

1SMA59XXB

1.3W Surface Mount Zener Diodes

Features

- Complete voltage range 3.3 to 240 volts
- High reliability
- Low leakage current
- Standard zener voltage tolerance is $\pm 5\%$.

Mechanical Data

Case : Molded plastic body

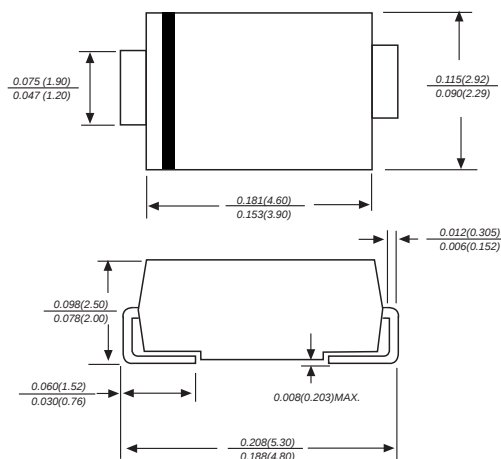
Terminals : Solder plated, solderable per MIL-STD-750, Method 2026

Polarity : Polarity symbol marking on body

Mounting Position : Any

Weight : 0.0023 ounce, 0.07 grams

DO-214AC/SMA



Dimensions in inches and (millimeters)

Maximum Ratings And Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Characteristic	Symbol	Value	Unit
Power Dissipation at $T_L = 75^\circ\text{C}$ (Note 1) Derate above 75°C	P_D	1.3	W
Forward Voltage @ $I_F = 500\text{mA}$	V_F	1.0	V
Thermal Resistance, Junction to Ambient (Note 2) Thermal Resistance, Junction to Lead (Note 1)	$R_{\theta JA}$ $R_{\theta JL}$	200 20	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	$^\circ\text{C}$

Note: 1. Mounted on FR-4 PCB with 25.4 x 25.4mm copper pads.

2. Mounted on ceramic substrate with minimum recommended pad layout.

Electrical Characteristics (@T_A=25°C unless otherwise specified)

Type Number (Note 1)	Device Marking Code	Nominal Zener Voltage (Note 2)			Test Current	Maximum Zener Impedance	Maximum Leakage Current		Max DC Zener Current
		V _Z @ I _{ZT}			I _{ZT}	Z _{zt} @ I _{ZT}	I _R @ V _R		I _{ZM}
		(V)			(mA)	(Ω)	(μA)	(V)	(mA)
1SMA5913B	813B	3.13	3.3	3.47	113.6	10.0	100	1.0	455
1SMA5914B	814B	3.42	3.6	3.78	104.2	9.0	75	1.0	417
1SMA5915B	815B	3.70	3.9	4.1	96.1	7.5	25	1.0	385
1SMA5916B	816B	4.08	4.3	4.52	87.2	6.0	5.0	1.0	349
1SMA5917B	817B	4.46	4.7	4.94	79.8	5.0	5.0	1.5	319
1SMA5918B	818B	4.84	5.1	5.36	73.5	4.0	5.0	2.0	294
1SMA5919B	819B	5.32	5.6	5.88	66.9	2.0	5.0	3.0	268
1SMA5920B	820B	5.89	6.2	6.51	60.5	2.0	2.5	4.0	242
1SMA5921B	821B	6.46	6.8	7.14	55.1	2.5	2.5	5.2	221
1SMA5922B	822B	7.12	7.5	7.88	50.0	3.0	2.5	6.0	200
1SMA5923B	823B	7.79	8.2	8.61	45.7	3.5	2.5	6.5	183
1SMA5924B	824B	8.64	9.1	9.56	41.2	4.0	2.5	7.0	165
1SMA5925B	825B	9.5	10	10.5	37.5	4.5	2.5	8.0	150
1SMA5926B	826B	10.45	11	11.55	34.1	5.5	0.5	8.4	136
1SMA5927B	827B	11.4	12	12.6	31.2	6.5	0.5	9.1	125
1SMA5928B	828B	12.35	13	13.65	28.8	7.0	0.5	9.9	115
1SMA5929B	829B	14.25	15	15.75	25.0	9.0	0.5	11.4	100
1SMA5930B	830B	15.2	16	16.8	23.4	10.0	0.5	12.2	94
1SMA5931B	831B	17.1	18	18.9	20.8	12.0	0.5	13.7	83
1SMA5932B	832B	19	20	21	18.7	14.0	0.5	15.2	75
1SMA5933B	833B	20.9	22	23.1	17.0	17.5	0.5	16.7	68
1SMA5934B	834B	22.8	24	25.2	15.6	19.0	0.5	18.2	63
1SMA5935B	835B	25.65	27	28.35	13.9	23.0	0.5	20.6	56
1SMA5936B	836B	28.5	30	31.5	12.5	26.0	0.5	22.8	50
1SMA5937B	837B	31.35	33	34.65	11.4	33.0	0.5	25.1	45
1SMA5938B	838B	34.2	36	37.8	10.4	38.0	0.5	27.4	42
1SMA5939B	839B	37.05	39	40.95	9.6	45.0	0.5	29.7	38
1SMA5940B	840B	40.85	43	45.15	8.7	53.0	0.5	32.7	35
1SMA5941B	841B	44.65	47	49.35	8.0	67.0	0.5	35.8	32
1SMA5942B	842B	48.45	51	53.55	7.3	70.0	0.5	38.8	29
1SMA5943B	843B	53.2	56	58.8	6.7	86.0	0.5	42.6	27
1SMA5944B	844B	58.9	62	65.1	6.0	100.0	0.5	47.1	24
1SMA5945B	845B	64.6	68	71.4	5.5	120.0	0.5	51.7	22
1SMA5946B	846B	71.25	75	78.75	5.0	140.0	0.5	56.0	20
1SMA5947B	847B	77.9	82	86.1	4.6	160.0	0.5	62.2	18
1SMA5948B	848B	86.45	91	95.55	4.1	200.0	0.5	69.2	16
1SMA5949B	849B	95	100	105	3.7	250.0	0.5	76.0	15
1SMA5950B	850B	104.5	110	115.5	3.4	300.0	0.5	83.6	13
1SMA5951B	851B	114	120	126	3.1	380.0	0.5	91.2	12
1SMA5952B	852B	123.5	130	136.5	2.9	450.0	0.5	98.8	11
1SMA5953B	853B	142.5	150	157.5	2.5	600.0	0.5	114.0	10
1SMA5954B	854B	152	160	168	2.3	700.0	0.5	121.6	9.0
1SMA5955B	855B	171	180	189	2.1	900.0	0.5	136.8	8.0
1SMA5956B	856B	190	200	210	1.9	1200.0	0.5	152.0	7.0
1SMA5957B	857B	228	240	256	1.0	2550.0	1.0	180.0	4.2

Note: 1. Type numbers listed have standard tolerance on the nominal zener voltage of ±5%.
2. Measured under thermal equilibrium and DC (I_{ZT}) test conditions.

Ratings And Characteristic Curves

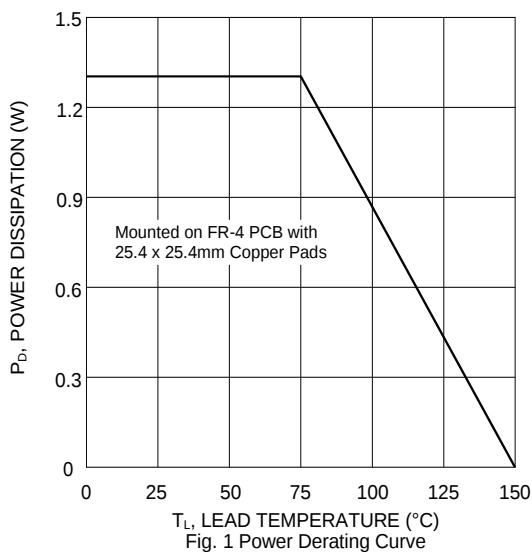


Fig. 1 Power Derating Curve

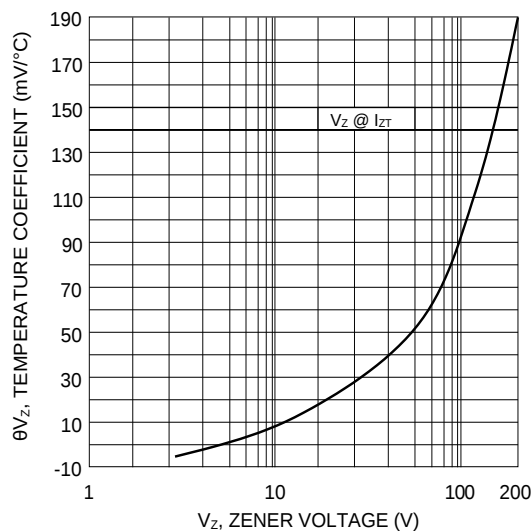


Fig. 2 Typical Temperature Coefficients

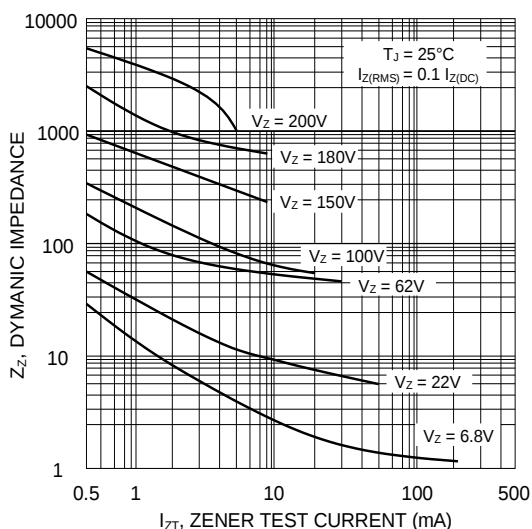


Fig. 3 Dynamic Resistance vs. Zener Current

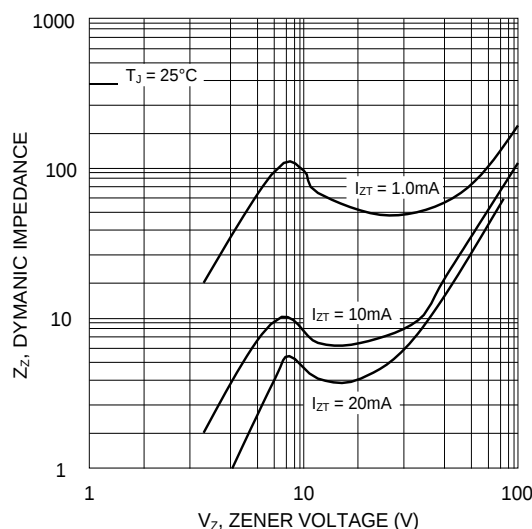


Fig. 4 Dynamic Resistance vs. Zener Voltage

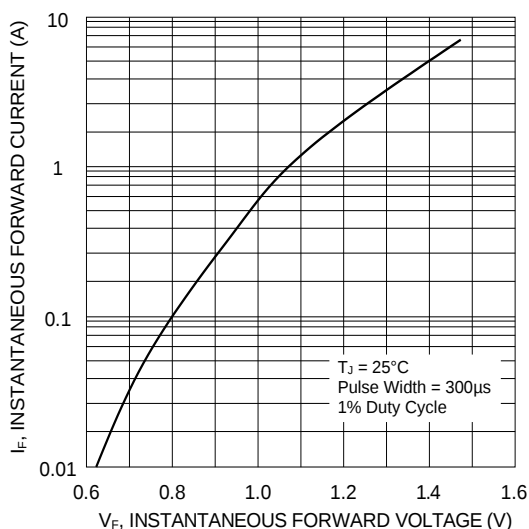


Fig. 5 Typical Forward Characteristics

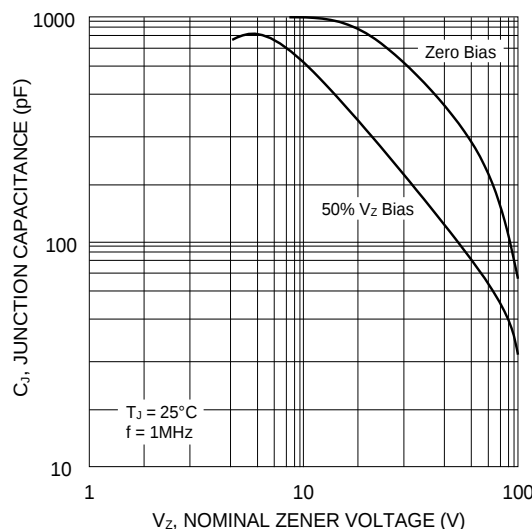


Fig. 6 Junction Capacitance vs. Nominal Zener Voltage