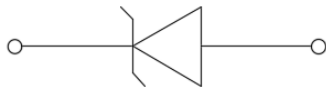
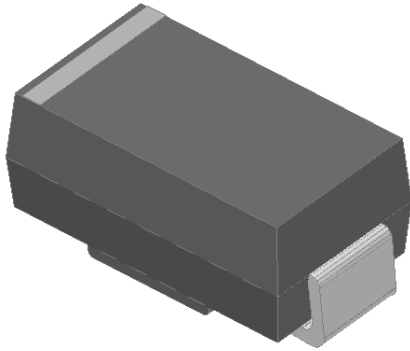


## Surface Mount Zener Diodes



### Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

### Mechanical Data

- **Package:** DO-214AC (SMA)  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Cathode line denotes the cathode end

### ■Maximum Ratings (T<sub>a</sub>=25°C Unless otherwise specified)

| PARAMETER                                                    | SYMBOL           | UNIT | MAX         |
|--------------------------------------------------------------|------------------|------|-------------|
| DC power dissipation at T <sub>L</sub> = 75 °C               | P <sub>D</sub>   | W    | 1           |
| Maximum instantaneous forward voltage@ I <sub>F</sub> =200mA | V <sub>F</sub>   | V    | 1.2         |
| Maximum junction temperature                                 | T <sub>j</sub>   | °C   | -55 to +150 |
| Storage temperature range                                    | T <sub>stg</sub> | °C   | -55 to +150 |

### ■Thermal Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

| PARAMETER                   | SYMBOL                           | UNIT | Conditions          | VALUE |
|-----------------------------|----------------------------------|------|---------------------|-------|
| Thermal resistance(Typical) | R <sub>θJ-L</sub> <sup>(1)</sup> | °C/W | junction to lead    | 30    |
|                             | R <sub>θJ-A</sub> <sup>(1)</sup> | °C/W | junction to ambient | 170   |

Note

(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

### ■Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

| Part Number | Nominal Zener voltage                                |                                                       |                                                      | Test current    | Maximum dynamic impedance resistance |                                    |                 | Maximum reverse leakage current |                             | Maximum Surge Current          | Maximum DC Zener Current |
|-------------|------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------|-----------------|--------------------------------------|------------------------------------|-----------------|---------------------------------|-----------------------------|--------------------------------|--------------------------|
|             | Min V <sub>Z</sub> <sup>(1)</sup> at I <sub>ZT</sub> | Typ. V <sub>Z</sub> <sup>(1)</sup> at I <sub>ZT</sub> | Max V <sub>Z</sub> <sup>(1)</sup> at I <sub>ZT</sub> | I <sub>ZT</sub> | Z <sub>ZT</sub> at I <sub>ZT</sub>   | Z <sub>ZK</sub> at I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub>                  | Test voltage V <sub>R</sub> | I <sub>RM</sub> <sup>(2)</sup> | I <sub>ZM</sub>          |
|             | V                                                    | V                                                     | V                                                    | mA              | Ω                                    | Ω                                  | mA              | μA                              | V                           | mA                             | mA                       |
| SMA4727A    | 2.85                                                 | 3.0                                                   | 3.15                                                 | 80.0            | 10.0                                 | 400                                | 1.00            | 100.0                           | 1.0                         | 1485                           | 288.0                    |
| SMA4728A    | 3.14                                                 | 3.3                                                   | 3.47                                                 | 76.0            | 10.0                                 | 400                                | 1.00            | 100.0                           | 1.0                         | 1370                           | 274.0                    |
| SMA4729A    | 3.42                                                 | 3.6                                                   | 3.78                                                 | 69.0            | 10.0                                 | 400                                | 1.00            | 100.0                           | 1.0                         | 1255                           | 251.0                    |
| SMA4730A    | 3.71                                                 | 3.9                                                   | 4.10                                                 | 64.0            | 9.0                                  | 400                                | 1.00            | 50.0                            | 1.0                         | 1160                           | 232.0                    |
| SMA4731A    | 4.09                                                 | 4.3                                                   | 4.52                                                 | 58.0            | 9.0                                  | 400                                | 1.00            | 10.0                            | 1.0                         | 1050                           | 210.0                    |
| SMA4732A    | 4.47                                                 | 4.7                                                   | 4.94                                                 | 53.0            | 8.0                                  | 500                                | 1.00            | 10.0                            | 1.0                         | 960                            | 192.0                    |



## SMA47XXA SERIES

| Part Number | Nominal Zener voltage       |                              |                             | Test current | Maximum dynamic impedance resistance |                      |          | Maximum reverse leakage current |                    | Maximum Surge Current | Maximum DC Zener Current |
|-------------|-----------------------------|------------------------------|-----------------------------|--------------|--------------------------------------|----------------------|----------|---------------------------------|--------------------|-----------------------|--------------------------|
|             | Min $V_Z^{(1)}$ at $I_{ZT}$ | Typ. $V_Z^{(1)}$ at $I_{ZT}$ | Max $V_Z^{(1)}$ at $I_{ZT}$ | $I_{ZT}$     | $Z_{ZT}$ at $I_{ZT}$                 | $Z_{ZK}$ at $I_{ZK}$ | $I_{ZK}$ | $I_R$                           | Test voltage $V_R$ | $I_{RM}^{(2)}$        | $I_{ZM}$                 |
|             | V                           | V                            | V                           | mA           | $\Omega$                             | $\Omega$             | mA       | $\mu A$                         | V                  | mA                    | mA                       |
| SMA4733A    | 4.85                        | 5.1                          | 5.36                        | 49.0         | 7.0                                  | 550                  | 1.00     | 10.0                            | 1.0                | 885                   | 177.0                    |
| SMA4734A    | 5.32                        | 5.6                          | 5.88                        | 45.0         | 5.0                                  | 600                  | 1.00     | 10.0                            | 2.0                | 805                   | 161.0                    |
| SMA4735A    | 5.89                        | 6.2                          | 6.51                        | 41.0         | 2.0                                  | 700                  | 1.00     | 10.0                            | 3.0                | 730                   | 146.0                    |
| SMA4736A    | 6.46                        | 6.8                          | 7.14                        | 37.0         | 3.5                                  | 700                  | 1.00     | 10.0                            | 4.0                | 660                   | 133.0                    |
| SMA4737A    | 7.13                        | 7.5                          | 7.88                        | 34.0         | 4.0                                  | 700                  | 0.50     | 10.0                            | 5.0                | 605                   | 121.0                    |
| SMA4738A    | 7.79                        | 8.2                          | 8.61                        | 31.0         | 4.5                                  | 700                  | 0.50     | 10.0                            | 6.0                | 550                   | 110.0                    |
| SMA4739A    | 8.65                        | 9.1                          | 9.56                        | 28.0         | 5.0                                  | 700                  | 0.50     | 10.0                            | 7.0                | 500                   | 100.0                    |
| SMA4740A    | 9.50                        | 10.0                         | 10.50                       | 25.0         | 7.0                                  | 700                  | 0.25     | 10.0                            | 7.6                | 454                   | 91.0                     |
| SMA4741A    | 10.45                       | 11.0                         | 11.55                       | 23.0         | 8.0                                  | 700                  | 0.25     | 5.0                             | 8.4                | 414                   | 83.0                     |
| SMA4742A    | 11.40                       | 12.0                         | 12.60                       | 21.0         | 9.0                                  | 700                  | 0.25     | 5.0                             | 9.1                | 380                   | 76.0                     |
| SMA4743A    | 12.35                       | 13.0                         | 13.65                       | 19.0         | 10.0                                 | 700                  | 0.25     | 5.0                             | 9.9                | 344                   | 69.0                     |
| SMA4744A    | 14.25                       | 15.0                         | 15.75                       | 17.0         | 14.0                                 | 700                  | 0.25     | 5.0                             | 11.4               | 304                   | 61.0                     |
| SMA4745A    | 15.20                       | 16.0                         | 16.80                       | 15.5         | 16.0                                 | 700                  | 0.25     | 5.0                             | 12.2               | 285                   | 57.0                     |
| SMA4746A    | 17.10                       | 18.0                         | 18.90                       | 14.0         | 20.0                                 | 750                  | 0.25     | 5.0                             | 13.7               | 250                   | 50.0                     |
| SMA4747A    | 19.00                       | 20.0                         | 21.00                       | 12.5         | 22.0                                 | 750                  | 0.25     | 5.0                             | 15.2               | 225                   | 45.0                     |
| SMA4748A    | 20.90                       | 22.0                         | 23.10                       | 11.5         | 23.0                                 | 750                  | 0.25     | 5.0                             | 16.7               | 205                   | 41.0                     |
| SMA4749A    | 22.80                       | 24.0                         | 25.20                       | 10.5         | 25.0                                 | 750                  | 0.25     | 5.0                             | 18.2               | 190                   | 38.0                     |
| SMA4750A    | 25.65                       | 27.0                         | 28.35                       | 9.5          | 35.0                                 | 750                  | 0.25     | 5.0                             | 20.6               | 170                   | 34.0                     |
| SMA4751A    | 28.50                       | 30.0                         | 31.50                       | 8.5          | 40.0                                 | 1000                 | 0.25     | 5.0                             | 22.8               | 150                   | 30.0                     |
| SMA4752A    | 31.35                       | 33.0                         | 34.65                       | 7.5          | 45.0                                 | 1000                 | 0.25     | 5.0                             | 25.1               | 135                   | 27.0                     |
| SMA4753A    | 34.20                       | 36.0                         | 37.80                       | 7.0          | 50.0                                 | 1000                 | 0.25     | 5.0                             | 27.4               | 125                   | 25.0                     |
| SMA4754A    | 37.05                       | 39.0                         | 40.95                       | 6.5          | 60.0                                 | 1000                 | 0.25     | 5.0                             | 29.7               | 115                   | 23.0                     |
| SMA4755A    | 40.85                       | 43.0                         | 45.15                       | 6.0          | 70.0                                 | 1500                 | 0.25     | 5.0                             | 32.7               | 110                   | 22.0                     |
| SMA4756A    | 44.65                       | 47.0                         | 49.35                       | 5.5          | 80.0                                 | 1500                 | 0.25     | 5.0                             | 35.8               | 95                    | 19.0                     |
| SMA4757A    | 48.45                       | 51.0                         | 53.55                       | 5.0          | 95.0                                 | 1500                 | 0.25     | 5.0                             | 38.8               | 90                    | 18.0                     |
| SMA4758A    | 53.20                       | 56.0                         | 58.80                       | 4.5          | 110.0                                | 2000                 | 0.25     | 5.0                             | 42.6               | 80                    | 16.0                     |
| SMA4759A    | 58.90                       | 62.0                         | 65.10                       | 4.0          | 125.0                                | 2000                 | 0.25     | 5.0                             | 47.1               | 70                    | 14.0                     |
| SMA4760A    | 64.60                       | 68.0                         | 71.40                       | 3.7          | 150.0                                | 2000                 | 0.25     | 5.0                             | 51.7               | 65                    | 13.0                     |
| SMA4761A    | 71.25                       | 75.0                         | 78.75                       | 3.3          | 175.0                                | 2000                 | 0.25     | 5.0                             | 56.0               | 60                    | 12.0                     |
| SMA4762A    | 77.90                       | 82.0                         | 86.10                       | 3.0          | 200.0                                | 3000                 | 0.25     | 5.0                             | 62.2               | 55                    | 11.0                     |
| SMA4763A    | 86.45                       | 91.0                         | 95.55                       | 2.8          | 250.0                                | 3000                 | 0.25     | 5.0                             | 69.2               | 50                    | 10.0                     |
| SMA4764A    | 95.00                       | 100.0                        | 105.00                      | 2.5          | 350.0                                | 3000                 | 0.25     | 5.0                             | 76.0               | 45                    | 9.0                      |
| SZ1110A     | 104.50                      | 110.0                        | 115.50                      | 2.3          | 450.0                                | 4000                 | 0.25     | 5.0                             | 83.6               | 40                    | 8.6                      |
| SZ1120A     | 114.00                      | 120.0                        | 126.00                      | 2.0          | 550.0                                | 4500                 | 0.25     | 5.0                             | 91.2               | 37                    | 7.8                      |
| SZ1130A     | 123.50                      | 130.0                        | 136.50                      | 1.9          | 700.0                                | 5000                 | 0.25     | 5.0                             | 98.8               | 34                    | 7.0                      |



## SMA47XXA SERIES

| Part Number | Nominal Zener voltage       |                              |                             | Test current | Maximum dynamic impedance resistance |                      |          | Maximum reverse leakage current |                    | Maximum Surge Current | Maximum DC Zener Current |
|-------------|-----------------------------|------------------------------|-----------------------------|--------------|--------------------------------------|----------------------|----------|---------------------------------|--------------------|-----------------------|--------------------------|
|             | Min $V_Z^{(1)}$ at $I_{ZT}$ | Typ. $V_Z^{(1)}$ at $I_{ZT}$ | Max $V_Z^{(1)}$ at $I_{ZT}$ | $I_{ZT}$     | $Z_{ZT}$ at $I_{ZT}$                 | $Z_{ZK}$ at $I_{ZK}$ | $I_{ZK}$ | $I_R$                           | Test voltage $V_R$ | $I_{RM}^{(2)}$        | $I_{ZM}$                 |
|             | V                           | V                            | V                           | mA           | $\Omega$                             | $\Omega$             | mA       | $\mu A$                         | V                  | mA                    | mA                       |
| SZ1150A     | 142.50                      | 150.0                        | 157.50                      | 1.7          | 1000.0                               | 6000                 | 0.25     | 5.0                             | 114.0              | 30                    | 6.4                      |
| SZ1160A     | 152.00                      | 160.0                        | 168.00                      | 1.6          | 1100.0                               | 6500                 | 0.25     | 5.0                             | 121.6              | 28                    | 5.8                      |
| SZ1180A     | 171.00                      | 180.0                        | 189.00                      | 1.4          | 1200.0                               | 7000                 | 0.25     | 5.0                             | 136.8              | 25                    | 5.2                      |
| SZ1200A     | 190.00                      | 200.0                        | 210.00                      | 1.2          | 1900.0                               | 9990                 | 0.25     | 5.0                             | 152.0              | 22                    | 4.7                      |
| SZ1220A     | 209.00                      | 220.0                        | 231.00                      | 1.0          | 1600.0                               | 8000                 | 0.25     | 5.0                             | 167.2              | 20                    | 4.0                      |
| SZ1240A     | 228.00                      | 240.0                        | 252.00                      | 0.9          | 1800.0                               | 8500                 | 0.25     | 5.0                             | 182.4              | 19                    | 3.8                      |
| SZ1250A     | 237.50                      | 250.0                        | 262.50                      | 0.9          | 2000.0                               | 9000                 | 0.25     | 5.0                             | 190.0              | 18                    | 3.6                      |
| SZ1270A     | 256.50                      | 270.0                        | 283.50                      | 0.8          | 2100.0                               | 9000                 | 0.25     | 5.0                             | 205.0              | 16                    | 3.3                      |
| SZ1300A     | 285.00                      | 300.0                        | 315.00                      | 0.8          | 2300.0                               | 9500                 | 0.25     | 5.0                             | 228.0              | 15                    | 3.0                      |
| SZ1330A     | 313.50                      | 330.0                        | 346.50                      | 0.7          | 2500.0                               | 9500                 | 0.25     | 5.0                             | 250.2              | 13                    | 2.7                      |
| SZ1360A     | 342.00                      | 360.0                        | 378.00                      | 0.7          | 2700.0                               | 10000                | 0.25     | 5.0                             | 275.0              | 12                    | 2.5                      |
| SZ1390A     | 370.50                      | 390.0                        | 409.50                      | 0.7          | 3000.0                               | 10000                | 0.25     | 5.0                             | 300.0              | 11                    | 2.2                      |

Notes:

(1) Nominal Zener voltage Range: 95% Typ. $V_Z$  (1)at  $I_{ZT}$ ----105% Typ. $V_Z$  (1)at  $I_{ZT}$

(2) Surge current is a non-repetitive, 8.3ms pulse width square wave or equivalent sine-wave superimposed on  $I_{ZT}$  per JEDEC method

### ■ Characteristics (Typical)

FIG1: Power Temperature Derating Curve

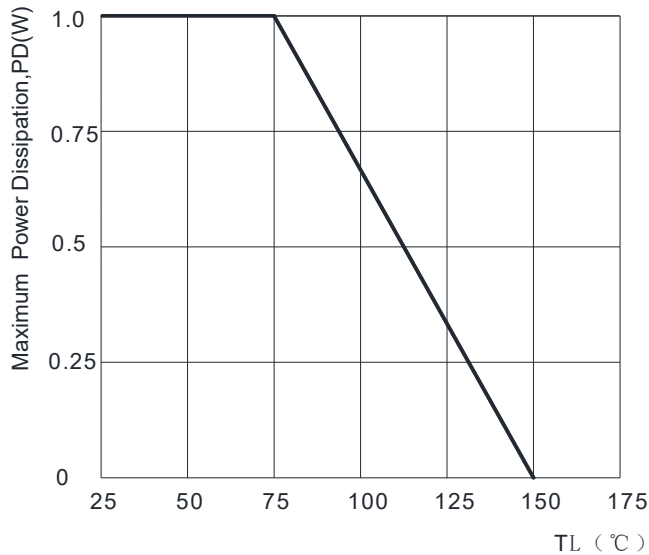
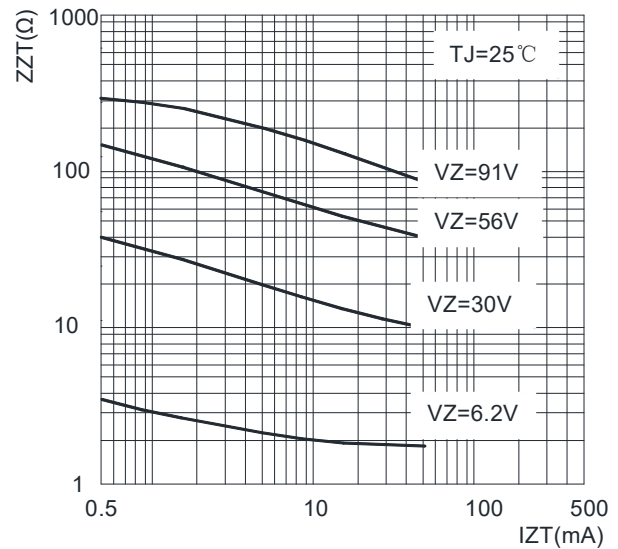


FIG2: Typical Zener Impedance





# SMA47XXA SERIES

## ■ Characteristics (Typical)

FIG3: Pulse Waveform

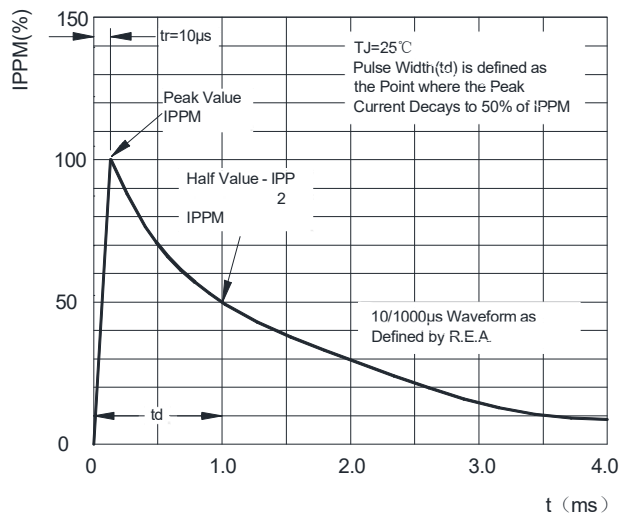


FIG4: Temperature Coefficients v.s. Zener Voltage

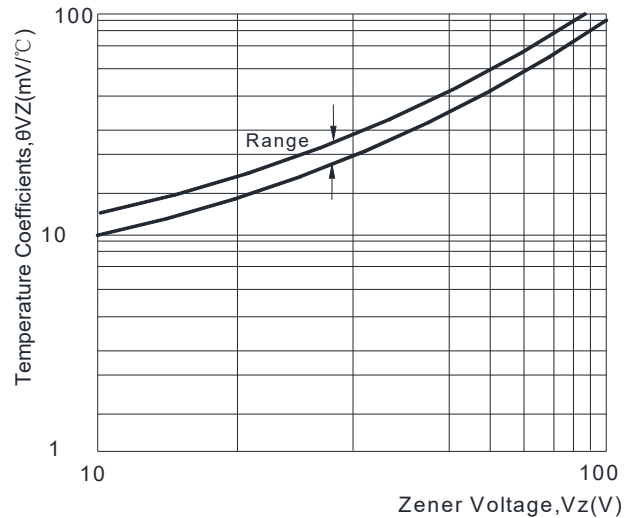
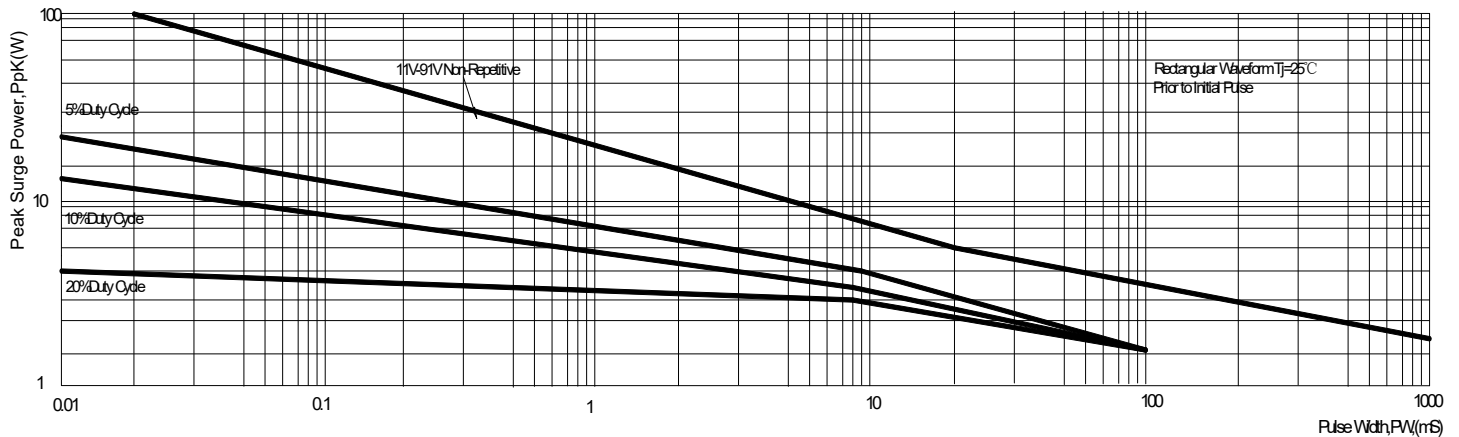


FIG5: Maximum Surge Power



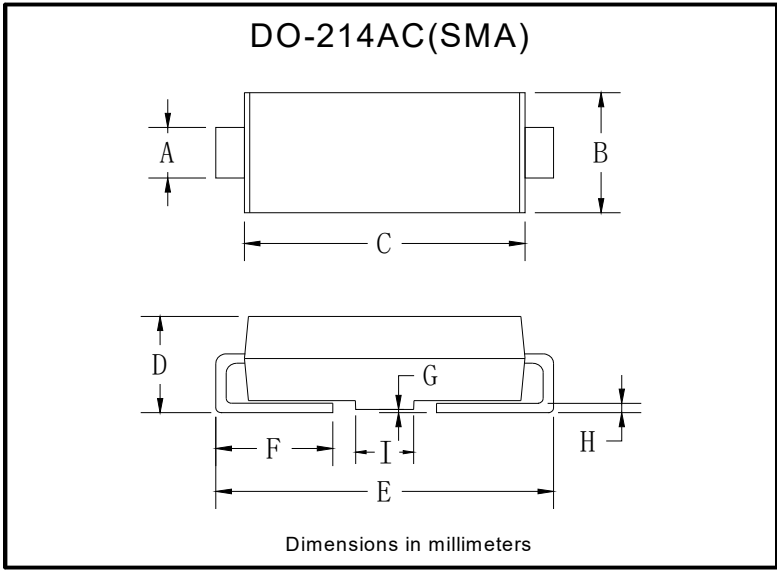
## ■ Ordering Information (Example)

| PREFERRED P/N   | PACKAGE CODE | UNIT WEIGHT(g)    | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|-----------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| SMA47XXA SERIES | F1           | Approximate 0.059 | 5000                 | /                       | 80000                      | 13" reel      |
| SMA47XXA SERIES | F2           | Approximate 0.059 | 7500                 | /                       | 120000                     | 13" reel      |
| SMA47XXA SERIES | F3           | Approximate 0.059 | 7500                 | /                       | 60000                      | 13" reel      |
| SMA47XXA SERIES | F4           | Approximate 0.059 | 1800                 | 7200                    | 57600                      | 7" reel       |
| SMA47XXA SERIES | F5           | Approximate 0.059 | 2000                 | 8000                    | 64000                      | 7" reel       |
| SMA47XXA SERIES | F6           | Approximate 0.059 | 5000                 | /                       | 100000                     | 13" reel      |



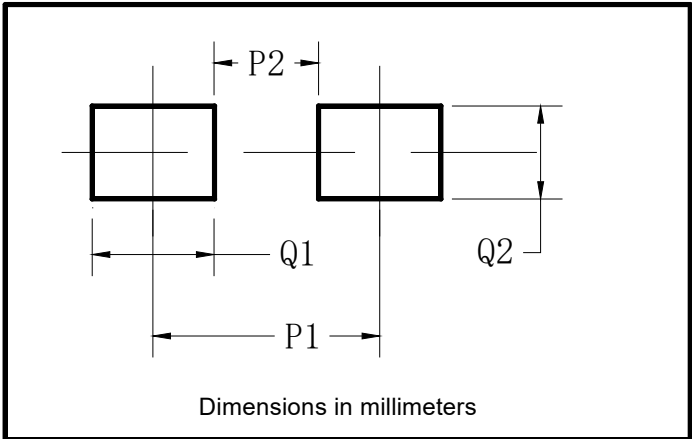
## SMA47XXA SERIES

### ■ Outline Dimensions



| DO-214AC(SMA) |      |      |
|---------------|------|------|
| Dim           | Min  | Max  |
| A             | 1.25 | 1.58 |
| B             | 2.40 | 2.83 |
| C             | 4.00 | 4.75 |
| D             | 1.90 | 2.30 |
| E             | 4.93 | 5.28 |
| F             | 0.76 | 1.41 |
| G             | 0.05 | 0.20 |
| H             | 0.15 | 0.31 |
| I             | 1.70 | 2.10 |

### ■ Suggested Pad Layout



| DO-214AC(SMA) |             |
|---------------|-------------|
| Dim           | Millimeters |
| P1            | 4.00        |
| P2            | 1.50        |
| Q1            | 2.50        |
| Q2            | 1.70        |



## SMA47XXA SERIES

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