

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 ECUREUSES 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'ECRETAGE 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 : F128 plastic (CB-210)
Boitier :

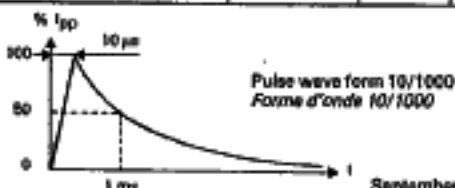


ABSOLUTE RATINGS (LIMITING VALUES)
VALEURS LIMITEES ABSOLUES D'UTILISATION

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 - connections thermal resistance on infinite heatsink ($L_{lead} = 10$ mm) Résistance thermique jonction - connexions sur radiateur infini ($L_{conex.} = 10$ mm)	$R_{th(j-c)}$	80	°C/W
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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, le diode présentera un court-circuit anode-cathode.



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ELECTRICAL CHARACTERISTICS
CARACTERISTIQUES ELECTRIQUES

Stand-off voltage : V_{RM} / Tension de veille : V_{RM} Breakdown voltage : $V_{(BR)}$ / Tension d'avalanche : $V_{(BR)}$ Clamping voltage : $V_{(CL)}$ / Tension d'écrêtage : $V_{(CL)}$
 Peak pulse current : I_{pp} / Courant de crête : I_{pp} Temperature coefficient of $V_{(BR)}$: α_T / Coefficient de température de $V_{(BR)}$: α_T Capacitance : C / Capacité : C

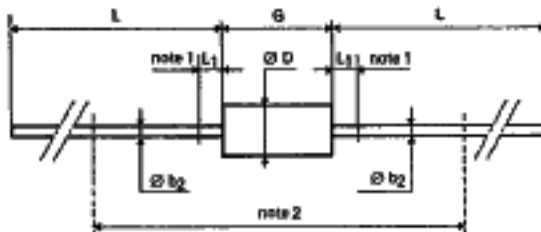
Clamping time (0 Volt to $V_{(BR)}$) : $t_{clamping} < 1 \mu s$ for unidirectional types
 Temps de réponse (0 Volt à $V_{(BR)}$) : $t_{clamping} < 5 ns$ for bidirectional types

Types		I_{RM} @ V_{RM}		$V_{(BR)}$ * @ I_R			V_{CL} @ I_{pp} max 1 ms expo		V_{CL} @ I_{pp} max 8/20 μs expo		α_T max	C^{**} typ $V_R = 0 V$ $f = 1 MHz$
Unidirectional	Bidirectional	(μA)	(V)	min.	nom.	max.	(V)	(A)	(V)	(A)	(10 ⁻⁴ /°C)	(pF)
BZW07-10	BZW07-10B	5	10	15	16	20	5	25	30	32	265	3600
BZW07-27	BZW07-27B	5	27	29,6	36	43,9	5	53	13	68	125	1400
BZW07-43	BZW07-43B	5	43	50	62	75	5	30	8	115	74	850
BZW07-110	BZW07-110B	5	110	130	160	200	5	235	3	305	28	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.
∅ b ₂	0,76	0,86	0,029	0,034
∅ D	2,85	3,05	0,118	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**
- 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 plées 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 (sceau blanc côté cathode pour types unidirectionnels).
 Weight : 0,4g
 Masse

59C 02657 DT-11-23

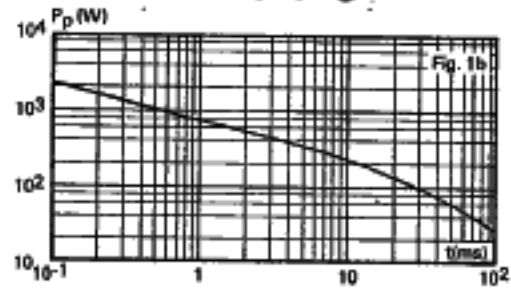
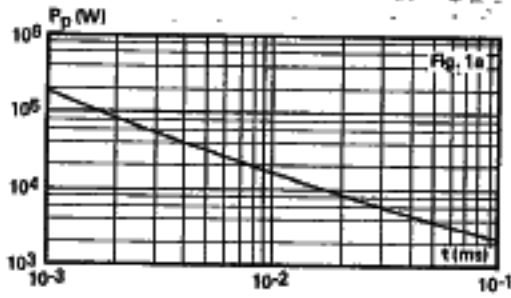


Fig. 1a-1b.— Peak pulse power versus exponential pulse duration.

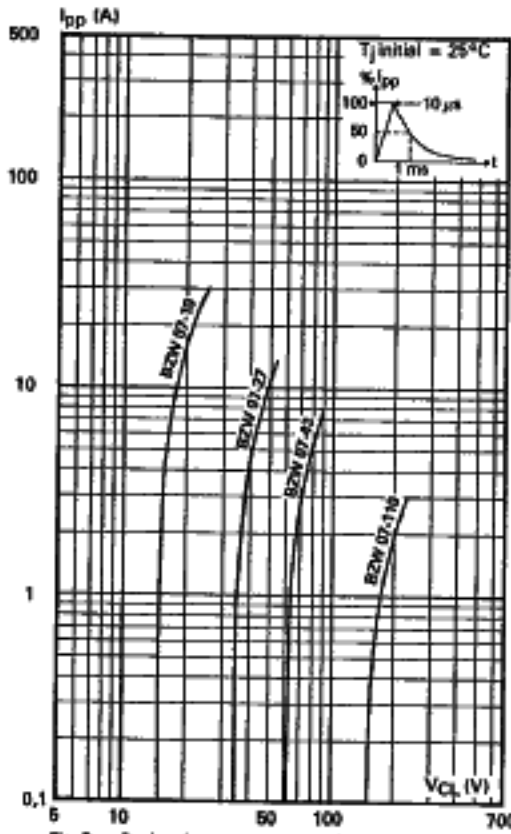


Fig. 2 — Peak pulse current versus clamping voltage (exponential waveform $t = 1$ ms).

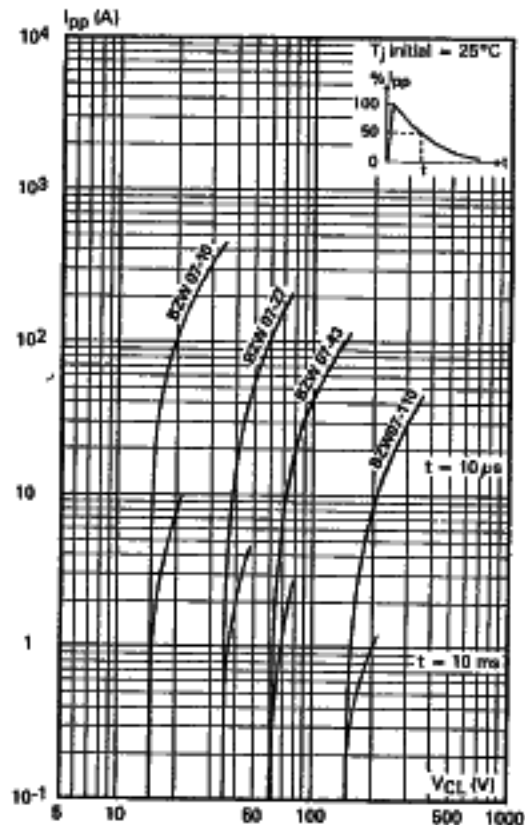


Fig. 3 — Peak pulse current versus clamping voltage (exponential waveform $t = 10 \mu s$ and 10 ms).

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:

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

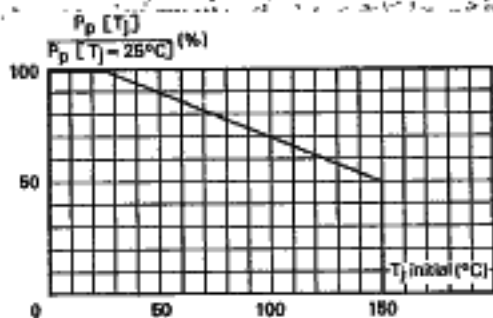


Fig. 4 - Allowable power dissipation versus junction temperature.

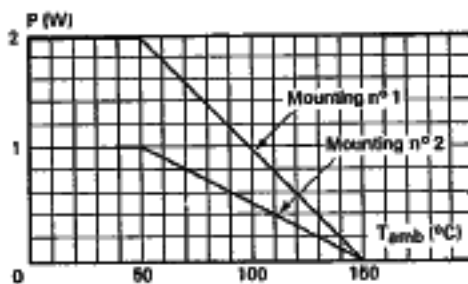


Fig. 5 - Power dissipation versus ambient temperature.

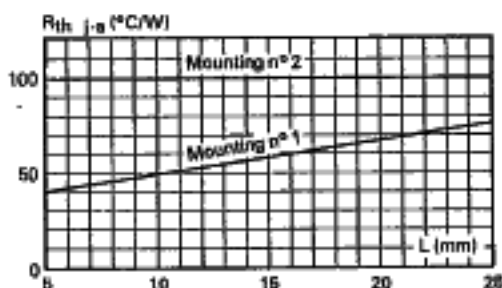


Fig. 6 - Thermal resistance junction-ambient versus lead length.

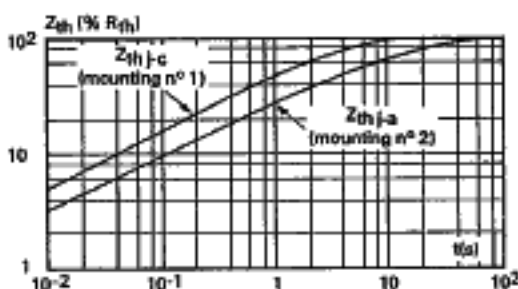


Fig. 7 - Transient thermal impedance junction-connections for mounting n° 1 and junction-ambient for mounting n° 2 versus pulse duration (L = 10 mm).

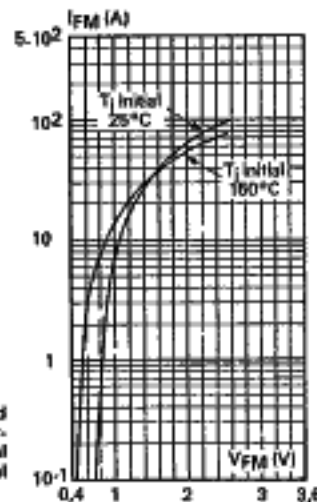
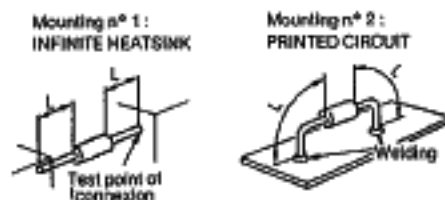


Fig. 8 - Peak forward current versus peak forward voltage drop (typical values) for unidirectional types.

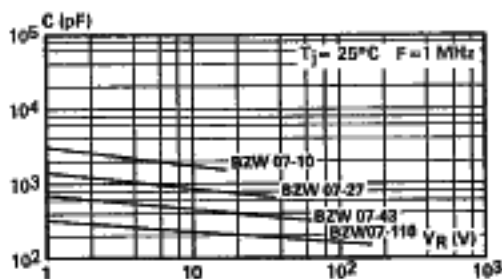


Fig. 9 - Capacitance versus reverse applied voltage for unidirectional types (typical values).

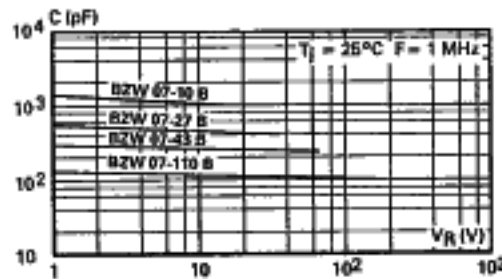


Fig. 10 - Capacitance versus reverse applied voltage for bidirectional types (typical values).