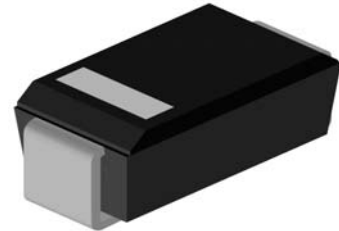




Zener diode

Features

1. For surface mounted applications
2. Low zener impedance
3. Low regulation factor
4. V_Z -tolerance $\pm 5\%$



Applications

Voltage stabilization

Absolute Maximum Ratings

$T_j=25^\circ\text{C}$

Parameter	Test Conditions	Type	Symbol	Value	Unit
Power dissipation	$T_{\text{amb}} \leq 50^\circ\text{C}$		P_V	1.5	W
Z-current			I_Z	P_V/V_Z	mA
Junction temperature			T_j	150	$^\circ\text{C}$
Storage temperature range			T_{stg}	-65~+175	$^\circ\text{C}$

Maximum Thermal Resistance

$T_j=25^\circ\text{C}$

Parameter	Test Conditions	Symbol	Value	Unit
Junction ambient	$l=9.5\text{mm}(3/8")$ $T_L=\text{constant}$	R_{thJA}	100	K/W

Stresses exceeding maximum ratings may damage the device. Maximum ratings are stress ratings only. Functional operation above the recommended operating conditions is not implied. Extended exposure to stresses above the recommended operating conditions may affect device reliability.

Electrical Characteristics

$T_j=25^\circ\text{C}$

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F=200\text{mA}$		V_F			1.5	V

Excel Semiconductor



Type	Device marking	$V_{Znom}^{1)}$	I_{ZT} mA	for r_{zIT} Ω	r_{zIK} at Ω	I_{ZK} mA	I_R at μA	V_R V
		V						
SMB5913B	5913B	3.3	113.6	<10	<500	1	<50	1
SMB5914B	5914B	3.6	104.2	<9	<500	1	<35.5	1
SMB5915B	5915B	3.9	96.1	<7.5	<500	1	<12.5	1
SMB5916B	5916B	4.3	87.2	<6	<500	1	<2.5	1
SMB5917B	5917B	4.7	79.8	<5	<500	1	<2.5	1.5
SMB5918B	5918B	5.1	73.5	<4	<350	1	<2.5	2
SMB5919B	5919B	5.6	66.9	<2	<250	1	<2.5	3
SMB5920B	5920B	6.2	60.5	<2	<200	1	<2.5	4
SMB5921B	5921B	6.8	55.1	<2.5	<200	1	<2.5	5.2
SMB5922B	5922B	7.5	50	<3	<400	0.5	<2.5	6
SMB5923B	5923B	8.2	45.7	<3.5	<400	0.5	<2.5	6.5
SMB5924B	5924B	9.1	41.2	<4	<500	0.5	<2.5	7
SMB5925B	5925B	10	37.5	<4.5	<500	0.25	<2.5	8
SMB5926B	5926B	11	34.1	<5.5	<550	0.25	<0.5	8.4
SMB5927B	5927B	12	31.2	<6.5	<550	0.25	<0.5	9.1
SMB5928B	5928B	13	28.8	<7	<550	0.25	<0.5	9.9
SMB5929B	5929B	15	25	<9	<600	0.25	<0.5	11.4
SMB5930B	5930B	16	23.4	<10	<600	0.25	<0.5	12.2
SMB5931B	5931B	18	20.8	<12	<650	0.25	<0.5	13.7
SMB5932B	5932B	20	18.7	<14	<650	0.25	<0.5	15.2
SMB5933B	5933B	22	17	<17.5	<650	0.25	<0.5	16.7
SMB5934B	5934B	24	15.6	<19	<700	0.25	<0.5	18.2
SMB5935B	5935B	27	13.9	<23	<700	0.25	<0.5	20.6
SMB5936B	5936B	30	12.5	<26	<750	0.25	<0.5	22.8
SMB5937B	5937B	33	11.4	<33	<800	0.25	<0.5	25.1
SMB5938B	5938B	36	10.4	<38	<850	0.25	<0.5	27.4
SMB5939B	5939B	39	9.6	<45	<900	0.25	<0.5	29.7
SMB5940B	5940B	43	8.7	<53	<950	0.25	<0.5	32.7
SMB5941B	5941B	47	8	<67	<1000	0.25	<0.5	35.8
SMB5942B	5942B	51	7.3	<70	<1100	0.25	<0.5	38.8

1) Based on DC-measurement at thermal equilibrium while maintaining the lead temperature(T_L)at 30°C, 9.5mm(3/8") from the diode body.



Characteristics ($T_j=25^\circ\text{C}$ unless otherwise specified)

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	Breakdown voltage
I_F	Forward current
V_F	Forward voltage @ I_F

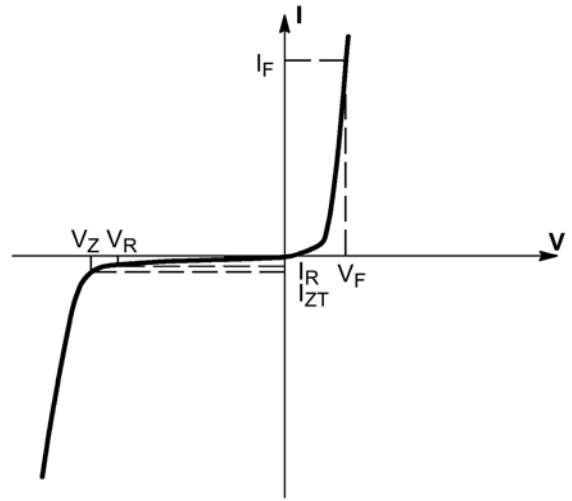


Figure 1. Zener voltage regulator

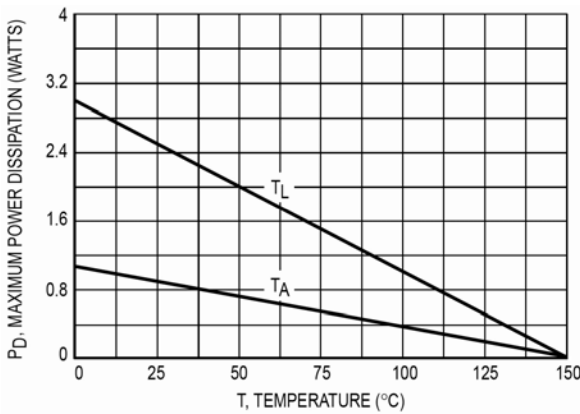


Figure 2. Steady state power derating

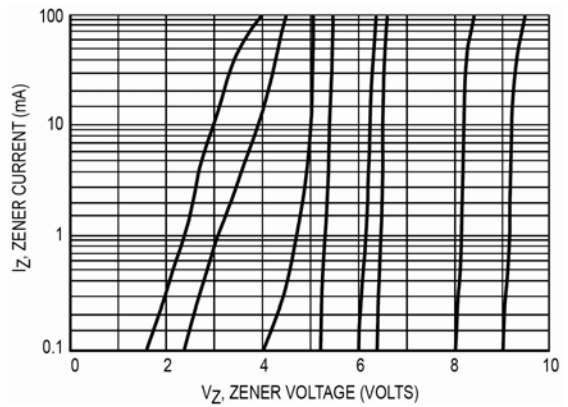


Figure 3. V_Z - 3.3 thru 10 volts

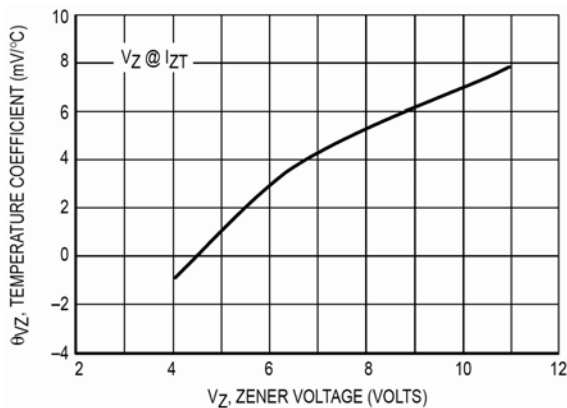


Figure 4. Zener voltage - 3.3 to 12 volts

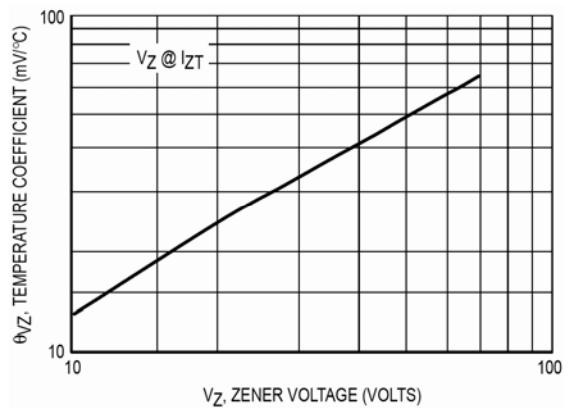


Figure 5. Zener voltage - 14 to 43 volts

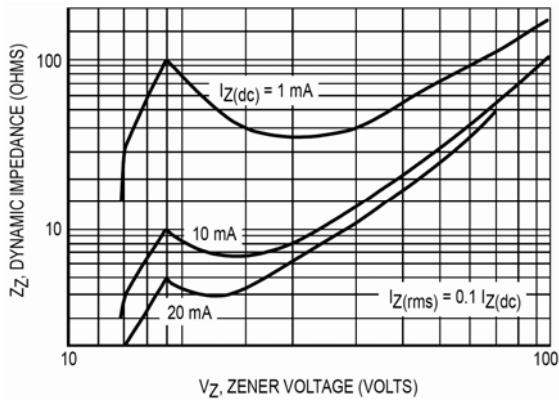


Figure 6. Effect of zener voltage

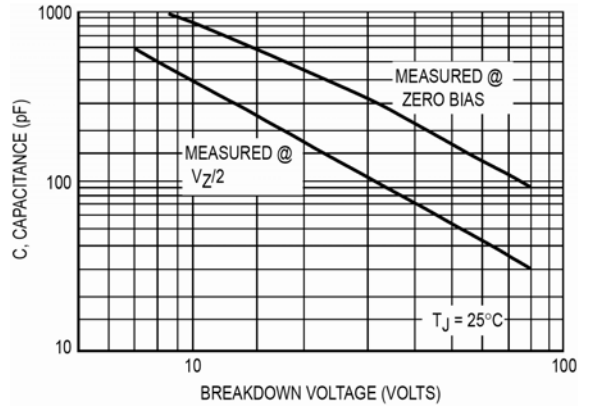


Figure 7. Capacitance curve

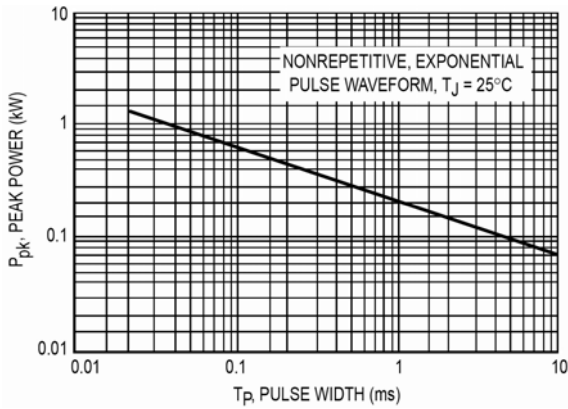


Figure 8. Typical pulse rating curve

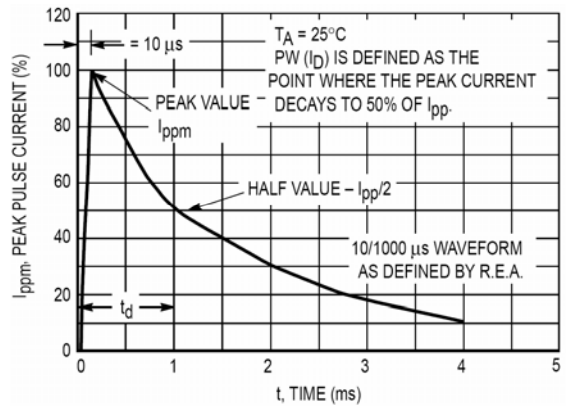


Figure 9. Pulse waveform

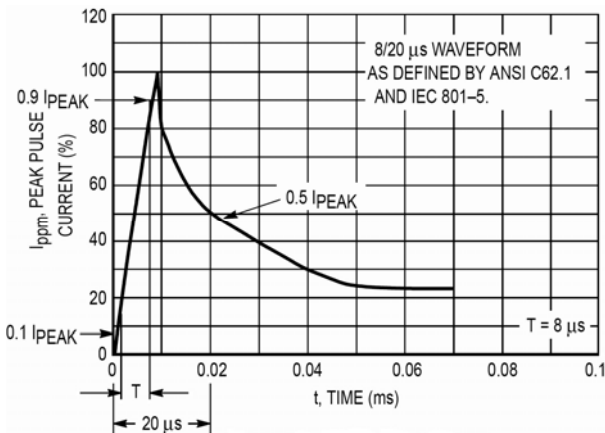
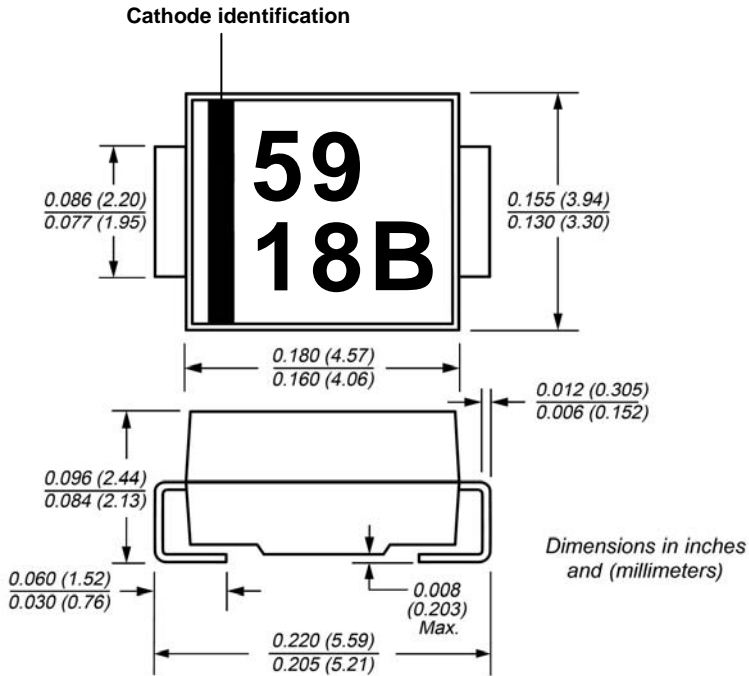


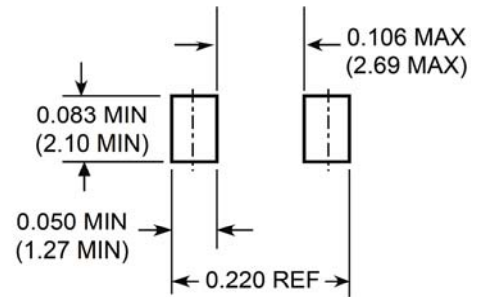
Figure 10. Pulse waveform



Dimensions in inches (mm)



Mounting Pad Layout



DO-214AA (SMBJ)