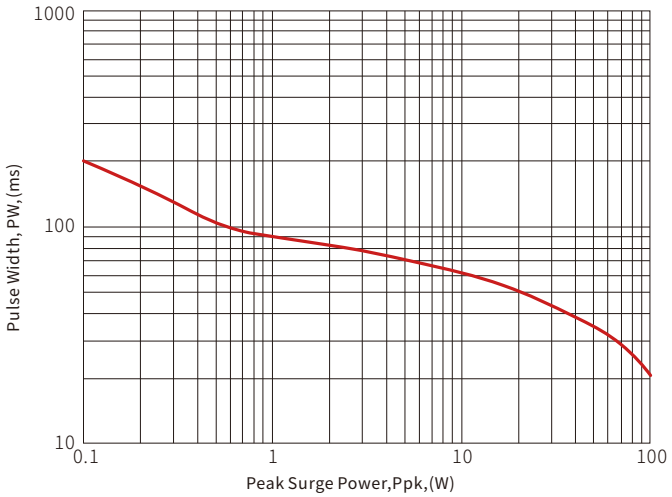

Fig.2-Temperature Coefficients v.s. Zener Voltage



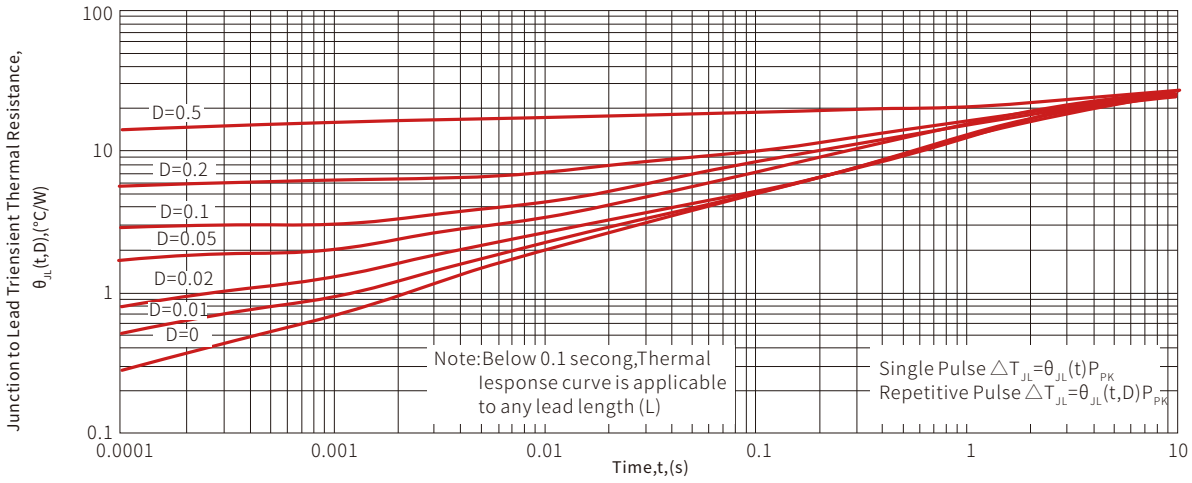
### Fig.3-Typical thermal Resisttance v.s, Lead Length




### Fig.4-Maximum Surge Power

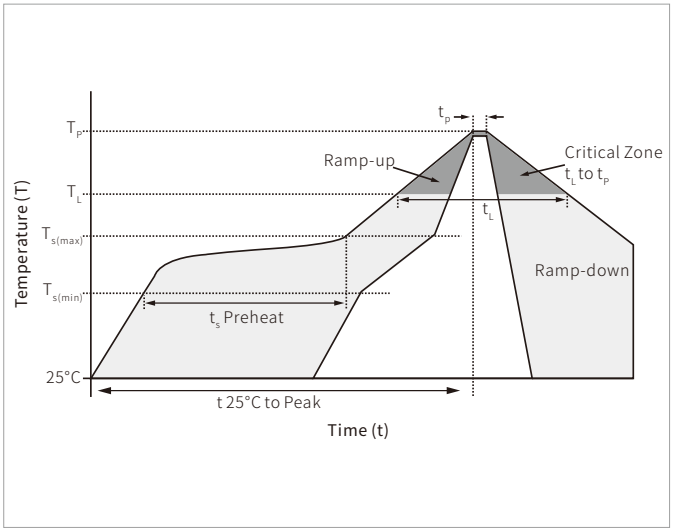



### Fig.5-Typical Thermal Response L , Lead Length=3/8inch

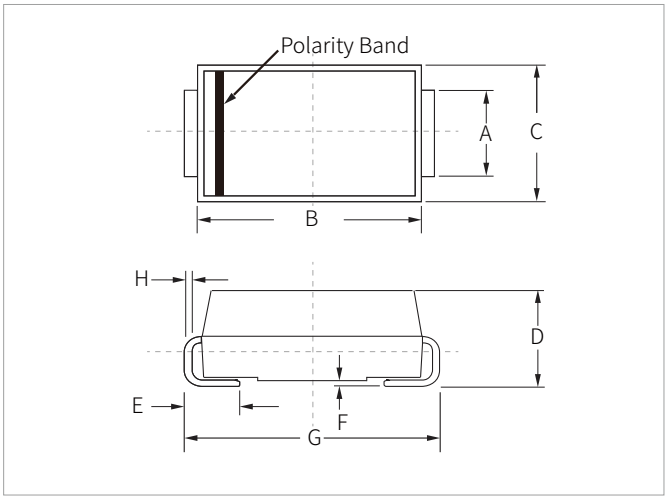


# SOLDERING PARAMETERS

| Reflow Condition | | Lead–free assembly |
|---|---|---|
| Pre Heat | Temperature Max ($T_{s(min)}$) | 150°C |
| | Temperature Max ($T_{s(max)}$) | 200°C |
| | Time (min to max) ($t_s$) | 60 – 180 secs |
| Average ramp up rate (Liquidus Temp ($T_L$) to peak | | 3°C/second max |
| $T_{S(max)}$ to $T_L$ - Ramp-up Rate | | 3°C/second max |
| Reflow | Temperature ($T_L$) (Liquidus) | 217°C |
| | Time (min to max) ($t_L$) | 60 – 150 seconds |
| Peak Temperature ($T_P$) | | 260°C |
| Time within 5°C of actual peak Temperature ($t_P$) | | 20 – 40 seconds |
| Ramp-down Rate | | 6°C/second max |
| Time 25°C to peak Temperature ($T_P$) | | 8 minutes max. |
| Do not exceed | | 260°C |

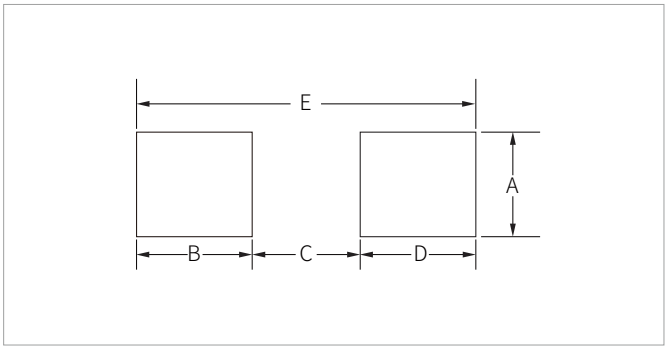



# DO-214AC(SMA) PACKAGE INFORMATION




| Ref. | Millimeters | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 1.20 | 1.60 | 0.047 | 0.063 |
| B | 4.20 | 4.60 | 0.165 | 0.181 |
| C | 2.40 | 2.80 | 0.094 | 0.110 |
| D | 2.00 | 2.40 | 0.079 | 0.094 |
| E | 0.76 | 1.52 | 0.030 | 0.060 |
| F | 0.02 | 0.20 | 0.001 | 0.008 |
| G | 4.85 | 5.25 | 0.191 | 0.207 |
| H | 0.15 | 0.30 | 0.006 | 0.012 |

# RECOMMENDED PAD LAYOUT DIMENSIONS




| Ref. | Millimeters | | Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 1.63 | - | 0.064 | - |
| B | 1.45 | - | 0.057 | - |
| C | - | 2.80 | - | 0.090 |
| D | 1.45 | - | 0.057 | - |
| E | 5.28REF | | 0.208REF | |

# ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|---|---|---|---|
| SMA59-AQ | DO-214AC(SMA) | 5000PCS | 13" |

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## By QR Code
Website
Wechat

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