T-03-13

THOMSON-CSF
DIVISION SEMICONDUCTEURS DISCRETS

59C 02092 D

BA 157,T → BA 159,T

FAST RECOVERY RECTIFIER DIODES
DIODES DE REDRESSEMENT RAPIDE

FAST RECOVERY DIODES

- Soft recovery
- High voltage
- Small recovery charge

APPLICATIONS

- Switching diodes
- High frequency rectifier
- Low noise rectifier
- Clamping diodes
- Transistor base drive circuits

I_o	1 A/T_{amb} = 50°C
V_{RRM}	400 V to 1 000 V
t_{rr}	300 ns

Case *Boîtier* **F 126 (CB-210) plastic**

ABSOLUTE RATINGS (LIMITING VALUES) *VALEURS LIMITES ABSOLUES D'UTILISATION*	Symbols	BA 157,T — BA 159,T	Units
Mean forward current on resistive load * *Courant moyen redressé sur charge résistive* *	I_o	T_{amb} = 50°C : 1	A
D.C. forward current * *Courant direct continu* *	I_F	T_{amb} = 50°C : 1,15	A
Non repetitive surge peak forward current (t = 10 ms) *Courant direct non répétitif de surcharge accidentelle*	I_{FSM}	T_j initial = 25°C : 35 T_j initial = 150°C : 25	A
I^2t for fusing (t = 10 ms) *Valeur de la constante I^2t pour t = 10 ms*	I^2t	T_j initial = 25°C : 6,12 T_j initial = 150°C : 3,12	A^2s
Load temperature for soldering for 3 s (d = 5 mm) *Température des connexions pendant la soudure durant 3 s (d = 5 mm)*	T_L	300	°C
Storage and operating junction temperature range *Températures extrêmes de stockage et de jonction en fonctionnement*	T_{stg} T_j	− 55 to à + 150	°C

Symbols	BA 157,T	BA 158,T	BA 159,T	Unit
$V_{RWM} = V_{RRM} = V_R$	400	600	1 000	V

Junction-ambient thermal resistance * *Résistance thermique jonction-ambiante* *	$R_{th(j-a)}$	75	°C/W

ELECTRICAL CHARACTERISTICS (maximum values)
CARACTÉRISTIQUES ÉLECTRIQUES (valeurs maximales)

Symbols	BA 157,T	BA 158,T	BA 159,T	Units	Test conditions
V_{FM}	1,3			V	T_j initial = 25 °C I_{FM} = 1 A
I_R	5			µA	T_{amb} = 25 °C V_R specified *spécifié*
T_{rr}	300			ns	BA 157 — BA 159 : I_F = 2 mA I_R = 2 mA BA 157 T — BA 159 T : I_F = 10 mA I_R = 10 mA T_j = 25 °C
C_o	3 typ.	2 typ.	1,8 typ.	pF	T_j = 25 °C f = 1 MHz V_R specified *spécifié*

* on infinite heatsink with 10 mm lead length.

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THOMSON COMPOSANTS

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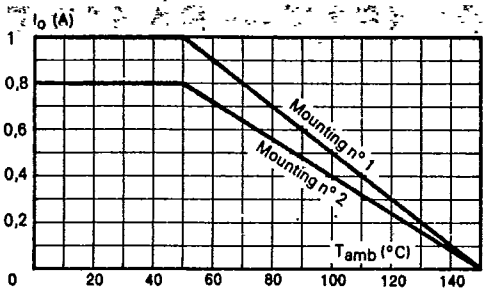


Fig. 1 - Mean forward current I_O versus ambient temperature (maximum values).

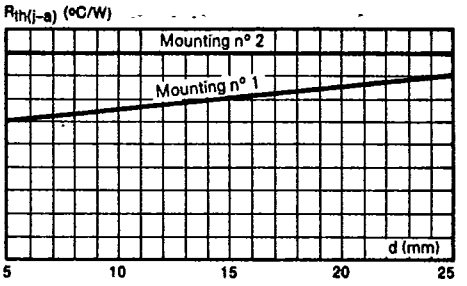
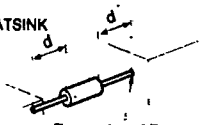
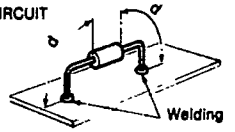


Fig. 2 - Thermal resistance junction-ambient versus lead length

Mounting n° 1 : INFINITE HEATSINK



Mounting n° 2 : PRINTED CIRCUIT



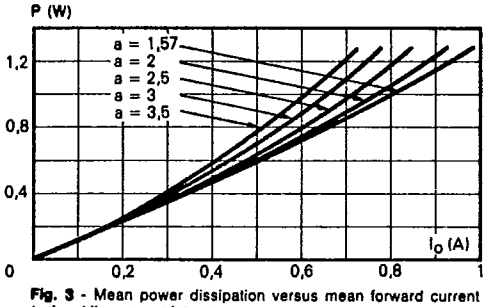


Fig. 3 - Mean power dissipation versus mean forward current I_O for different rectifying types :
1°) in the case of a resistive load (a = 1,57)
2°) in the case of capacitive load (a > 1,57) with $a = \frac{I_{FRMS}}{I_O}$

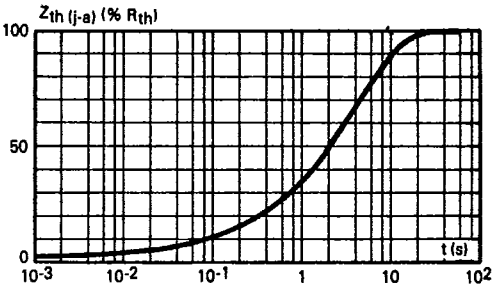


Fig. 4 - Transient thermal impedance junction-ambient $Z_{th\ (j-a)}$ versus pulse duration for mounting n° 1 and d = 10 mm (typical values).

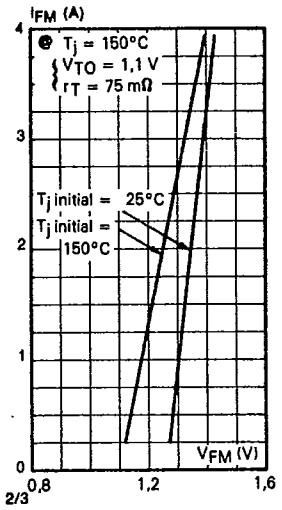


Fig. 5 - Peak forward current versus peak forward voltage drop at low level (maximum values).

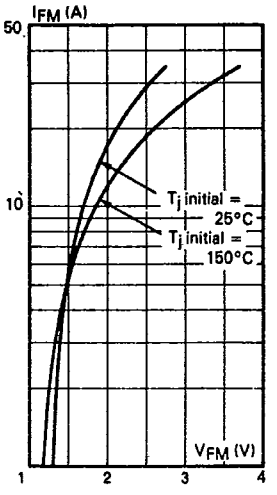


Fig. 6 - Peak forward current versus peak forward voltage drop at high level (maximum values).

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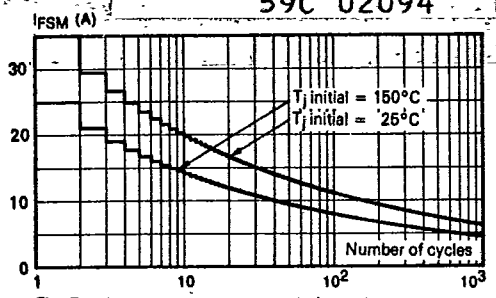

Fig. 7 - Non repetitive surge peak forward current versus number of cycles.

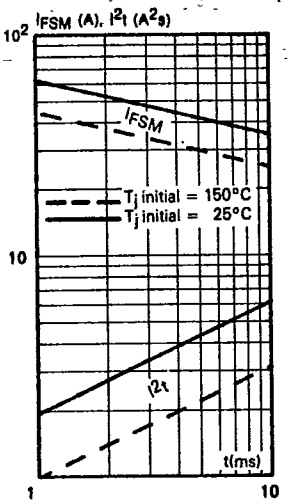

Fig. 8 - Non repetitive surge peak forward current for a sinusoidal pulse with width t ≤ 10 ms, and corresponding value of I^2t.

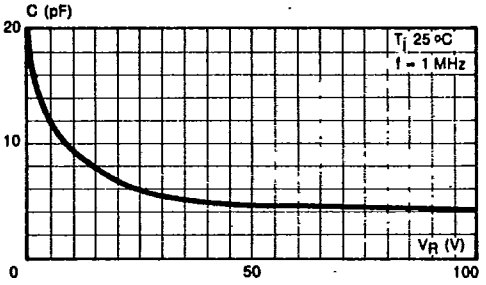

Fig. 9 - Capacity C versus reverse applied voltage V_R (typical values).

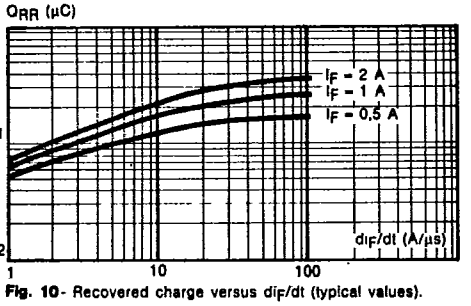

Fig. 10 - Recovered charge versus dI_F/dt (typical values).

CASE DESCRIPTION
DESCRIPTION DU BOITIER