



# 1SMA5921~1SMA5945

## SURFACE MOUNT SILICON ZENERDIODE

**VOLTAGE** 6.8 to 68 Volt **POWER** 1.5 Watt

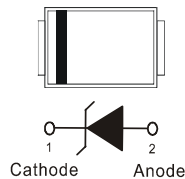
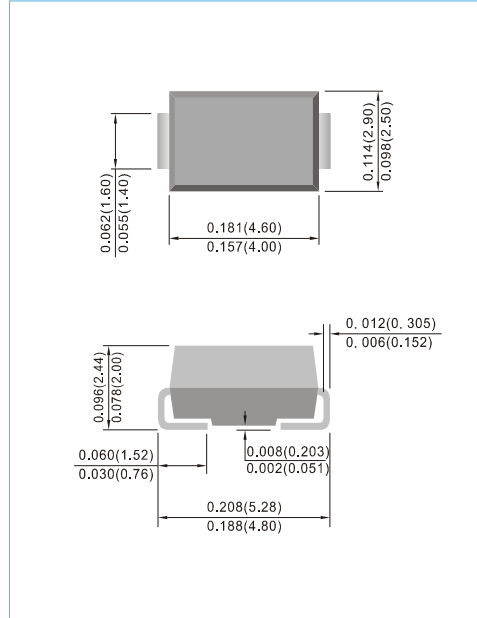
**SMA / DO-214AC** Unit : inch(mm)

### FEATURES

- For surface mounted applications in order to optimize board space
- Glass passivated junction
- Low inductance
- Typical  $I_R$  less than  $1\mu A$  above 12V
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- High temperature soldering :  $260^{\circ}C$  /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  $25^{\circ}C$  ambient temperature unless otherwise specified.

| Parameter  | Symbol         | Value        | Units                     |
|--|----------------|--------------|---------------------------|
| Pwak Pulse Power Dissipation on $T_L=75^{\circ}C$ (Notes A)<br>Derate above $75^{\circ}C$      | $P_D$          | 1.5<br>20    | W atts<br>mW/ $^{\circ}C$ |
| Peak Forward Surge Current 8.3ms single half sine-wave<br>superimposed on rated load (Notes B) | $I_{FSM}$      | 10           | Amps                      |
| Operating Junction and Storage Temperature Range   | $T_J, T_{STG}$ | -55 to + 150 | $^{\circ}C$               |

### NOTES :

A.Mounted on  $5mm^2$  (0.013mm thick) land areas.

B.Measured on 8.3ms, and single half sine-wave or equivalent square wave ,duty cycle=4 pulses per minute maximum.

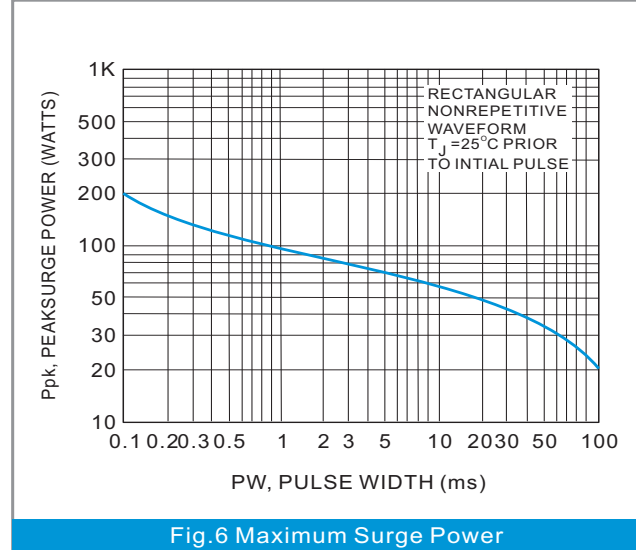
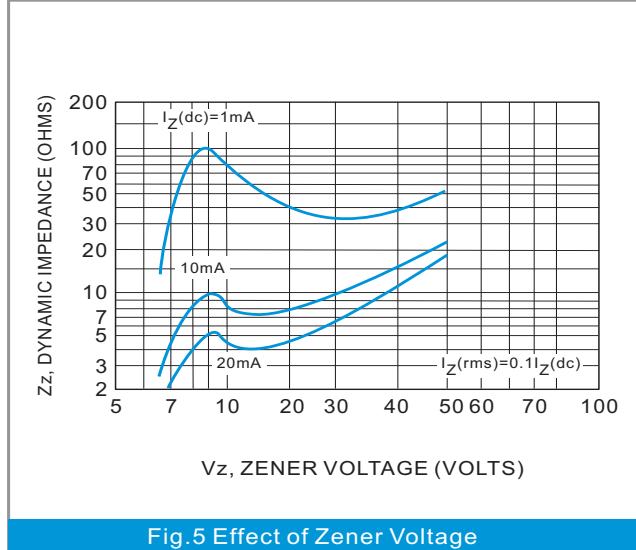
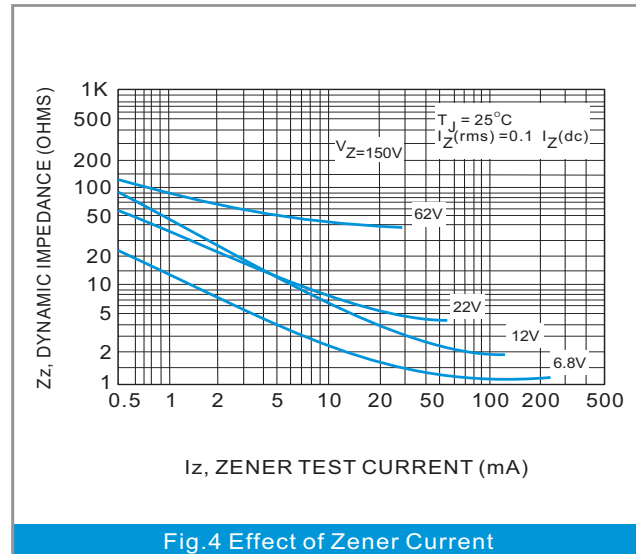
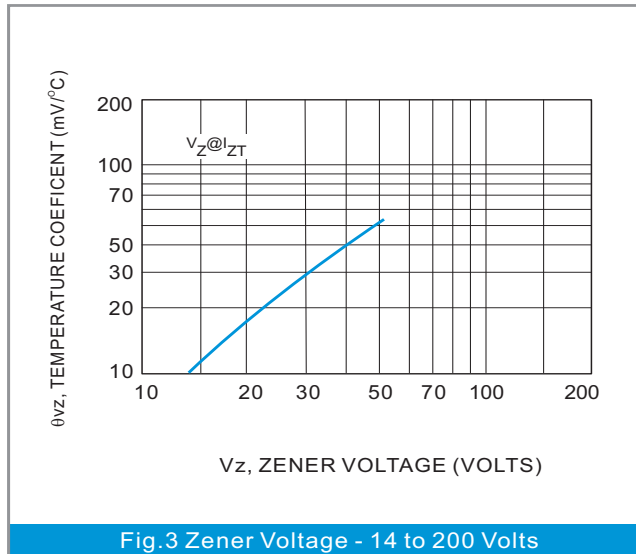
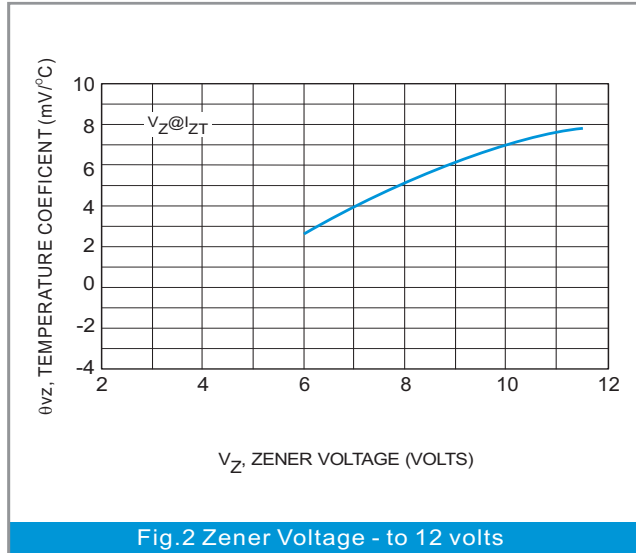
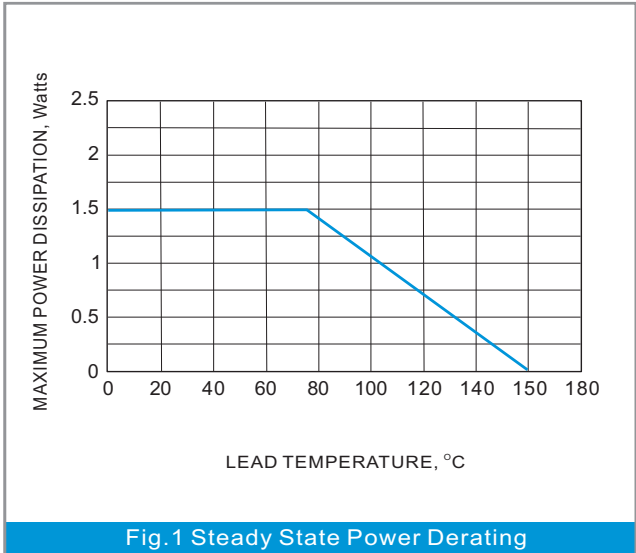


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| Part Number | Nominal Zener Voltage            |       |       | Maximum Zener Impedance           |      |                                   |      | Max. Reverse Leakage Current |                | Marking Code |
|-------------|----------------------------------|-------|-------|-----------------------------------|------|-----------------------------------|------|------------------------------|----------------|--------------|
|             | 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                            | MinV  | Max V | Ω                                 | mA   | Ω                                 | mA   | μA                           | V              |              |
| 1SMA5921    | 6.8                              | 6.46  | 7.14  | 3                                 | 55.1 | 200                               | 1    | 5                            | 5.2            | 921A         |
| 1SMA5922    | 7.5                              | 7.13  | 7.88  | 3                                 | 50   | 400                               | 0.5  | 5                            | 6              | 922A         |
| 1SMA5923    | 8.2                              | 7.79  | 8.61  | 4                                 | 45.7 | 400                               | 0.5  | 5                            | 6.5            | 923A         |
| 1SMA5924    | 9.1                              | 8.65  | 9.56  | 4                                 | 41.2 | 500                               | 0.5  | 5                            | 7              | 924A         |
| 1SMA5925    | 10                               | 9.5   | 10.5  | 5                                 | 37.5 | 500                               | 0.25 | 5                            | 8              | 925A         |
| 1SMA5926    | 11                               | 10.45 | 11.55 | 6                                 | 34.1 | 550                               | 0.25 | 1                            | 8.4            | 926A         |
| 1SMA5927    | 12                               | 11.4  | 12.6  | 7                                 | 31.2 | 550                               | 0.25 | 1                            | 9.1            | 927A         |
| 1SMA5928    | 13                               | 12.35 | 13.65 | 7                                 | 28.8 | 550                               | 0.25 | 1                            | 9.9            | 928A         |
| 1SMA5929    | 15                               | 14.25 | 15.75 | 9                                 | 25   | 600                               | 0.25 | 1                            | 11.4           | 929A         |
| 1SMA5930    | 16                               | 15.2  | 16.8  | 10                                | 23.4 | 600                               | 0.25 | 1                            | 12.2           | 930A         |
| 1SMA5931    | 18                               | 17.1  | 18.9  | 12                                | 20.8 | 650                               | 0.25 | 1                            | 13.7           | 931A         |
| 1SMA5932    | 20                               | 19    | 21    | 14                                | 18.7 | 650                               | 0.25 | 1                            | 15.2           | 932A         |
| 1SMA5933    | 22                               | 20.9  | 23.1  | 18                                | 17   | 650                               | 0.25 | 1                            | 16.7           | 933A         |
| 1SMA5934    | 24                               | 22.8  | 25.2  | 19                                | 15.6 | 700                               | 0.25 | 1                            | 18.2           | 934A         |
| 1SMA5935    | 27                               | 25.65 | 28.35 | 23                                | 13.9 | 700                               | 0.25 | 1                            | 20.6           | 935A         |
| 1SMA5936    | 30                               | 28.5  | 31.5  | 26                                | 12.5 | 750                               | 0.25 | 1                            | 22.8           | 936A         |
| 1SMA5937    | 33                               | 31.35 | 34.65 | 33                                | 11.4 | 800                               | 0.25 | 1                            | 25.1           | 937A         |
| 1SMA5938    | 36                               | 34.2  | 37.8  | 38                                | 10.4 | 850                               | 0.25 | 1                            | 27.4           | 938A         |
| 1SMA5939    | 39                               | 37.05 | 40.95 | 45                                | 9.6  | 900                               | 0.25 | 1                            | 29.7           | 939A         |
| 1SMA5940    | 43                               | 40.85 | 45.15 | 53                                | 8.7  | 950                               | 0.25 | 1                            | 32.7           | 940A         |
| 1SMA5941    | 47                               | 44.65 | 49.35 | 67                                | 8    | 1000                              | 0.25 | 1                            | 35.8           | 941A         |
| 1SMA5942    | 51                               | 48.45 | 53.55 | 70                                | 7.3  | 1100                              | 0.25 | 1                            | 38.8           | 942A         |
| 1SMA5943    | 56                               | 53.2  | 58.8  | 86                                | 6.7  | 1300                              | 0.25 | 1                            | 42.6           | 943A         |
| 1SMA5944    | 62                               | 58.9  | 65.1  | 100                               | 6    | 1500                              | 0.25 | 1                            | 47.1           | 944A         |
| 1SMA5945    | 68                               | 64.6  | 71.4  | 120                               | 5.5  | 1700                              | 0.25 | 1                            | 51.7           | 945A         |

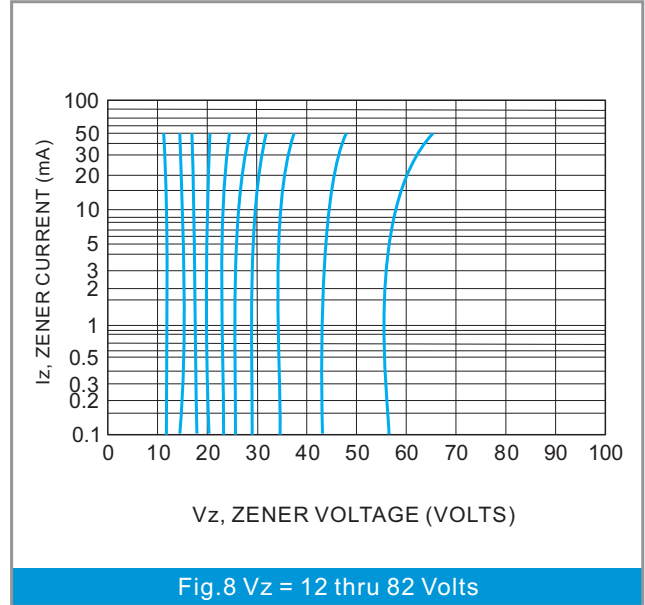
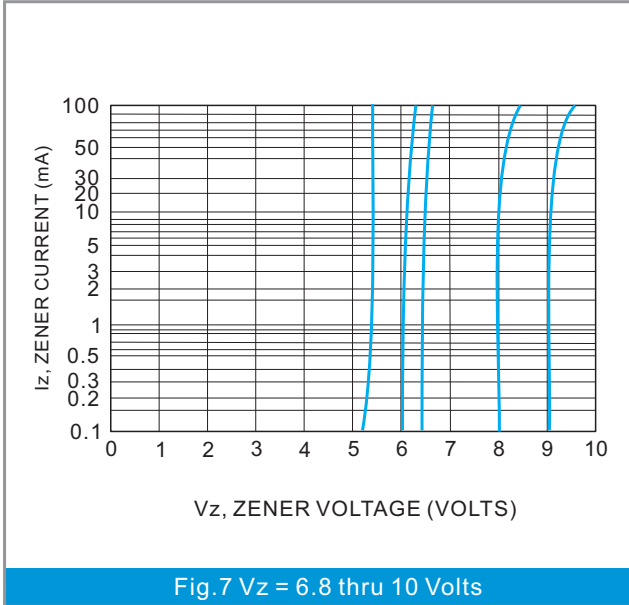


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**NOTE 3. ZENER VOLTAGE ( $V_z$ ) MEASUREMENT**

Nominal zener voltage is measured with the device function in thermal equilibrium with ambient temperature at 25°C

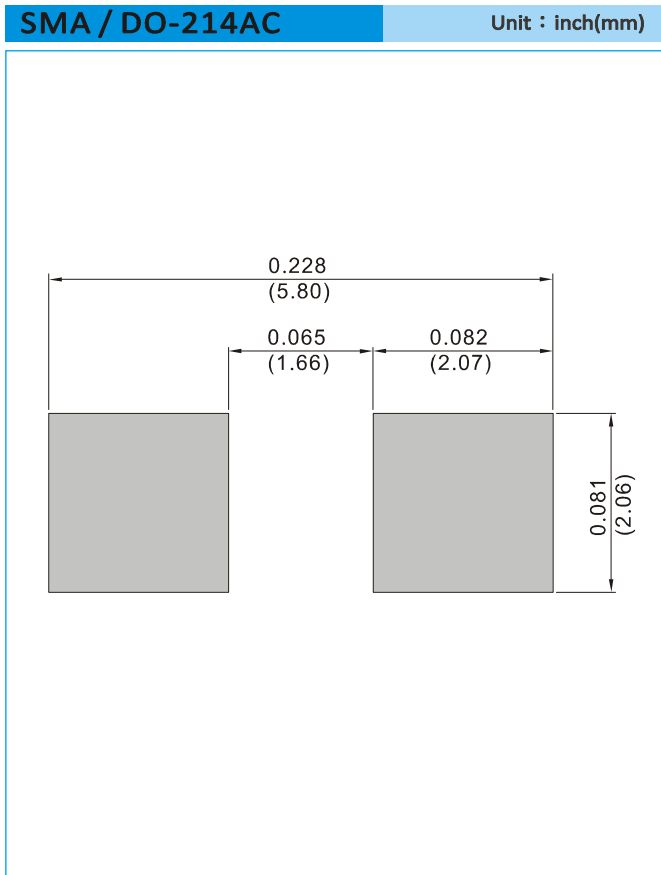
**NOTE 4. ZENER IMPEDANCE ( $Z_z$ ) DERIVATION**

$Z_{zt}$  and  $Z_{zk}$  are measured by dividing the ac voltage drop across the device by the ac current applied. The specified limits are for  $I_z(ac) = 0.1 I_z, (dc)$  with the ac frequency = 60Hz



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## MOUNTING PAD LAYOUT



## ORDER INFORMATION

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



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**Part No\_packing code\_Version**

1SMA5921\_R1\_00001

1SMA5921\_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>             |                           |                      |                                       |