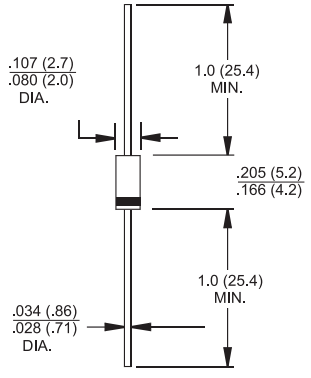
TAIWAN SEMICONDUCTOR

BZW04 SERIES

400 Watts Transient Voltage Suppressor Diodes

DO-41

RoHS COMPLIANCE



Dimensions in inches and (millimeters)

Features

- ✧ UL Recognized File # E-96005
- ✧ Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ✧ Exceeds environmental standards of MIL-STD-19500
- ✧ 400W surge capability at 10 x 1000 us waveform,
- ✧ Excellent clamping capability
- ✧ Low impedance surge resistance
- ✧ Very fast response time V
- ✧ Typical I_R less than 1uA above 10V
- ✧ High temperature soldering guaranteed: 260°C / 10 seconds / .375",(9.5mm) lead length / 5lbs.,(2.3kg) tension
- ✧ Green compound with suffix "G" on packing code & prefix "G" on datecode.

Mechanical Data

- ✧ Case: Molded plastic
- ✧ Lead: Axial leads, solderable per MIL-STD-202, Method 208
- ✧ Polarity: Color band denotes cathode except bipolar
- ✧ Weight: 0.34gram

Marking Diagram

BZW04XX = Specific Device Code
G = Green Compound
Y = Year
WW = Work Week

Maximum Ratings and Electrical Characteristics (T_A = 25°C)

Type Number	Symbol	Value	Units
Peak Pulse Power Dissipation at T_A=25°C, Tp=1ms (Note 1)	P_{PP}	Minimum 400	Watts
Steady State Power Dissipation at T_L=75 °C Lead Lengths .375", 9.5mm (Note 2)	P_D	1.0	Watts
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) (Note 3)	I_{FSM}	40	Amps
Junction to leads	$R_{\theta JL}$	60	°C/W
Junction to ambient on printed circuit. L lead=10mm	$R_{\theta JA}$	100	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to + 175	°C

Notes:
1. Non-repetitive current pulse, per derated above TA=25 °C.
2. Mounted on copper pad area of 0.2 x 0.2" (5 x 5mm).
3. Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum.

RATINGS AND CHARACTERISTIC CURVES (BZW04-5V8 SERIES)

FIG.1- PEAK PULSE POWER RATING CURVE

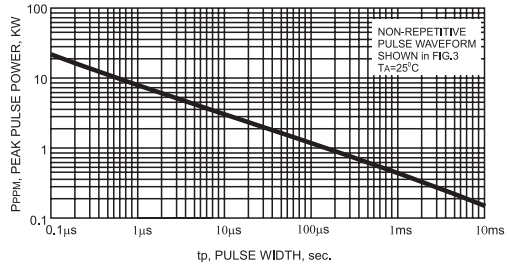


FIG.2- PULSE DERATING CURVE

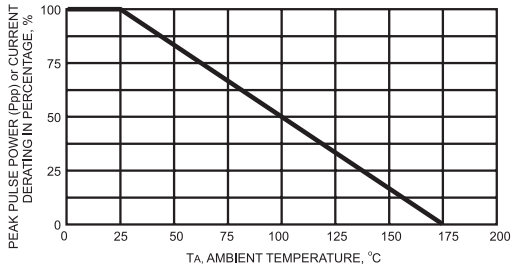


FIG.3- CLAMPING POWER PULSE WAVEFORM

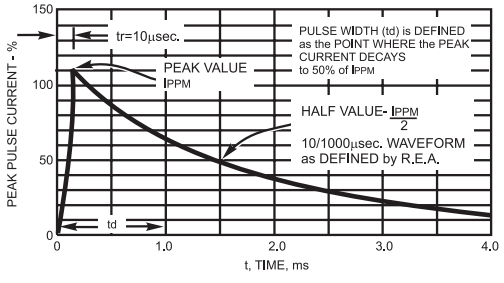


FIG.4- STEADY STATE POWER DERATING CURVE

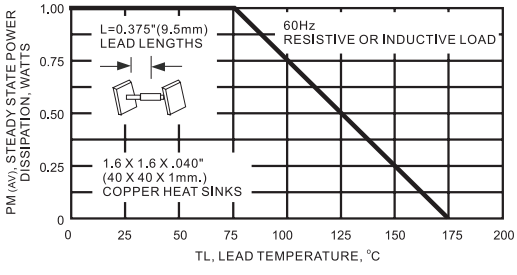


FIG.5- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL ONLY

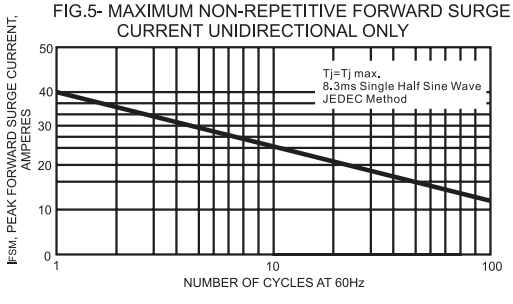


FIG.7- TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

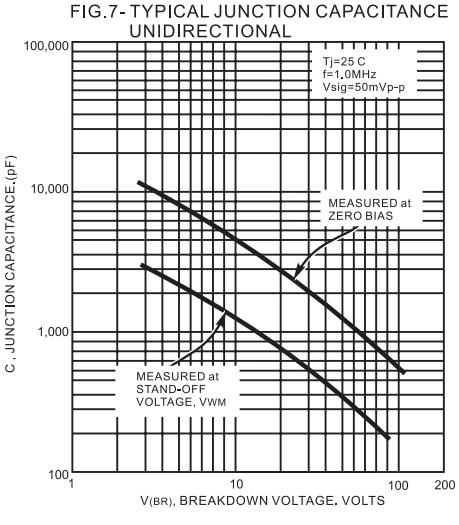
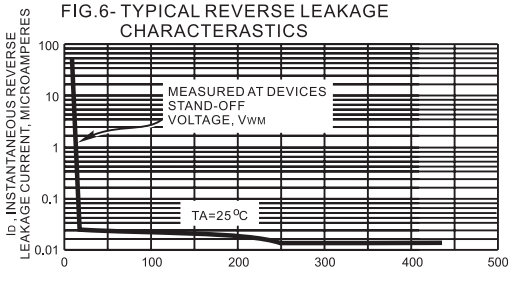


FIG.6- TYPICAL REVERSE LEAKAGE CHARACTERASTICS



ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Device		Breakdown Voltage V_{BR} @ I_R (V)(1)		Test Current I_T	Stand-off Voltage V_{WM}	Maximum Reverse Leakage @ V_{WM}	Maximum Peak Pulse Current I_{PPM}	Maximum Clamping Voltage @ I_{PPM}	Maximum Temperature Coefficient of $V_{(BR)}$
Unidirectional	Bidirectional	Min.	Max.	(mA)	(Volts)	Io(uA)(3)	(Amps)	Vc(Volts)	(% / ℃)
BZW04-5V8	BZW04-5V8B	6.45	7.14	10.0	5.80	1000	38.0	10.5	0.057
BZW04-6V4	BZW04-6V4B	7.13	7.88	10.0	6.40	500	35.4	11.3	0.061
BZW04-7V0	BZW04-7V0B	7.79	8.61	10.0	7.02	200	33.0	12.1	0.065
BZW04-7V8	BZW04-7V8B	8.65	9.55	1.0	7.78	50	30.0	13.4	0.068
BZW04-8V5	BZW04-8V5B	9.5	10.5	1.0	8.55	10	27.6	14.5	0.073
BZW04-9V4	BZW04-9V4B	10.5	11.6	1.0	9.40	5.0	25.7	15.6	0.075
BZW04-10	BZW04-10B	11.4	12.6	1.0	10.2	5.0	24.0	16.7	0.078
BZW04-11	BZW04-11B	12.4	13.7	1.0	11.1	5.0	22.0	18.2	0.081
BZW04-13	BZW04-13B	14.3	15.8	1.0	12.8	5.0	19.0	21.2	0.084
BZW04-14	BZW04-14B	15.2	16.8	1.0	13.6	1.0	17.8	22.5	0.083
BZW04-15	BZW04-15B	17.1	18.9	1.0	15.3	1.0	16.0	25.2	0.088
BZW04-17	BZW04-17B	19	21	1.0	17.1	1.0	14.5	27.7	0.090
BZW04-19	BZW04-19B	20.9	23.1	1.0	18.8	1.0	13.0	30.6	0.092
BZW04-20	BZW04-20B	22.8	25.2	1.0	20.5	1.0	12.0	33.2	0.094
BZW04-23	BZW04-23B	25.7	28.4	1.0	23.1	1.0	10.7	37.5	0.096
BZW04-26	BZW04-26B	28.5	31.5	1.0	25.6	1.0	9.6	41.5	0.097
BZW04-28	BZW04-28B	31.4	34.7	1.0	28.2	1.0	8.8	45.7	0.098
BZW04-31	BZW04-31B	34.2	37.8	1.0	30.8	1.0	8.0	49.9	0.099
BZW04-33	BZW04-33B	37.1	41	1.0	33.3	1.0	7.4	53.9	0.100
BZW04-37	BZW04-37B	40.9	45.2	1.0	36.8	1.0	6.7	59.3	0.101
BZW04-40	BZW04-40B	44.7	49.4	1.0	40.2	1.0	6.2	64.8	0.101
BZW04-44	BZW04-44B	48.5	53.6	1.0	43.6	1.0	5.7	70.1	0.102
BZW04-48	BZW04-48B	53.2	58.8	1.0	47.8	1.0	5.2	77	0.103
BZW04-53	BZW04-53B	58.9	65.1	1.0	53.0	1.0	4.7	85	0.104
BZW04-58	BZW04-58B	64.6	71.4	1.0	58.1	1.0	4.3	92	0.104
BZW04-64	BZW04-64B	71.3	78.8	1.0	64.1	1.0	3.9	103	0.105
BZW04-70	BZW04-70B	77.9	86.1	1.0	70.1	1.0	3.5	113	0.105
BZW04-78	BZW04-78B	86.5	95.5	1.0	78.0	1.0	3.2	125	0.105
BZW04-85	BZW04-85B	95	105	1.0	85.5	1.0	2.9	137	0.106
BZW04-94	BZW04-94B	105	116	1.0	94.0	1.0	2.6	152	0.107

ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Device		Breakdown Voltage V_{BR} @ I_R (V)(1)		Test Current I_T	Stand-off Voltage V_{WM}	Maximum Reverse Leakage @ V_{WM}	Maximum Peak Pulse Current I_{PPM}	Maximum Clamping Voltage @ I_{PPM}	Maximum Temperature Coefficient of $V_{(BR)}$
Unidirectional	Bidirectional	Min.	Max.	(mA)	(Volts)	Io(uA)(3)	(Amps)	Vc(Volts)	(% / ℃)
BZW04-102	BZW04-102B	114	126	1.0	102	1.0	2.4	165	0.107
BZW04-110	BZW04-110B	124	137	1.0	111	1.0	2.2	179	0.107
BZW04-128	BZW04-128B	143	158	1.0	128	1.0	2.0	207	0.108
BZW04-136	BZW04-136B	152	168	1.0	136	1.0	1.8	219	0.108
BZW04-145	BZW04-145B	161	179	1.0	145	1.0	1.7	234	0.108
BZW04-154	BZW04-154B	171	189	1.0	154	1.0	1.6	246	0.108
BZW04-171	BZW04-171B	190	210	1.0	171	1.0	1.5	274	0.108
BZW04-188	BZW04-188B	209	231	1.0	188	1.0	1.4	301	0.108
BZW04-213	BZW04-213B	237	263	1.0	213	1.0	1.2	344	0.110
BZW04-239	BZW04-239B	266	294	1.0	239	1.0	1.1	384	0.110
BZW04-256	BZW04-256B	285	315	1.0	256	1.0	1.0	414	0.110
BZW04-273	BZW04-273B	304	336	1.0	273	1.0	0.90	438	0.110
BZW04-299	BZW04-299B	332	368	1.0	299	1.0	0.80	482	0.110
BZW04-342	BZW04-342B	380	420	1.0	342	1.0	0.75	548	0.110
BZW04-376	BZW04-376B	418	462	1.0	376	1.0	0.67	603	0.110

Notes: 1. Pulse test: tp < 50 ms.

2. All terms and symbols are consistent with ANSI/IEEE C62.35.

3. For bidirectional types having V_{WM} of 10 Volts and less, the I_D limit is doubled.