

TRANSIL

TRANSIENT VOLTAGE SUPPRESSOR DIODES ESPECIALLY USEFUL IN PROTECTING INTEGRATED CIRCUITS, MOS, HYBRIDS AND OTHER VOLTAGE-SENSITIVE SEMICONDUCTORS AND COMPONENTS

- HIGH SURGE CAPABILITY: 700 W/1 ms expo.
8,5 kW/8-20 μ s expo.
- VERY FAST CLAMPING TIME: 1 μ s for unidirectional types
5 ns for bidirectional types
- LARGE VOLTAGE RANGE: 10V → 110V

DIODES ECRETEUSES ADAPTEES A LA PROTECTION DES CIRCUITS INTEGRES, MOS, CIRCUITS HYBRIDES, AUTRES SEMICONDUCTEURS ET COMPOSANTS SENSIBLES AUX SURTENSIONS.

- GRANDE CAPACITE DE SURCHARGE: 700 W/1 ms expo.
8,5 kW/8-20 μ s expo.
- TEMPS D'ECRETAGES TRES RAPIDE:
1 μ s pour types unidirectionnels
5 ns pour types bidirectionnels
- GAMME DE TENSION ETENDUE: 10V → 110V

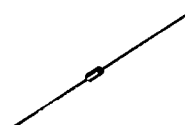
P_p : 700 W/1 ms expo.
8,5 kW/8-20 μ s expo.

V_{RM} : 10 V → 110 V

Type number → Unidirectional types

Type number + suffix B → Bidirectional types

Case : F126 plastic (CB-210)
Boîtier



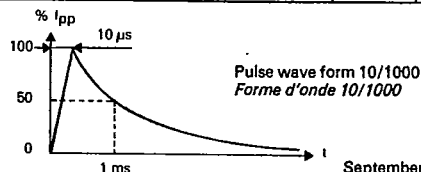
ABSOLUTE RATINGS (LIMITING VALUES) VALEURS LIMITEES ABSOLUES D'UTILISATION

Peak pulse power for 1 ms exponential pulse Puissance de crête pour une onde exponentielle de 1 ms	T_J initial = 25°C (cf note 1)	P_p	700	W
Power dissipation on infinite heatsink Dissipation de puissance sur radiateur infini	$T_{amb} = 50^\circ\text{C}$	P	2	W
Non repetitive surge peak forward current for unidirectional types Courant direct non répétitif de surcharge accidentelle pour types unidirectionnels	T_J initial = 25°C $t = 10$ ms	I_{FSM}	120	A
Storage and junction temperatures Températures de jonction et de stockage		T_J T_{stg}	150 -55 → +150	°C °C
Maximum lead temperature for soldering during 10 s at 4 mm from case Température maximum de soudure des connexions pendant 10 s à 4 mm du boîtier		T_L	230	°C

Junction - connexions thermal resistance on infinite heatsink ($L_{lead} = 10$ mm)
Résistance thermique jonction - connexions sur radiateur infini ($L_{connex.} = 10$ mm)

$R_{th(j-c)}$ 50 °C/W

Note 1 : For surges upper than the maximum values, the diode will present a short-circuit anode-cathode.
Pour des surcharges supérieures aux valeurs maximales, la diode présentera un court-circuit anode-cathode.



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BZW07 - 10,B → BZW07 - 110, B

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ELECTRICAL CHARACTERISTICS **CARACTERISTIQUES ELECTRIQUES**

Stand-off voltage : V_{RM}
Tension de veille : V_{RM}

Peak pulse current : I_{pp}
Courant de crête : I_{pp}

Breakdown voltage : $V_{(BR)}$
Tension d'avalanche : $V_{(BR)}$

Temperature coefficient of $V_{(BR)}$: $\propto T$
Coefficient de température de $V_{(BR)}$: $\propto T$

Clamping voltage : $V_{(CL)}$
Tension d'écrêtage : $V_{(CL)}$

Capacitance : C
Capacité : C

Clamping time (0 Volt to $V_{(BR)}$) : $t_{clamping} < 1$ ps for unidirectional types
Temps de réponse (0 Volt à $V_{(BR)}$) : $t_{clamping} < 5$ ns for bidirectional types

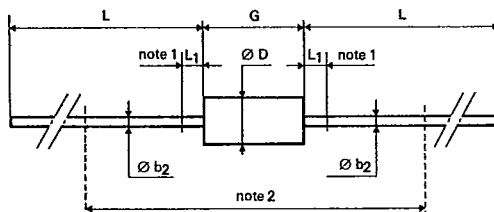
Types		I_{RM} @ V_{RM}		$V_{(BR)}^*$ @ I_R			V_{CL} @ I_{pp} max 1 ms expo		V_{CL} @ I_{pp} max 8/20 μ s expo		$\propto T$ max	C^{**} typ $V_R = 0$ V $f = 1$ MHz
Unidirectional	Bidirectional	(μ A)	(V)	min.	nom.	max.	(V)	(A)	(V)	(A)	(10 ⁻⁴ /°C)	(pF)
BZW07-10	BZW07-10B	5	10	13	16	20	25	30	32	265	8,4	3600
BZW07-27	BZW07-27B	5	27	29,6	36	43,5	53	13	68	125	9,8	1400
BZW07-43	BZW07-43B	5	43	50	62	75	90	8	115	74	10,3	850
BZW07-110	BZW07-110B	5	110	130	160	200	235	3	300	28	10,8	400

* Pulse test
Mesure en impulsion $t_p \leq 50$ ms $\delta < 2\%$

** Divide these values by 2 for bidirectional types
Diviser ces valeurs par 2 pour les types bidirectionnels

For bidirectional types, electrical characteristics apply in both directions.
Pour les types bidirectionnels, les caractéristiques électriques sont applicables dans les 2 sens.

CASE DESCRIPTION **DESCRIPTION DU BOITIER**



Ref.	Millimètres		Inches	
	Min.	Max.	Min.	Max.
Ø b2	0,76	0,86	0.029	0.034
Ø D	2,95	3,05	0.116	0.120
G	6,05	6,35	0.238	0.250
L	26	—	1.024	—
L1	—	1,27	—	0.050

Code France : F126

Notes

- The lead diameter $\varnothing b_2$ is not controlled over zone L_1 .
Zone à l'intérieur de laquelle le $\varnothing b_2$ n'est pas contrôlé.
- The minimum axial length within which the device may be placed with its leads bent at right angles is 0.59" (15mm).
Longueur minimale du dispositif avec ses sorties pliées à angle droit : 15mm (0.59").

Cooling method : by convection (method A).

Mode de refroidissement : par convection (mode A).

Marking : type number (white band indicates cathode for unidirectional types)

Marquage : n° du type (anneau blanc côté cathode pour types unidirectionnels)

Weight : 0,4g
Masse

BZW 07 -10, B → BZW 07 - 110, B

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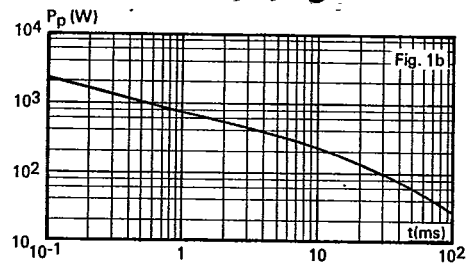
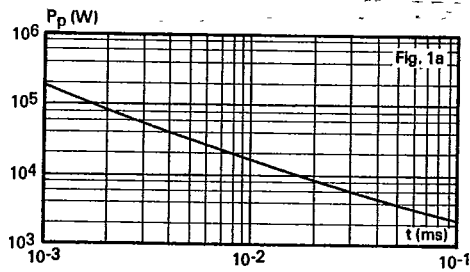


Fig. 1a-1b.— Peak pulse power versus exponential pulse duration.

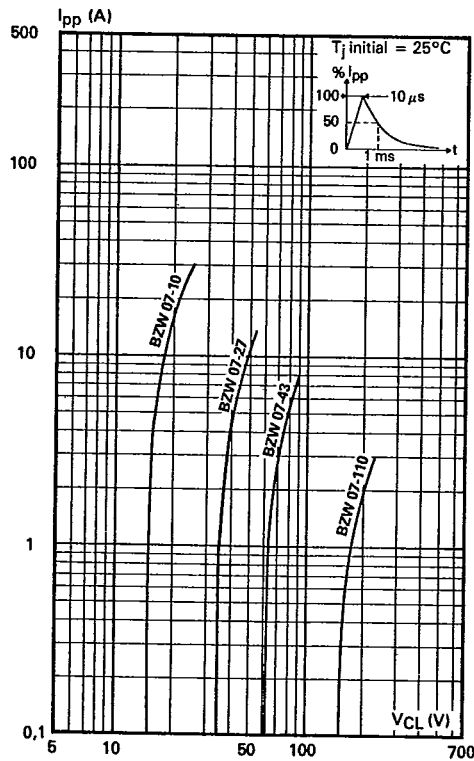


Fig. 2 — Peak pulse current versus clamping voltage (exponential waveform $t = 1$ ms).

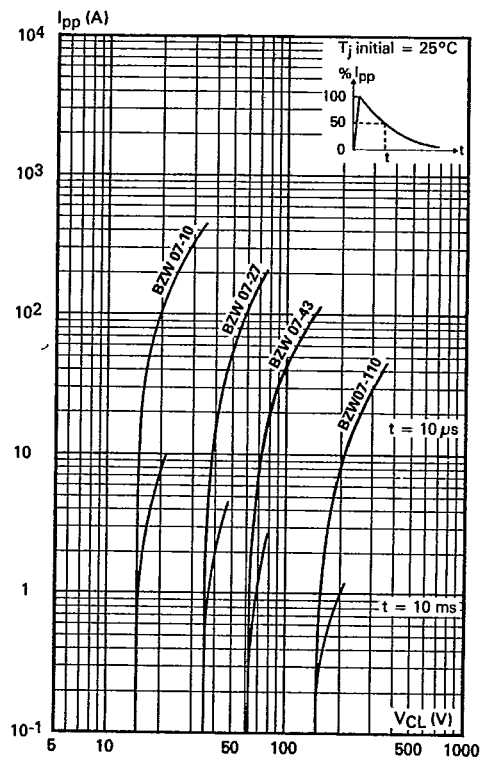


Fig. 3 — Peak pulse current versus clamping voltage (exponential waveform $t = 10 \mu s$ and 10 ms).

Note: The curves of figures 2 and 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:

$$\Delta V_{(BR)} = \alpha T_{(BR)} \times [T_j - 25] \times V_{(BR)}$$

BZW 07 - 10, B → BZW 07 - 110, B

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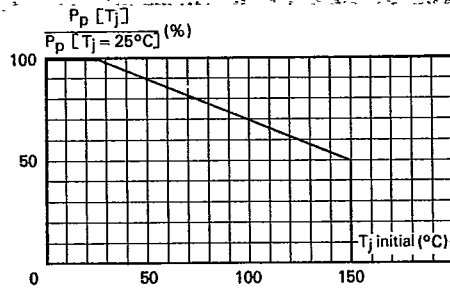


Fig. 4 — Allowable power dissipation versus junction temperature.

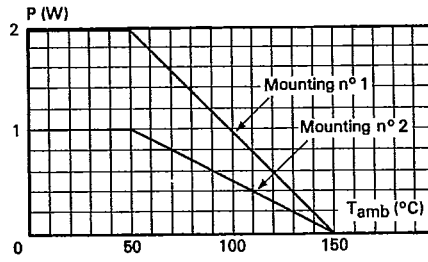


Fig. 5 — Power dissipation versus ambient temperature.

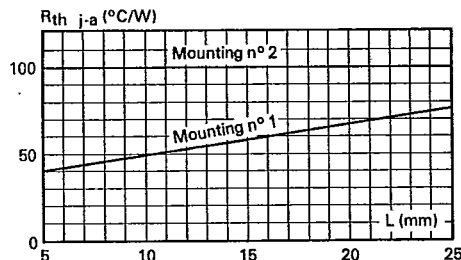


Fig. 6 — Thermal resistance junction-ambient versus lead length.

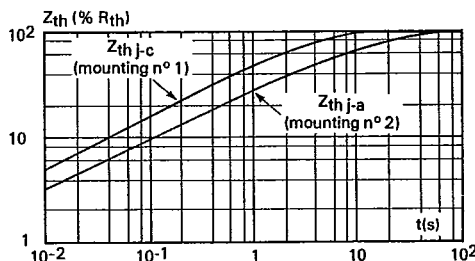


Fig. 7 — Transient thermal impedance junction — connexions for mounting n° 1 and junction — ambient for mounting n° 2 versus pulse duration (L = 10 mm).

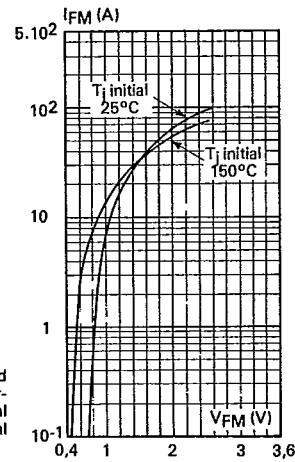
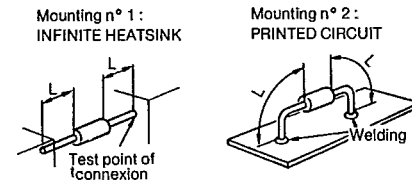


Fig. 8 — Peak forward current versus peak forward voltage drop (typical values) for unidirectional types.

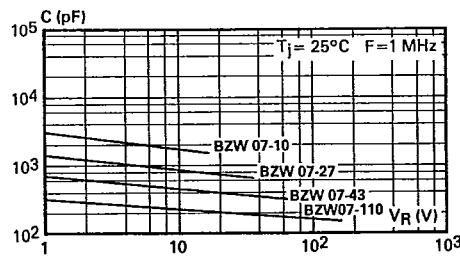


Fig. 9 — Capacitance versus reverse applied voltage for unidirectional types (typical values).

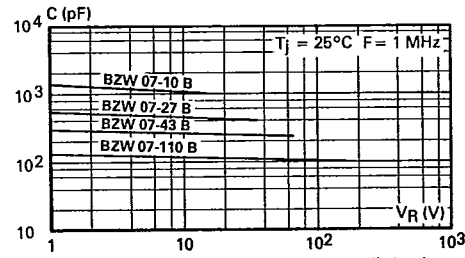


Fig. 10 — Capacitance versus reverse applied voltage for bidirectional types (typical values).