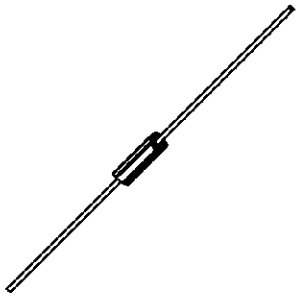
SGS-THOMSON MICROELECTRONICS

BYT 01-200 →400

FAST RECOVERY RECTIFIER DIODES

FAST RECOVERY RECTIFIER

- VERY LOW REVERSE RECOVERY TIME
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING



F 126
(Plastic)

SUITABLE APPLICATION

- FREE WHEELING DIODE IN CONVERTERS AND MOTORS CIRCUITS
- RECTIFIER IN S.M.P.S.

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{FRM}	Repetive Peak Forward Current	$t_p \leq 10\mu s$	30	A
$I_{F(AV)}$	Average Forward Current*	$T_a = 70°C$ $\delta = 0.5$	1	A
I_{FSM}	Surge non Repetitive Forward Current	$t_p = 10ms$ Sinusoidal	30	A
P	Power Dissipation*	Ta = 70°C	1.33	W
T_{stg} T_j	Storage and Junction Temperature Range		- 40 to +150 - 40 to + 150	°C

Symbol	Parameter	BYT 01-			Unit
		200	300	400	
V_{RRM}	Repetitive Peak Reverse Voltage	200	300	400	V
V_{RSM}	Non Repetitive Peak Reverse Voltage	220	330	440	V

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction-ambient*	60	°C/W

* On infinite heatsink with 10mm lead length.

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_R	T_j = 25°C	$V_R = V_{RRM}$			20	µA
	T_j = 100°C				0.5	mA
V_F	T_j = 25°C	I_F = 1A			1.5	V
	T_j = 100°C				1.4	

RECOVERY CHARACTERISTICS

Symbol	Test Conditions				Min.	Typ.	Max.	Unit
t_{rr}	T_j = 25°C	I_F = 1A	dI_F/dt = - 15A/µs	V_R = 30V			55	ns
	T_j = 25°C	I_F = 0.5A	I_R = 1A	I_{rr} = 0.25A			25	

TURN-OFF SWITCHING CHARACTERISTICS (Without Series inductance)

Symbol	Test Conditions				Min.	Typ.	Max.	Unit
t_{IRM}	dI_F/dt = - 50A/µs	T_j = 100°C	V_{CC} = 200 V	I_F = 1A		35	50	ns
I_{RM}	dI_F/dt = - 50A/µs	$L_p \leq$ 0.05 µA	See figure 12			1.5	2	A

To evaluate the conduction losses use the following equations:

$V_F = 1.05 + 0.145\ I_F$ $\qquad P = 1.05 \times I_{F(AV)} + 0.145\ I_F{}^2{}_{(RMS)}$

Figure 1. Maximum average power dissipation versus average forward current.

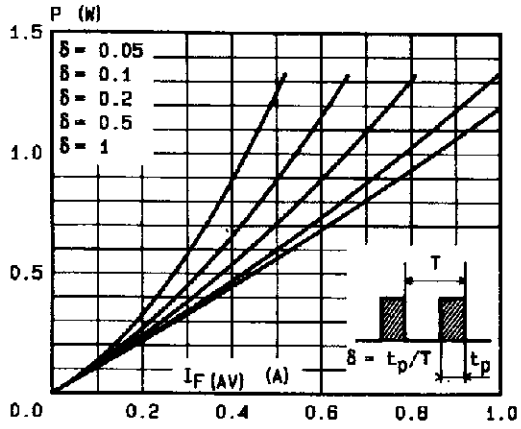


Figure 2. Average forward current versus ambient temperature.

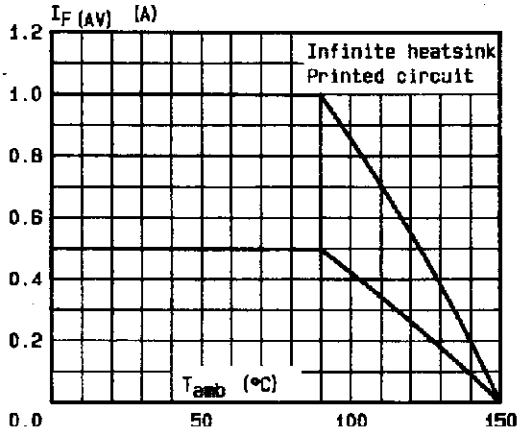
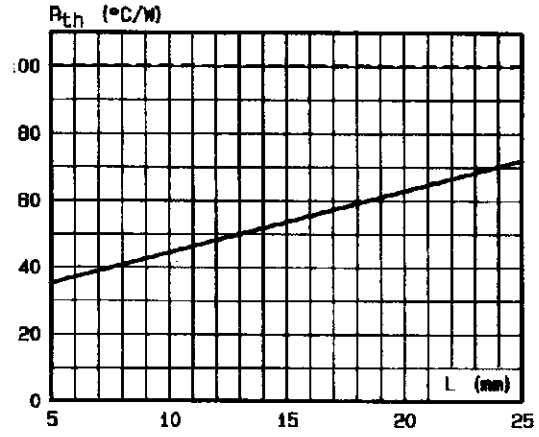


Figure 3. Thermal resistance versus lead length.



Mounting n°1
INFINITE HEATSINK

Mounting n°2
PRINTED CIRCUIT

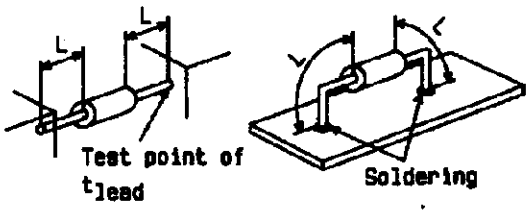


Figure 4. Transient thermal impedance junction-ambient for mounting n°2 versus pulse duration (L = 10 mm).

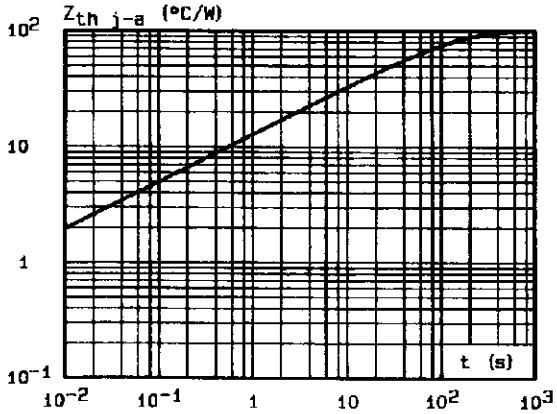


Figure 5. Peak forward current versus peak forward voltage drop (maximum values).

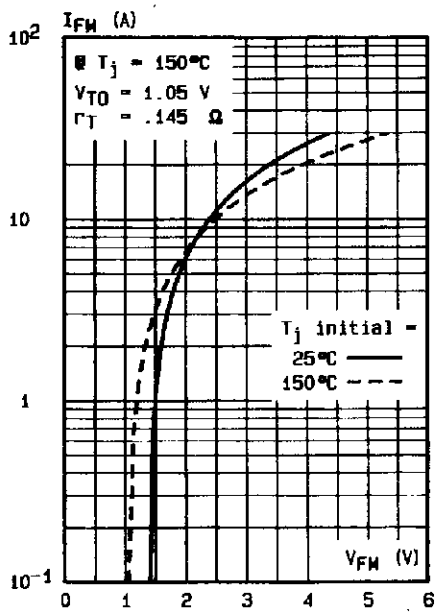


Figure 7. Recovery time versus di_F/dt.

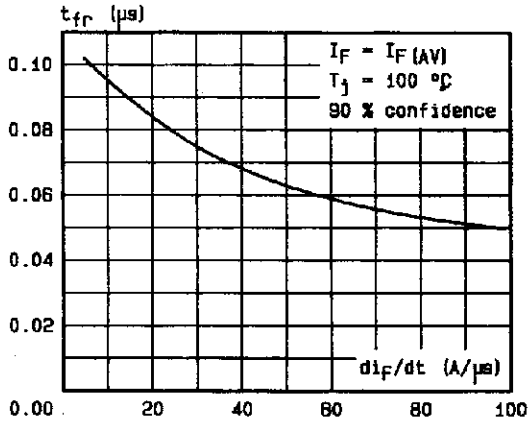


Figure 8. Peak forward voltage versus di_F/dt.

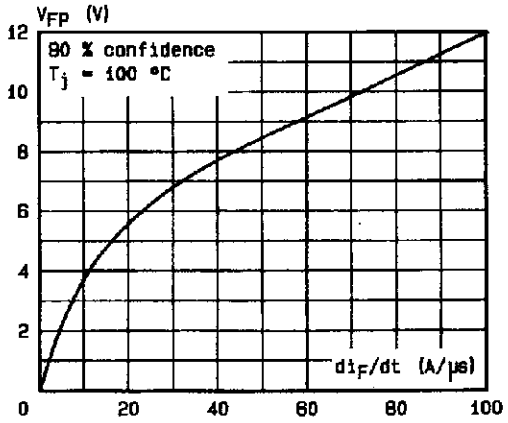


Figure 9. Peak reverse current versus di_F/dt.

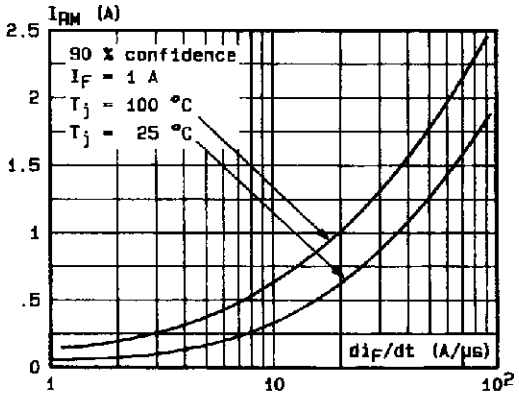


Figure 10. Recovered charge versus di_F/dt (typical values).

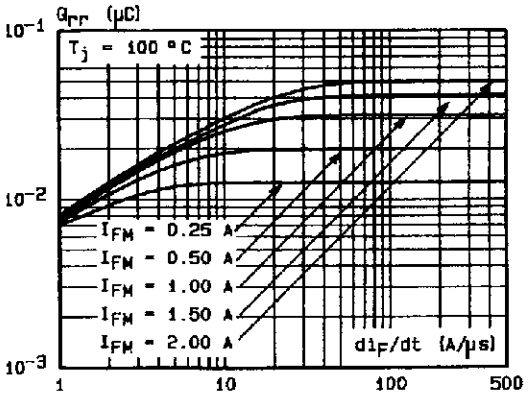


Figure 11. Dynamic parameters versus junction temperature.

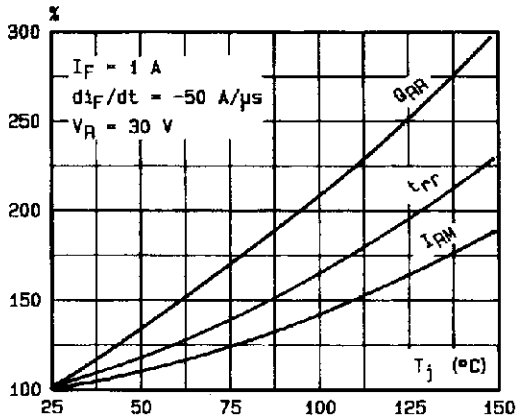
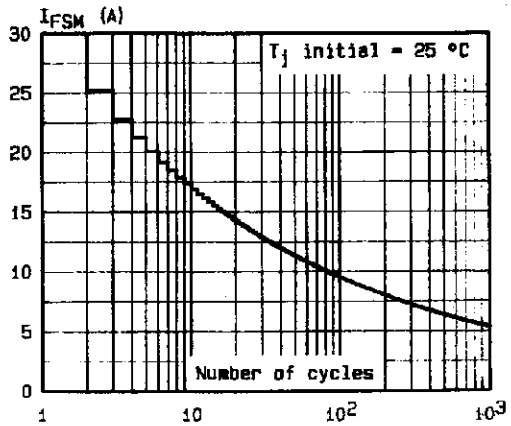
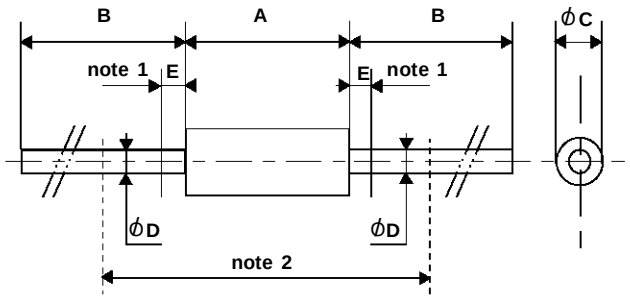


Figure 12. Non repetitive surge peak current versus number of cycles.



PACKAGE MECHANICAL DATA

F 126 (Plastic)



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A	6.05	6.35	0.238	0.250	1 - The lead diameter ∅ D is not controlled over zone E 2 - The minimum axial lengh within which the device may be placed with its leads bent at right angles is 0.59”(15 mm)
B	26		1.024		
∅ C	2.95	3.05	0.116	0.120	
∅ D	0.76	0.86	0.029	0.034	
E		1.27		0.050	

Cooling method: by convection (method A)
Marking: type number
Weight: 0.4g