

1.5 Watt Plastic Surface Mount Zener Voltage Regulators 1SMA5945

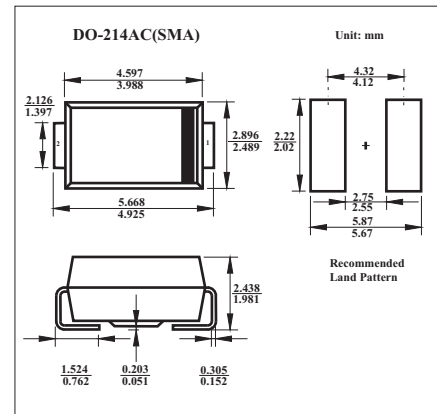
Features

ESD Rating of Class 3 (> 16 kV) per Human Body Model

Flat Handling Surface for Accurate Placement

Low Profile Package

- Pb-Free Packages are Available
- Maximum Lead Temperature for Soldering Purposes for 10 seconds: 260 °C



Absolute Maximum Ratings $T_a = 25$

| Parameter | Symbol | Rating | Unit |
|-----------------------------------------|-----------------|-------------|------|
| DC Power Dissipation @ $T_L = 75$ * | P_D | 1.5 | W |
| Derate above 75 | | 20 | mW/ |
| DC Power Dissipation @ $T_A = 25$ * | P_D | 0.5 | W |
| Derate above 25 | | 4.0 | mW/ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 250 | /W |
| Thermal Resistance, Junction-to-Lead | $R_{\theta JL}$ | 50 | /W |
| Operating and Storage Temperature Range | T_J, T_{stg} | -65 to +150 | |

* FR4 Board, using Motorola minimum recommended footprint, as shown in case 403B outline dimensions spec.

Electrical Characteristics ($T_A = 25$ unless otherwise noted, $V_F = 1.5$ V Max. @ $I_F = 200$ mA for all types)

| Device *1 | Zener Voltage *2 | | | Zener Impedance | | | Leakage Current | | I_{ZM} | |
|-----------|------------------|-------|-------|---------------------|---------------------|------|-----------------|-------|----------|----|
| | V_Z (Volts) | | | Z_{ZT} @ I_{ZT} | Z_{ZK} @ I_{ZK} | | I_R @ V_R | | | |
| | Min | Nom | Max | mA | mA | | μA | Volts | | |
| 1SMA5945 | 68 | 64.60 | 71.40 | 5.5 | 120 | 1700 | 0.25 | 1.0 | 51.7 | 22 |

*1 Tolerance and Voltage Regulation Designation The type number listed indicates a tolerance of $\pm 5\%$.

*2 V_Z limits are to be guaranteed at thermal equilibrium.

■ Marking

| | |
|---------|----------|
| Marking | 1SMA5945 |
|---------|----------|

1SMA5945

■ Typical Characteristics

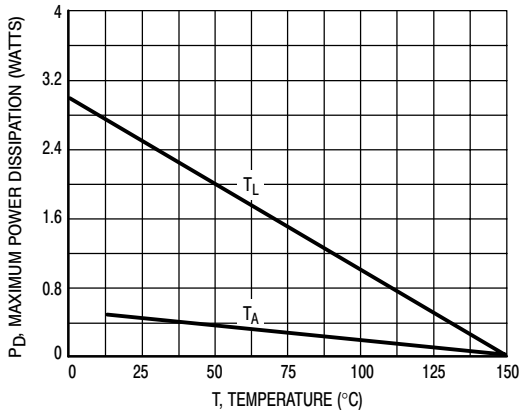


Figure 1. Steady State Power Derating

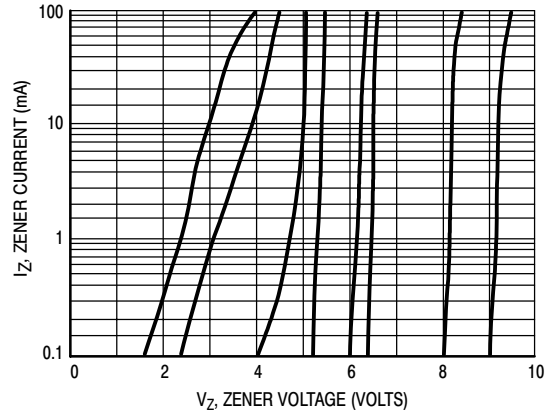


Figure 2. V_Z - 3.3 thru 10 Volts

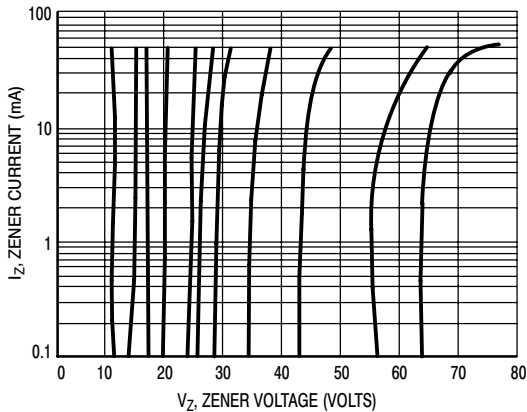


Figure 3. $V_Z = 12$ thru 68 Volts

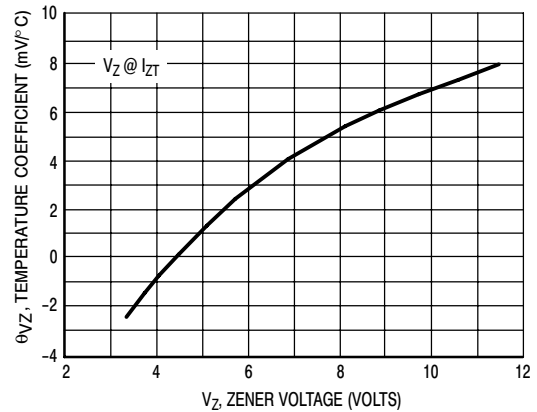


Figure 4. Zener Voltage - 3.3 to 12 Volts

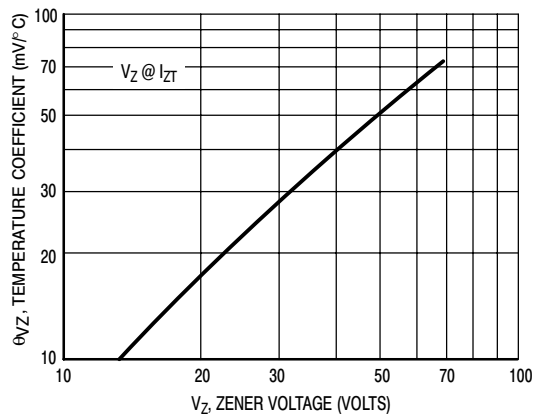


Figure 5. Zener Voltage - 12 to 68 Volts

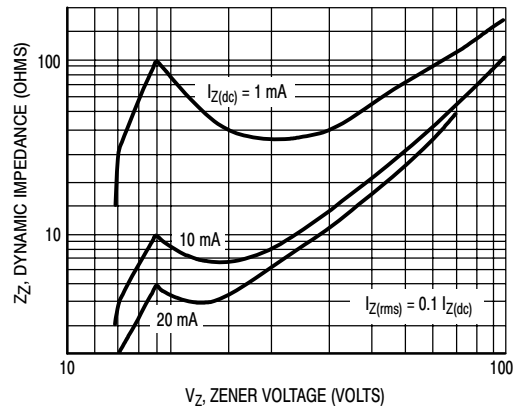


Figure 6. Effect of Zener Voltage

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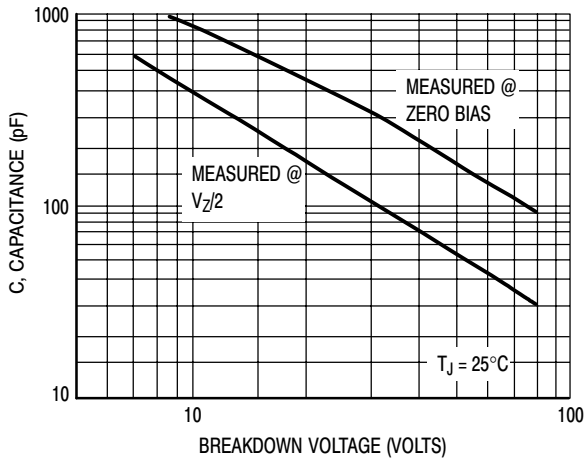


Figure 7. Capacitance Curve

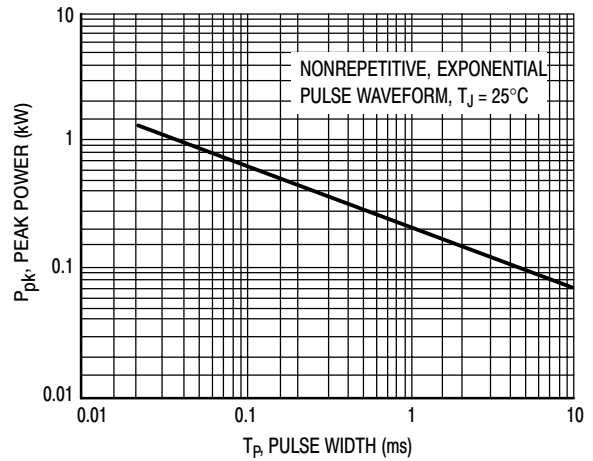


Figure 8. Typical Pulse Rating Curve

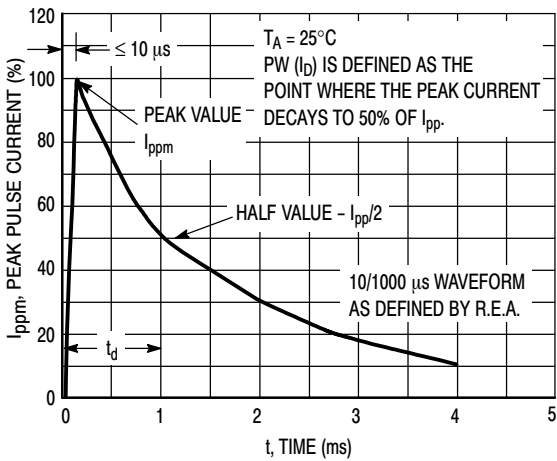


Figure 9. Pulse Waveform

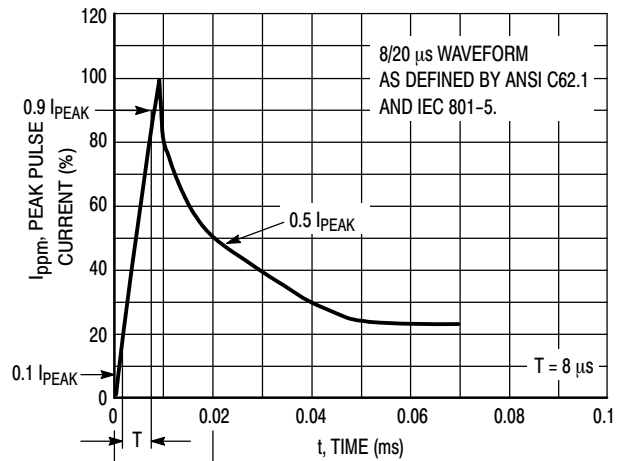


Figure 10. Pulse Waveform