



# 1SMA4728~1SMA4757

## SURFACE MOUNT SILICON ZENERDIODE

**VOLTAGE** 3.3 to 51 Volt **POWER** 1 Watt

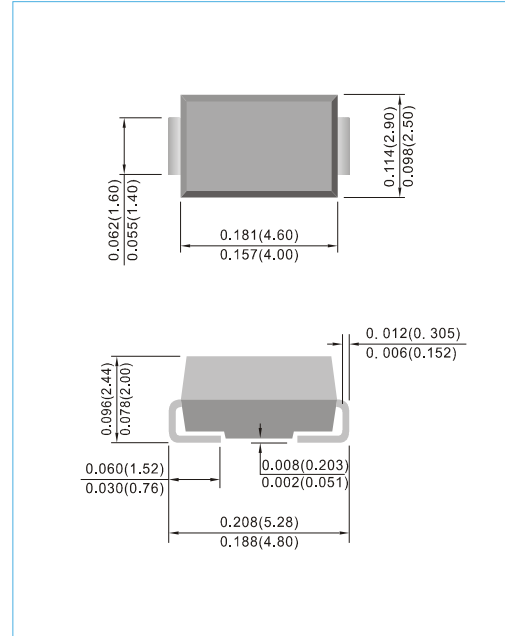
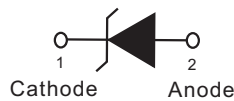
**SMA / DO-214AC** Unit : inch(mm)

### FEATURES

- For surface mounted applications in order to optimize board space
- Low inductance
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- High temperature soldering : 260°C /10 seconds at terminals
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### MECHANICAL DATA

- Case: JEDEC DO-214AC, Molded plastic over passivated junction.
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode end
- Standard Packaging: 12mm tape (EIA-481)
- Weight: 0.0023 ounces, 0.0679 grams



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter  | Symbol         | Value        | Units |
|--|----------------|--------------|-------|
| Peak Pulse Power Dissipation on $T_A=50^{\circ}\text{C}$ (Notes A)<br>Derate above 50 °C | $P_D$          | 1.0          | Watts |
| Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load        | $I_{FSM}$      | 10           | Amps  |
| Operating Junction and Storage Temperature Range   | $T_J, T_{STG}$ | -55 to + 150 | °C    |

### NOTES:

- Mounted on 5mm<sup>2</sup> (0.013mm thick) land areas.
- Measured on 8.3ms, and single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.
- Tolerance and Type Number Designation. The type numbers listed have a standard tolerance on the nominal zener voltage of ± 5%.



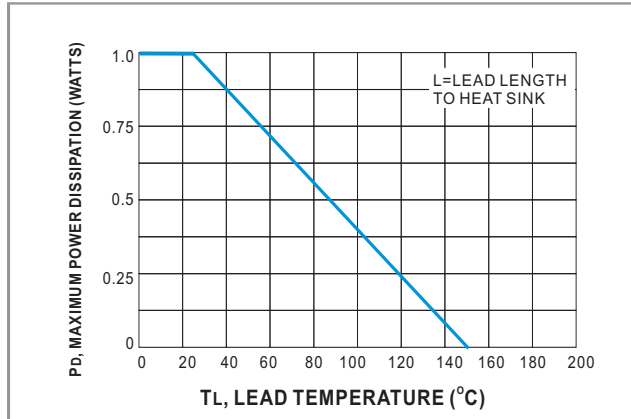
## 1SMA4728~1SMA4757

| Part Number | Nominal Zener Voltage            |        |        | Maximum Zener Impedance           |      |                                   |      | Max Reverse Leakage Current     |      | Marking Code |
|-------------|----------------------------------|--------|--------|-----------------------------------|------|-----------------------------------|------|---------------------------------|------|--------------|
|             | V <sub>Z</sub> @ I <sub>ZT</sub> |        |        | Z <sub>ZT</sub> @ I <sub>ZT</sub> |      | Z <sub>ZK</sub> @ I <sub>ZK</sub> |      | I <sub>R</sub> @ V <sub>R</sub> |      |              |
|             | Nom. V                           | Min. V | Max. V | Ω                                 | mA   | Ω                                 | mA   | μA Max.                         | V    |              |
| 1SMA4728    | 3.3                              | 3.1    | 3.5    | 10                                | 76   | 400                               | 1    | 100                             | 1    | 728B         |
| 1SMA4730    | 3.9                              | 3.7    | 4.1    | 9                                 | 64   | 400                               | 1    | 50                              | 1    | 730B         |
| 1SMA4731    | 4.3                              | 4.1    | 4.5    | 9                                 | 58   | 400                               | 1    | 10                              | 1    | 731B         |
| 1SMA4732    | 4.7                              | 4.5    | 4.9    | 8                                 | 53   | 500                               | 1    | 10                              | 1    | 732B         |
| 1SMA4733    | 5.1                              | 4.8    | 5.4    | 7                                 | 49   | 550                               | 1    | 10                              | 1    | 733B         |
| 1SMA4734    | 5.6                              | 5.3    | 5.9    | 5                                 | 45   | 600                               | 1    | 10                              | 2    | 734B         |
| 1SMA4735    | 6.2                              | 5.9    | 6.5    | 2                                 | 41   | 700                               | 1    | 10                              | 3    | 735B         |
| 1SMA4736    | 6.8                              | 6.46   | 7.14   | 3.5                               | 37   | 700                               | 1    | 5                               | 4    | 736B         |
| 1SMA4737    | 7.5                              | 7.13   | 7.88   | 4                                 | 34   | 700                               | 0.5  | 5                               | 5    | 737B         |
| 1SMA4738    | 8.2                              | 7.79   | 8.61   | 4.5                               | 31   | 700                               | 0.5  | 5                               | 6    | 738B         |
| 1SMA4739    | 9.1                              | 8.65   | 9.56   | 5                                 | 28   | 700                               | 0.5  | 0.5                             | 7    | 739B         |
| 1SMA4740    | 10                               | 9.5    | 10.5   | 7                                 | 25   | 700                               | 0.25 | 0.5                             | 7.6  | 740B         |
| 1SMA4741    | 11                               | 10.45  | 11.55  | 8                                 | 23   | 700                               | 0.25 | 0.1                             | 8.4  | 741B         |
| 1SMA4742    | 12                               | 11.4   | 12.6   | 9                                 | 21   | 700                               | 0.25 | 0.1                             | 9.1  | 742B         |
| 1SMA4743    | 13                               | 12.35  | 13.65  | 10                                | 19   | 700                               | 0.25 | 0.1                             | 9.9  | 743B         |
| 1SMA4744    | 15                               | 14.25  | 15.75  | 14                                | 17   | 700                               | 0.25 | 0.1                             | 11.4 | 744B         |
| 1SMA4745    | 16                               | 15.2   | 16.8   | 16                                | 15.5 | 700                               | 0.25 | 0.1                             | 12.2 | 745B         |
| 1SMA4746    | 18                               | 17.1   | 18.9   | 20                                | 14   | 750                               | 0.25 | 0.1                             | 13.7 | 746B         |
| 1SMA4747    | 20                               | 19     | 21     | 22                                | 12.5 | 750                               | 0.25 | 0.1                             | 15.2 | 747B         |
| 1SMA4748    | 22                               | 20.9   | 23.1   | 23                                | 11.5 | 750                               | 0.25 | 0.1                             | 16.7 | 748B         |
| 1SMA4749    | 24                               | 22.8   | 25.2   | 25                                | 10.5 | 750                               | 0.25 | 0.1                             | 18.2 | 749B         |
| 1SMA4750    | 27                               | 25.65  | 28.35  | 35                                | 9.5  | 750                               | 0.25 | 0.1                             | 20.6 | 750B         |
| 1SMA4751    | 30                               | 28.5   | 31.5   | 40                                | 8.5  | 1000                              | 0.25 | 0.1                             | 22.8 | 751B         |
| 1SMA4752    | 33                               | 31.35  | 34.65  | 45                                | 7.5  | 1000                              | 0.25 | 0.1                             | 25.1 | 752B         |
| 1SMA4753    | 36                               | 34.2   | 37.8   | 50                                | 7    | 1000                              | 0.25 | 0.1                             | 27.4 | 753B         |
| 1SMA4754    | 39                               | 37.05  | 40.95  | 60                                | 6.5  | 1000                              | 0.25 | 0.1                             | 29.7 | 754B         |
| 1SMA4755    | 43                               | 40.85  | 45.15  | 70                                | 6    | 1500                              | 0.25 | 0.1                             | 32.7 | 755B         |
| 1SMA4756    | 47                               | 44.65  | 49.35  | 80                                | 5.5  | 1500                              | 0.25 | 0.1                             | 35.8 | 756B         |
| 1SMA4757    | 51                               | 48.45  | 53.55  | 95                                | 5    | 1500                              | 0.25 | 0.1                             | 38.8 | 757B         |

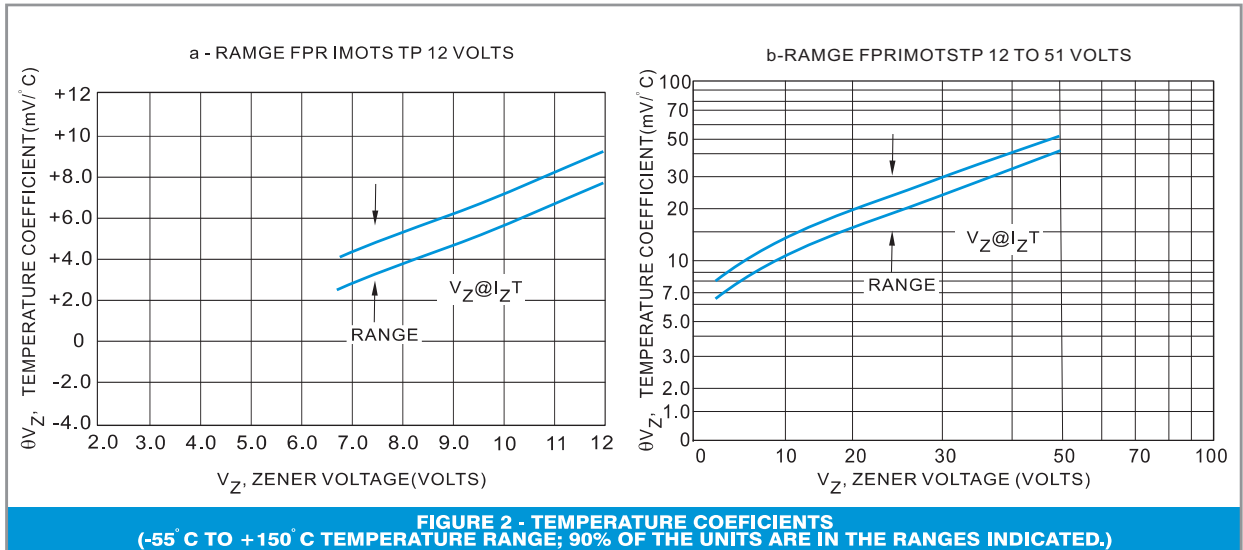


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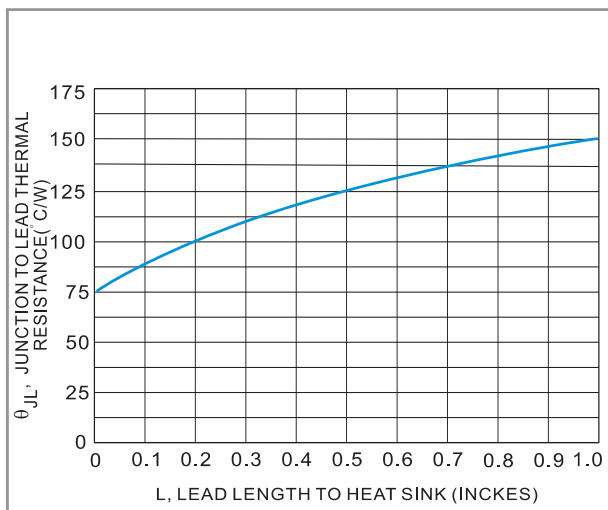
## RATING AND CHARACTERISTICS CURVES



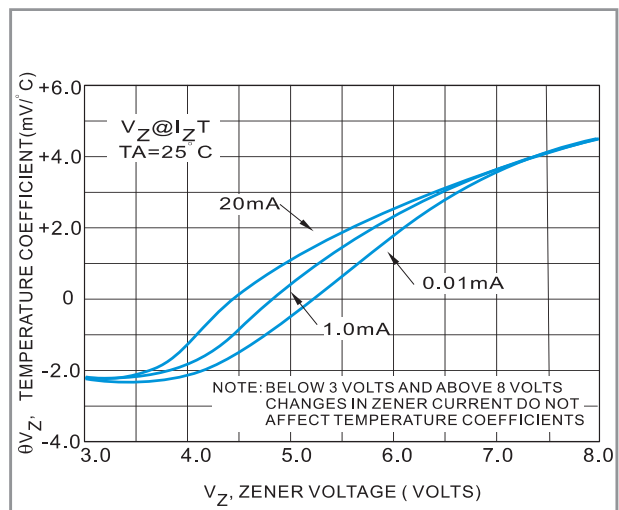
**FIGURE.1 POWER TEMPERATURE DERATING CURVE**



**FIGURE 2 - TEMPERATURE COEFFICIENTS (-55° C TO +150° C TEMPERATURE RANGE; 90% OF THE UNITS ARE IN THE RANGES INDICATED.)**



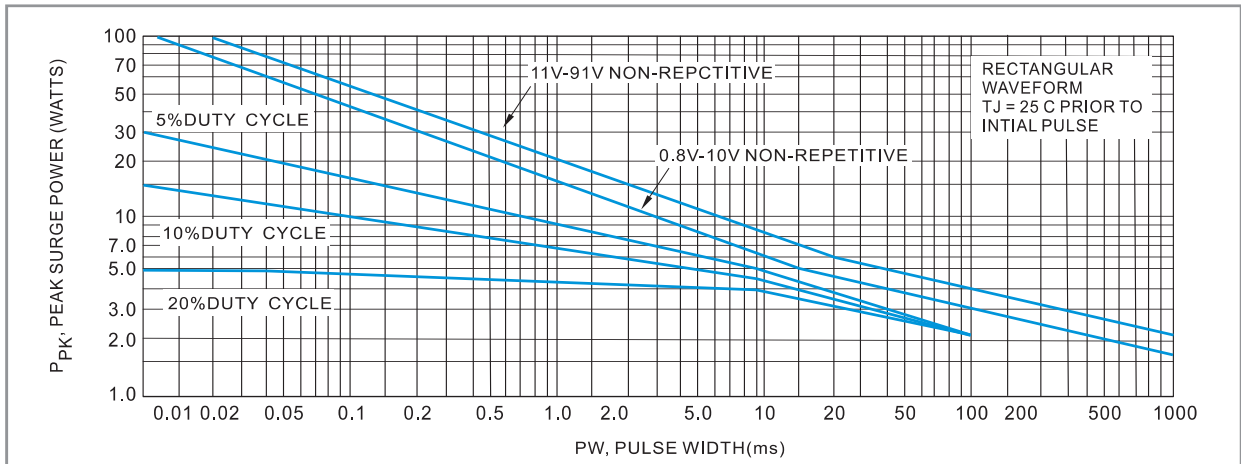
**FIGURE 3 - TYPICAL THERMAL RESISTANCE versus LEAD LENGTH**



**FIGURE 4 - EFFECT OF ZENER CURRENT**

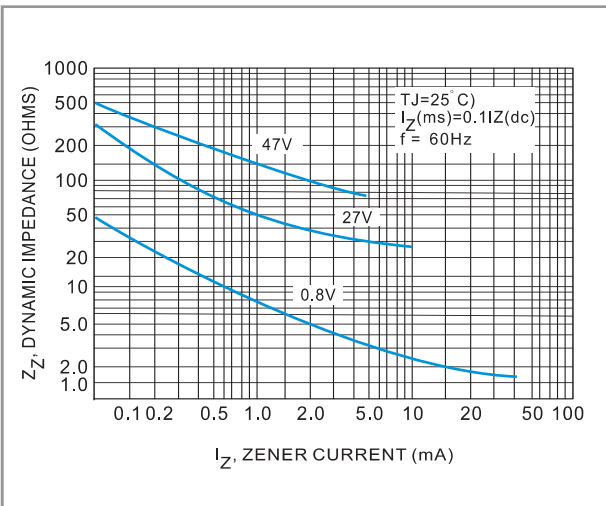


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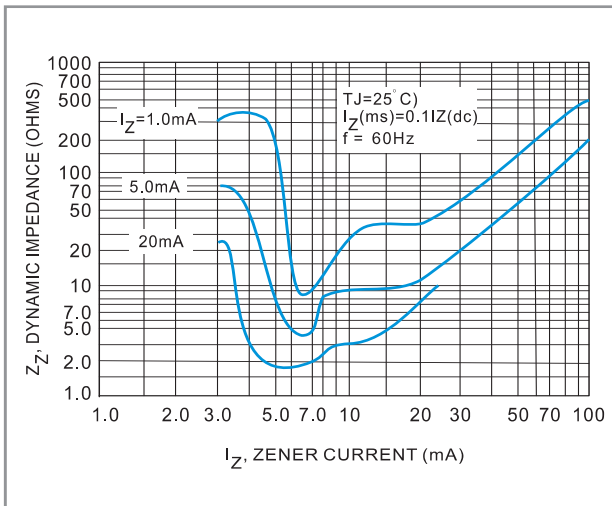


This graph represents 90 percentile data points.  
FOR worst-case design characteristics, multiply surge power by 2/3

**FIGURE 5 - MAXIMUM SURGE POWER**



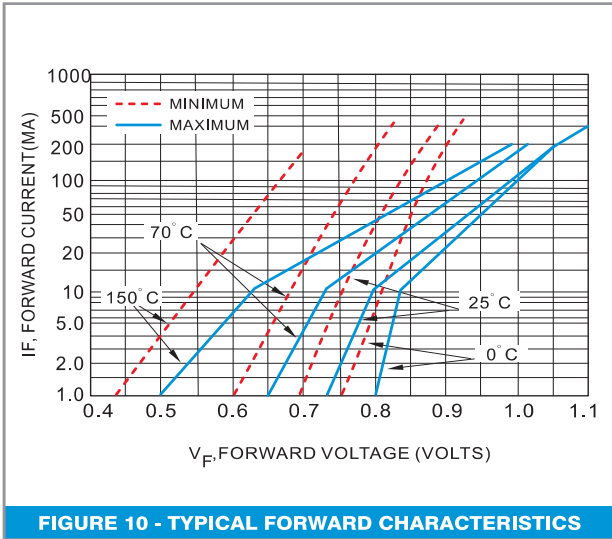
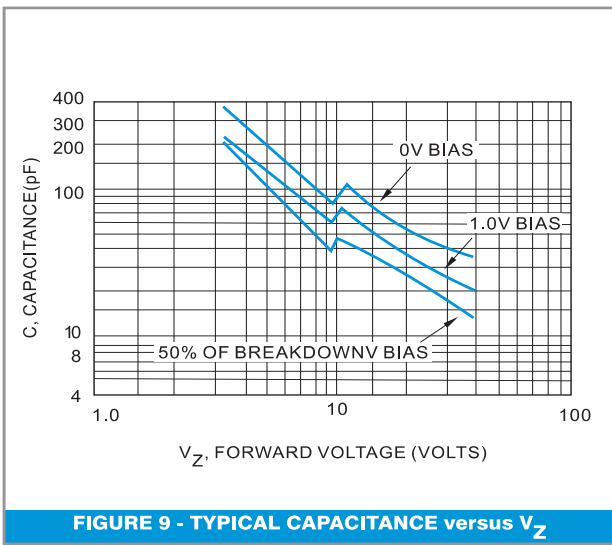
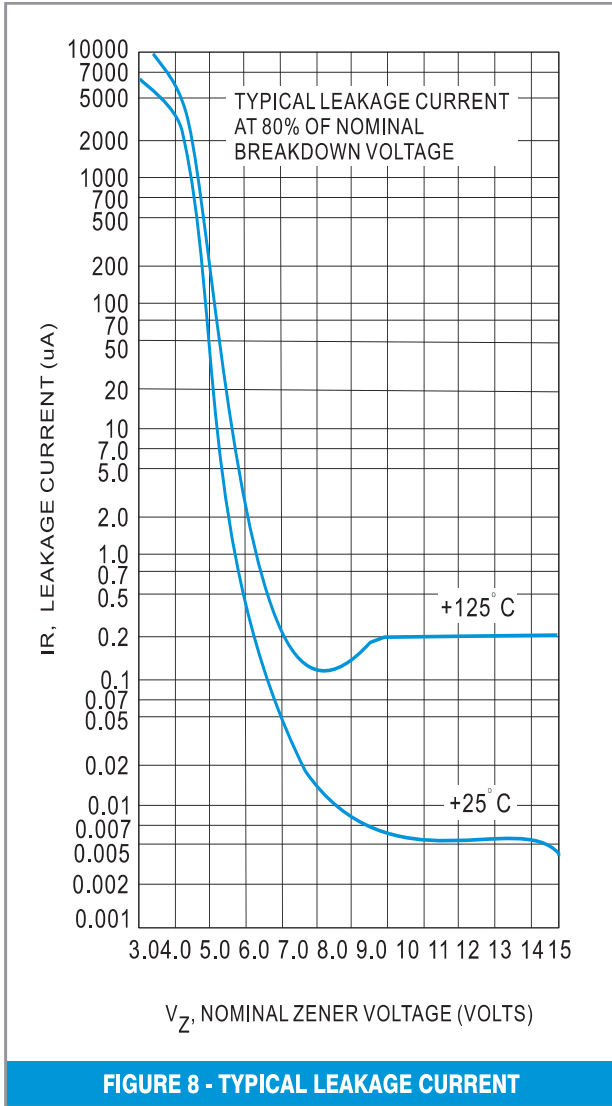
**FIGURE 6 - EFFECT OF ZENER CURRENT ON ZENER IMPEDANCE**



**FIGURE 7 - EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE**



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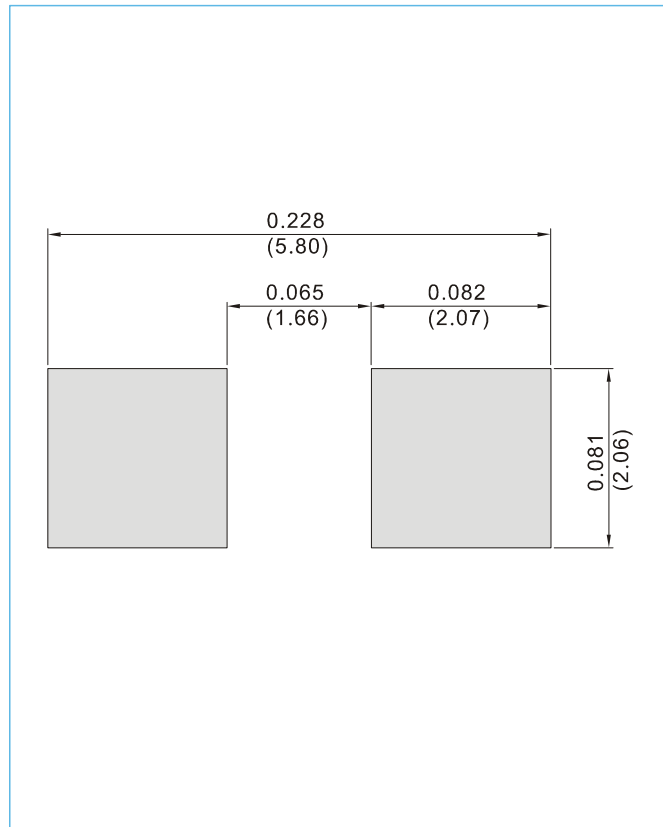




## 1SMA4728~1SMA4757

### MOUNTING PAD LAYOUT

SMA / DO-214AC Unit : inch(mm)



### ORDER INFORMATION

- Packing information  
T/R - 7.5K per 13" plastic Reel  
T/R - 1.8K per 7" plastic Reel



## 1SMA4728~1SMA4757

### Part No\_packing code\_Version

1SMA4728\_R1\_00001

1SMA4728\_R2\_00001

For example :

**RB500V-40\_R2\_00001**



| Packing Code <b>XX</b>               |                      |                                  |                      | Version Code <b>XXXXX</b> |                      |                                       |
|--------------------------------------|----------------------|----------------------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type                         | 1 <sup>st</sup> Code | Packing size code                | 2 <sup>nd</sup> Code | HF or RoHS                | 1 <sup>st</sup> Code | 2 <sup>nd</sup> ~5 <sup>th</sup> Code |
| Tape and Ammunition Box (T/B)        | <b>A</b>             | N/A                              | <b>0</b>             | <b>HF</b>                 | <b>0</b>             | serial number                         |
| Tape and Reel (T/R)                  | <b>R</b>             | 7"                               | <b>1</b>             | <b>RoHS</b>               | <b>1</b>             | serial number                         |
| Bulk Packing (B/P)                   | <b>B</b>             | 13"                              | <b>2</b>             |                           |                      |                                       |
| Tube Packing (T/P)                   | <b>T</b>             | 26mm                             | <b>X</b>             |                           |                      |                                       |
| Tape and Reel (Right Oriented) (TRR) | <b>S</b>             | 52mm                             | <b>Y</b>             |                           |                      |                                       |
| Tape and Reel (Left Oriented) (TRL)  | <b>L</b>             | PANASERT T/B CATHODE UP (PBCU)   | <b>U</b>             |                           |                      |                                       |
| FORMING                              | <b>F</b>             | PANASERT T/B CATHODE DOWN (PBCD) | <b>D</b>             |                           |                      |                                       |



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