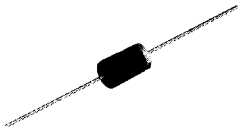


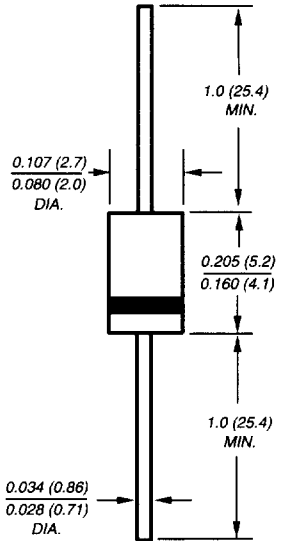
BZW04P-5V8 thru BZW04-376

TRANSZORB® Transient Voltage Suppressors

Peak Pulse Power 400W
Stand-off Voltage 5.8 to 376V



DO-204AL (DO-41 Plastic)



Dimensions in inches and (millimeters)

Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated junction
- 400W peak pulse power capability with a 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%
- Excellent clamping capability
- Low incremental surge resistance
- Very fast response time
- Typical I_p less than 1 μ A above 10V rating
- High temperature soldering guaranteed: 265 $^{\circ}$ C/10 seconds, 0.375" (9.5mm) lead length, 5lbs. (2.3 kg) tension

Mechanical Data

Case: JEDEC DO-204AL molded plastic body over passivated junction

Terminals: Plated axial leads, solderable per MIL-STD-750, Method 2026

Polarity: For unidirectional types the color band denotes the cathode, which is positive with respect to the anode under normal TVS operation

Mounting Position: Any

Weight: 0.012oz., 0.3g

Packaging Codes – Options (Antistatic):

- 51 – 1K per Bulk box, 10K/carton
- 54 – 5.5K per 13" paper Reel (52mm horiz. tape), 16.5K/carton
- 73 – 3K per horiz. tape & Ammo box, 30K/carton

Devices for Bidirectional Applications

For bi-directional use add suffix letter "B" (e.g. BZW04P-6V4B). Electrical characteristics apply in both directions.

Maximum Ratings and Thermal Characteristics ($T_A = 25^{\circ}$ C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Peak pulse power dissipation with a 10/1000 μ s waveform (Note 1, Fig. 1)	PPPM	Minimum 400	W
Peak pulse current with a 10/1000 μ s waveform (Note 1)	IPPM	See Next Table	A
Steady state power dissipation at $T_L = 75^{\circ}$ C, lead lengths 0.375" (9.5mm) (Note 2)	$P_{M(AV)}$	1.0	W
Peak forward surge current, 8.3ms single half sine-wave unidirectional only (Note 3)	IFSM	40	A
Maximum instantaneous forward voltage at 25A for unidirectional only (Note 4)	V_F	3.5/5.0	V
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175	$^{\circ}$ C

- Notes:** (1) Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^{\circ}$ C per Fig. 2
(2) Mounted on copper pad area of 1.6 x 1.6" (40 x 40mm) per Fig. 5
(3) Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum
(4) $V_F = 3.5V$ for devices of $V_{(BR)} \leq 220V$, and $V_F = 5.0$ Volt max. for devices of $V_{(BR)} > 220V$

12/13/00

TRANSZORB® Transient Voltage Suppressors

Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

Device Type	Breakdown Voltage V_{BR} (V) ⁽¹⁾		Test Current at I_T (mA)	Stand-off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_{R} (μ A) ⁽⁴⁾	Maximum Peak Pulse Current I_{PPM} (Amps) ⁽²⁾	Maximum Clamping Voltage at I_{PPM} V_C (Volts)	Maximum Temperature Coefficient of V_{BR} (% / °C)
	Min.	Max.						
BZW04P5V8	6.45	7.48	10.0	5.80	1000	38.0	10.5	0.057
BZW04-5V8	6.45	7.14	10.0	5.80	1000	38.0	10.5	0.057
BZW04P6V4	7.13	8.25	10.0	6.40	500	35.4	11.3	0.061
BZW04-6V4	7.13	7.88	10.0	6.40	500	35.4	11.3	0.061
BZW04P7V0	7.79	9.02	10.0	7.02	200	33.0	12.1	0.065
BZW04-7V0	7.79	8.61	10.0	7.02	200	33.0	12.1	0.065
BZW04P7V8	8.65	10.0	1.0	7.78	50.0	30.0	13.4	0.068
BZW04-7V8	8.65	9.55	1.0	7.78	50.0	30.0	13.4	0.073
BZW04P8V5	9.50	11.0	1.0	8.55	10.0	27.6	14.5	0.07
BZW04-8V5	9.50	10.5	1.0	8.55	10.0	27.6	14.5	0.075
BZW04P9V4	10.5	12.1	1.0	9.4	5.0	25.7	15.6	0.075
BZW04-9V4	10.5	11.6	1.0	9.4	5.0	25.7	15.6	0.075
BZW0P10	11.4	13.2	1.0	10.2	5.0	24.0	16.7	0.078
BZW04-10	11.4	12.6	1.0	10.2	5.0	24.0	16.7	0.078
BZW04P11	12.4	14.3	1.0	11.1	5.0	22.0	18.2	0.081
BZW04-11	12.4	13.7	1.0	11.1	5.0	22.0	18.2	0.081
BZW04P13	14.3	16.5	1.0	12.8	5.0	19.0	21.2	0.084
BZW04-13	14.3	15.8	1.0	12.8	5.0	19.0	21.2	0.084
BZW04P14	15.2	17.6	1.0	13.6	5.0	17.8	22.5	0.086
BZW04-14	15.2	16.8	1.0	13.6	5.0	17.8	22.5	0.086
BZW04P15	17.1	19.8	1.0	15.3	5.0	16.0	25.2	0.088
BZW04-15	17.1	18.9	1.0	15.3	5.0	16.0	25.2	0.088
BZW04P17	19.0	22.0	1.0	17.1	5.0	14.5	27.7	0.090
BZW04-17	19.0	21.0	1.0	17.1	5.0	14.5	27.7	0.090
BZW04P19	20.9	24.2	1.0	18.8	5.0	13.0	30.6	0.092
BZW04-19	20.9	23.1	1.0	18.8	5.0	13.0	30.6	0.092
BZW04P20	22.8	26.4	1.0	20.5	5.0	12.0	33.2	0.094
BZW04-20	22.8	25.2	1.0	20.5	5.0	12.0	33.2	0.094
BZW04P23	25.7	29.7	1.0	23.1	5.0	10.7	37.5	0.096
BZW04-23	25.7	28.4	1.0	23.1	5.0	10.7	37.5	0.096
BZW04P26	28.5	33.0	1.0	25.6	5.0	9.6	41.5	0.097
BZW04-26	28.5	31.5	1.0	25.6	5.0	9.6	41.5	0.097
BZW04P28	31.4	36.3	1.0	28.2	5.0	8.8	45.7	0.098
BZW04-28	31.4	34.7	1.0	28.2	5.0	8.8	45.7	0.098
BZW04P31	34.2	39.6	1.0	30.8	5.0	8.0	49.9	0.099
BZW04-31	34.2	37.8	1.0	30.8	5.0	8.0	49.9	0.099
BZW04P33	37.1	42.9	1.0	33.3	5.0	7.4	53.9	0.100
BZW04-33	37.1	41.0	1.0	33.3	5.0	7.4	53.9	0.100
BZW04P37	40.9	47.3	1.0	36.8	5.0	6.7	59.3	0.101
BZW04-37	40.9	45.2	1.0	36.8	5.0	6.7	59.3	0.101
BZW04P40	44.7	51.7	1.0	40.2	5.0	6.2	64.8	0.101
BZW04-40	44.7	49.4	1.0	40.2	5.0	6.2	64.8	0.101
BZW04P44	48.5	56.1	1.0	43.6	5.0	5.7	70.1	0.102
BZW04-44	48.5	53.6	1.0	43.6	5.0	5.7	70.1	0.102
BZW04P48	53.2	61.6	1.0	47.8	5.0	5.2	77.0	0.103
BZW04-48	53.2	58.8	1.0	47.8	5.0	5.2	77.0	0.103

TRANSZORB® Transient Voltage Suppressors

Electrical Characteristics (Con't.) Ratings at 25°C ambient temperature unless otherwise specified.

Device Type	Breakdown Voltage $V_{(BR)}$ (V) ⁽¹⁾		Test Current at I_T (mA)	Stand-off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_D (μ A) ⁽⁴⁾	Maximum Peak Pulse Current I_{PPM} (Amps) ⁽²⁾	Maximum Clamping Voltage at I_{PPM} V_C (Volts)	Maximum Temperature Coefficient of $V_{(BR)}$ (% / °C)
	Min.	Max.						
BZW04P53	58.9	68.2	1.0	53.0	5.0	4.7	85.0	0.104
BZW04-53	58.9	65.1	1.0	53.0	5.0	4.7	85.0	0.104
BZW04P58	64.6	74.8	1.0	58.1	5.0	4.3	92.0	0.104
BZW04-58	64.6	71.4	1.0	58.1	5.0	4.3	92.0	0.104
BZW04P64	71.3	82.5	1.0	64.1	5.0	3.9	103	0.105
BZW04-64	71.3	78.8	1.0	64.1	5.0	3.9	103	0.105
BZW04P70	77.9	90.2	1.0	70.1	5.0	3.5	113	0.105
BZW04-70	77.9	86.1	1.0	70.1	5.0	3.5	113	0.105
BZW04P78	86.5	100	1.0	78.0	5.0	3.2	125	0.105
BZW04-78	86.5	95.5	1.0	78.0	5.0	3.2	125	0.105
BZW04P85	95.0	110	1.0	85.5	5.0	2.9	137	0.106
BZW04-85	95.0	105	1.0	85.5	5.0	2.9	137	0.106
BZW04P94	105	121	1.0	94.0	5.0	2.6	152	0.107
BZW04-94	105	116	1.0	94.0	5.0	2.6	152	0.107
BZW04P102	114	132	1.0	102	5.0	2.4	165	0.107
BZW04-102	114	126	1.0	102	5.0	2.4	165	0.107
BZW04P110	124	143	1.0	111	5.0	2.2	179	0.107
BZW04-110	124	137	1.0	111	5.0	2.2	179	0.107
BZW04P128	143	165	1.0	128	5.0	2.0	207	0.108
BZW04-128	143	158	1.0	128	5.0	2.0	207	0.108
BZW04P136	152	176	1.0	136	5.0	1.8	219	0.108
BZW04-136	152	168	1.0	136	5.0	1.8	219	0.108
BZW04P145	161	187	1.0	145	5.0	1.7	234	0.108
BZW04-145	161	179	1.0	145	5.0	1.7	234	0.108
BZW04P154	171	198	1.0	154	5.0	1.6	246	0.108
BZW04-154	171	189	1.0	154	5.0	1.6	246	0.108
BZW04P171	190	220	1.0	171	5.0	1.5	274	0.108
BZW04-171	190	210	1.0	171	5.0	1.5	274	0.108
BZW04P188	209	242	1.0	188	5.0	1.4	301	0.108
BZW04-188	209	231	1.0	188	5.0	1.4	301	0.108
BZW04P213	237	275	1.0	213	5.0	1.5	344	0.110
BZW04-213	237	263	1.0	213	5.0	1.5	344	0.110
BZW04P239	266	308	1.0	239	5.0	1.5	384	0.110
BZW04-239	266	294	1.0	239	5.0	1.5	384	0.110
BZW04P256	285	330	1.0	256	5.0	1.2	414	0.110
BZW04-256	285	315	1.0	256	5.0	1.2	414	0.110
BZW04P273	304	352	1.0	273	5.0	1.2	438	0.110
BZW04-273	304	336	1.0	273	5.0	1.2	438	0.110
BZW04P299	332	385	1.0	299	5.0	0.90	482	0.110
BZW04-299	332	368	1.0	299	5.0	0.90	482	0.110
BZW04P342	380	440	1.0	342	5.0	0.90	548	0.110
BZW04-342	380	420	1.0	342	5.0	0.90	548	0.110
BZW04P376	418	484	1.0	376	5.0	0.80	603	0.110
BZW04-376	418	462	1.0	376	5.0	0.80	603	0.110

Notes: (1) $V_{(BR)}$ measured after I_T applied for 300 μ s, I_T = square wave pulse or equivalent

(2) Surge current waveform per Fig. 3 and derated per Fig. 2

(3) All terms and symbols are consistent with ANSI/IEEE C62.35

(4) For bidirectional types having V_{WM} of 10 volts and less, the I_D limit is doubled

TRANSZORB® Transient Voltage Suppressors

Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

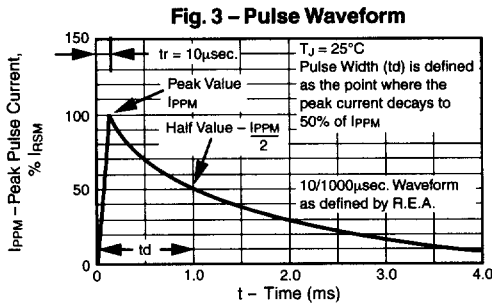
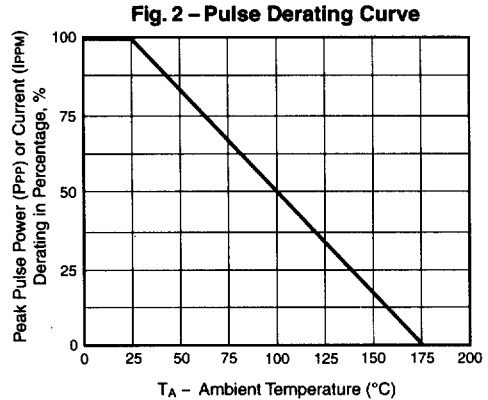
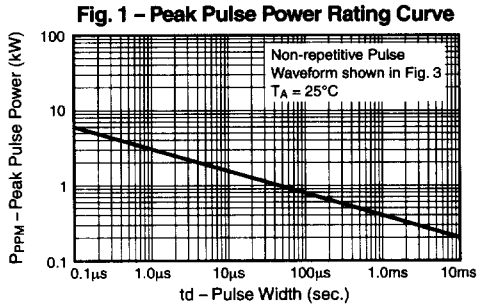


Fig. 4 - Typical Junction Capacitance Uni-Directional

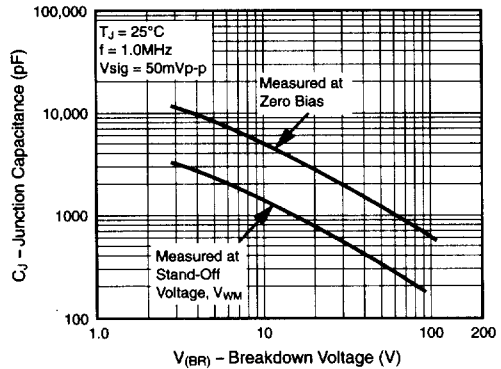


Fig. 5 - Steady State Power Derating Curve

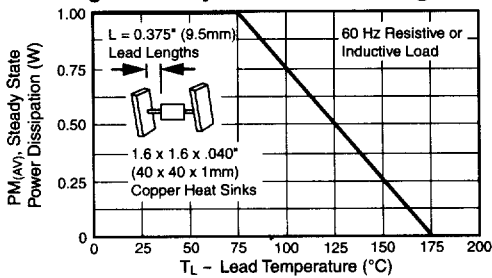


Fig. 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

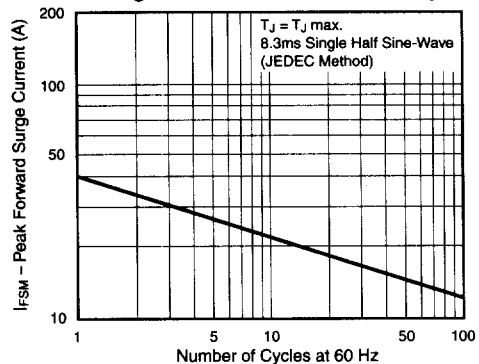


Fig. 7 - Typical Reverse Leakage Characteristics

