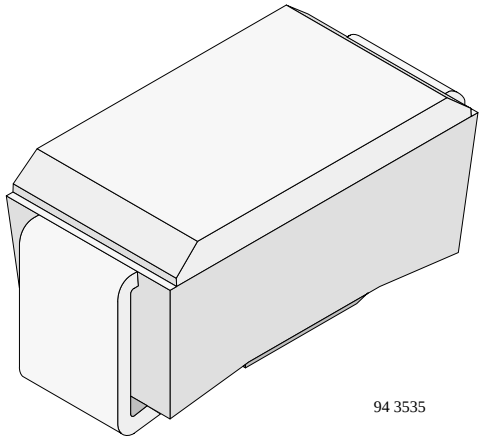
Silicon Transient Voltage Suppressors



Features

- Glass passivated junction
- High reliability
- Stand–off voltage range 8.2V to 430V
- Excellent clamping cabability
- Fast response time (typ. ≦1ps from 0 to V_{Zmin})

Applications

Protection from high voltage, high energy transients

Absolute Maximum Ratings

T_j = 25°C

Parameter	Test Conditions	Type	Symbol	Value	Unit
Power dissipation	R_{thJA}<25K/W, T_{amb}=100°C		P_V	3	W
	R_{thJA}<100K/W, T_{amb}=50°C		P_V	1.25	W
Non repetitive peak surge power dissipation	t_p=10/1000µs sq.pulse, T_j=25°C prior to surge		P_{ZSM}	300	W
Peak forward surge current	10ms single half sine wave		I_{FSM}	50	A
Junction temperature			T_j	175	°C
Storage temperature range			T_{stg}	–65...+175	°C

Maximum Thermal Resistance

T_j = 25°C

Parameter	Test Conditions	Symbol	Value	Unit
Junction lead		R_{thJL}	25	K/W
Junction ambient	mounted on epoxy–glass hard issue, Fig. 1a	R_{thJA}	150	K/W
	mounted on epoxy–glass hard issue, Fig. 1b	R_{thJA}	125	K/W
	mounted on Al–oxid–ceramic (Al_2O_3), Fig. 1b	R_{thJA}	100	K/W

Characteristics

T_j = 25°C

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	I_F=0.5A		V_F			1.2	V

Type	Stand-off voltage		Breakdown voltage		Clamping voltage	
	V_R	I_R	$V_{(BR)}$ at I_R		$V_{CL(R)}$ at I_{PP} *)	
BZG04...	V	µA	V	mA	V	A
		Max.	Min.		Max.	
8V2	8.2	20	9.4	50	14.8	20.3
9V1	9.1	5	10.4	50	15.7	19.1
10	10	5	11.4	50	17.0	17.7
11	11	5	12.4	50	18.9	15.9
12	12	5	13.8	50	20.9	14.4
13	13	5	15.3	25	22.9	13.1
15	15	5	16.8	25	25.6	11.7
16	16	5	18.8	25	28.4	10.6
18	18	5	20.8	25	31.0	9.7
20	20	5	22.8	25	33.8	8.9
22	22	5	25.1	25	38.1	7.9
24	24	5	28	25	42.2	7.1
27	27	5	31	25	46.2	6.5
30	30	5	34	10	50.1	6.0
33	33	5	37	10	54.1	5.5
36	36	5	40	10	60.7	4.9
39	39	5	44	10	65.5	4.6
43	43	5	48	10	70.8	4.2
47	47	5	52	10	78.6	3.8
51	51	5	58	10	86.5	3.5
56	56	5	64	10	94.4	3.2
62	62	5	70	10	103.5	2.9
68	68	5	77	10	114	2.6
75	75	5	85	5	126	2.4
82	82	5	94	5	139	2.2
91	91	5	104	5	152	2.0
100	100	5	114	5	167	1.8
110	110	5	124	5	185	1.6
120	120	5	138	5	204	1.5
130	130	5	153	5	224	1.3
150	150	5	168	5	249	1.2
160	160	5	188	5	276	1.1
180	180	5	208	2	305	1.0
200	200	5	228	2	336	0.9

*) 10/1000 µs pulse

Type	Stand-off voltage		Breakdown voltage		Clamping voltage	
	V_R	I_R	$V_{(BR)}$ at I_R		$V_{CL(R)}$ at I_{PP} *)	
BZG04...	V	µA	V	mA	V	A
		Max.	Min.		Max.	
220	220	5	251	2	380	0.8
240	240	5	280	2	419	0.72
270	270	5	310	2	459	0.65
300	330	5	340	1	498	0.60
330	330	5	370	1	537	0.56
360	360	5	400	1	603	0.50
390	390	5	440	1	655	0.45
430	430	5	480	1	707	0.42

*) 10/1000 µs pulse

Typical Characteristics (T_j = 25°C unless otherwise specified)

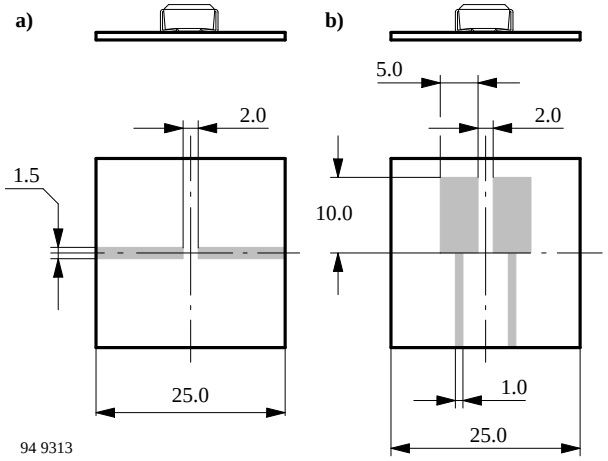


Figure 1 : Boards for R_{thJA} definition (copper overlay 35µ)

Figure 2 : Recommended foot pads

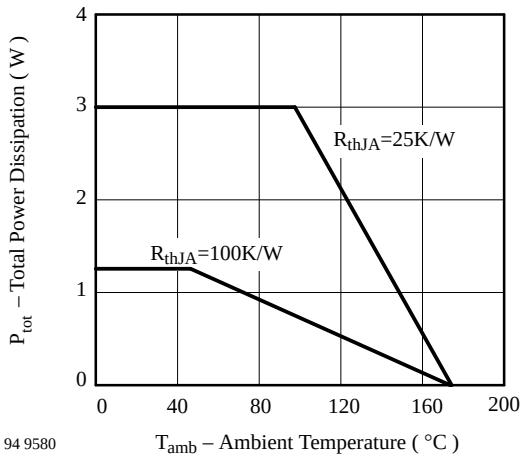
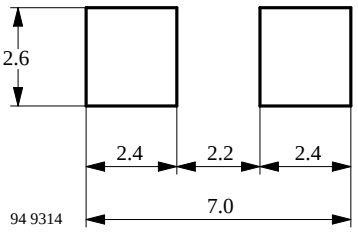


Figure 3 : Total Power Dissipation vs. Ambient Temperature



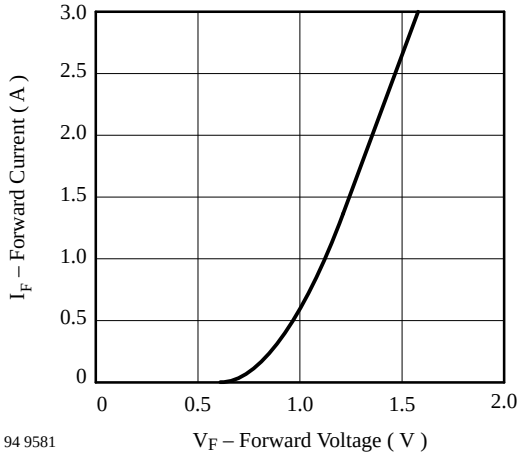
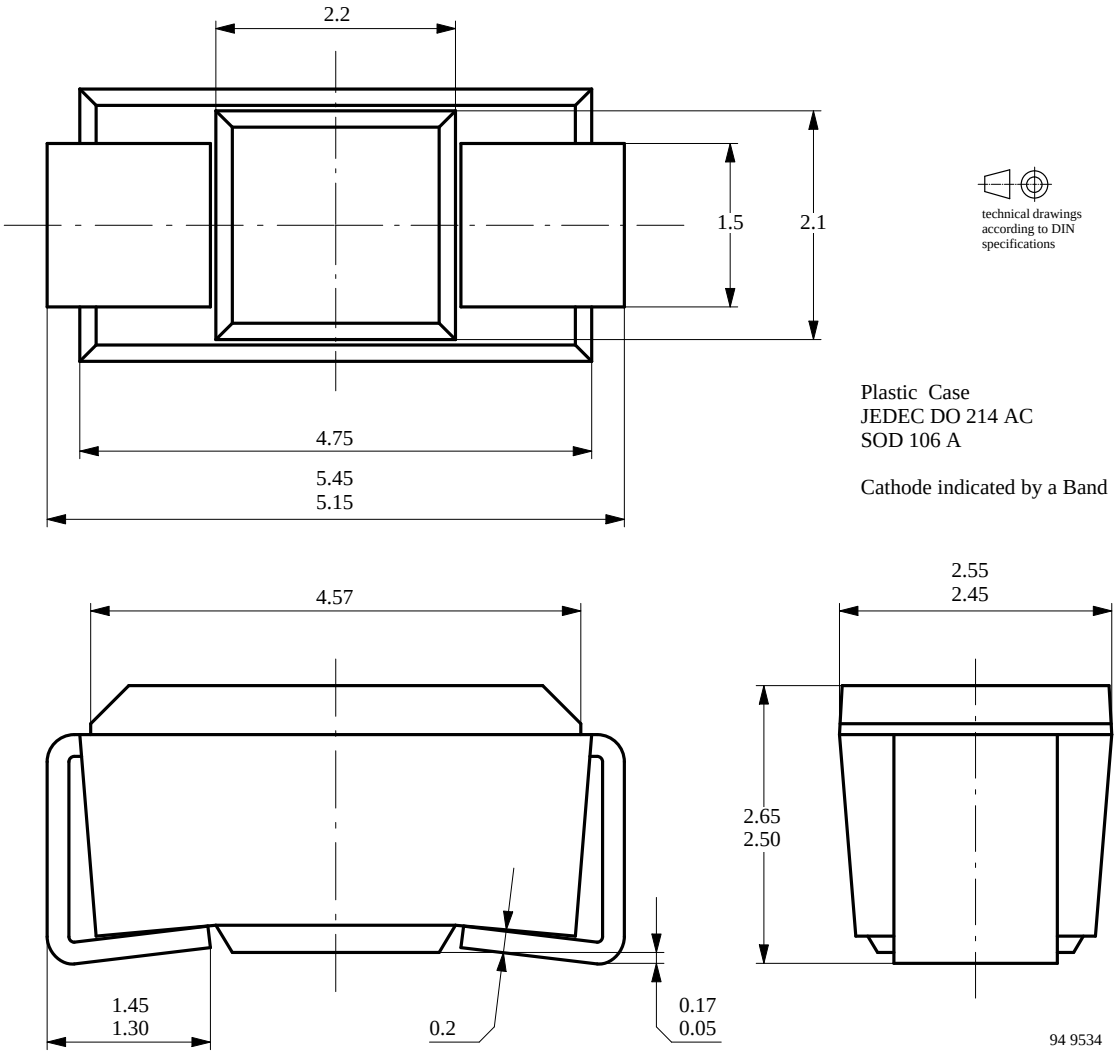


Figure 4 : Forward Current vs. Forward Voltage

Dimensions in mm



OZONE DEPLETING SUBSTANCES POLICY STATEMENT

It is the policy of **TEMIC TELEFUNKEN microelectronic GmbH** to

1. Meet all present and future national and international statutory requirements and

2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

Of particular concern is the control or elimination of releases into the atmosphere of those substances which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) will soon severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division has been able to use its policy of continuous improvements to eliminate the use of any ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively

2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA and

3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

TEMIC can certify that our semiconductors are not manufactured with and do not contain ozone depleting substances.

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