

1.5 Watt Plastic Surface Mount Zener Voltage Regulators 1SMA5942

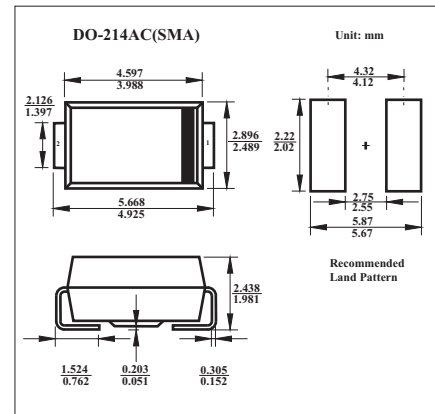
Features

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		
1SMA5942	51	48.45	53.55	7.3	70	1100	0.25	1.0	38.8	29

*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	1SMA5942
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1SMA5942

■ Typical Characteristics

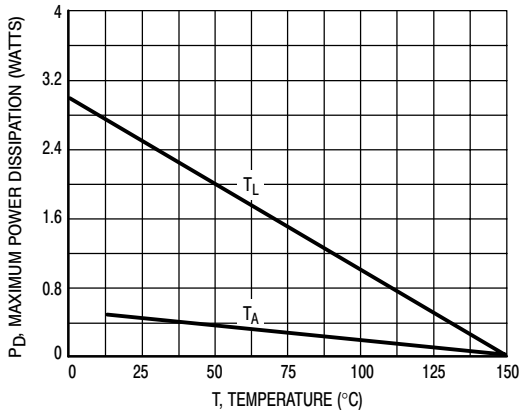


Figure 1. Steady State Power Derating

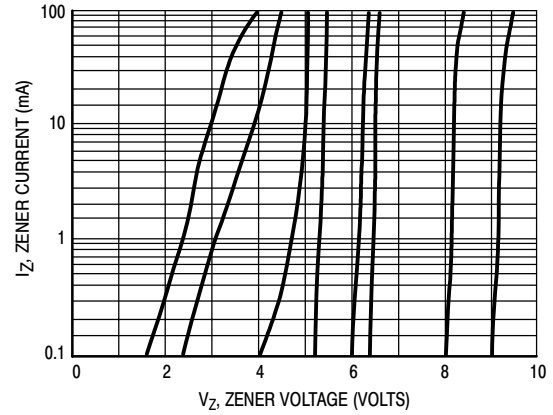


Figure 2. V_Z - 3.3 thru 10 Volts

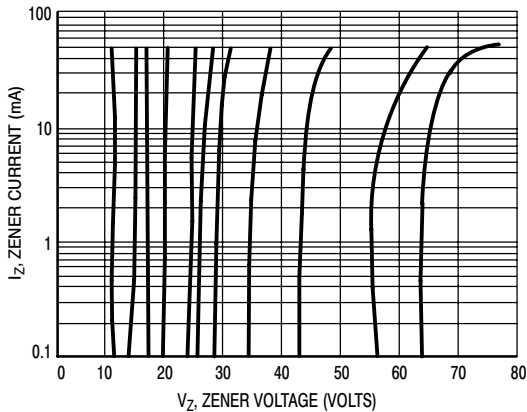


Figure 3. $V_Z = 12$ thru 68 Volts

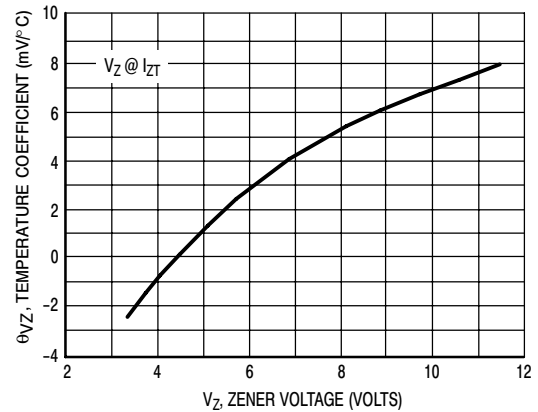


Figure 4. Zener Voltage - 3.3 to 12 Volts

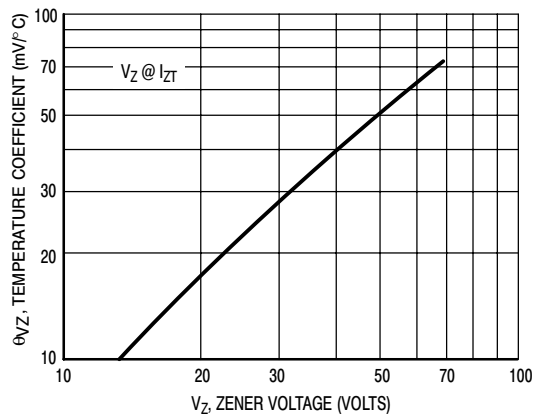


Figure 5. Zener Voltage - 12 to 68 Volts

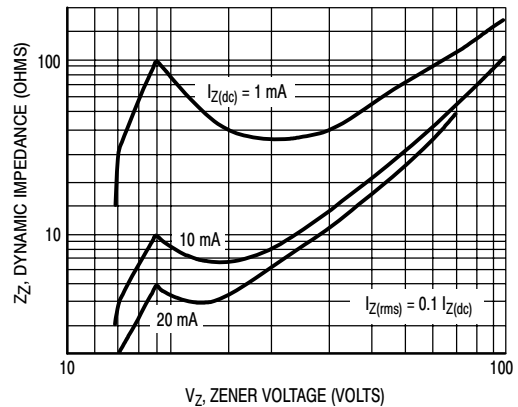


Figure 6. Effect of Zener Voltage

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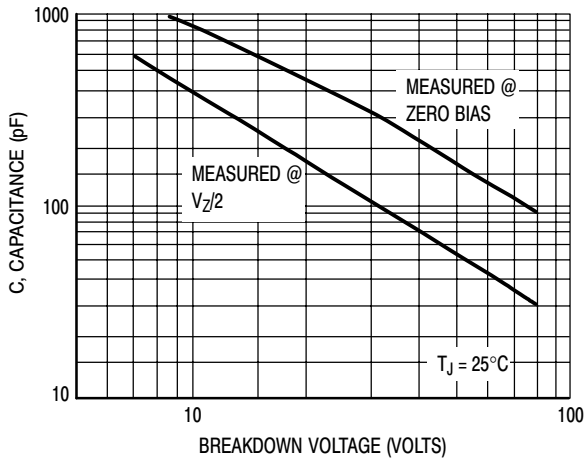


Figure 7. Capacitance Curve

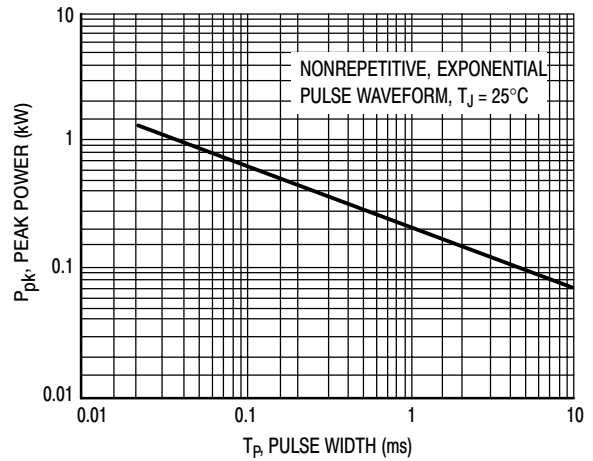


Figure 8. Typical Pulse Rating Curve

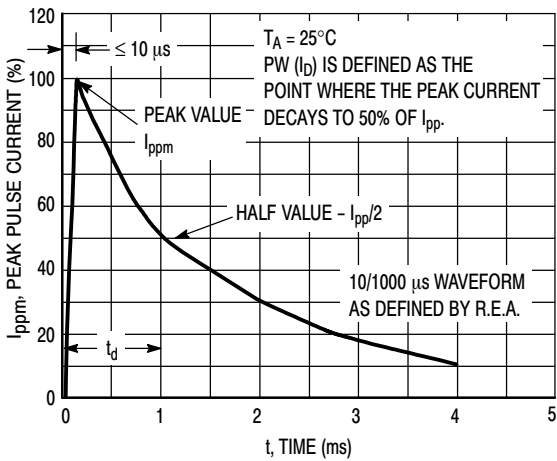


Figure 9. Pulse Waveform

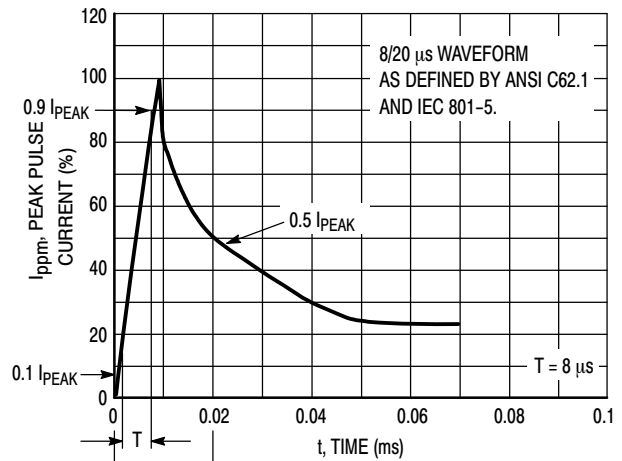


Figure 10. Pulse Waveform