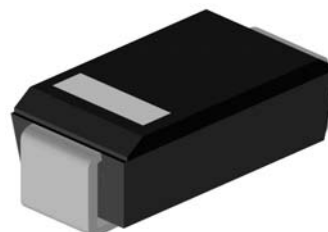




Zener diode

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	$T_{amb} \leq 50^\circ\text{C}$		P_V	3.0	W
Z-current			I_Z	P_V/V_Z	mA
Junction temperature			T_j	150	$^\circ\text{C}$
Storage temperature range			T_{stg}	-65~+150	$^\circ\text{C}$

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



Type	Device marking	$V_{Znom}^{1)}$	I_{ZT} mA	for	r_{zIT}	r_{zIK}	at	I_{ZK}	I_R	at	V_R
		V		Ω	Ω	mA	μA	V			
SMB5913B3	5913B3	3.3	113.6	<	10	<	500	1	<	100	1
SMB5914B3	5914B3	3.6	104.2	<	9	<	500	1	<	75	1
SMB5915B3	5915B3	3.9	96.1	<	7.5	<	500	1	<	25	1
SMB5916B3	5916B3	4.3	87.2	<	6	<	500	1	<	5	1
SMB5917B3	5917B3	4.7	79.8	<	5	<	500	1	<	5	1.5
SMB5918B3	5918B3	5.1	73.5	<	4	<	350	1	<	5	2
SMB5919B3	5919B3	5.6	66.9	<	2	<	250	1	<	5	3
SMB5920B3	5920B3	6.2	60.5	<	2	<	200	1	<	5	4
SMB5921B3	5921B3	6.8	55.1	<	2.5	<	200	1	<	5	5.2
SMB5922B3	5922B3	7.5	50	<	3	<	400	0.5	<	5	6
SMB5923B3	5923B3	8.2	45.7	<	3.5	<	400	0.5	<	5	6.5
SMB5924B3	5924B3	9.1	41.2	<	4	<	500	0.5	<	5	7
SMB5925B3	5925B3	10	37.5	<	4.5	<	500	0.25	<	5	8
SMB5926B3	5926B3	11	34.1	<	5.5	<	550	0.25	<	1	8.4
SMB5927B3	5927B3	12	31.2	<	6.5	<	550	0.25	<	1	9.1
SMB5928B3	5928B3	13	28.8	<	7	<	550	0.25	<	1	9.9
SMB5929B3	5929B3	15	25	<	9	<	600	0.25	<	1	11.4
SMB5930B3	5930B3	16	23.4	<	10	<	600	0.25	<	1	12.2
SMB5931B3	5931B3	18	20.8	<	12	<	650	0.25	<	1	13.7
SMB5932B3	5932B3	20	18.7	<	14	<	650	0.25	<	1	15.2
SMB5933B3	5933B3	22	17	<	17.5	<	650	0.25	<	1	16.7
SMB5934B3	5934B3	24	15.6	<	19	<	700	0.25	<	1	18.2
SMB5935B3	5935B3	27	13.9	<	23	<	700	0.25	<	1	20.6
SMB5936B3	5936B3	30	12.5	<	28	<	750	0.25	<	1	22.8
SMB5937B3	5937B3	33	11.4	<	33	<	800	0.25	<	1	25.1
SMB5938B3	5938B3	36	10.4	<	38	<	850	0.25	<	1	27.4
SMB5939B3	5939B3	39	9.6	<	45	<	900	0.25	<	1	29.7
SMB5940B3	5940B3	43	8.7	<	53	<	950	0.25	<	1	32.7
SMB5941B3	5941B3	47	8	<	67	<	1000	0.25	<	0.5	35.8
SMB5942B3	5942B3	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

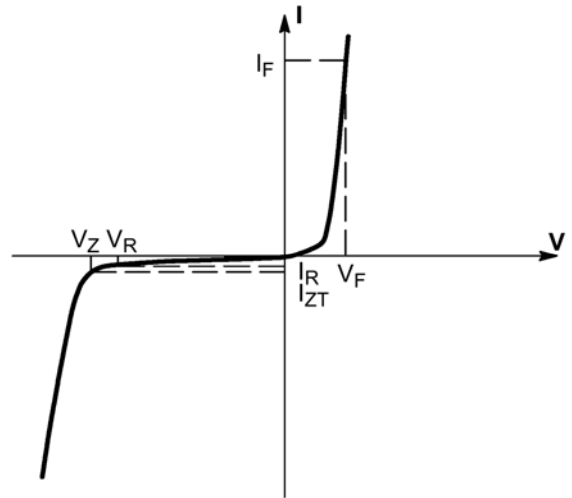


Figure 1. Zener voltage regulator

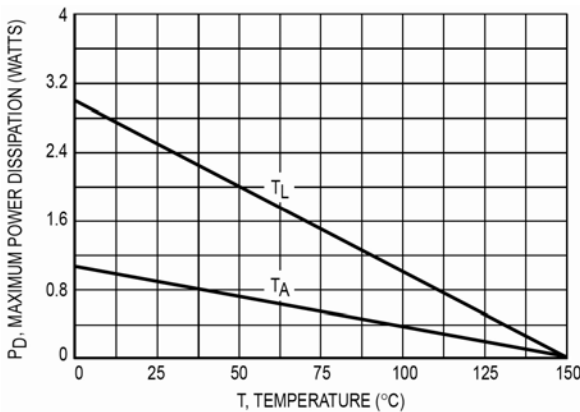


Figure 2. Steady state power derating

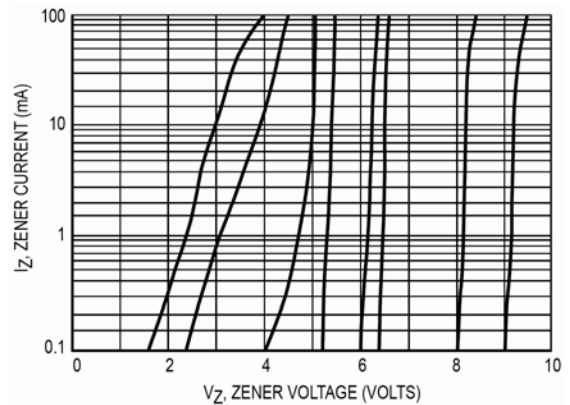


Figure 3. $V_Z - 3.3$ thru 10 volts

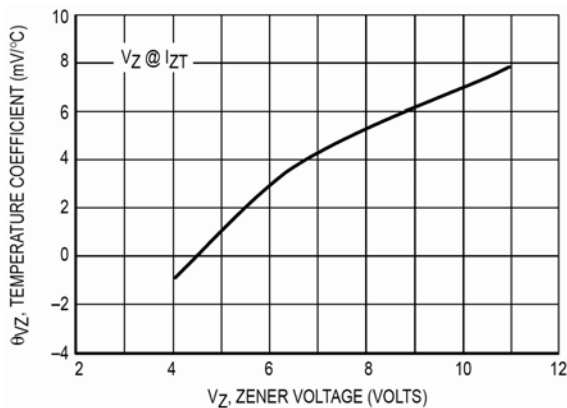


Figure 4. Zener voltage - 3.3 to 12 volts

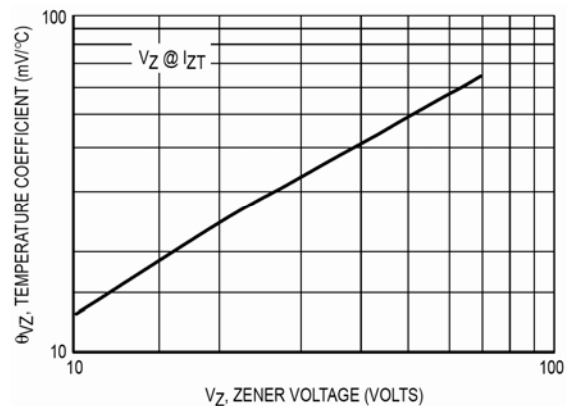


Figure 5. Zener voltage - 14 to 43 volts

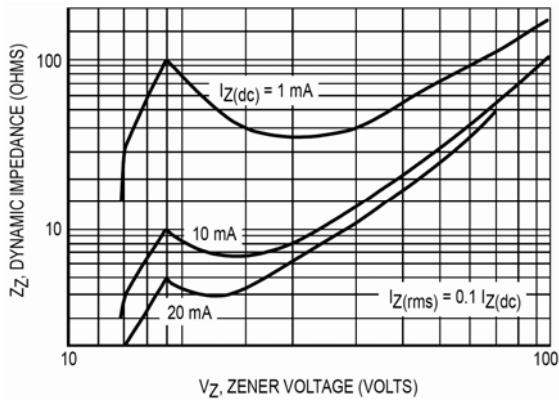


Figure 6. Effect of zener voltage

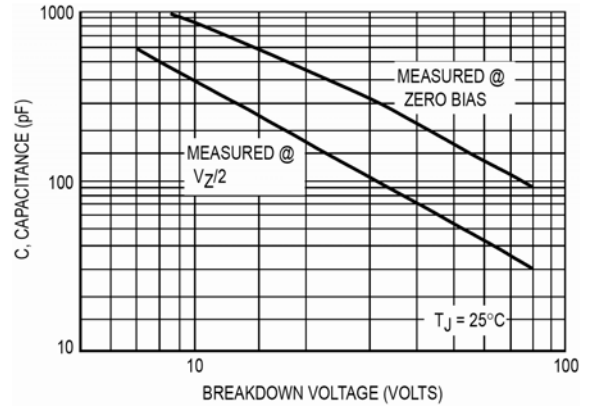


Figure 7. Capacitance curve

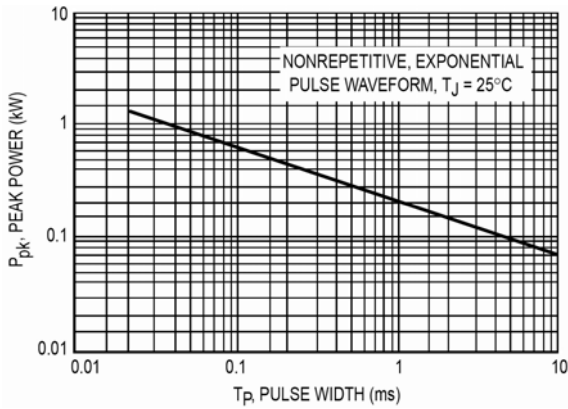


Figure 8. Typical pulse rating curve

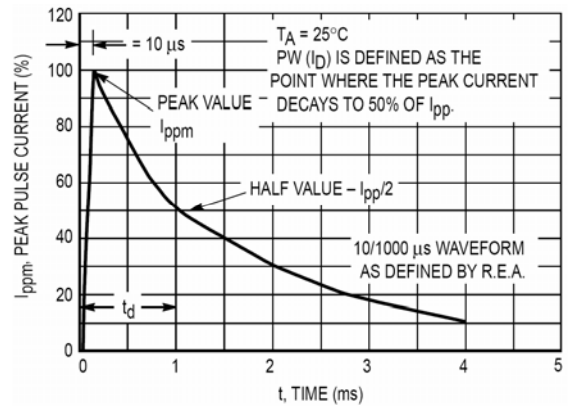


Figure 9. Pulse waveform

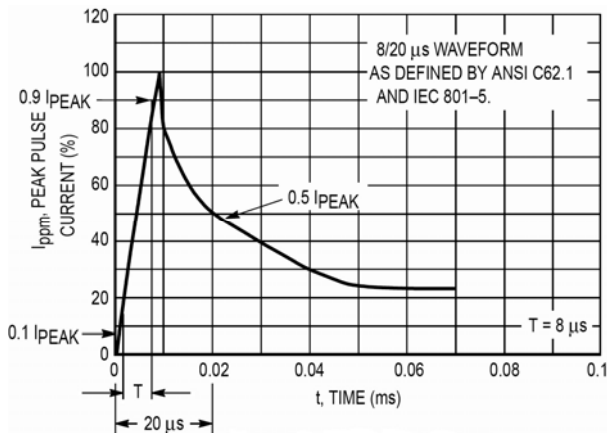
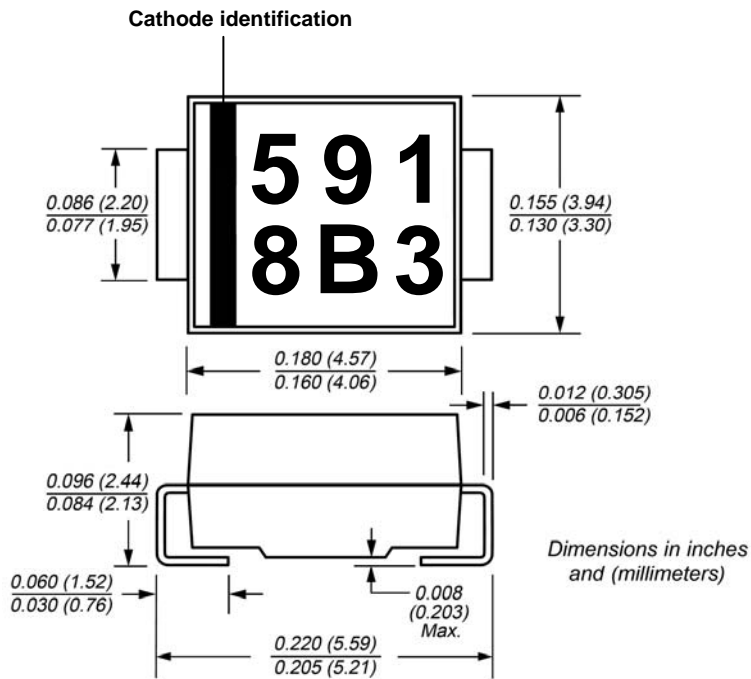


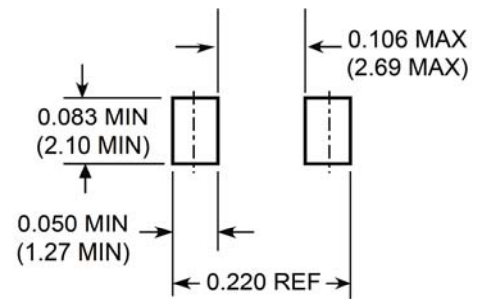
Figure 10. Pulse waveform



Dimensions in inches (mm)



Mounting Pad Layout



DO-214AA (SMBJ)