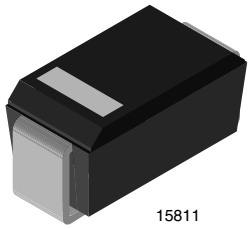
Zener Diodes with Surge Current Specification

Features

- High reliability
- Stand-off voltage range 8.2 V to 220 V
- Excellent clamping cabability
- Fast response time (typ. ≤ 1 ps from 0 to $V_{Zmin.}$)
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC

RoHS COMPLIANT



Applications

- Protection from high voltage, high energy transients

Mechanical Data

Case: DO214AC
Weight: approx. 77 mg
Packaging codes/options:
TR/1.5K 7" reel
TR3/6K 13" reel 6K/box

Absolute Maximum Ratings

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Power dissipation	R_{thJA} < 25 K/W, T_{amb} = 100 °C	P_{diss}	3	W
	R_{thJA} < 100 K/W, T_{amb} = 50 °C	P_{diss}	1.25	W
Non repetitive peak surge power dissipation	t_p = 10/1000 µs sq.pulse, T_j = 25 °C prior to surge	P_{ZSM}	300	W
Peak forward surge current	10 ms single half sine wave	I_{FSM}	50	A
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	- 65 to + 150	°C

Thermal Characteristics

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Junction lead		R_{thJL}	25	K/W
Junction ambient	Mounted on epoxy-glass hard tissue, fig. 1a	R_{thJA}	150	K/W
	Mounted on epoxy-glass hard tissue, fig. 1b	R_{thJA}	125	K/W
	Mounted on Al-oxid-ceramic (Al_2O_3), fig. 1b	R_{thJA}	100	K/W

Electrical Characteristics

T_{amb} = 25 °C, unless otherwise specified

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

Electrical Characteristics

Part number	Standoff voltage		Breakdown voltage		TK_{VZ} at I_R		Clamping voltage		Junction capacitance
	V_R	I_R	$V_{(BR)}$ at I_R				$V_{CL(R)}$ at I_{PP}	at I_{ZT}	C_j at V_R = 0 V, f = 1 MHz
	V	µA	V	mA	%/K		V [1]	A [1]	pF
		max.	min.		typ.	max.	max .		typ.
BZG04-8V2	8.2	20	9.4	50	0.05	0.09	14.8	20.3	1200
BZG04-9V1	9.1	5	10.4	50	0.05	0.1	15.7	19.1	1100
BZG04-10	10	5	11.4	50	0.05	0.1	17	17.7	1000
BZG04-11	11	5	12.4	50	0.05	0.1	18.9	15.9	850
BZG04-12	12	5	13.8	50	0.05	0.1	20.9	14.4	815
BZG04-13	13	5	15.3	25	0.06	0.11	22.9	13.1	785
BZG04-15	15	5	16.8	25	0.06	0.11	25.6	11.7	710
BZG04-16	16	5	18.8	25	0.06	0.11	28.4	10.6	655
BZG04-18	18	5	20.8	25	0.06	0.11	31	9.7	610
BZG04-20	20	5	22.8	25	0.06	0.11	33.8	8.9	570
BZG04-22	22	5	25.1	25	0.06	0.11	38.1	7.9	545
BZG04-24	24	5	28	25	0.06	0.11	42.2	7.1	505
BZG04-27	27	5	31	25	0.06	0.11	46.2	6.5	475
BZG04-30	30	5	34	10	0.06	0.11	50.1	6.0	450
BZG04-33	33	5	37	10	0.06	0.11	54.1	5.5	420
BZG04-36	36	5	40	10	0.07	0.12	60.7	4.9	390
BZG04-39	39	5	44	10	0.07	0.12	65.5	4.6	370
BZG04-43	43	5	48	10	0.07	0.12	70.8	4.2	350
BZG04-47	47	5	52	10	0.07	0.12	78.6	3.8	330
BZG04-51	51	5	58	10	0.08	0.13	86.5	3.5	310
BZG04-56	56	5	64	10	0.08	0.13	94.4	3.2	291
BZG04-62	62	5	70	10	0.08	0.13	103.5	2.9	280
BZG04-68	68	5	77	10	0.08	0.13	114	2.6	275
BZG04-75	75	5	85	5	0.09	0.13	126	2.4	260
BZG04-82	82	5	94	5	0.09	0.13	139	2.2	250
BZG04-91	91	5	104	5	0.09	0.13	152	2.0	243
BZG04-100	100	5	114	5	0.09	0.13	167	1.8	170
BZG04-110	110	5	124	5	0.09	0.13	185	1.6	153
BZG04-120	120	5	138	5	0.09	0.13	204	1.5	150
BZG04-130	130	5	153	5	0.09	0.13	224	1.3	145
BZG04-150	150	5	168	5	0.09	0.13	249	1.2	140
BZG04-160	160	5	188	5	0.09	0.13	276	1.1	135
BZG04-180	180	5	208	2	0.09	0.13	305	1.0	131
BZG04-200	200	5	228	2	0.09	0.13	336	0.9	122
BZG04-220	220	5	251	2	0.09	0.13	380	0.8	120

Note:
[1] 10/1000 µs pulse

Typical Characteristics

T_{amb} = 25 °C, unless otherwise specified

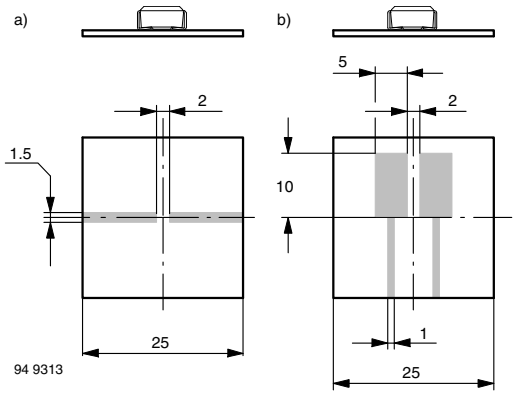


Figure 1. Boards for R_{thJA} Definition (Copper Overlay 35 µ)

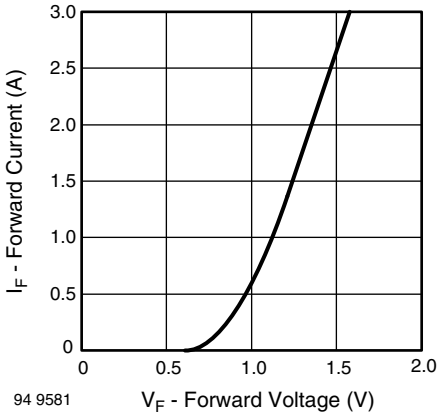


Figure 3. Forward Current vs. Forward Voltage

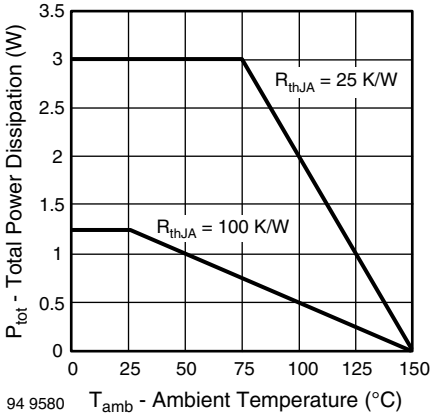


Figure 2. Typ. Total Power Dissipation vs. Ambient Temperature

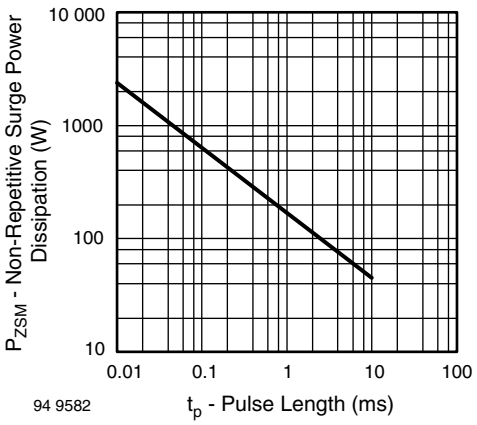


Figure 4. Non Repetitive Surge Power Dissipation vs. Pulse Length

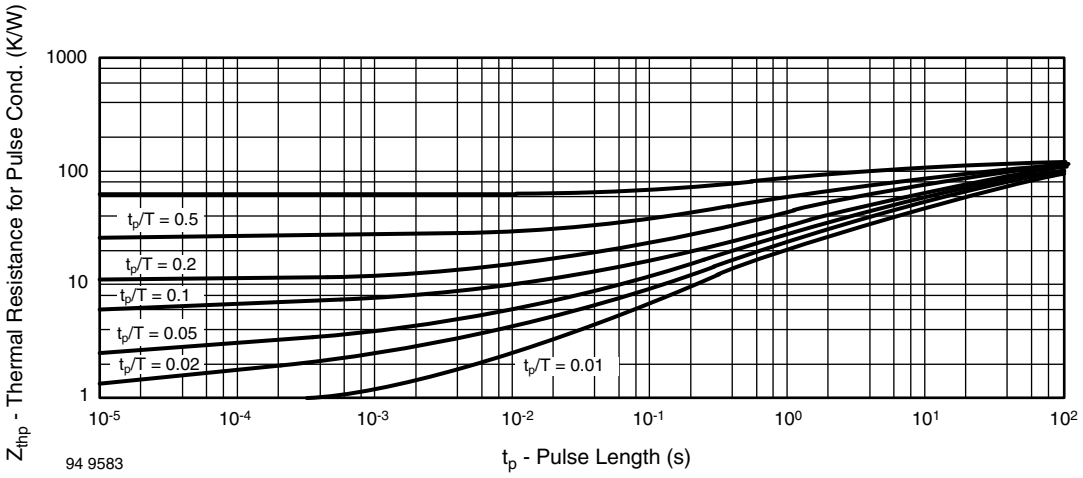
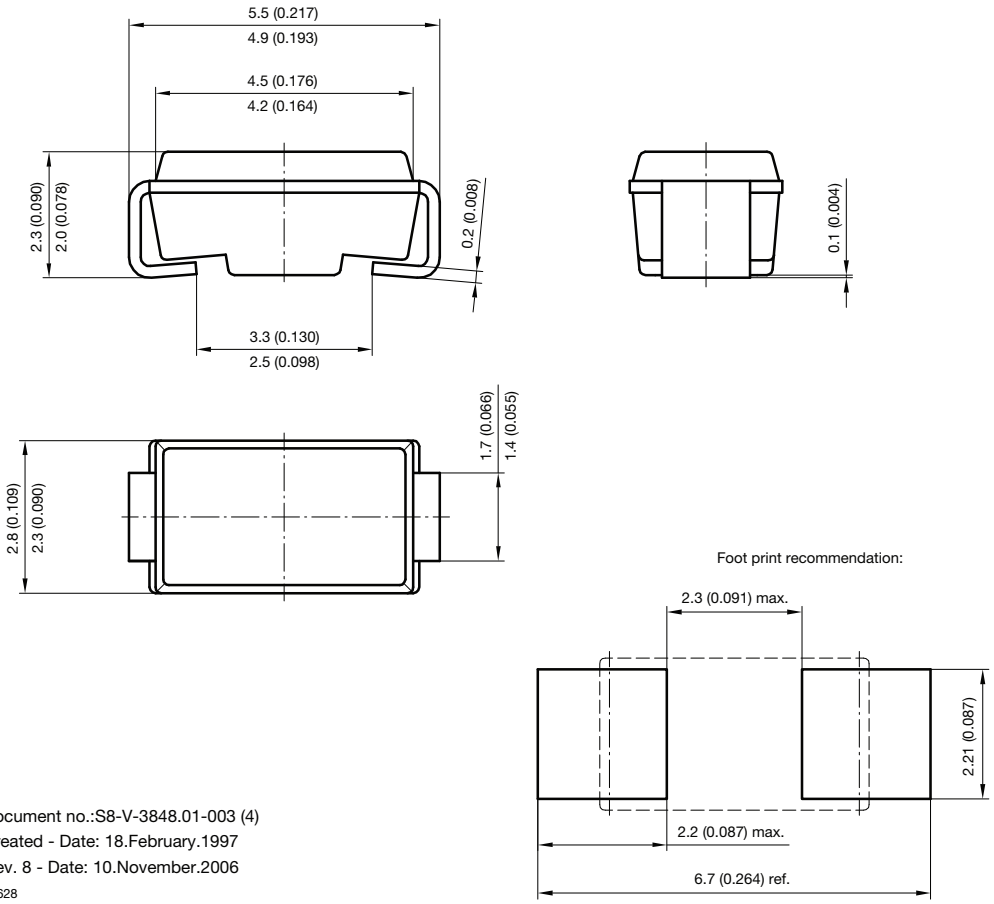


Figure 5. Thermal Response

Package Dimensions in millimeters (inches): DO214AC



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