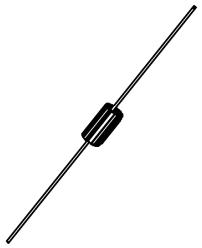
SGS-THOMSON MICROELECTRONICS

BYT 03-200 →400

FAST RECOVERY RECTIFIER DIODES

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



DO 27 A
(Plastic)

SUITABLE APPLICATIONS

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

ABSOLUTE MAXIMUM RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{FRM}	Repetive Peak Forward Current	$t_p \leq 10\mu s$	60	A
$I_{F\ (AV)}$	Average Forward Current*	$T_a = 65°C$ $\delta = 0.5$	3	A
I_{FSM}	Surge non Repetitive Forward Current	$t_p = 10ms$ Sinusoidal	60	A
P_{tot}	Power Dissipation *	$T_a = 65°C$	4.2	W
T_{stg} T_j	Storage and Junction Temperature Range		- 40 to + 150 - 40 to + 150	°C

Symbol	Parameter	BYT 03-			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*	20	°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 = 3A			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
		I_F = 0.5A	I_R = 1 A	t_{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} = 200V	I_F = 3A		35	50	ns
I_{RM}	di_F/dt = - 50A/µs	$L_P \leq 0.05\mu H$				1.5	2	A

To evaluate the conduction losses use the following equations:

$V_F = 1.1 + 0.050\ I_F$ $\quad$ $P = 1.1 \times I_{F(AV)} + 0.050\ I_F{}^2{}_{(RMS)}$

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

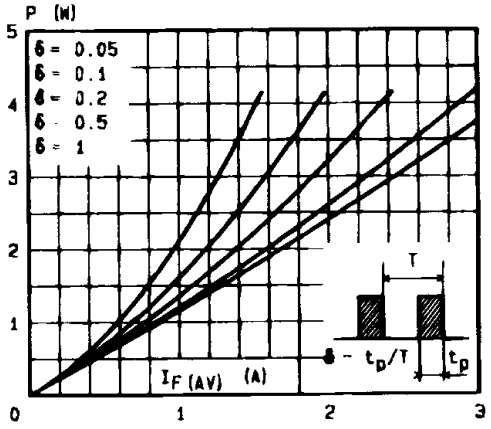


Figure 2. Average forward current versus ambient temperature.

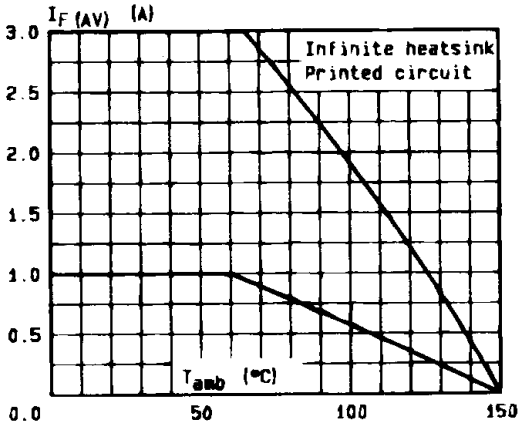


Figure 3. Thermal resistance versus lead length.

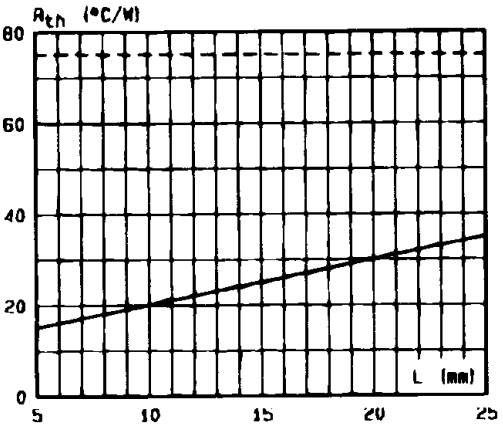
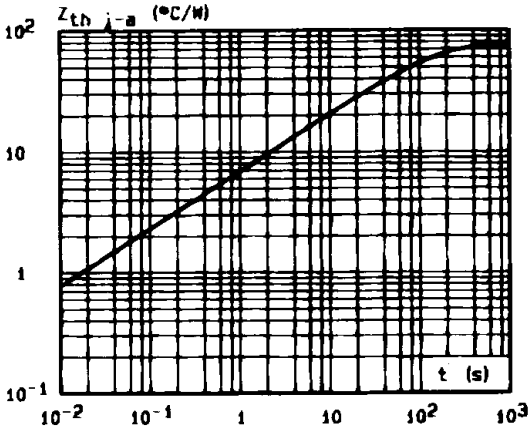


Figure 4. Transient thermal impedance junction-ambient for mounting n°2 versus pulse duration (L = 10 mm).



Mounting n°1
INFINITE HEATSINK

Mounting n°2
PRINTED CIRCUIT

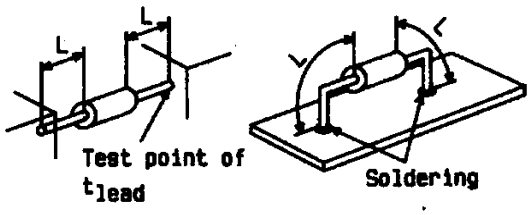


Figure 5. Peak forward current versus peak forward voltage drop (maximum values).

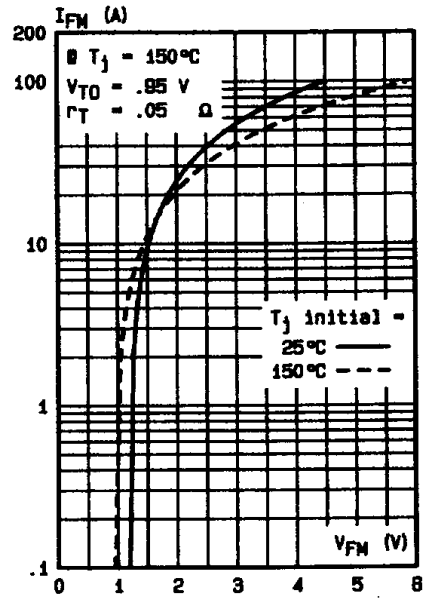


Figure 7. Recovery time versus di_F/dt.

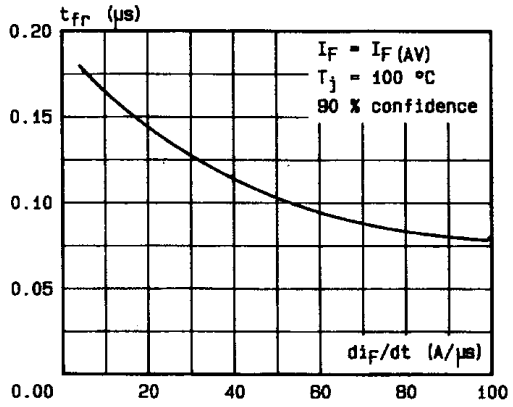


Figure 8. Peak forward voltage versus di_F/dt.

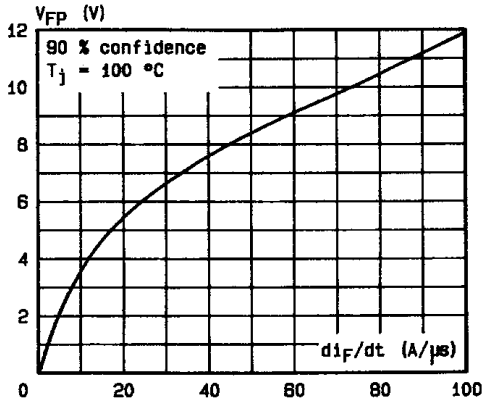


Figure 9. Peak forward voltage versus di_F/dt.

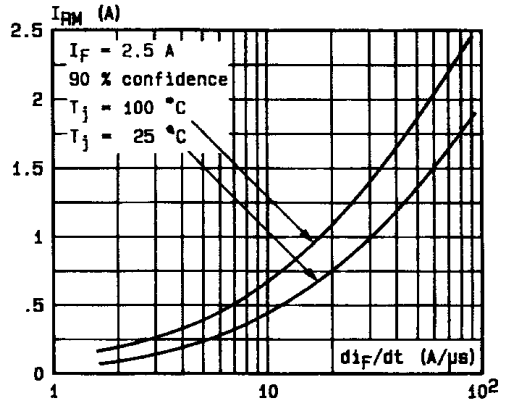


Figure 10. Recovery charge versus di_F/dt (typical values).

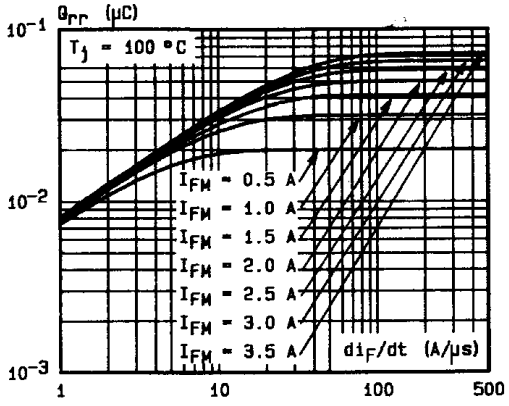


Figure 11. Dynamic parameters versus junction temperature.

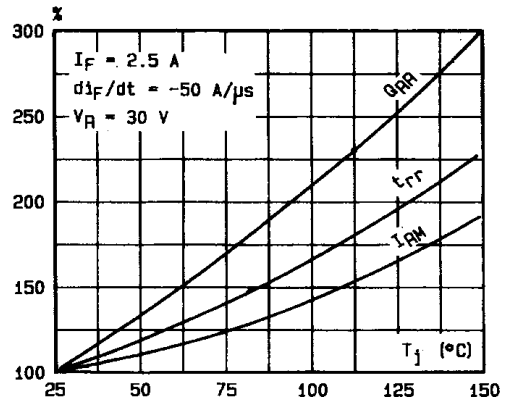
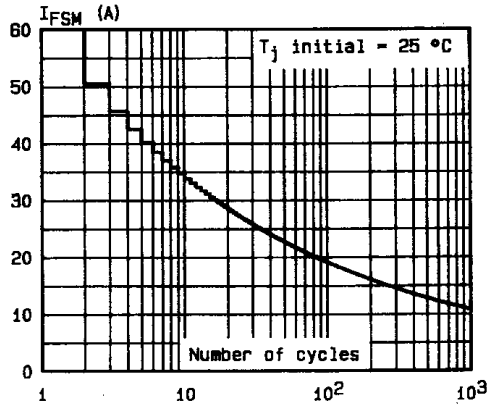
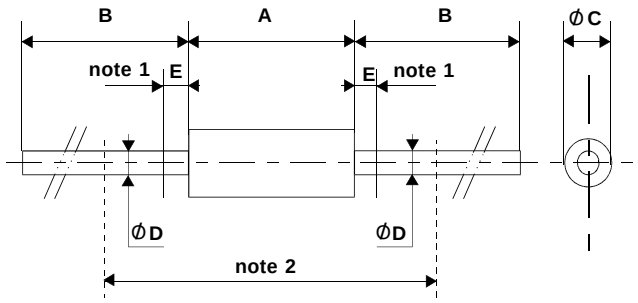


Figure 12. Non repetitive surge peak current versus number of cycles.



PACKAGE MECHANICAL DATA

DO 27A (Plastic)



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A		9.80		0.385	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		5.10		0.200	
∅ D		1.28		0.050	
E		1.25		0.049	

Cooling method: by convection (method A)
Marking: type number; white band indicates cathode
Weight: 1g