PHY

PLASTIC SURFACE MOUNT ZENER DIODES

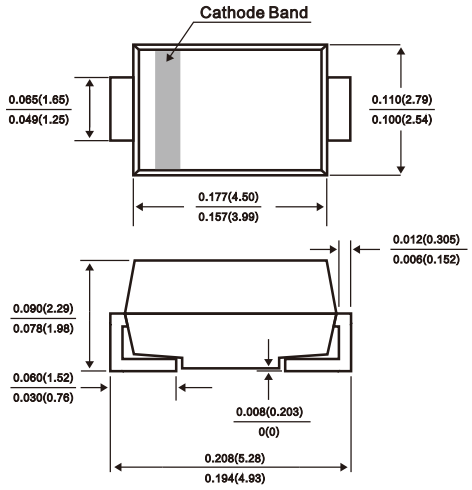
1SMA5913B THRU 1SMA5957B

3.3V-240V 1.5mA-113.8mA

FEATURES

- Voltage Range – 3.3 to 240 V
- ESD Rating of Class 3 (>16 kV) per Human Body Model
- Flat Handling Surface for Accurate Placement
- Package Design for Top Side or Bottom Circuit Board Mounting
- Low Profile Package
- Available in Tape and Reel
- Ideal Replacement for MELF Packages

SMA(DO−214AC)



Dimensions in inches and (millimeters)

Mechanical Data

- Case: Void–free, transfer-molded plastic
- Maximum Case Temperature for Soldering Purposes: 260°C for 10 seconds
- Finish: All external surfaces are corrosion resistant with readily solderable leads
- Polarity: Cathode indicated by molded polarity notch
- Mounted Position: Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

Rating	Symbol	Value	Unit
DC Power Dissipation @ T_L = 75 °C	P_D	1.5	W
Measured zero lead length(1" square copper pad, FR-4 board)		20	mW/°C
Derate above 75 °C Thermal Resistance Junction to Lead	$R_{\theta JL}$	50	°C/W
DC Power Dissipation @ Ta = 25 °C	P_D	0.5	W
(FR-4 board) Derate above 25 °C		4.0	mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	250	°C/W
Maximum Forward Voltage at I_F = 200 mA	V_F	1.5	V
Operating Junction and Storang Temperature Range	T_J, T_{STG}	- 65 to + 150	°C

ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

TYPE	Nominal Zener Voltage		Maximum Zener Impedance			Maximum Reverse Leakage Current		Maximum DC Zener Current
	V_Z @ I_{ZT}	I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZK}	I_R @	V_R	I_{ZM}
	(V)	(mA)	(Ω)	(Ω)	(mA)	(μA)	(V)	(mA)
1SMA5913B	3.3	113.6	10	500	1.0	100	1.0	454
1SMA5914B	3.6	104.2	9.0	500	1.0	75	1.0	416
1SMA5915B	3.9	96.1	7.5	500	1.0	25	1.0	384
1SMA5916B	4.3	87.2	6.0	500	1.0	5.0	1.0	348
1SMA5917B	4.7	79.8	5.0	500	1.0	5.0	1.5	319
1SMA5918B	5.1	73.5	4.0	350	1.0	5.0	2.0	294
1SMA5919B	5.6	66.9	2.0	250	1.0	5.0	3.0	267
1SMA5920B	6.2	60.5	2.0	200	1.0	5.0	4.0	241
1SMA5921B	6.8	55.1	2.5	200	1.0	50	5.2	220
1SMA5922B	7.5	50.0	3.0	400	0.5	50	6.0	200
1SMA5923B	8.2	45.7	3.5	400	0.5	50	6.5	182
1SMA5924B	9.1	41.2	4.0	500	0.5	50	7.0	164
1SMA5925B	10	37.5	4.5	500	0.25	50	8.0	150
1SMA5926B	11	34.1	5.5	550	0.25	50	8.4	136
1SMA5927B	12	31.2	6.5	550	0.25	1.0	9.1	125
1SMA5928B	13	28.8	7.0	550	0.25	1.0	9.9	115
1SMA5929B	15	25.0	9.0	600	0.25	1.0	11.4	100
1SMA5930B	16	23.4	10	600	0.25	1.0	12.2	93
1SMA5931B	18	20.8	12	650	0.25	1.0	13.7	83
1SMA5932B	20	18.7	14	650	0.25	1.0	15.2	75
1SMA5933B	22	17.0	17.5	650	0.25	1.0	16.7	68
1SMA5934B	24	15.6	19	700	0.25	1.0	18.2	62
1SMA5935B	27	13.9	23	700	0.25	1.0	20.6	55
1SMA5936B	30	12.5	26	750	0.25	1.0	22.8	50
1SMA5937B	33	11.4	33	800	0.25	1.0	25.1	45
1SMA5938B	36	10.4	38	850	0.25	1.0	27.4	41
1SMA5939B	39	9.6	45	900	0.25	1.0	29.7	38
1SMA5940B	43	8.7	53	950	0.25	1.0	32.7	34
1SMA5941B	47	8.0	67	1000	0.25	1.0	35.8	31
1SMA5942B	51	7.3	70	1100	0.25	1.0	38.8	29
1SMA5943B	56	6.7	86	1300	0.25	1.0	42.6	26
1SMA5944B	62	6.0	100	1500	0.25	1.0	47.1	24
1SMA5945B	68	5.5	120	1700	0.25	1.0	51.7	22
1SMA5946B	75	5.0	140	2000	0.25	1.0	56.0	20
1SMA5947B	82	4.6	160	2500	0.25	1.0	62.2	18
1SMA5948B	91	4.1	200	3000	0.25	1.0	69.2	16
1SMA5949B	100	3.7	250	3100	0.25	1.0	76.0	15
1SMA5950B	110	3.4	300	4000	0.25	1.0	83.6	13
1SMA5951B	120	3.1	380	4500	0.25	1.0	91.2	12
1SMA5952B	130	2.9	450	5000	0.25	1.0	98.8	11
1SMA5953B	150	2.5	600	6000	0.25	1.0	114.0	10
1SMA5954B	160	2.3	700	6500	0.25	1.0	121.6	9.0
1SMA5955B	180	2.1	900	7000	0.25	1.0	136.8	8.0
1SMA5956B	200	1.9	1200	8000	0.25	1.0	152.0	7.0
1SMA5957B	240	1.5	1600	9000	0.25	1.0	182.4	6.0

Note :

(1) Suffix " B " indicates ± 5% tolerance, suffix " A " indicates ± 10% tolerance.

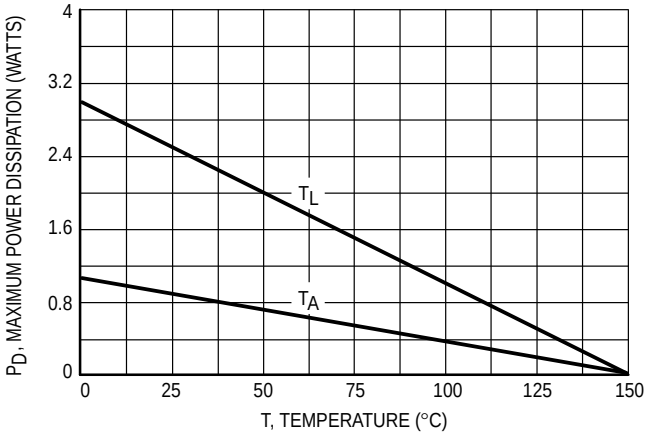


Figure 1. Steady State Power Derating

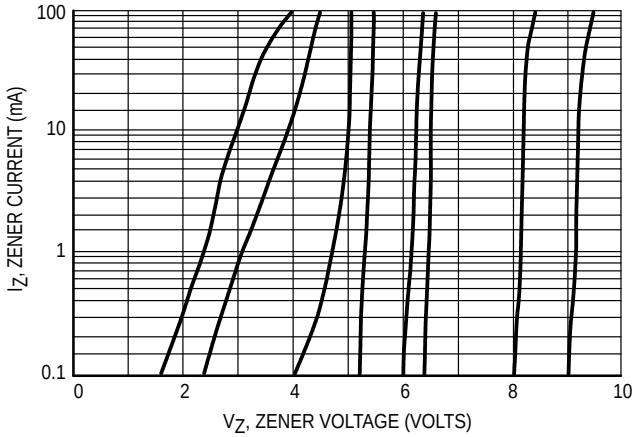


Figure 2. V_Z – 3.3 thru 10 Volts

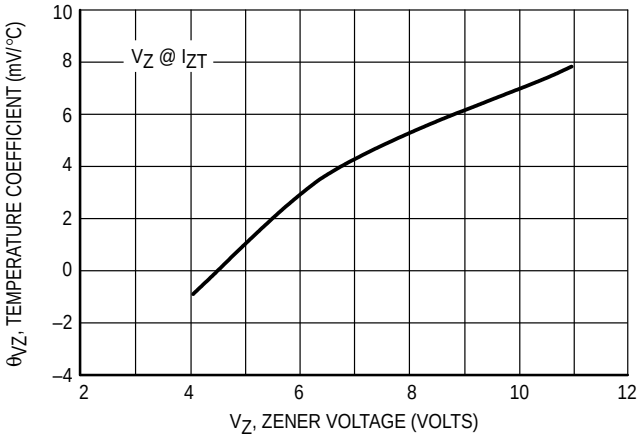


Figure 3. Zener Voltage – 3.3 to 12 Volts

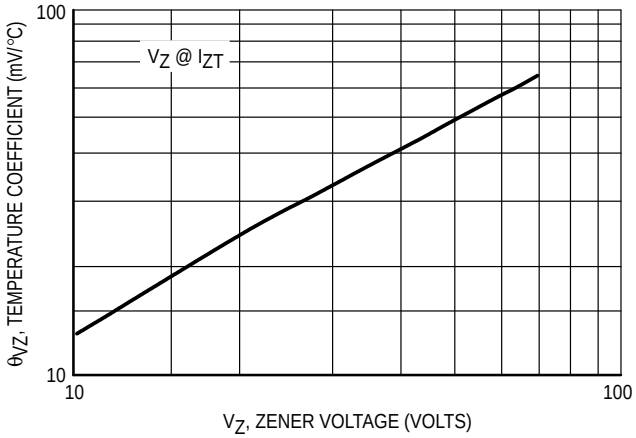


Figure 4. Zener Voltage – 14 to 68 Volts

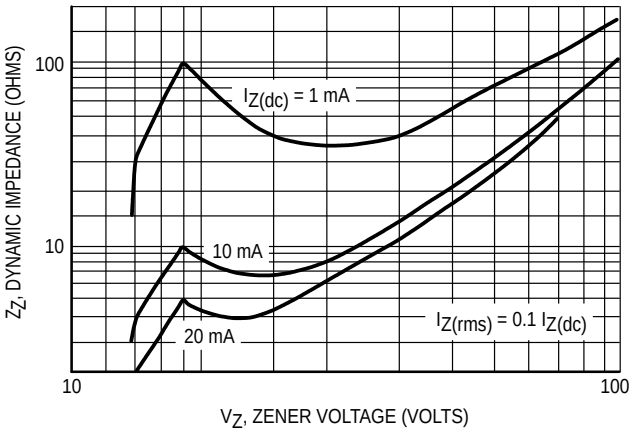


Figure 5. Effect of Zener Voltage

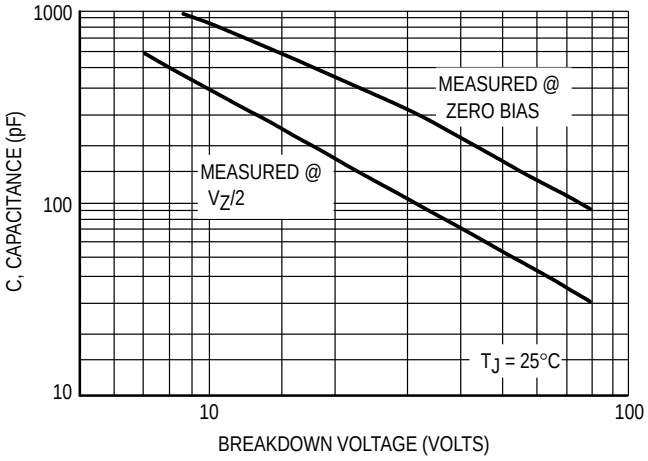


Figure 6. Capacitance Curve

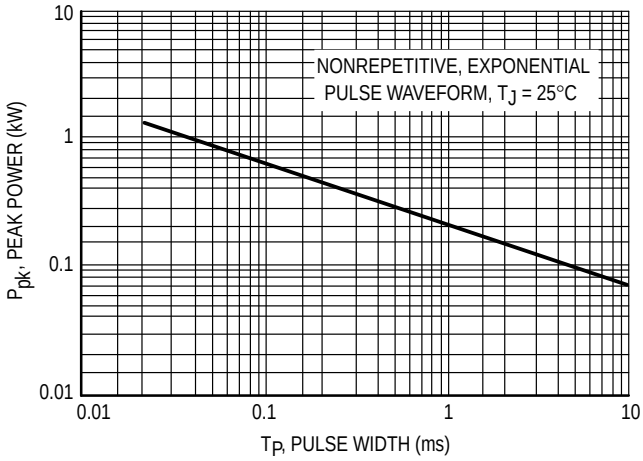


Figure 7. Typical Pulse Rating Curve

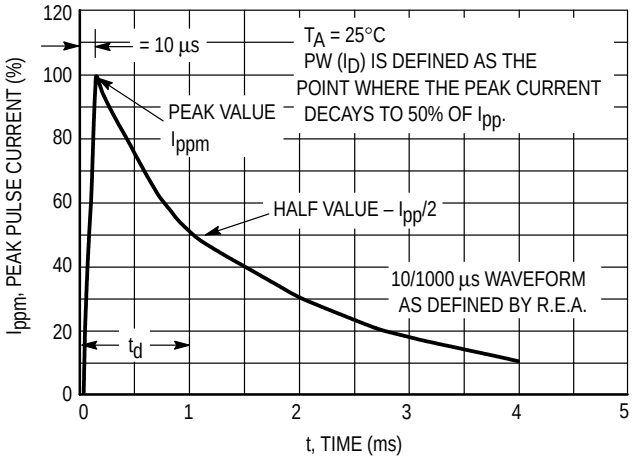


Figure 8. Pulse Waveform

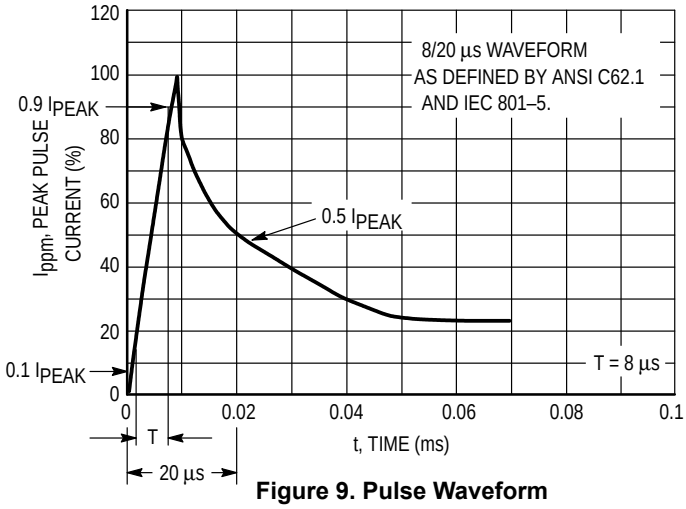


Figure 9. Pulse Waveform