

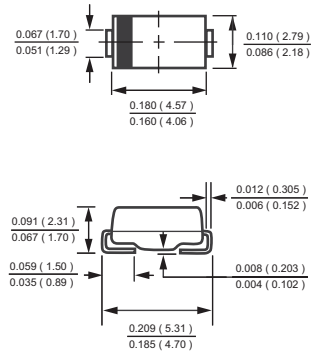
**SURFACE MOUNT SILICON ZENER DIODES**

**VZ : 3.3 - 240 Volts PD : 1.5 Watts**

**FEATURES**

- \* Complete Voltage Range 3.3 to 240 Volts
- \* High peak reverse power dissipation
- \* High reliability
- \* Low leakage current
- \* Epoxy : UL94V-O rate flame retardant
- \* Mounting position : Any
- \* P/N suffix V means AEC-Q101 qualified, e.g:1SMA5913BV
- \* P/N suffix V means Halogen-free

**DO-214AC**



Dimensions in inches and (millimeters)

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25 °C ambient temperature unless otherwise specified.

**MAXIMUM RATINGS** (At TA 25°C unless otherwise noted)

RATINGS	SYMBOL	VALUE	UNITS
DC Power Dissipation @ TA =25°C	P <sub>D</sub>	1.5	Watts
DC Power Dissipation @ TA =60 °C	P <sub>D</sub>	1.25	Watts
Measured zero lead length(1" square copper pad, FR-4 board) Derate above 75 °C		20	mW/°C
Thermal Resistance Junction to Lead	R <sub>θJL</sub>	50	°C/W
( FR-4 board) Derate above 25 °C		4.0	mW/°C
Thermal Resistance Junction to Ambient	R <sub>θJA</sub>	250	°C/W
Maximum Forward Voltage at IF = 200 mA	V <sub>F</sub>	1.5	Volts
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to + 150	°C

# RATING AND CHARACTERISTICS CURVES (1SMA5913BV THRU 1SMA5957BV)

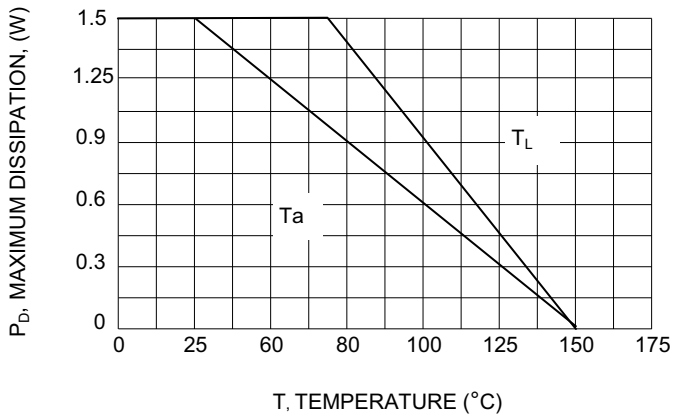


Fig. 1 POWER TEMPERATURE DERATING CURVE

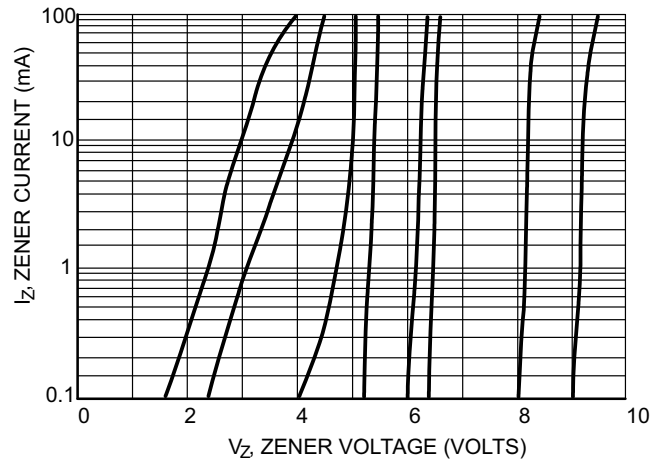


Fig. 2 Vz - 3.3 thru 10 Volts

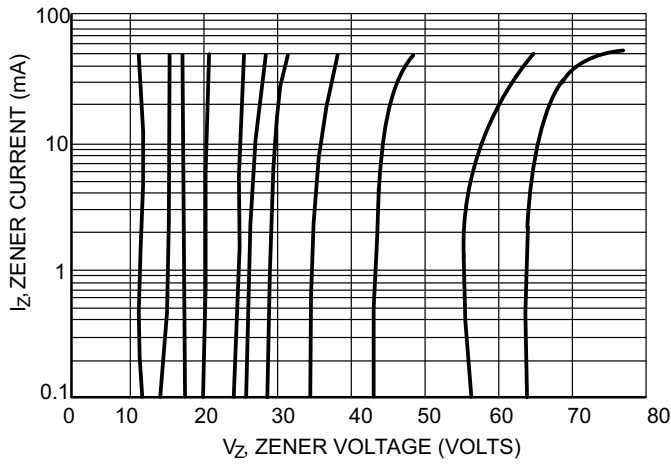


Fig. 3. Vz = 12 thru 68 Volts

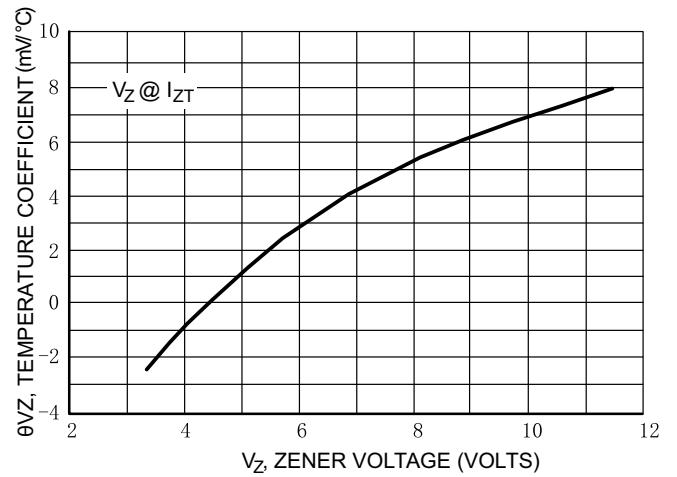


Fig. 4. Zener Voltage - 3.3 to 12 Volts

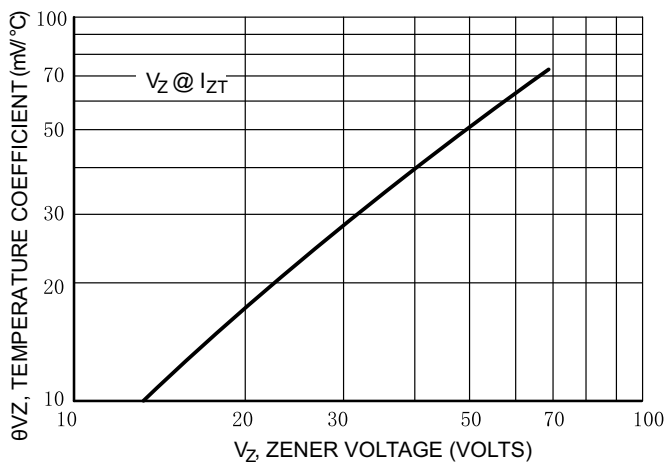


Fig. 5. Zener Voltage - 12 to 68 Volts

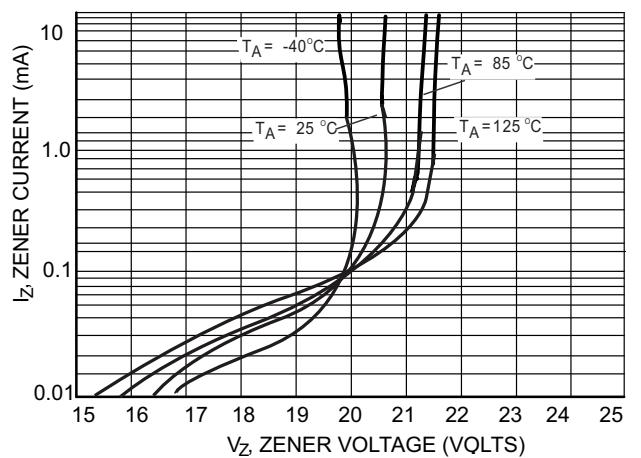


Fig. 6. Zener Voltage- 20 Volts(-40 °C/25 °C/ 85 °C/125 °C)

# RATING AND CHARACTERISTICS CURVES (1SMA5913BV THRU 1SMA5957BV)

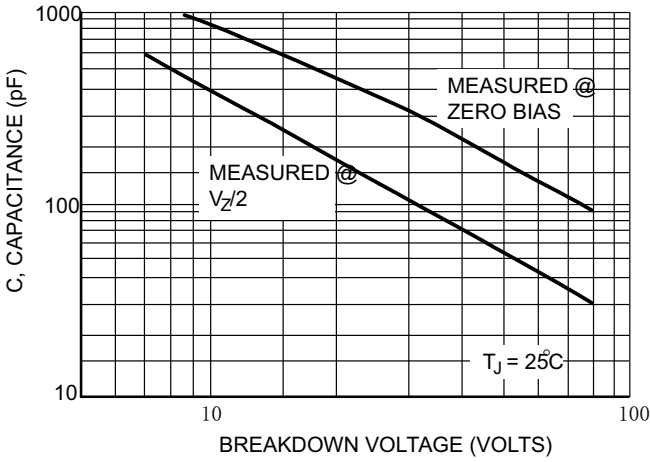


Fig. 7. Capacitance Curve

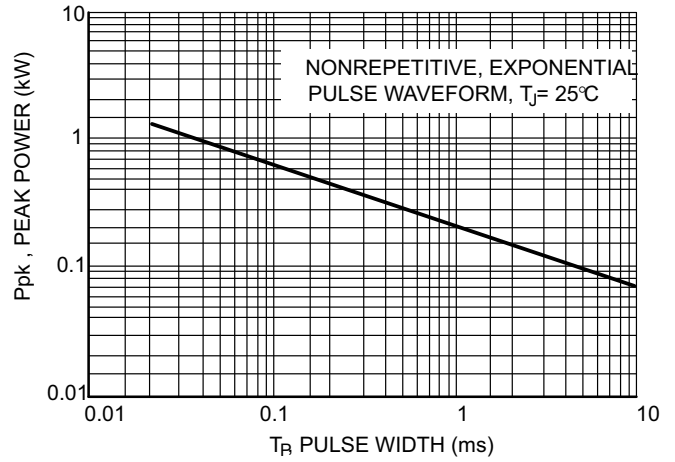


Fig. 8. Typical Pulse Rating Curve

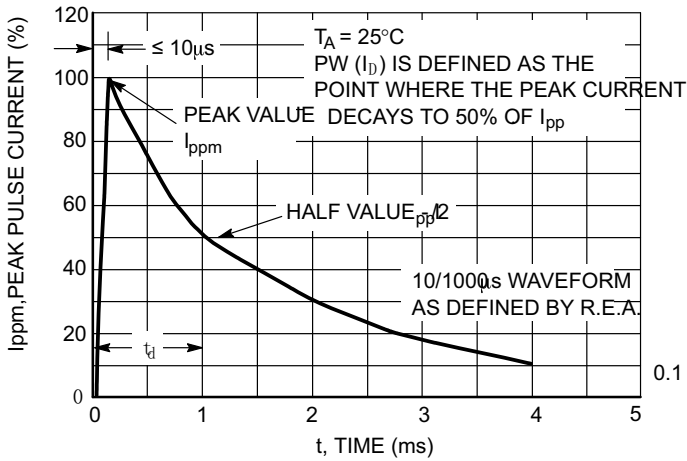


Fig. 9. Pulse Waveform

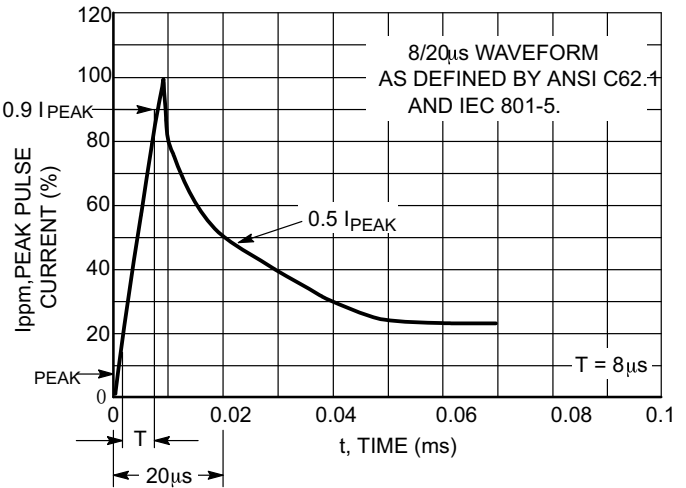


Fig. 10. Pulse Waveform

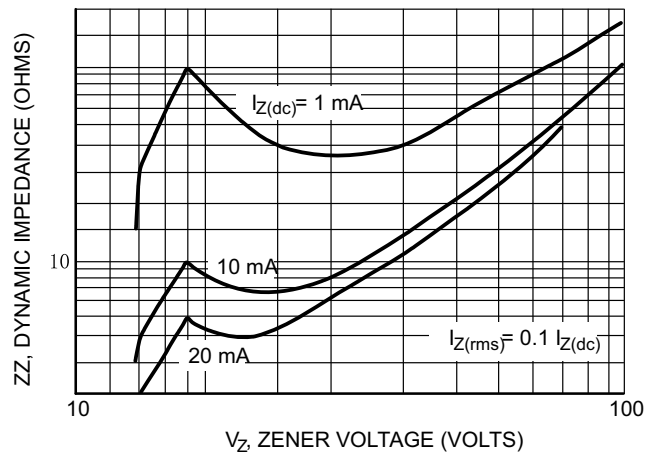


Fig. 11. Effect of Zener Voltage

# ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

TYPE	Nominal Zener Voltage Vz @ IzT				Maximum Zener Impedance			Maximum Reverse Leakage Current		Maximum DC Zener Current
	Min	Max	Nom	IzT	ZzT @ IzT	Zzk @ Izk	Izk	IR @ VR		IzM
	(V)	(V)	(V)	(mA)	(Ω)	(Ω)	(mA)	(μA)	(V)	(mA)
1SMA5913B	3.14	3.47	3.3	113.6	10	500	1.0	100	1.0	454
1SMA5914B	3.42	3.78	3.6	104.2	9.0	500	1.0	75	1.0	416
1SMA5915B	3.71	4.10	3.9	96.1	7.5	500	1.0	25	1.0	384
1SMA5916B	4.09	4.52	4.3	87.2	6.0	500	1.0	5.0	1.0	348
1SMA5917B	4.47	4.94	4.7	79.8	5.0	500	1.0	5.0	1.5	319
1SMA5918B	4.85	5.36	5.1	73.5	4.0	350	1.0	5.0	2.0	294
1SMA5919B	5.32	5.88	5.6	66.9	2.0	250	1.0	5.0	3.0	267
1SMA5920B	5.89	6.51	6.2	60.5	2.0	200	1.0	5.0	4.0	241
1SMA5921B	6.46	7.14	6.8	55.1	2.5	200	1.0	5.0	5.2	220
1SMA5922B	7.13	7.88	7.5	50.0	3.0	400	0.5	5.0	6.0	200
1SMA5923B	7.79	8.61	8.2	45.7	3.5	400	0.5	5.0	6.5	182
1SMA5924B	8.65	9.56	9.1	41.2	4.0	500	0.5	5.0	7.0	164
1SMA5925B	9.5	10.5	10	37.5	4.5	500	0.25	5.0	8.0	150
1SMA5926B	10.45	11.55	11	34.1	5.5	550	0.25	5.0	8.4	136
1SMA5927B	11.4	12.6	12	31.2	6.5	550	0.25	1.0	9.1	125
1SMA5928B	12.35	13.65	13	28.8	7.0	550	0.25	1.0	9.9	115
1SMA5929B	14.25	15.75	15	25.0	9.0	600	0.25	1.0	11.4	100
1SMA5930B	15.2	16.8	16	23.4	10	600	0.25	1.0	12.2	93
1SMA5931B	17.1	18.9	18	20.8	12	650	0.25	1.0	13.7	83
1SMA5932B	19	21.0	20	18.7	14	650	0.25	1.0	15.2	75
1SMA5933B	20.9	23.10	22	17.0	17.5	650	0.25	1.0	16.7	68
1SMA5934B	22.8	25.2	24	15.6	19	700	0.25	1.0	18.2	62
1SMA5935B	25.65	28.35	27	13.9	23	700	0.25	1.0	20.6	55
1SMA5936B	28.5	31.5	30	12.5	26	750	0.25	1.0	22.8	50
1SMA5937B	31.35	34.65	33	11.4	33	800	0.25	1.0	25.1	45
1SMA5938B	34.2	37.8	36	10.4	38	850	0.25	1.0	27.4	41
1SMA5939B	37.05	41	39	9.6	45	900	0.25	1.0	29.7	38
1SMA5940B	40.85	45.15	43	8.7	53	950	0.25	1.0	32.7	34
1SMA5941B	44.65	49.35	47	8.0	67	1000	0.25	1.0	35.8	31
1SMA5942B	48.45	53.55	51	7.3	70	1100	0.25	1.0	38.8	29
1SMA5943B	53.2	58.8	56	6.7	86	1300	0.25	1.0	42.6	26
1SMA5944B	58.9	65.10	62	6.0	100	1500	0.25	1.0	47.1	24
1SMA5945B	64.6	71.4	68	5.5	120	1700	0.25	1.0	51.7	22
1SMA5946B	71.25	78.75	75	5.0	140	2000	0.25	1.0	56.0	20
1SMA5947B	77.9	86.10	82	4.6	160	2500	0.25	1.0	62.2	18
1SMA5948B	86.45	95.55	91	4.1	200	3000	0.25	1.0	69.2	16
1SMA5949B	95	105	100	3.7	250	3100	0.25	1.0	76.0	15
1SMA5950B	104.5	115.5	110	3.4	300	4000	0.25	1.0	83.6	13
1SMA5951B	114	126	120	3.1	380	4500	0.25	1.0	91.2	12
1SMA5952B	123.5	136.5	130	2.9	450	5000	0.25	1.0	98.8	11
1SMA5953B	142.5	157.5	150	2.5	600	6000	0.25	1.0	114.0	10
1SMA5954B	152	168	160	2.3	700	6500	0.25	1.0	121.6	9.0
1SMA5955B	171	189	180	2.1	900	7000	0.25	1.0	136.8	8.0
1SMA5956B	190	210	200	1.9	1200	8000	0.25	1.0	152.0	7.0
1SMA5957B	228	252	240	1.5	1600	9000	0.25	1.0	182.4	6.0

Note :

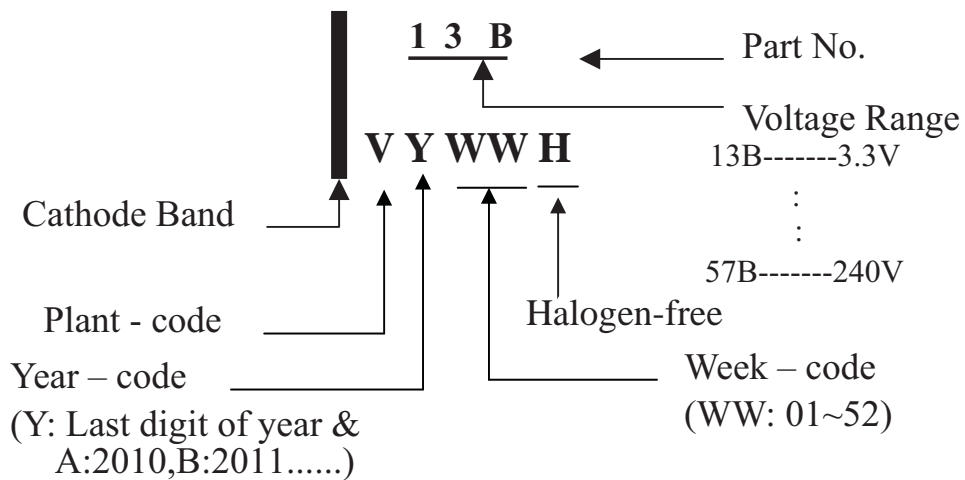
(1) Suffix " B " indicates ± 5% tolerance, suffix " A " indicates ± 10% tolerance.

## Attachment information about 1SMA59xxBV

### 1. Internal Circuit



### 2. Marking on the body



## PACKAGING OF DIODE AND BRIDGE RECTIFIERS

### REEL PACK

PACKAGE	PACKING CODE	EA PER REEL	EA PER INNER BOX	COMPONENT SPACE (mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
SMA	-W	7,500	15,000	---	---	330	360*355*360	120,000	15.2

PACKAGE	PACKING CODE	EA PER REEL	EA PER INNER BOX	COMPONENT SPACE (mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
SMA	-T	2,000	8,000	---	---	178	390*205*310	64,000	7.8

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