Zener Diodes

FEATURES

- High reliability
- Voltage range includes 37 breakdown voltages from 3.3 V to 100 V with ± 2 % for BZG05B-series
- Fits onto 5 mm SMD footpads
- Wave and reflow solderable
- AEC-Q101 qualified available
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb e3 RoHS COMPLIANT

APPLICATIONS

- Voltage stabilization

PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V_Z range nom.	3.3 to 100	V
Test current I_{ZT}	2.7 to 80	mA
V_{BR}	5.49 to 98	V
V_{WM}	4.7 to 90	V
P_{PPM}	40	W
T_J max.	150	°C
V_Z specification	Pulse current	
Int. construction	Single	
Polarity	Uni-directional	

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
BZG05B-series	BZG05B-series-E3-TR	1500 per 7" reel	6000/box
BZG05B-series	BZG05B-series-E3-TR3	6000 per 13" reel	6000/box
BZG05B-series	BZG05B-series-HE3-TR	1500 per 7" reel	6000/box
BZG05B-series	BZG05B-series-HE3-TR3	6000 per 13" reel	6000/box

PACKAGE				
PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
DO-214AC	77 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Power dissipation	R_{thJA} < 30 K/W, T_{amb} = 60 °C	P_{tot}	3000	mW
	R_{thJA} < 100 K/W, T_{amb} = 25 °C	P_{tot}	1250	mW
Non repetitive peak surge power dissipation	t_p = 100 µs sq. pulse, T_j = 25 °C prior to surge	P_{ZSM}	60	W
Junction to lead		R_{thJL}	30	K/W
Junction to ambient air	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
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-65 to +150	°C
Forward voltage (max.)	I_F = 0.2 A	V_F	1.2	V

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

PART NUMBER	ZENER VOLTAGE RANGE			TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE		TEMPERATURE COEFFICIENT	
	V_Z at I_{ZT1}			I_{ZT1}	I_{ZT2}	I_R at V_R		Z_Z at I_{ZT1}	Z_ZK at I_{ZT2}	TC_{VZ} at I_{ZT1}	
	V			mA	mA	µA	V	Ω		%/K	
	MIN.	NOM.	MAX.			MAX.		MAX.	MAX.	MIN.	MAX.
BZG05B3V3	3.23	3.3	3.37	80	1	40	1	20	400	-0.08	-0.05
BZG05B3V6	3.53	3.6	3.67	60	1	20	1	20	500	-0.08	-0.05
BZG05B3V9	3.82	3.9	3.98	60	1	10	1	15	500	-0.07	-0.02
BZG05B4V3	4.21	4.3	4.39	50	1	3	1	13	500	-0.07	-0.01
BZG05B4V7	4.61	4.7	4.79	45	1	3	1	13	600	-0.03	0.04
BZG05B5V1	5.00	5.1	5.20	45	1	1	1.5	10	500	-0.01	0.04
BZG05B5V6	5.49	5.6	5.71	45	1	1	2	7	400	0	0.045
BZG05B6V2	6.08	6.2	6.32	35	1	1	3	4	300	0.01	0.055
BZG05B6V8	6.66	6.8	6.94	35	1	1	4	3.5	300	0.015	0.06
BZG05B7V5	7.35	7.5	7.65	35	0.5	1	4.5	3	200	0.02	0.065
BZG05B8V2	8.04	8.2	8.36	25	0.5	1	6.2	5	200	0.03	0.07
BZG05B9V1	8.92	9.1	9.28	25	0.5	1	6.8	5	200	0.035	0.075
BZG05B10	9.80	10	10.20	25	0.5	0.5	7	7	200	0.04	0.08
BZG05B11	10.78	11	11.22	20	0.5	0.5	8.2	8	300	0.045	0.08
BZG05B12	11.76	12	12.24	20	0.5	0.5	9.1	9	350	0.045	0.085
BZG05B13	12.74	13	13.26	20	0.5	0.5	10	10	400	0.05	0.085
BZG05B15	14.70	15	15.30	15	0.5	0.5	11	15	500	0.055	0.09
BZG05B16	15.68	16	16.32	15	0.5	0.5	12	15	500	0.055	0.09
BZG05B18	17.64	18	18.36	15	0.5	0.5	13	20	500	0.06	0.09
BZG05B20	19.60	20	20.40	10	0.5	0.5	15	24	600	0.06	0.09
BZG05B22	21.56	22	22.44	10	0.5	0.5	16	25	600	0.06	0.095
BZG05B24	23.52	24	24.48	10	0.5	0.5	18	25	600	0.06	0.095
BZG05B27	26.46	27	27.54	8	0.25	0.5	20	30	750	0.06	0.095
BZG05B30	29.40	30	30.60	8	0.25	0.5	22	30	1000	0.06	0.095
BZG05B33	32.34	33	33.66	8	0.25	0.5	24	35	1000	0.06	0.095
BZG05B36	35.28	36	36.72	8	0.25	0.5	27	40	1000	0.07	0.11
BZG05B39	38.22	39	39.78	6	0.25	0.5	30	50	1000	0.07	0.11
BZG05B43	42.14	43	43.86	6	0.25	0.5	33	50	1000	0.07	0.11
BZG05B47	46.06	47	47.94	4	0.25	0.5	36	90	1500	0.07	0.11
BZG05B51	49.98	51	52.02	4	0.25	0.5	39	115	1500	0.08	0.12
BZG05B56	54.88	56	57.12	4	0.25	0.5	43	120	2000	0.08	0.12
BZG05B62	60.76	62	63.24	4	0.25	0.5	47	125	2000	0.08	0.12
BZG05B68	66.64	68	69.36	4	0.25	0.5	51	130	2000	0.08	0.12
BZG05B75	73.50	75	76.50	4	0.25	0.5	56	135	2000	0.08	0.12
BZG05B82	80.36	82	83.64	2.7	0.25	0.5	62	200	3000	0.08	0.12
BZG05B91	89.18	91	92.82	2.7	0.25	0.5	68	250	3000	0.08	0.12
BZG05B100	98.00	100	102.00	2.7	0.25	0.5	75	350	3000	0.08	0.12

BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

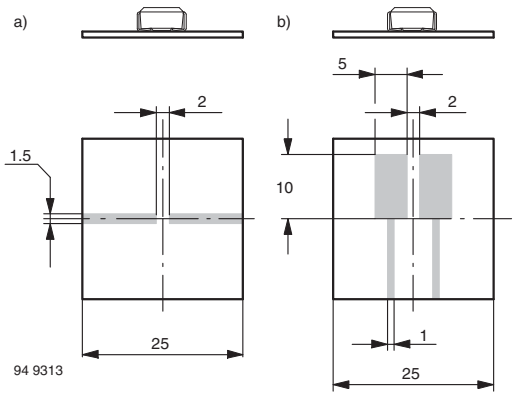


Fig. 1 - Boards for R_{thJA} Definition (Copper Overlay 35 µ)

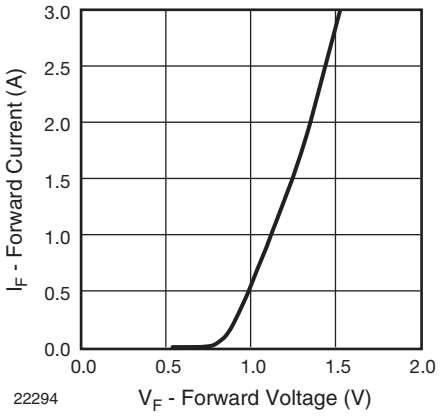


Fig. 3 - Forward Current vs. Forward Voltage

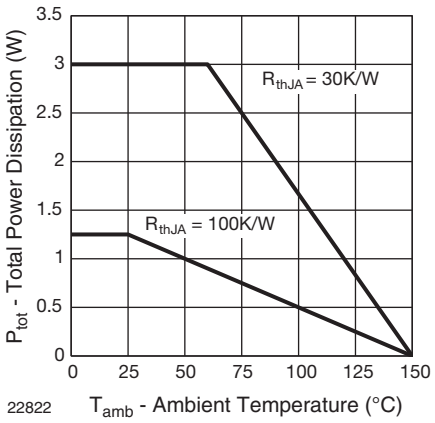


Fig. 2 - Typ. Total Power Dissipation vs. Ambient Temperature

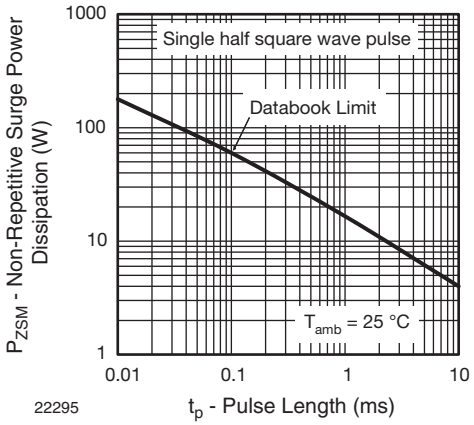


Fig. 4 - Non Repetitive Surge Power Dissipation vs. Pulse Length

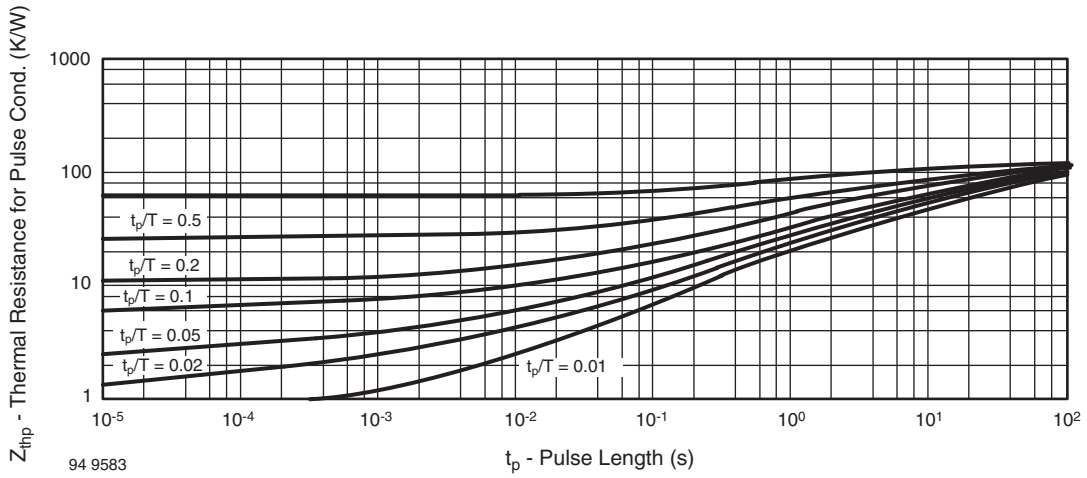
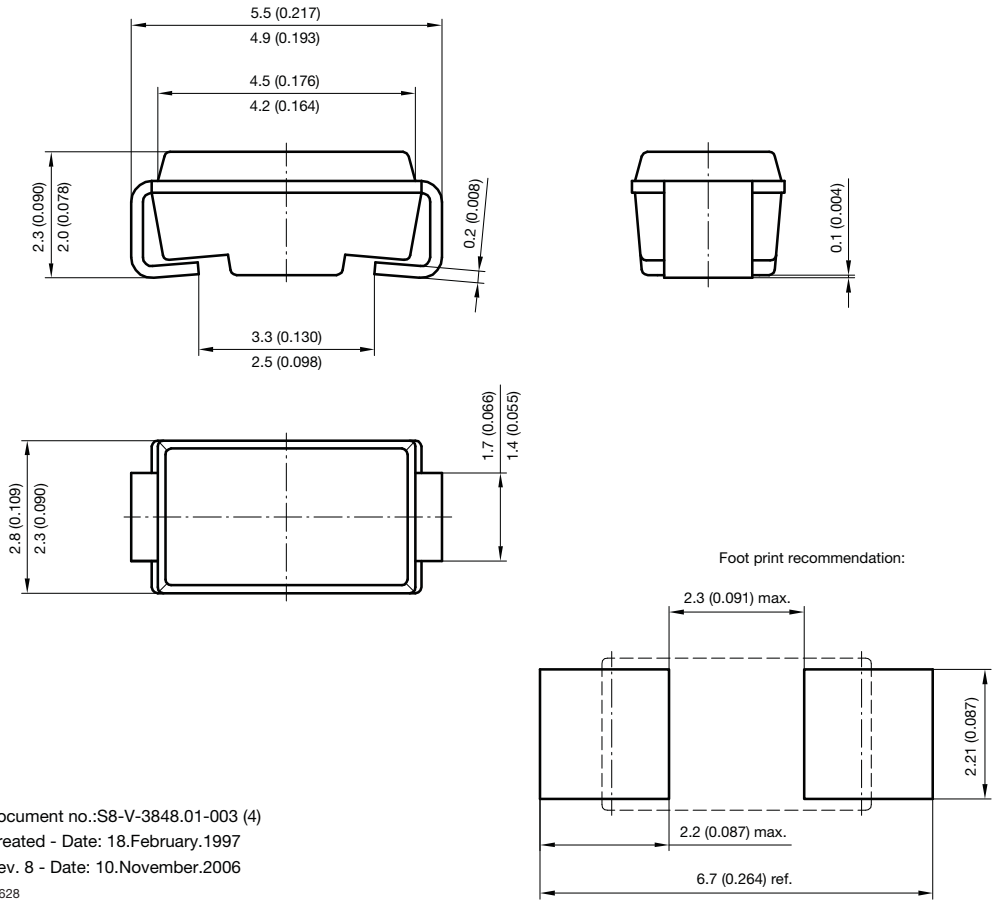


Fig. 5 - Thermal Response

PACKAGE DIMENSIONS in millimeters (inches): **DO-214AC**



Document no.:S8-V-3848.01-003 (4)
Created - Date: 18.February.1997
Rev. 8 - Date: 10.November.2006
19628

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