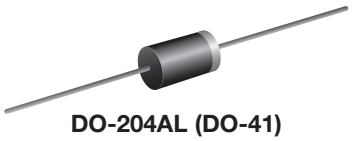
TRANSZORB® Transient Voltage Suppressors



DO-204AL (DO-41)

FEATURES

- Glass passivated chip junction
- Available in uni-directional and bi-directional
- 400 W peak pulse power capability with a 10/1000 µs waveform, repetitive rate (duty cycle): 0.01 %
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

PRIMARY CHARACTERISTICS	
V_{WM}	5.8 V to 376 V
V_{BR} (uni-directional)	6.45 V to V 462
V_{BR} (bi-directional)	6.45 V to V 462
P_{PPM}	400 W
P_D	1.5 W
I_{FSM} (uni-directional only)	40 A
T_J max.	175 °C
Polarity	Uni-directional, bi-directional
Package	DO-204AL (DO-41)

DEVICES FOR BI-DIRECTION APPLICATIONS

For bi-directional types, use B suffix (e.g. BZW04P-6V4B).

Electrical characteristics apply in both directions.

TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, and telecommunication.

MECHANICAL DATA

Case: DO-204AL, molded epoxy over passivated chip

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102
E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Note

BZW04-213(B) to BZW04-376(B) for commercial grade only

Polarity: For uni-directional types the color band denotes cathode end, no marking on bi-directional types

MAXIMUM RATINGS AND THERMAL CHARACTERISTICS (T_A = 25 °C unles otherwise noted)			
PARAMETER	**SYMBOL**	**LIMIT**	**UNIT**
Peak pulse power dissipation with a 10/1000 µs waveform (1) (fig. 1)	P_{PPM}	400	W
Peak pulse current with a 10/1000 µs waveform (1)	I_{PPM}	See next table	A
Power dissipation on infinite heatsink at T_L = 75 °C (fig. 5)	P_D	1.5	W
Peak forward surge current, 8.3 ms single half sine-wave uni-directional only (2)	I_{FSM}	40	A
Maximum instantaneous forward voltage at 25 A for uni-directional only (3)	V_F	3.5/5.0	V
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 175	°C

Notes

(1) Non-repetitive current pulse, per fig. 3 and derated above T_A = 25 °C per fig. 2
(2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum
(3) V_F = 3.5 V for BZW04P(-)188 and below; V_F = 5.0 V for BZW04P(-)213 and above

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

PART NUMBER		BREAKDOWN VOLTAGE V_{BR} AT I_T (1) (V)		TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (4) (A)	MAXIMUM PEAK PULSE CURRENT I_{PPM} (2) (A)	MAXIMUM CLAMPING VOLTAGE AT I_{PPM} V_C (V)	MAXIMUM TEMPERATURE COEFFICIENT OF V_{BR} (%/°C)
UNI-DIRECTIONAL	BI-DIRECTIONAL	MIN.	MAX.						
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	0.073
BZW04-8V5	BZW04-8V5B	9.50	10.5	1.0	8.55	10	27.6	14.5	0.075
BZW04-9V4	BZW04-9V4B	10.5	11.6	1.0	9.4	5.0	25.7	15.6	0.075
BZW04-10	BZW04-10B	11.4	12.6	1.0	10.2	1.0	24.0	16.7	0.078
BZW04-11	BZW04-11B	12.4	13.7	1.0	11.1	1.0	22.0	18.2	0.081
BZW04-13	BZW04-13B	14.3	15.8	1.0	12.8	1.0	19.0	21.2	0.084
BZW04-14	BZW04-14B	15.2	16.8	1.0	13.6	1.0	17.8	22.5	0.086
BZW04-15	BZW04-15B	17.1	18.9	1.0	15.3	1.0	16.0	25.2	0.088
BZW04-17	BZW04-17B	19.0	21.0	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	41.0	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	0.103
BZW04-53	BZW04-53B	58.9	65.1	1.0	53.0	1.0	4.7	85.0	0.104
BZW04-58	BZW04-58B	64.6	71.4	1.0	58.1	1.0	4.3	92.0	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	95.0	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
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: $t_p \geq 50$ ms

(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 bi-directional types having V_{WM} of 10 V and less, the I_D limit is doubled

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ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
BZW0410-E3/54	0.350	54	550	13" diameter paper tape and reel
BZW0410HE3/54 (1)	0.350	54	550	13" diameter paper tape and reel

Note

(1) AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

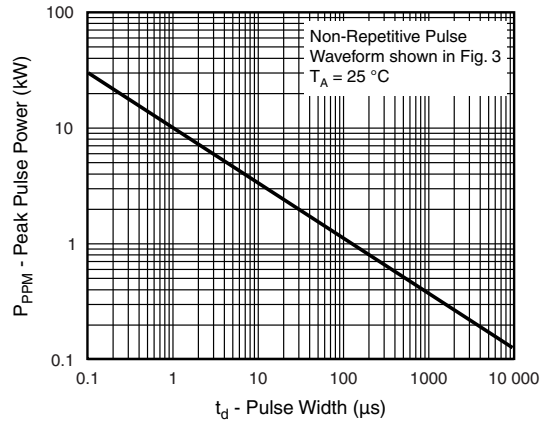

Fig. 1 - Peak Pulse Power Rating Curve

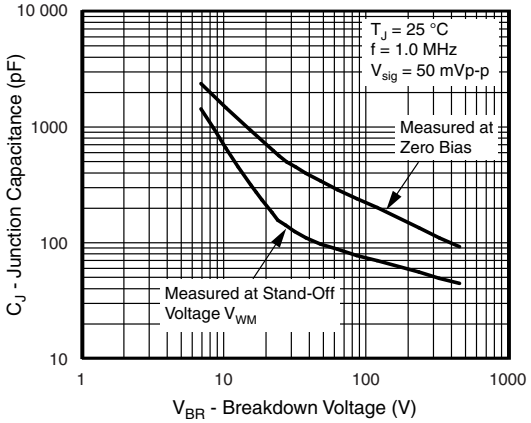

Fig. 4 - Typical Junction Capacitance

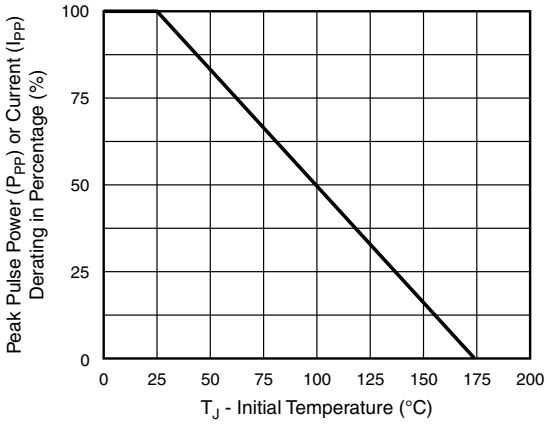

Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

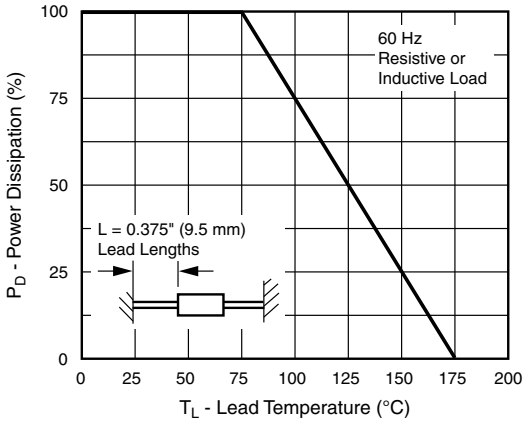

Fig. 5 - Power Derating Curve

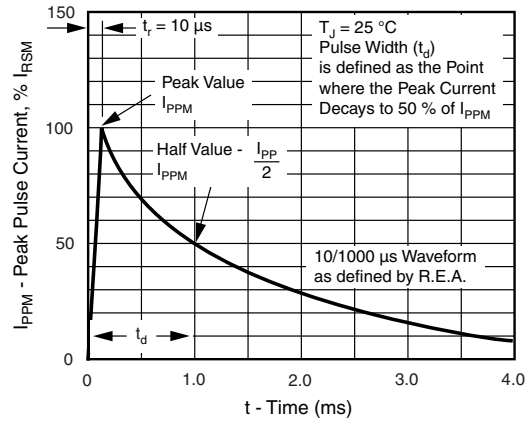

Fig. 3 - Pulse Waveform

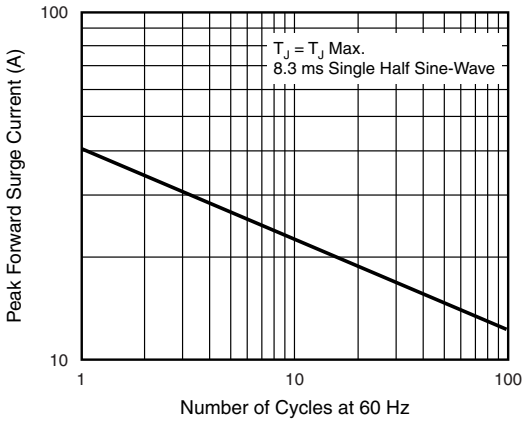

Fig. 6 - Max. Non-Repetitive Forward Surge Current
Uni-Directional Only

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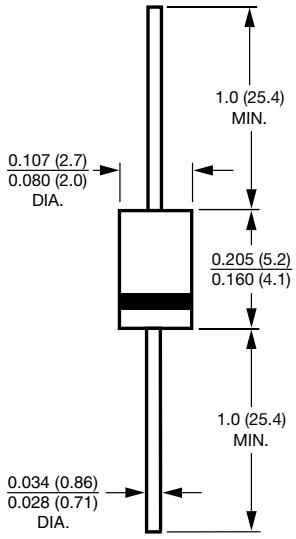
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)



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- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
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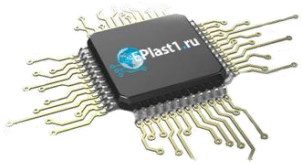
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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