

1SMA5913A THRU 1SMA5945A

SURFACE MOUNT ZENER DIODES

SMA SURFACE MOUNT SILICON ZENER DIODES

Features

- Low Zener Impedance
- Power Dissipation of 1500mW
- High Stability and High Reliability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

Applications

Zener diode is generally used as reference voltage sources in regulated power supplies or as protective diode in overvoltage protection circuits.

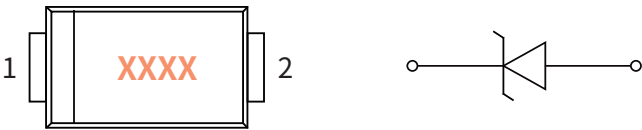
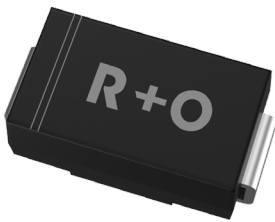
Mechanical Data

- Case: DO-214AC(SMA)
- Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Cathode line denotes the cathode end

Function Diagram

Zener Diode
3.3 to 68 Volts
Power Dissipation
1.5 Watts

DO-214AC(SMA)

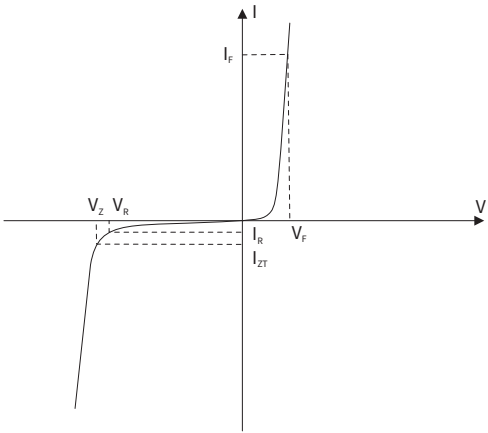


Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Power Dissipation at Tc=75°C	P _D	mW	1500
Forward Voltage @ I _F =200mA	V _F	V	1.5
Storage Temperature	T _{stg}	°C	-55 ~+150
Junction Temperature	T _j	°C	-55 ~+150
Typical Thermal Resistance	R _{θJA}	°C /W	250

Electrical Parameter

SYMBOL	PARAMETER
V _Z	Reverse zener voltage @ I _{ZT}
I _{ZT}	Reverse current
Z _{ZT}	Maximum Zener Impedance @ I _{ZT}
I _{ZK}	Reverse Current
Z _{ZK}	Maximum Zener Impedance @ I _{ZK}
I _R	Reverse leakage current @ V _R
V _R	Reverse voltage
I _F	Forward current
V _F	Forward voltage @ I _F



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● Electrical Characteristics (Ta=25°C Unless otherwise noted)

Type Number	Type Code	Nominal Zener Voltage				Zener Impedance			Leakage Current		Admissible Zener Current
		V _z			I _{zT}	Z _{zT} @I _{zT}	Z _{zK} @I _{zK}		I _R @V _R		
		Min.(V)	Nom.(V)	Max.(V)	(mA)	Z _{zT} (Ω)	(Ω)	(mA)	I _R (μA)	V _R (V)	I _{zM} (mA)
1SMA5913A	913A	3.13	3.3	3.47	113.6	10	500	1.0	100	1.0	454
1SMA5914A	914A	3.42	3.6	3.78	104.2	9	500	1.0	75	1.0	416
1SMA5915A	915A	3.70	3.9	4.10	96.1	7.5	500	1.0	25	1.0	384
1SMA5916A	916A	4.08	4.3	4.52	87.2	6	500	1.0	5	1.0	348
1SMA5917A	917A	4.46	4.7	4.94	79.8	5	500	1.0	5	1.5	319
1SMA5918A	918A	4.84	5.1	5.36	73.5	4	350	1.0	5	2.0	294
1SMA5919A	919A	5.32	5.6	5.88	66.9	2	250	1.0	5	3.0	267
1SMA5920A	920A	5.89	6.2	6.51	60.5	2	200	1.0	5	4.0	241
1SMA5921A	921A	6.46	6.8	7.14	55.1	2.5	200	1.0	5	5.2	220
1SMA5922A	922A	7.12	7.5	7.88	50	3	400	0.5	5	6.0	200
1SMA5923A	923A	7.79	8.2	8.61	45.7	3.5	400	0.5	5	6.5	182
1SMA5924A	924A	8.64	9.1	9.56	41.2	4	500	0.5	5	7.0	164
1SMA5925A	925A	9.50	10	10.50	37.5	4.5	500	0.25	5	8.0	150
1SMA5926A	926A	10.45	11	11.55	34.1	5.5	550	0.25	1	8.4	136
1SMA5927A	927A	11.40	12	12.60	31.2	6.5	550	0.25	1	9.1	125
1SMA5928A	928A	12.35	13	13.65	28.8	7	550	0.25	1	9.9	115
1SMA5929A	929A	14.25	15	15.75	25	9	600	0.25	1	11.4	100
1SMA5930A	930A	15.20	16	16.80	23.4	10	600	0.25	1	12.2	93
1SMA5931A	931A	17.10	18	18.90	20.8	12	650	0.25	1	13.7	83
1SMA5932A	932A	19.00	20	21.00	18.7	14	650	0.25	1	15.2	75
1SMA5933A	933A	20.90	22	23.10	17	17.5	650	0.25	1	16.7	68
1SMA5934A	934A	22.80	24	25.20	15.6	19	700	0.25	1	18.2	62
1SMA5935A	935A	25.65	27	28.35	13.9	23	700	0.25	1	20.6	55
1SMA5936A	936A	28.50	30	31.50	12.5	28	750	0.25	1	22.8	50
1SMA5937A	937A	31.35	33	34.65	11.4	33	800	0.25	1	25.1	45
1SMA5938A	938A	34.20	36	37.80	10.4	38	850	0.25	1	27.4	41
1SMA5939A	939A	37.05	39	40.95	9.6	45	900	0.25	1	29.7	38
1SMA5940A	940A	40.85	43	45.15	8.7	53	950	0.25	1	32.7	34
1SMA5941A	941A	44.65	47	49.35	8.0	67	1000	0.25	1	35.8	31
1SMA5942A	942A	48.45	51	53.55	7.3	70	1100	0.25	1	38.8	29
1SMA5943A	943A	53.20	56	58.80	6.7	86	1300	0.25	1	42.6	26
1SMA5944A	944A	58.90	62	65.10	6.0	100	1500	0.25	1	47.1	24
1SMA5945A	945A	64.60	68	71.40	5.5	120	1700	0.25	1	51.7	22

Note :

(1)The type number listed have a standard tolerance on the nominal zener voltage of ±5%

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● Ratings And Characteristics Curves ($T_a=25^\circ\text{C}$ Unless otherwise specified)

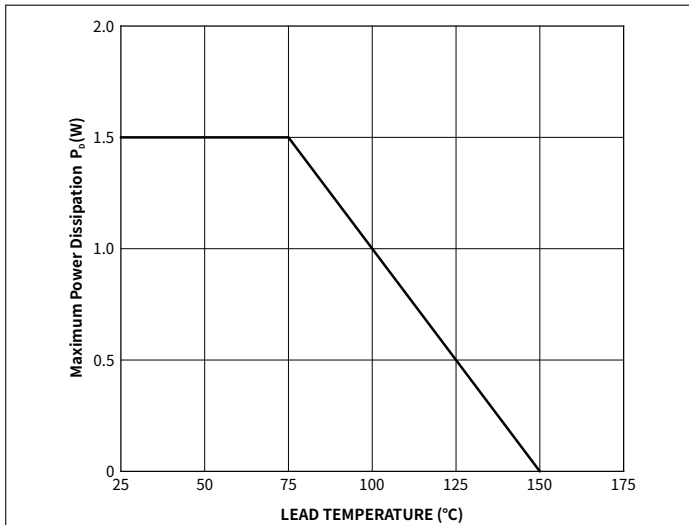


Fig. 1 Power Temperature Derating Curve

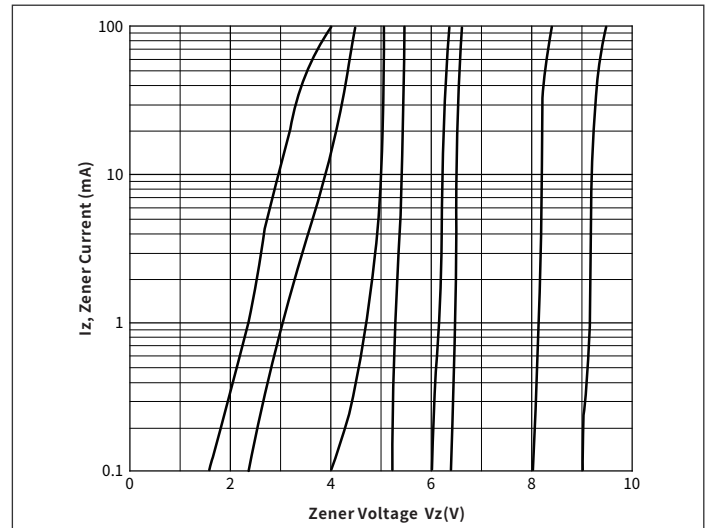


Fig.2 Zener Characteristics (V_z 3.3V to 10V)

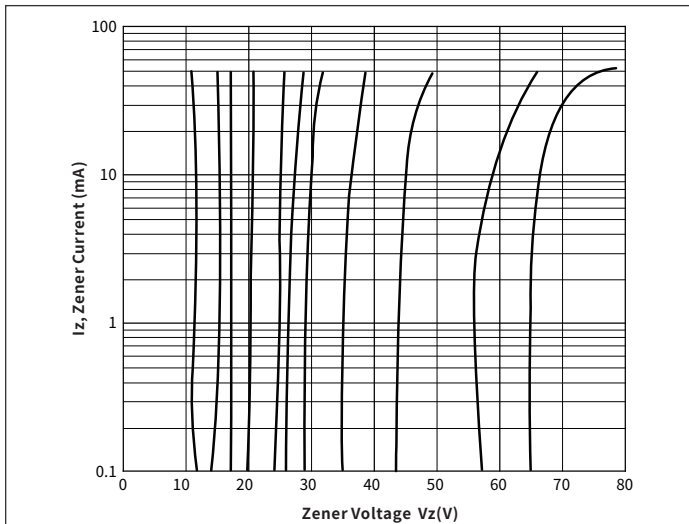


Fig. 3 Zener Characteristics (V_z 12V to 68V)

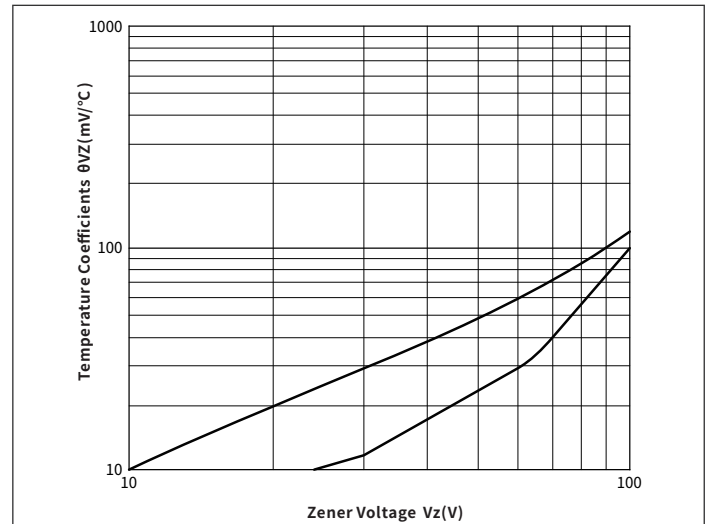


Fig.4 Temperature Coefficient

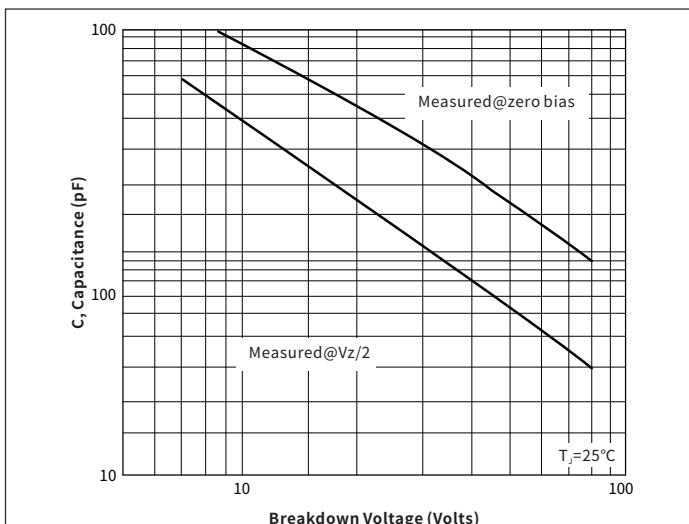


Fig.5 Typical Capacitance

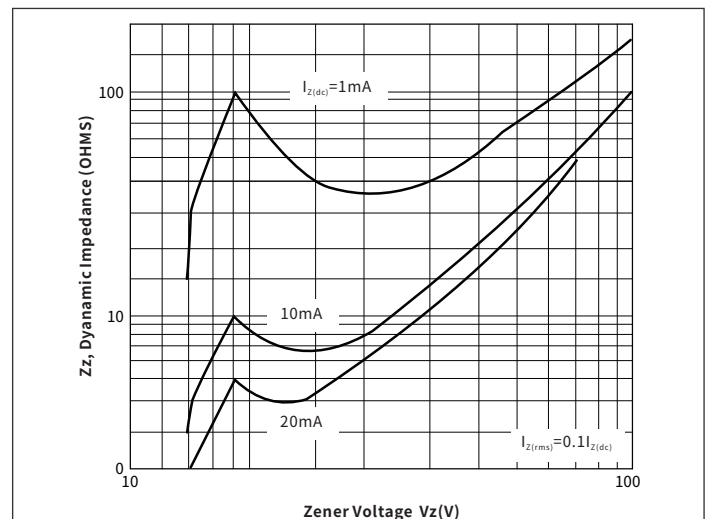


Fig.6 Effect of Zener Voltage on Zener Impedance

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● Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SMA	R2	0.07	5000	10000	80000	11"
SMA	R3	0.07	7500	15000	120000	13"

● Package Outline Dimensions (SMA/DO-214AC)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.25	1.65	0.049	0.065
B	3.95	4.65	0.156	0.183
C	2.35	2.85	0.093	0.112
D	1.98	2.41	0.078	0.095
E	0.76	1.52	0.030	0.060
F	-	0.203	-	0.008
G	4.70	5.30	0.185	0.209
H	0.15	0.31	0.006	0.012

● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
M	1.70	-	0.067	-
J	2.10	-	0.082	-
K	-	2.30	-	0.090