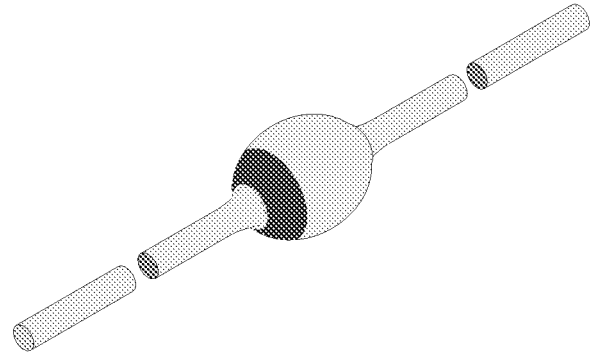


Silicon Z-Diodes and Transient Voltage Suppressors

Features

- Glass passivated junction
- Hermetically sealed package
- Clamping time in picoseconds



94 9539

Applications

Medium power voltage regulators and medium power transient suppression circuits

Absolute Maximum Ratings

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

Parameter	Test Conditions	Type	Symbol	Value	Unit
Power dissipation	$l=10\text{mm}, T_L=25^\circ\text{C}$		P_V	3.25	W
	$T_{\text{amb}}=25^\circ\text{C}$		P_V	1.3	W
Repetitive peak reverse power dissipation			P_{ZRM}	10	W
Non repetitive peak surge power dissipation	$t_p=100\mu\text{s}, T_j=25^\circ\text{C}$		P_{ZSM}	600	W
Junction temperature			T_j	175	$^\circ\text{C}$
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	$l=10\text{mm}, T_L=\text{constant}$	R_{thJA}	46	K/W
	on PC board with spacing 25mm	R_{thJA}	100	K/W

Electrical Characteristics

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

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F=0.5\text{A}$		V_F			1.2	V

BZT03C...

Vishay Telefunken



Type	V_Z			r_{z1} and TK_{VZ} at I_Z				I_R at V_R		
	V	V	V	Ω	Ω	%/K	%/K	mA	μ A	
BZT03C...	Min.	Typ.	Max.	Typ.	Max.	Min.	Max.		Max.	
6V2	5.8	6.2	6.6	1	2	0	0.07	100	1500	4.7
6V8	6.4	6.8	7.2	1	2	0	0.07	100	1000	5.1
7V5	7.0	7.5	7.9	1	2	0	0.07	100	750	5.6
8V2	7.7	8.2	8.7	1	2	0.03	0.08	100	600	6.2
9V1	8.5	9.1	9.6	2	4	0.03	0.08	50	20	6.8
10	9.4	10	10.6	2	4	0.05	0.09	50	10	7.5
11	10.4	10	11.6	4	7	0.05	0.10	50	4	8.2
12	11.4	12	12.7	4	7	0.05	0.10	50	3	9.1
13	12.4	13	14.1	5	10	0.05	0.10	50	2	10
15	13.8	15	15.6	5	10	0.05	0.10	50	1	11
16	15.3	16	17.1	6	15	0.06	0.11	25	1	12
18	16.8	18	19.1	6	15	0.06	0.11	25	1	13
20	18.8	20	21.2	6	15	0.06	0.11	25	1	15
22	20.8	22	23.3	6	15	0.06	0.11	25	1	16
24	22.8	24	25.6	7	15	0.06	0.11	25	1	18
27	25.1	27	28.9	7	15	0.06	0.11	25	1	20
30	28	30	32	8	15	0.06	0.11	25	1	22
33	31	33	35	8	15	0.06	0.11	25	1	24
36	34	36	38	21	40	0.06	0.11	10	1	27
39	37	39	41	21	40	0.06	0.11	10	1	30
43	40	43	46	24	45	0.07	0.12	10	1	33
47	44	47	50	24	45	0.07	0.12	10	1	36
51	48	51	54	25	60	0.07	0.12	10	1	39
56	52	56	60	25	60	0.07	0.12	10	1	43
62	58	62	66	25	80	0.08	0.13	10	1	47
68	64	68	72	25	80	0.08	0.13	10	1	51
75	70	75	79	30	100	0.08	0.13	10	1	56
82	77	82	87	30	100	0.08	0.13	10	1	62
91	85	91	96	60	200	0.09	0.13	5	1	68
100	94	100	106	60	200	0.09	0.13	5	1	75
110	104	110	116	80	250	0.09	0.13	5	1	82
120	114	120	127	80	250	0.09	0.13	5	1	91
130	124	130	141	110	300	0.09	0.13	5	1	100
150	138	150	156	130	300	0.09	0.13	5	1	110
160	153	160	171	150	350	0.09	0.13	5	1	120
180	168	180	191	180	400	0.09	0.13	5	1	130
200	188	200	212	200	500	0.09	0.13	5	1	150
220	208	220	233	350	750	0.09	0.13	2	1	160
240	228	240	256	400	850	0.09	0.13	2	1	180
270	251	270	289	450	1000	0.09	0.13	2	1	200



Type	Clamping at		Stand-off at	
	$V_{CLJR}^{1)}$	I_{RSM}	I_R	$V_R^{2)}$
	V	A	μA	V
BZT03C...	Max.		Max.	
6V2	9.3	34.0	3000	5.1
6V8	10.2	31.0	2000	5.6
7V5	11.3	26.5	1500	6.2
8V2	12.3	24.4	1200	6.8
9V1	13.3	22.7	50	7.5
10	14.8	20.3	20	8.2
11	15.7	19.1	5	9.1
12	17.0	17.7	5	10
13	18.9	15.9	5	11
15	20.9	14.4	5	12
16	22.9	13.1	5	13
18	25.6	11.7	5	15
20	28.4	10.6	5	16
22	31.0	9.7	5	18
24	33.8	8.9	5	20
27	38.1	7.9	5	22
30	42.2	7.1	5	24
33	46.2	6.5	5	27
36	50.1	6.0	5	30
39	54.1	5.5	5	33
43	60.7	4.9	5	36
47	65.5	4.6	5	39
51	70.8	4.2	5	43
56	78.6	3.8	5	47
62	86.5	3.5	5	51
68	94.4	3.2	5	56
75	103.5	2.9	5	62
82	114	2.6	5	68
91	126	2.4	5	75
100	139	2.2	5	82
110	152	2.0	5	91
120	167	1.8	5	100
130	185	1.6	5	110
150	204	1.5	5	120
160	224	1.3	5	130
180	249	1.2	5	150
200	276	1.1	5	160
220	305	1.0	5	180
240	336	0.9	5	200
270	380	0.8	5	220

1) 10/1000 exp. falling pulse $t_p = 1000 \mu s$ down to 50%

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

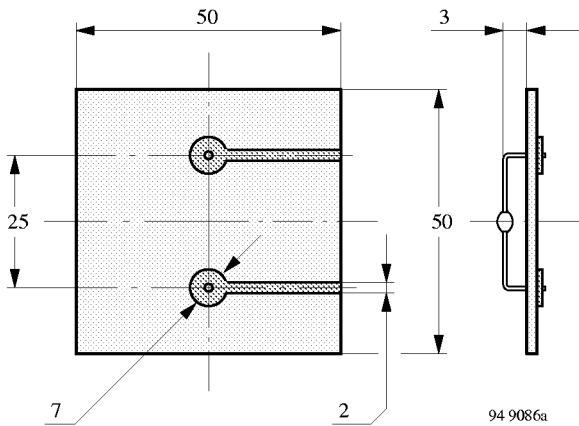


Figure 1. Epoxy glass hard tissue, board thickness 1.5 mm, $R_{thJA} \cong 100 \text{ K/W}$

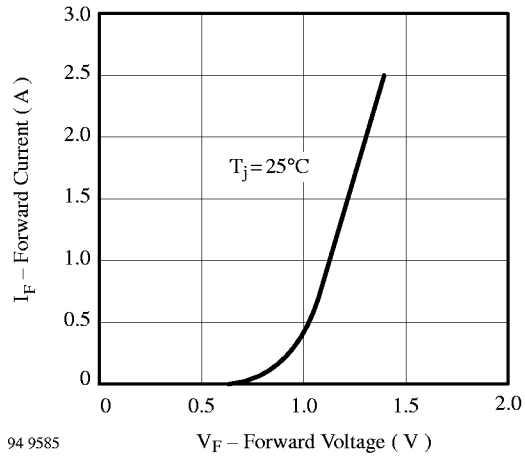


Figure 3. Forward Current vs. Forward Voltage

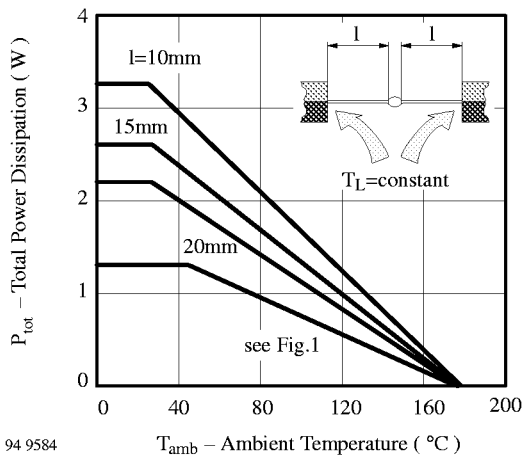


Figure 2. Total Power Dissipation vs. Ambient Temperature

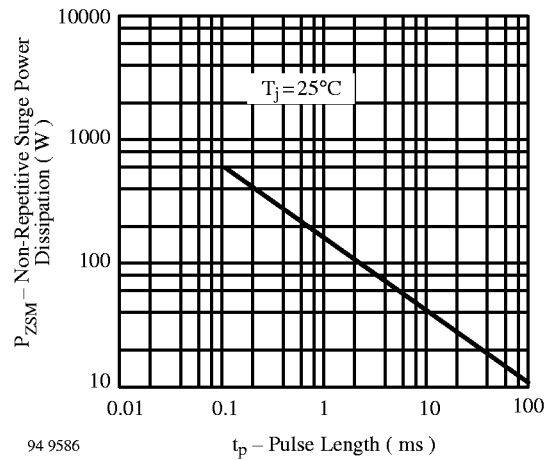


Figure 4. Non Repetitive Surge Power Dissipation vs. Pulse Length

Dimensions in mm

