

THOMSON-CSF
DIVISION SEMICONDUCTEURS

59C 02701

D T-11-23

PF 8Z 6V8 → PF 8Z 180
PFZD 6V8 → PFZD 180

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 : 800 W/1 ms expo.
9,6 kW/8-20 μ s expo.
- VERY FAST CLAMPING TIME : 1 ps for unidirectional types
5 ns for bidirectional types
- LARGE VOLTAGE RANGE : 5,5V → 140 V

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

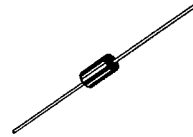
- GRANDE CAPACITE DE SURCHARGE : 800 W/1 ms expo.
9,6 kW/8-20 μ s expo.
- TEMPS D'ECRETAGE TRES RAPIDE :
1 ps pour types unidirectionnels
5 ns pour types bidirectionnels
- GAMME DE TENSION ETENDUE : 5,5V → 140 V

P_p : 800 W/1ms expo.
9,6 kW/8-20 μ s expo.

V_{RM} : 5,5V → 140 V

PF8Z series → Unidirectional types
PFZD series → Bidirectional types

Case
Boîtier : DO 27A plastic (CB-197)

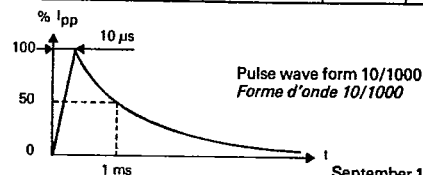


ABSOLUTE RATINGS (LIMITING VALUES) VALEURS LIMITEES ABSOLUES D'UTILISATION

Peak pulse power for 1 ms exponential pulse <i>Puissance de crête pour une onde exponentielle de 1 ms</i>	T_J initial = 25°C (cf note 1)	P_p	800	W
Power dissipation on infinite heatsink <i>Dissipation de puissance sur radiateur infini</i>	T_{amb} = 75°C	P	5	W
Non repetitive surge peak forward current for unidirectional types <i>Courant direct non répétitif de surcharge accidentelle pour types unidirectionnels</i>	T_J initial = 25°C t = 10 ms	I_{FSM}	200	A
Storage and junction temperatures <i>Températures de jonction et de stockage</i>		T_J T_{stg}	175 -65 → +175	°C °C
Maximum lead temperature for soldering during 10 s at 4 mm from case <i>Température maximum de soudure des connexions pendant 10 s à 4 mm du boîtier</i>		T_L	230	°C

Junction - connexions thermal resistance on infinite heatsink ($L_{lead} = 10$ mm) <i>Résistance thermique jonction - connexions sur radiateur infini ($L_{connex.} = 10$ mm)</i>	$R_{th(j-c)}$	20	°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, la diode présentera un court-circuit anode-cathode.



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THOMSON
COMPOSANTS

PF8Z 6V8 → PF8Z 180
PF8Z 6V8 → PF8Z 180

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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 $V_{(BR)}$: αT
Coefficient de température de $V_{(BR)}$: αT

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		αT max	C^{**} typ $V_R = 0$ V $f = 1$ MHz	
Unidirectional	Bidirectional	(μ A)	(V)	min.	nom.	max.	(mA)	(V)	(A)	(V)	(A)	(10 ⁻⁴ /°C)	(pF)
PF8Z6V8	PF8Z180	1000	5,5	6,12	6,8	7,48	10	10,5	76	13,4	716	5,7	10000
PF8Z8V2	PF8Z240	200	6,5	7,38	8,2	9,02	10	12	66,5	16,4	588	6,5	6400
PF8Z10	PF8Z300	10	8	9,0	10	11	1	14,5	55	19,5	492	7,3	4600
PF8Z12	PF8Z360	5	9,5	10,8	12	13,2	1	17	47	23	417	7,8	3400
PF8Z15	PF8Z450	5	12	13,5	15	16,5	1	21,5	37	29	331	8,4	2500
PF8Z18	PF8Z540	5	14,5	16,2	18	19,8	1	25,5	31,5	34	282	8,8	2000
PF8Z22	PF8Z660	5	17,5	19,8	22	24,2	1	31,5	25,5	41	234	9,2	1560
PF8Z27	PF8Z810	5	21,5	24,3	27	29,7	1	38,5	21	50	192	9,6	1240
PF8Z33	PF8Z990	5	26,5	29,7	33	36,3	1	47	17	62	155	9,8	1040
PF8Z39	PF8Z1170	5	31	35,1	39	42,9	1	56	14,5	73	132	10,0	900
PF8Z47	PF8Z1410	5	37,5	42,3	47	51,7	1	67	12	88	109	10,1	760
PF8Z56	PF8Z1680	5	45	50,4	56	61,6	1	80	10	105	91	10,3	680
PF8Z62	PF8Z1860	5	50	55,8	62	68,2	1	88,5	9	116	83	10,4	660
PF8Z68	PF8Z2040	5	54,5	61,2	68	74,8	1	97	8,3	127	76	10,4	600
PF8Z82	PF8Z2460	5	65	73,8	82	90,2	1	117	6,8	153	63	10,5	540
PF8Z100	PF8Z3000	5	80	90	100	110	1	143	5,6	183	51,5	10,6	500
PF8Z120	PF8Z3600	5	95	108	120	132	1	172	4,6	222	43	10,7	460
PF8Z150	PF8Z4500	5	120	135	150	165	1	215	3,7	277	34,5	10,8	420
PF8Z180	PF8Z5400	5	140	162	180	198	1	257	3,1	333	30	10,8	400

* Pulse test

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

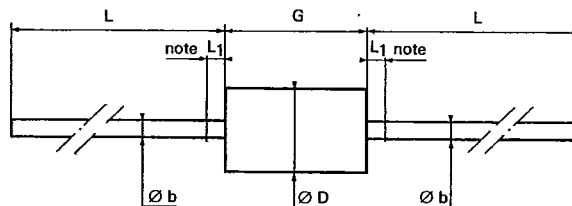
** Divide these values by 2 for bidirectional types

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		Note
	Min.	Max.	Min.	Max.	
Ø b	—	1,28	—	0.0504	- The lead diameter Ø b is not controlled over zone L ₁ . - Zone à l'intérieur de laquelle le Ø b n'est pas contrôlé.
Ø D	—	5,10	—	0.2008	
G	—	9,80	—	0.3859	
L	26,0	—	1.024	—	
L ₁	—	1,25	—	0.0492	

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° de type ; anneau blanc côté cathode pour les types unidirectionnels.

Weight : 1 g

Poids

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PF8Z 6V8 → PF8Z 180
 PFDZ 6V8 → PFZD 180

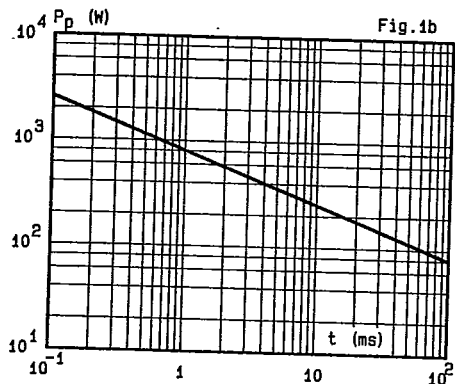
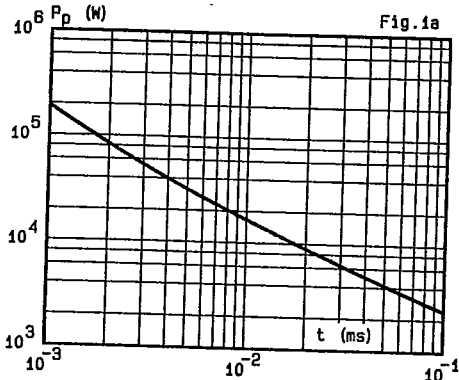


Fig.1a-1b - Peak pulse power versus exponential pulse duration.

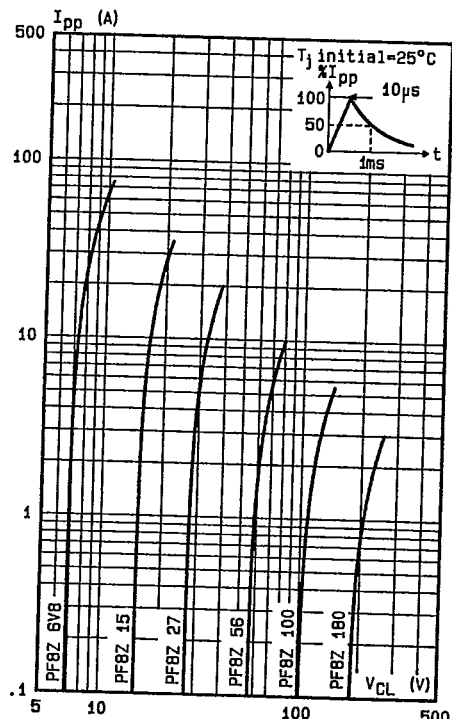


Fig.2 - Peak pulse current versus clamping voltage (exponential waveform t=1ms).

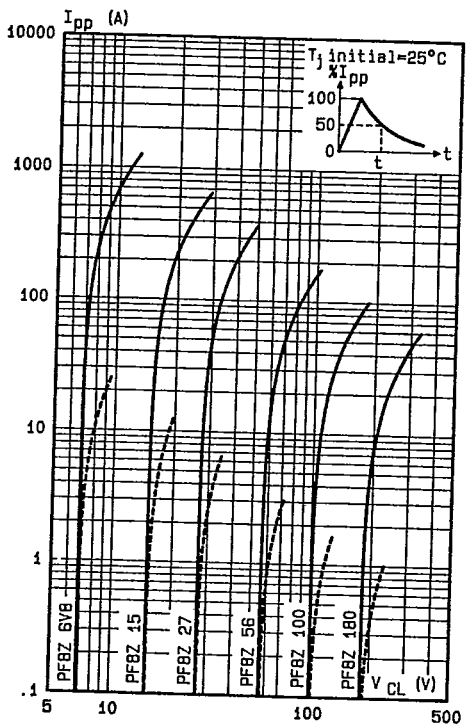


Fig.3 - Peak pulse current versus clamping voltage (exponential waveform t=10µs — and t=10ms ---).

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 :

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

For intermediate voltages, extrapolate the given results.

PF8Z 6V8 → PF8Z 180
 PFDZ 6V8 → PFDZ 180

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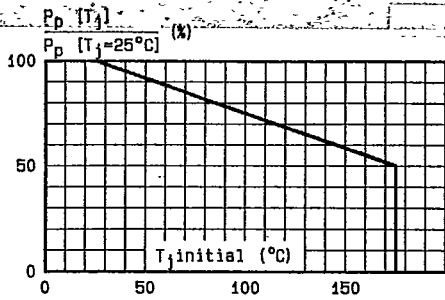


Fig.4 - Allowable power dissipation versus junction temperature.

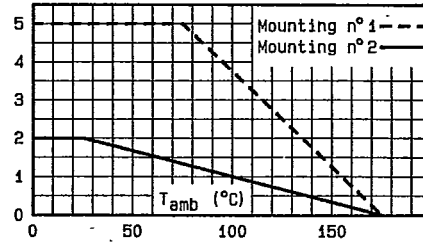


Fig.5 - Power dissipation versus ambient temperature.

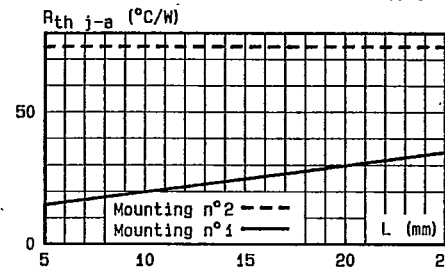


Fig.6 - Thermal resistance junction-ambient versus lead length.

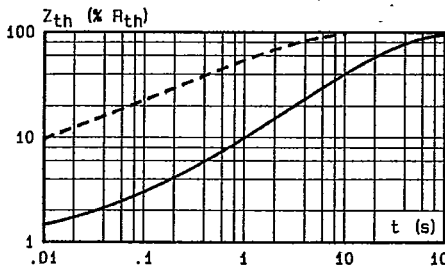
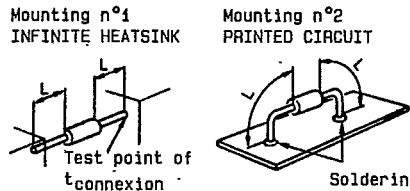


Fig.7 - Transient thermal impedance junction-connexions for mounting n°1 (curve ---) and junction-ambient for mounting n°2 (curve —) versus pulse duration (L=10mm).

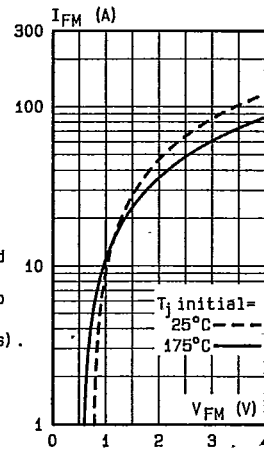


Fig.8 - Peak forward current versus peak forward voltage drop (typical values for unidirectional types).

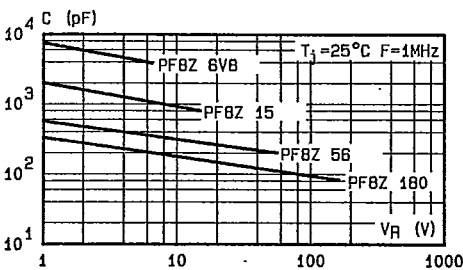


Fig.9 - Capacitance versus reverse applied voltage for unidirectional types (typical values).

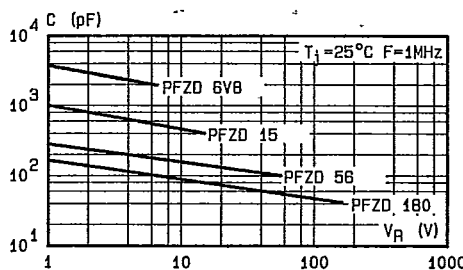


Fig.10 - Capacitance versus reverse applied voltage for bidirectional types (typical values).