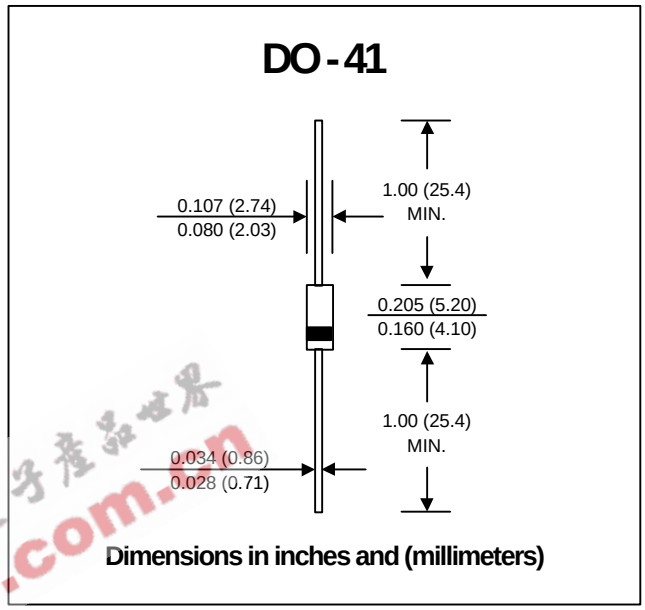
Certificate Number: Q10561

Certificate Number: E17276

BZW04 SERIES

TRANSIENT VOLTAGE SUPPRESSOR

V_{BR} : 6.8 - 440 Volts
P_{PK} : 400 Watts



FEATURES :

* 400W surge capability at 1ms
* Excellent clamping capability
* Low zener impedance
* Fast response time : typically less then 1.0 ps from 0 volt to $V_{BR(min)}$
* Typical I_R less then 1µA above 10V

MECHANICAL DATA

* Case : DO-41 Molded plastic
* Epoxy : UL94V-O rate flame retardant
* Lead : Axial lead solderable per MIL-STD-202, method 208 guaranteed
* Polarity : Color band denotes cathode end except Bipolar.
* Mounting position : Any
* Weight : 0.339 gram

DEVICES FOR BIPOLAR APPLICATIONS

For bi-directional use B Suffix.
Electrical characteristics apply in both directions

MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak Power Dissipation at Ta = 25 °C, Tp=1ms (Note1)	P_{PK}	Minimum 400	Watts
Steady State Power Dissipation at T_L = 75 °C Lead Lengths 0.375", (9.5mm) (Note 2)	P_D	1.0	Watt
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I_{FSM}	40	Amps.
Operating and Storage Temperature Range	T_J, T_{STG}	- 65 to + 175	°C

Note :

(1) Non-repetitive Current pulse, per Fig. 5 and derated above Ta = 25 °C per Fig. 1
(2) Mounted on Copper Leaf area of 1.57 in^2 (40mm^2).
(3) 8.3 ms single half sine-wave, duty cycle = 4 pulses per minutes maximum.

UPDATE : MAY 18, 1998

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ELECTRICAL CHARACTERISTICS

Rating at = 25 °C ambient temperature unless otherwise specified

TYPE	Breakdown Voltage @ It (Note 1)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Reverse Current	Maximum Clamping Voltage @ I_{RSM}	Maximum Temperature Co-efficient of V_{BR}
	V_{BR} (V)		It	V_{RWM}	I_R	I_{RSM}	V_{RSM}	of V_{BR}
	Min.	Max.	(mA)	(V)	(μA)	(A)	(V)	(% / °C)
BZW04P5V8	6.45	7.48	10	5.80	1000	38.0	10.5	0.057
BZW04-5V8	6.45	7.14	10	5.80	1000	38.0	10.5	0.057
BZW04P6V4	7.13	8.25	10	6.40	500	35.4	11.3	0.061
BZW04-6V4	7.13	7.88	10	6.40	500	35.4	11.3	0.061
BZW04P7V0	7.79	9.02	10	7.02	200	33.0	12.1	0.065
BZW04-7V0	7.79	8.61	10	7.02	200	33.0	12.1	0.065
BZW04P7V8	8.65	10.0	1.0	7.78	50	30.0	13.4	0.068
BZW04-7V8	8.65	9.55	1.0	7.78	50	30.0	13.4	0.068
BZW04P8V5	9.50	11.0	1.0	8.55	10	27.6	14.5	0.073
BZW04-8V5	9.50	10.5	1.0	8.55	10	27.6	14.5	0.073
BZW04P9V4	10.5	12.1	1.0	9.40	5.0	25.7	15.6	0.075
BZW04-9V4	10.5	11.6	1.0	9.40	5.0	25.7	15.6	0.075
BZW04P10	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
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

Certificate Number: Q10561

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ELECTRICAL CHARACTERISTICS

Rating at = 25 °C ambient temperature unless otherwise specified

TYPE	Breakdown Voltage @ It (Note 1)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Reverse Current	Maximum Clamping Voltage @ I_{RSM}	Maximum Temperature Co-efficient of V_{BR}
	V_{BR} (V)		It	V_{RWM}	I_R	I_{RSM}	V_{RSM}	of V_{BR}
	Min.	Max.	(mA)	(V)	(μA)	(A)	(V)	(% / °C)
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	77.8	5.0	3.2	125	0.106
BZW04-78	86.5	95.5	1.0	77.8	5.0	3.2	125	0.106
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
BZW04P111	124	143	1.0	111	5.0	2.2	179	0.107
BZW04-111	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	1.3	344	0.110
BZW04-213	237	263	1.0	213	5.0	1.3	344	0.110
BZW04P239	266	308	1.0	239	5.0	1.3	384	0.110
BZW04-239	266	294	1.0	239	5.0	1.3	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	0.9	482	0.110
BZW04-299	332	368	1.0	299	5.0	0.9	482	0.110
BZW04P342	380	440	1.0	342	5.0	0.9	548	0.110
BZW04-342	380	420	1.0	342	5.0	0.9	548	0.110
BZW04P376	418	484	1.0	376	5.0	0.8	603	0.110
BZW04-376	418	462	1.0	376	5.0	0.8	603	0.110

Note:

(1) V_{BR} measured after It applied for 300 μs., It = square wave pulse or equivalent.

(2) V_F = 3.5 Vmax., I_F = 25 Amps. (6.8 Volts thru 110 Volts)
V_F = 5.0 Vmax., I_F = 25 Amps. (120 Volts thru 440 Volts) per 1/2 square or equivalent sine wave.
PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.

RATING AND CHARACTERISTIC CURVES (BZW04 SERIES)

FIG.1 - PULSE DERATING CURVE

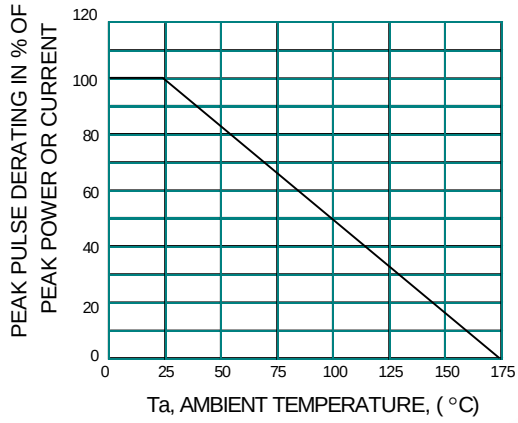

FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

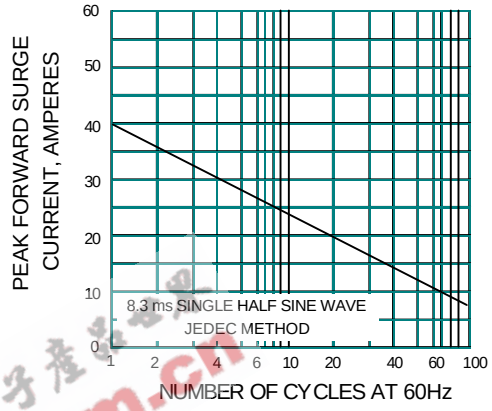

FIG.3 - STEADY STATE POWER DERATING

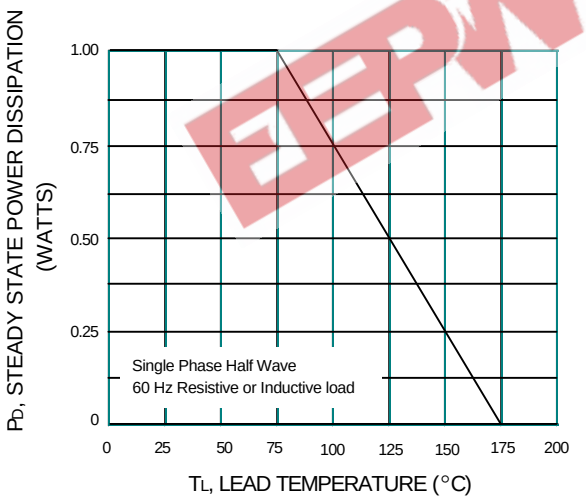

FIG.4 - PULSE RATING CURVE

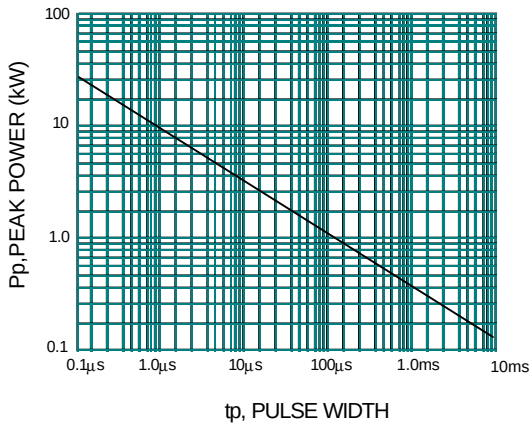

FIG.5 - PULSE WAVEFORM