THOMSON-CSF
DIVISION SEMICONDUCTEURS

BZW07-10,B → BZW07-110,B

UNI – AND BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSORS

DIODES DE PROTECTION UNI – ET BIDIRECTIONNELLES

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 µs expo.
- VERY FAST CLAMPING TIME : 1 ps 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 µs expo.
- *TEMPS D'ECRETAGE TRES RAPIDE :*
  1 ps 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 µs expo.

V_{RM} : 10 V → 110 V

Type number → Unidirectional types

Type number + suffix B → Bidirectional types

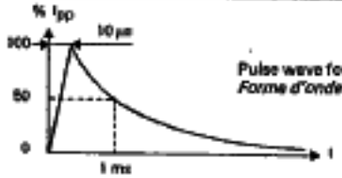
Case / *Boîtier* : F126 plastic (CB-210)

ABSOLUTE RATINGS (LIMITING VALUES)
VALEURS LIMITES 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°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)*	$R_{th\ (j-c)}$	60	°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.



Pulse wave form 10/1000
Forme d'onde 10/1000

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F - 92403 Courbevoie Cedex FRANCE
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THOMSON COMPOSANTS

59C 02656 D T-11-23

ELECTRICAL CHARACTERISTICS
CARACTERISTIQUES ELECTRIQUES

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

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

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

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

Temperature coefficient of $V_{(BR)}$ / *Coefficient de température de* $V_{(BR)}$: α_T

Capacitance / *Capacité* : C

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

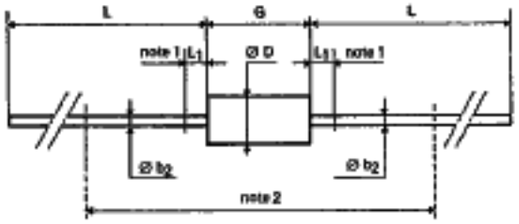
Types		I_{RM} @ V_{RM}		$V_{(BR)}$* @ I_R				V_{CL} @ I_{pp} max 1 ms expo		V_{CL} @ I_{pp} max 8/20 µs expo		α_T max	C** typ V_R = 0 V f = 1 MHz
Unidirectional	Bidirectional	(µA)	(V)	min.	nom.	max.	(mA)	(V)	(A)	(V)	(A)	(10^{-4}/°C)	(pF)
BZW07-10	BZW07-10B	5	10	13	16	20	5	25	30	32	265	8,4	3600
BZW07-27	BZW07-27B	5	27	29,6	36	43,6	5	59	13	68	125	9,8	1400
BZW07-43	BZW07-43B	5	43	50	62	75	5	90	8	115	74	10,3	850
BZW07-110	BZW07-110B	5	110	130	160	200	5	235	3	300	28	10,8	400

* Pulse test / *Mesure en impulsion* $t_p < 50$ 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 b_2	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	—
L_1	—	1,27	—	0.050

Code France : F126

Notes

1. The lead diameter Ø b_2 is not controlled over zone L_1.
   Zone à l'intérieur de laquelle le Ø b_2 *n'est pas contrôlé.*
2. 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 / *Masse* : 0,4g

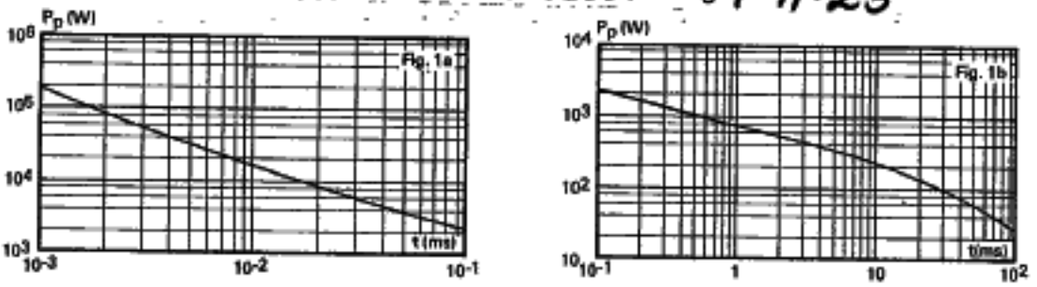


Fig. 1a-1b — Peak pulse power versus exponential pulse duration.

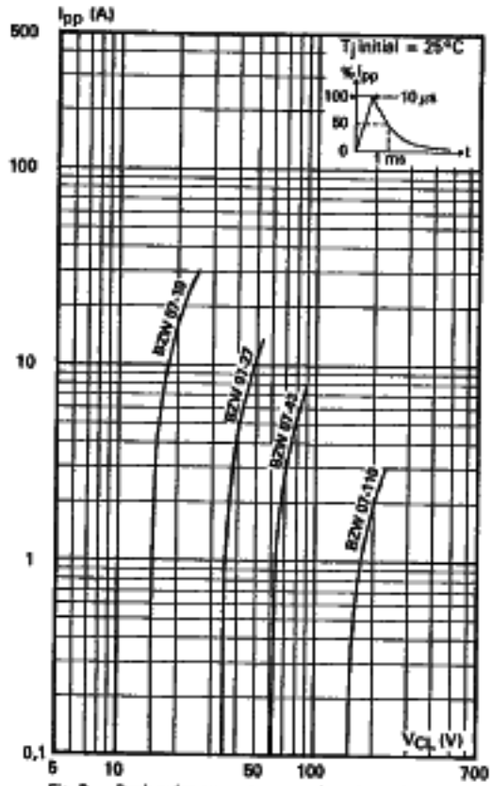


Fig. 2 — Peak pulse current versus clamping voltage (exponential waveform t = 1 ms).

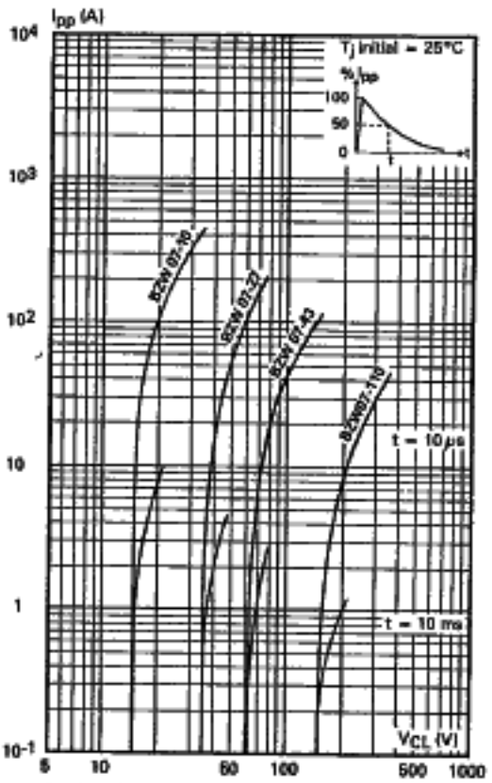


Fig. 3 — Peak pulse current versus clamping voltage (exponential waveform t = 10 µs and 10 ms).

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 :

$$\Delta V_{(BR)} = \alpha T \cdot V_{(BR)} \times \left[T_j - 25 \right] \times V_{(BR)}$$

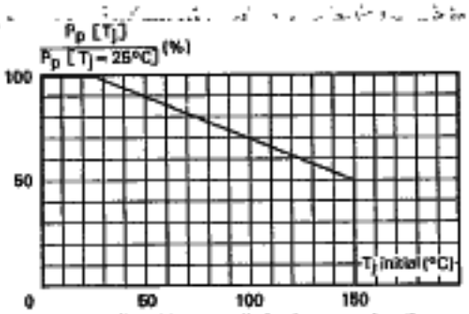


Fig. 4 — Allowable power dissipation versus junction temperature.

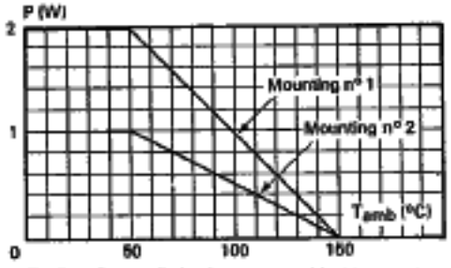


Fig. 5 — Power dissipation versus ambient temperature.

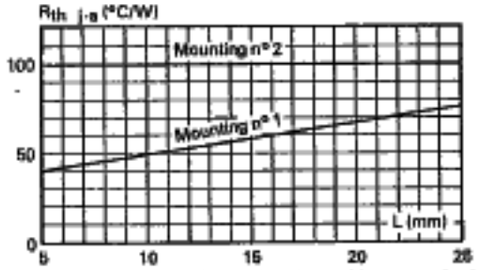
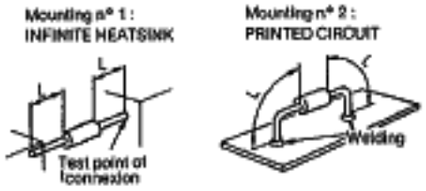


Fig. 6 — Thermal resistance junction-ambient versus lead length.



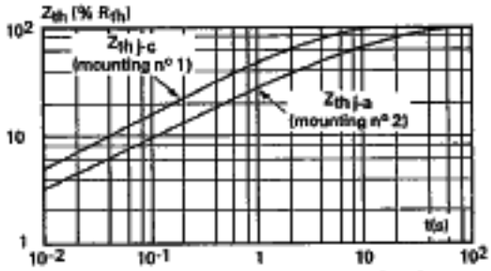


Fig. 7 — Transient thermal impedance junction — connexions for mounting n° 1 and junction — ambient for mounting n° 2 versus pulse duration (L = 10 mm).

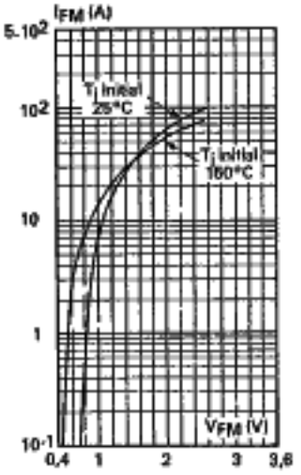


Fig. 8 — Peak forward current versus peak forward voltage drop (typical values) for unidirectional types.

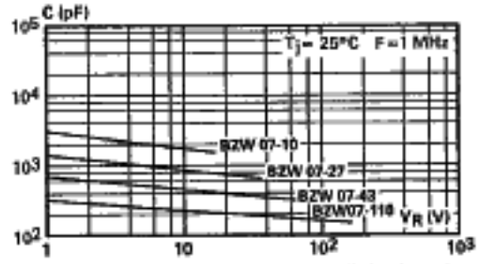


Fig. 9 — Capitance versus reverse applied voltage for unidirectional types (typical values).

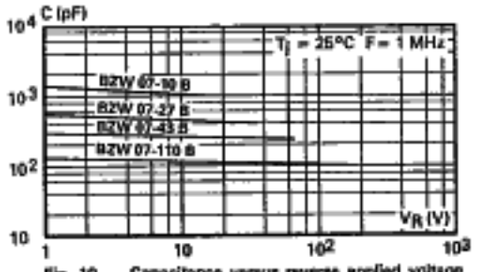


Fig. 10 — Capacitance versus reverse applied voltage for bidirectional types (typical values).