59C 02348 D T-03-13

THOMSON-CSF
DIVISION SEMICONDUCTEURS DISCRETS

PLR 810→PLR 818

FAST RECOVERY RECTIFIER DIODES
DIODES DE REDRESSEMENT RAPIDES

THEIR HIGH EFFICIENCY AND HIGH RELIABILITY COMBINED WITH SMALL SIZE AND LOW COST MAKE THESE FAST RECOVERY RECTIFIER DIODES VERY ATTRACTIVE COMPONENTS FOR MANY DEMANDING APPLICATIONS.

FEATURES
- LOW FORWARD VOLTAGE DROP.
- HIGH REVERSE BLOCKING VOLTAGE.
- HIGH SURGE CURRENT CAPABILITY.

APPLICATIONS
- AC-DC POWER SUPPLIES AND CONVERTERS.
- CHOPPERS.
- FREE WHEELING DIODES, ETC.

LEURS HAUTES PERFORMANCES ET LEUR FIABILITE ASSOCIEES A UN FAIBLE ENCOMBREMENT ET A UN FAIBLE COUT FONT DE CES DIODES DE REDRESSEMENT RAPIDE DES COMPOSANTS TRES ATTRAYANTS DANS DE NOMBREUSES APPLICATIONS.

PARTICULARITES
- *FAIBLE CHUTE DE TENSION DIRECTE.*
- *TENSION DE BLOCAGE INVERSE ELEVEE.*
- *COURANT DE SURCHARGE ELEVE.*

APPLICATIONS
- *ALIMENTATIONS DE PUISSANCE ET CONVERTISSEURS CONTINU-ALTERNATIF.*
- *HACHEURS.*
- *DIODES ROUE LIBRE, ETC.*

I_O : 1 A / T_{amb} = 75 °C

V_{RRM} : 50 V to 1 000 V

t_{rr} : 300 ns

Case *Boîtier* : F 126 plastic

ABSOLUTE RATINGS (LIMITING VALUES) *VALEURS LIMITES ABSOLUES D'UTILISATION*	Symbols	PLR 810 → PLR 818	Units
Mean forward current (half wave rectification - resistive load)* *Courant moyen redressé (redressement mono-alternance - charge résistive)**	I_O	T_{amb} = 75 °C : 1	A
D.C. forward current* *Courant direct continu**	I_F	T_{amb} = 75 °C : 1,2	A
Non repetitive surge peak forward current (t = 10 ms) *Courant direct non répétitif de surcharge accidentelle*	I_{FSM}	Tj initial = 25 °C : 45 Tj initial = 150 °C : 30	A
I^2t for fusing (t = 10 ms) *Valeur de la constante I^2t pour t = 10 ms*	I^2t	Tj initial = 25 °C : 10 Tj initial = 150 °C : 4,5	A^2s
Lead temperature for soldering for 3 s (L_{lead} = 5 mm) *Température des connexions pendant la soudure durant 3 s ($L_{con.}$ = 5 mm)*	T_L	300	°C
Storage and junction temperature range *Températures extrêmes de stockage et de jonction*	T_{stg} T_j	− 65 → + 150	°C

Symbols	PLR 810	PLR 811	PLR 812	PLR 813	PLR 814	PLR 816	PLR 817	PLR 818	Units
$V_{RWM} = V_{RRM} = V_R$	50	100	200	300	400	600	800	1 000	V
V_{RSM}	100	200	300	400	500	800	1 000	1 200	V

Junction-connexions thermal resistance* *Résistance thermique jonction-connexions**	$R_{th\ j-c}$	60	°C/W

ELECTRICAL CHARACTERISTICS (maximum values)
CARACTERISTIQUES ELECTRIQUES (valeurs maximales)

Symbols	Values	Units	Test conditions			
V_{FM}	1,1	V	Tj initial = 25 °C	I_{FM} = 1 A		
I_R	10	µA	T_{amb} = 25 °C	V_R specified		
	100		T_{amb} = 100 °C	*V_R spécifié*		
t_{rr}	300	ns	Tj initial = 25 °C	I_F = 1 A	V_R = 30 V	dI_F/dt = 25 A/µs I_{rr} = 0,2 I_{RM}
I_{RM}	3	A	Tj initial = 25 °C	I_F = 1 A	V_R = 30 V	dI_F/dt = 25 A/µs

* on infinite heatsink with 10 mm lead length.
* *sur radiateur infini avec longueur des connexions = 10 mm.*

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THOMSON COMPOSANTS

PLR 810→PLR 818

59C 02349 D T-03-13

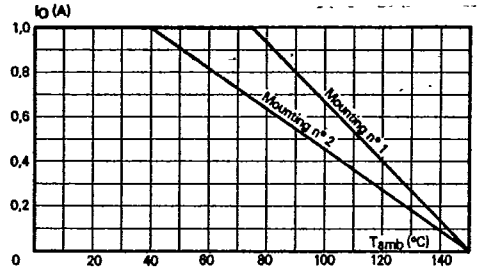


Fig. 1. – Mean forward current I_O versus ambient temperature (maximum values).

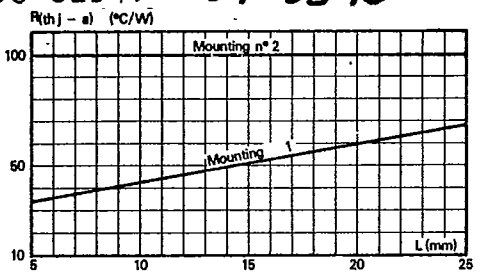
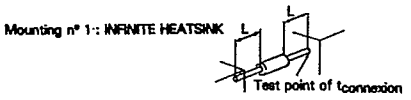
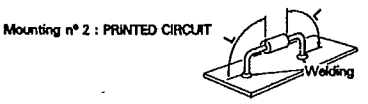


Fig. 2. – Thermal resistance junction-ambient versus lead length (typical values)





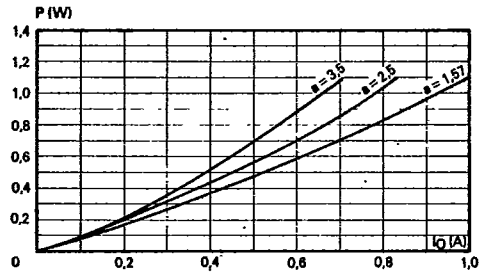


Fig. 3. – Mean power dissipation versus mean forward current I_O for different rectifying types:
1°) in the case of a resistive load (a = 1,57)
2°) in the case of a capacitive load (a > 1,57) with $a = \frac{I_F}{I_O}$

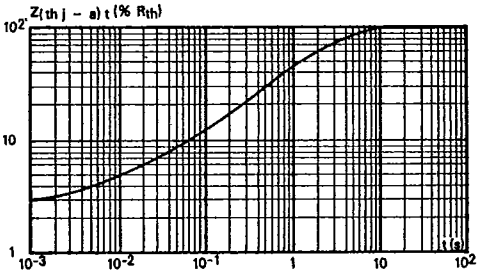


Fig. 4. – Transient thermal impedance junction-ambient $Z_{(th\ j-a)\ t}$ versus pulse duration t for mounting n° 1 and L = 10 mm (typical values).

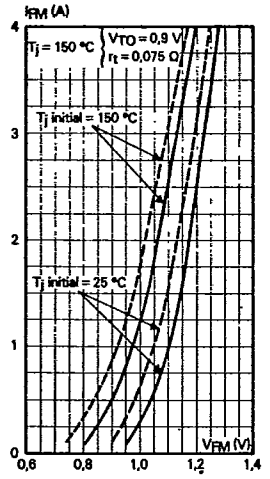


Fig. 5. – Peak forward current versus peak forward voltage drop at low level.

maximum values
typical values

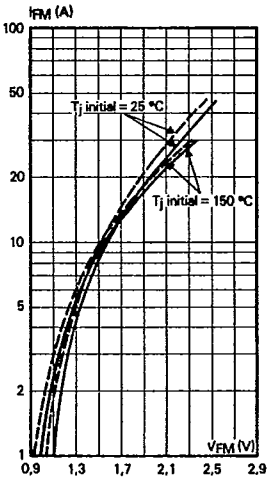


Fig. 6. – Peak forward current versus peak forward voltage drop at high level.

maximum values
typical values

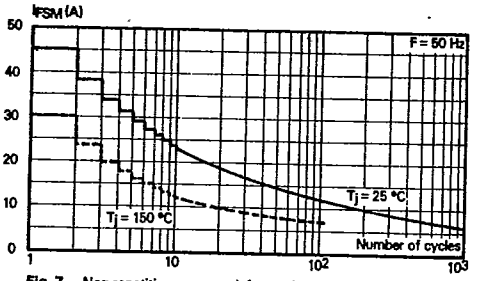


Fig. 7. - Non repetitive surge peak forward current versus number of cycles.

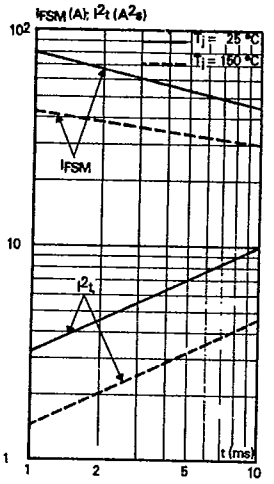


Fig. 8. - Non repetitive surge peak forward current for a sinusoidal pulse with width: t≤10 ms, and corresponding value of I^2t.

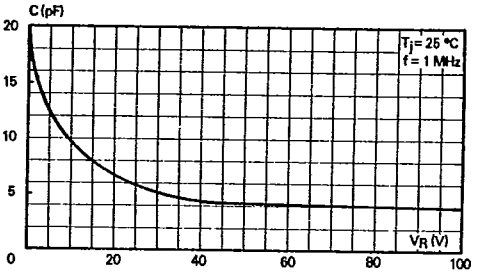


Fig. 9. - Capacity C versus reverse applied voltage V_R (typical values).

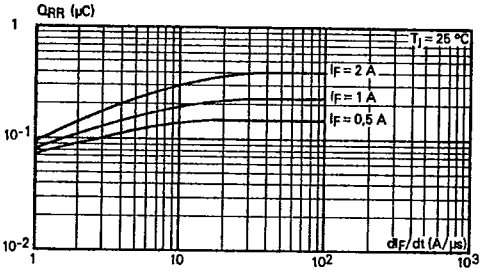
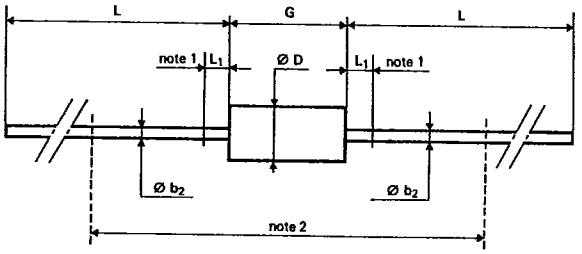
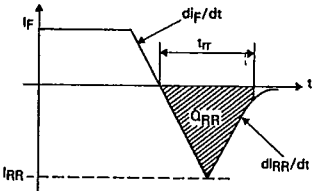


Fig. 10. - Recovered charge versus dI_F/dt (typical values).

CASE DESCRIPTION
DESCRIPTION DU BOITIER





Cooling method: by convection (method A).
Mode de refroidissement : par convection (mode A).

Marking: type number, white band indicates cathode.
Marquage : n° du type, anneau blanc côté cathode.

Weight : 0,4 g
Masse

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 : F 126				

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" (15 mm).
   Longueur minimale du dispositif avec ses sorties pliées à angle droit : 15 mm (0.59").