DIGITRON Semiconductors

High-reliability discrete products
and engineering services since 1977

BZW06-5V8/376, BZW06-5V8B/376B

Transil Diodes
DO-15

FEATURES:

- Available as “HR” (high reliability) screened per MIL-PRF-19500, JANTX level. Add “HR” suffix to base part number
- Available Non-RoHS (standard) or RoHS compliant (add PBF suffix)

MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Peak pulse power dissipation(1) T_J = initial = T_{amb}	P_{PP}	600	Watts
Power dissipation on infinite heatsink T_{amb} = 75°C	P	1.7	Watts
Non repetitive surge peak forward current for unidirectional types t_p = 10ms, T_J initial = T_{amb}	I_{FSM}	100	Amps
Operating and storage temperature range	T_J, T_{stg}	-65 to +175	°C
Maximum lead temperature for soldering during 10s; 5mm from case	T_L	230	°C
Thermal resistance, junction to leads	R_{thj-l}	60	°C/W
Thermal resistance, junction to ambient on printed circuit L_{Lead} = 10mm	R_{thj-a}	100	°C/W

Note 1: For a surge greater than the maximum values, the diode will fail in short-circuit.

ELECTRICAL CHARACTERISTICS

Part number		Maximum reverse leakage current		Minimum breakdown voltage @ test current (2)		Maximum clamping voltage @ I_{PP}		Maximum clamping voltage @ I_{PP}		Maximum voltage temperature coefficient (3)	Typical capacitance (4)
		I_{RM} @ V_{RM}		V_{BR} @ I_R		V_C @ I_{PP}		V_C @ I_{PP}		α_T	C
						10/1000µs		8/20µs			
Unidirectional	**Bidirectional**	**µA**	**Volts**	**Volts**	**mA**	**Volts**	**Amps**	**Volts**	**Amps**	**10^{-4}/°C**	**pF**
BZW06-5V8	**BZW06-5V8B**	1000	5.8	6.45	10	10.5	57.0	13.4	298	5.7	4000
BZW06-6V4	**BZW06-6V4B**	500	6.4	7.13	10	11.3	53.0	14.5	276	6.1	3700
BZW06-8V5	**BZW06-6V5B**	10	8.5	9.5	1	14.5	41.0	18.6	215	7.3	2800
BZW06-10	**BZW06-10B**	5	10.2	11.4	1	16.7	36.0	21.7	184	7.8	2300
BZW06-13	**BZW06-13B**	5	12.8	14.3	1	21.2	28.0	27.2	147	8.4	1900
BZW06-15	**BZW06-15B**	1	15.3	17.1	1	25.2	24.0	32.5	123	8.8	1600
BZW06-19	**BZW06-19B**	1	18.8	20.9	1	30.6	19.6	39.3	102	9.2	1350
BZW06-20	**BZW06-20B**	1	20.5	22.8	1	33.2	18.0	42.8	93	9.4	1250
BZW06-23	**BZW06-23B**	1	23.1	25.7	1	37.5	16.0	48.3	83	9.6	1150
BZW06-26	**BZW06-26B**	1	25.6	28.5	1	41.5	14.5	53.5	75	9.7	1075
BZW06-28	**BZW06-28B**	1	28.2	31.4	1	45.7	13.1	59.0	68	9.8	1000
BZW06-31	**BZW06-31B**	1	30.8	34.2	1	49.9	12.0	64.3	62	9.6	950
BZW06-33	**BZW06-33B**	1	33.3	37.1	1	53.9	11.1	69.7	57	10.0	900
BZW06-40	**BZW06-40B**	1	40.2	44.7	1	64.8	9.3	84	48	10.1	800
BZW06-48	**BZW06-48B**	1	47.8	53.2	1	77.0	7.8	100	40	10.3	700
BZW06-58	**BZW06-58B**	1	58.1	64.6	1	92.0	6.5	121	33	10.4	625

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Part number		Maximum reverse leakage current		Minimum breakdown voltage @ test current [2]		Maximum clamping voltage @ I_{PP}		Maximum clamping voltage @ I_{PP}		Maximum voltage temperature coefficient [3]	Typical capacitance [4]
		I_{RM} @ V_{RM}		V_{BR} @ I_R		V_C @ I_{PP}		V_C @ I_{PP}		α_T	C
						10/1000µs		8/20µs			
Unidirectional	**Bidirectional**	**µA**	**Volts**	**Volts**	**mA**	**Volts**	**Amps**	**Volts**	**Amps**	**10^{-4}/°C**	**pF**
BZW06-70	**BZW06-70B**	1	70.1	77.9	1	113	5.3	146	27.0	10.5	550
BZW06-85	**BZW06-85B**	1	85.5	95.0	1	137	4.4	178	22.5	10.6	500
BZW06-102	**BZW06-102B**	1	102	114	1	165	3.6	212	19.0	10.7	450
BZW06-128	**BZW06-128B**	1	128	143	1	207	2.9	265	15.0	10.8	400
BZW06-154	**BZW06-154B**	1	154	171	1	246	2.4	317	12.6	10.8	360
BZW06-171	**BZW06-171B**	1	171	190	1	274	2.2	353	11.3	10.8	350
BZW06-188	**BZW06-188B**	1	188	209	1	328	2.0	388	10.3	10.8	330
BZW06-213	**BZW06-213B**	1	213	237	1	344	2.0	442	9.0	11.0	310
BZW06-256	**BZW06-256B**	1	256	285	1	414	1.6	529	7.6	11.0	290
BZW06-273	**BZW06-273B**	1	273	304	1	438	1.6	564	7.1	11.0	280
BZW06-299	**BZW06-299B**	1	299	332	1	482	1.6	618	6.5	11.0	270
BZW06-342	**BZW06-342B**	1	342	380	1	548	1.3	706	5.7	11.0	360
BZW06-376	**BZW06-376B**	1	376	418	1	603	1.3	776	5.7	11.0	350

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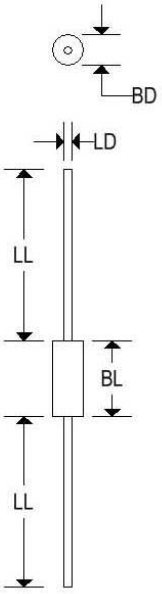
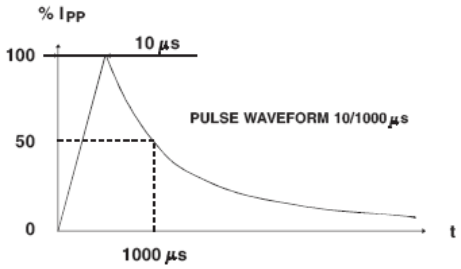
MECHANICAL CHARACTERISTICS

Case	DO-15
Marking	Alpha-numeric
Polarity	Cathode band



	DO-15			
	Inches		Millimeters	
	Min	Max	Min	Max
BD	0.100	0.140	2.540	3.556
BL	0.200	0.300	0.508	7.620
LD	0.028	0.032	0.711	0.813
LL	1.000	-	25.400	-



Note 2 : Pulse test: tp < 50 ms.
Note 3 : $\Delta V_{BR} = \alpha T * (T_{amb} - 25) * V_{BR(25°C)}$
Note 4 : $V_R = 0$ V, F = 1 MHz. For bidirectional types, capacitance value is divided by 2

Fig. 1: Peak pulse power dissipation versus initial junction temperature (printed circuit board).

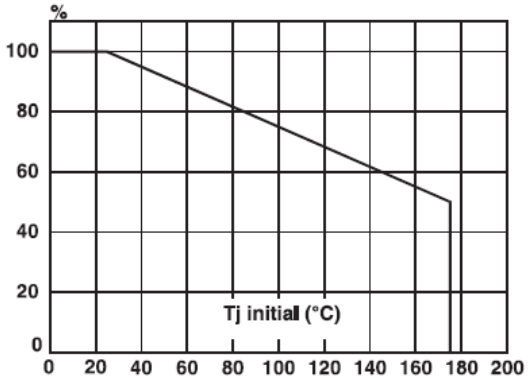


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Fig. 2 : Peak pulse power versus exponential pulse duration.

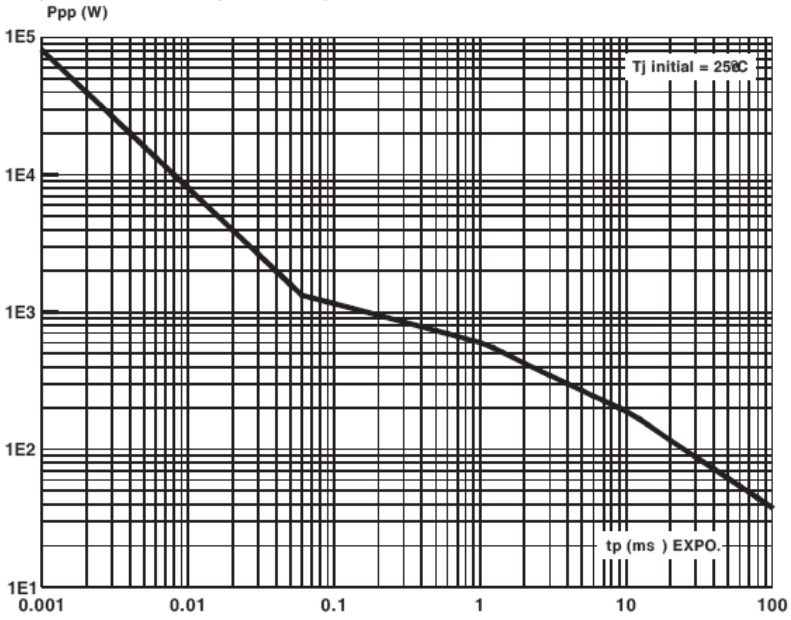
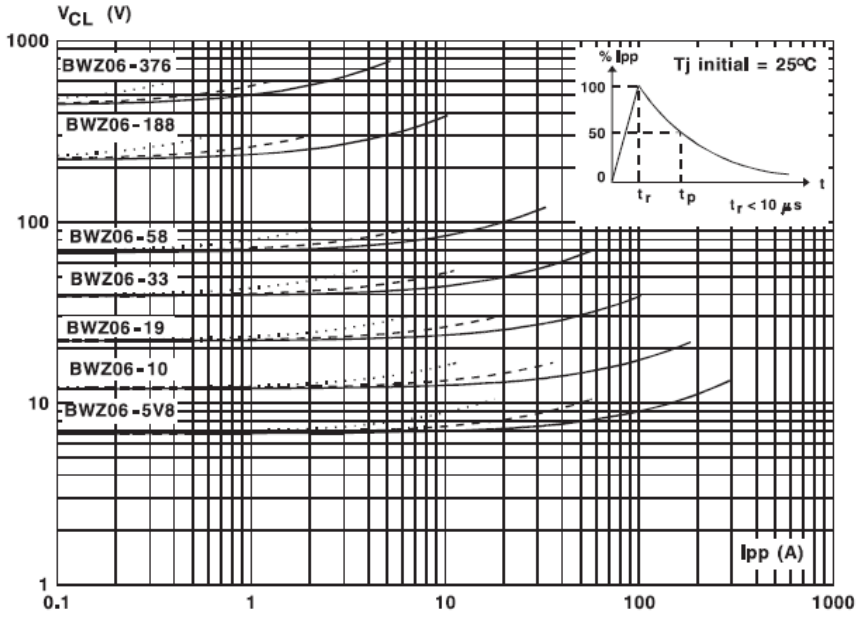


Fig. 3 : Clamping voltage versus peak pulse current.
Exponential waveform t_p = 20 µs_____
t_p = 1 ms————————
t_p = 10 m.....



Note : The curves of the figure 3 are specified for a junction temperature of 25°C before surge.
The given results may be extrapolated for other junction temperatures by using the following formula :
$\Delta V_{BR} = \alpha T \cdot (T_{amb} - 25) \cdot V_{BR}$ (25°C).
For intermediate voltages, extrapolate the given results.

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Fig. 4a : Capacitance versus reverse applied voltage for unidirectional types (typical values).

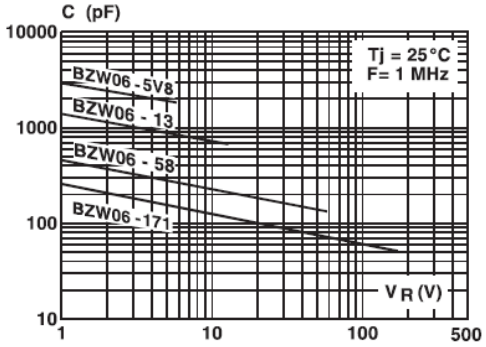

Fig. 4b : Capacitance versus reverse applied voltage for bidirectional types (typical values).

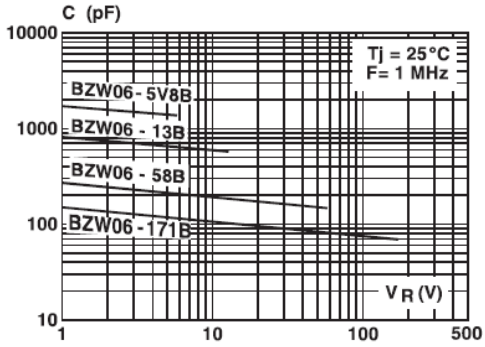

Fig. 5 : Peak forward voltage drop versus peak forward current (typical values for unidirectional types).

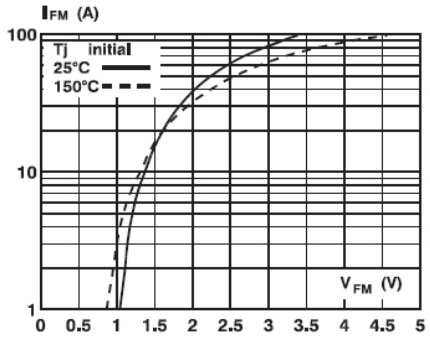

Fig. 6 : Transient thermal impedance junction ambient versus pulse duration (For FR4 PC Board with L lead = 10mm).

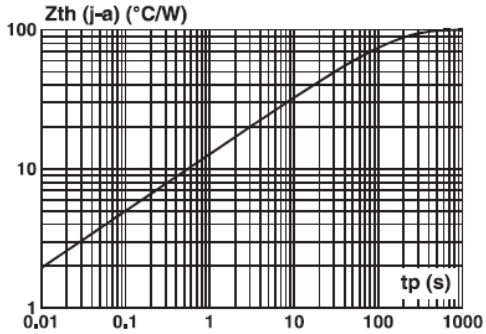

Fig. 7 : Relative variation of leakage current versus junction temperature.