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BYT 01-400

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	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	400	V
V_{RSM}	Non Repetitive Peak Reverse Voltage	440	V

THERMAL RESISTANCE

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

* On infinite heatsink with 10mm lead length.

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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:

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

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

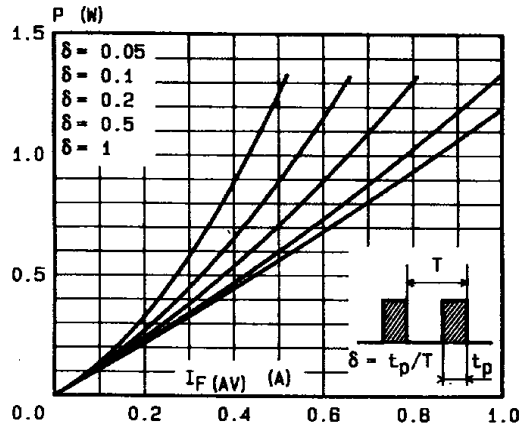


Figure 2. Average forward current versus ambient temperature.

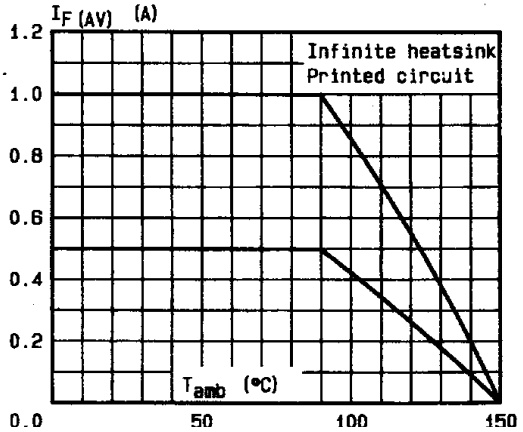


Figure 3. Thermal resistance versus lead length.

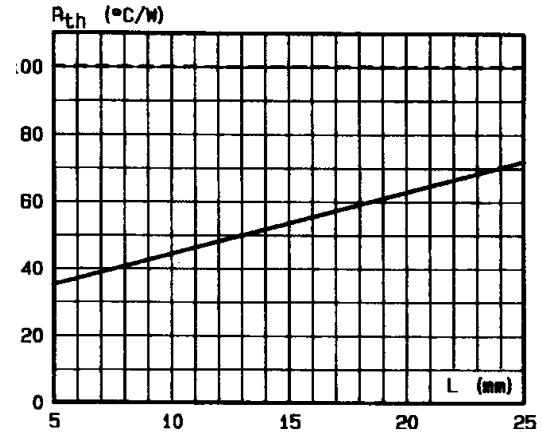
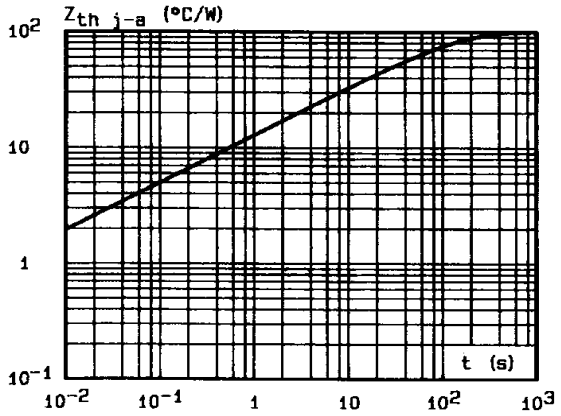


Figure 4. Transient thermal impedance junction-ambient for mounting n°2 versus pulse duration (L = 10 mm).



Mounting n°1
INFINITE HEATSINK

Mounting n°2
PRINTED CIRCUIT

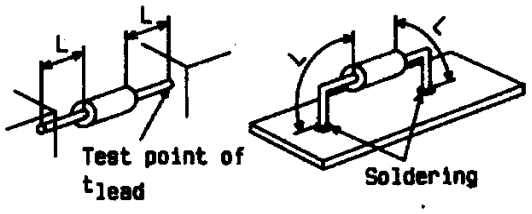


Figure 5. Peak forward current versus peak forward voltage drop (maximum values).

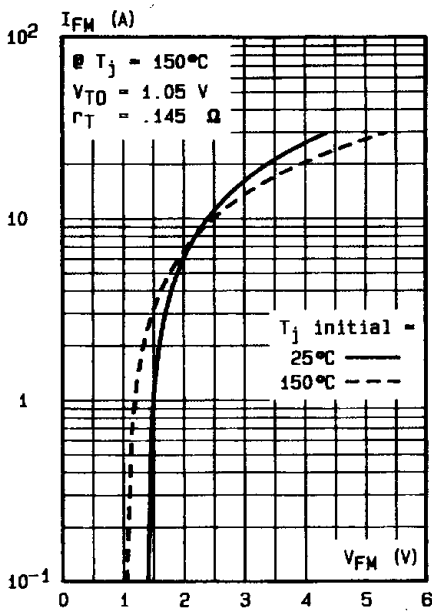


Figure 7. Recovery time versus di_F/dt.

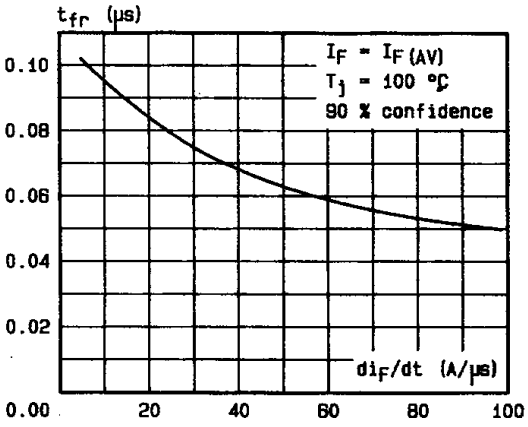


Figure 8. Peak forward voltage versus di_F/dt.

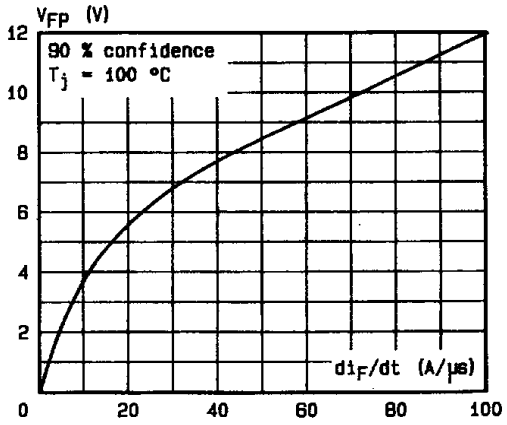


Figure 9. Peak reverse current versus di_F/dt.

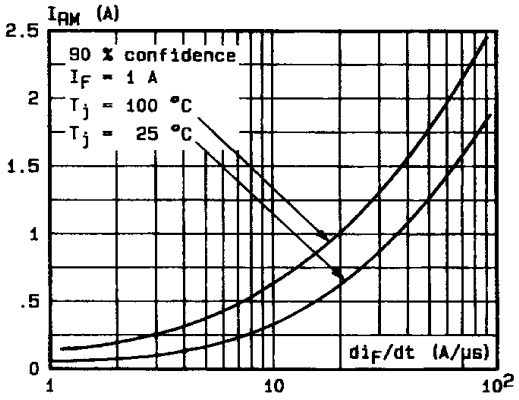


Figure 10. Recovered charge versus di_F/dt (typical values).

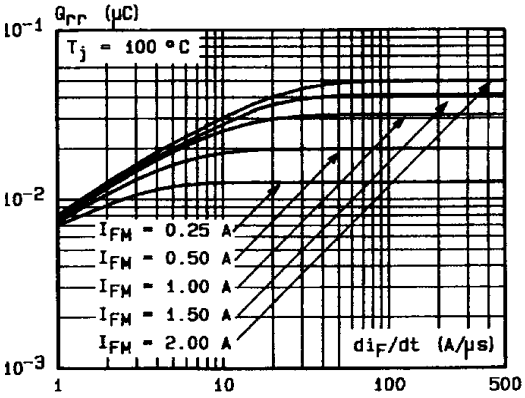


Figure 11. Dynamic parameters versus junction temperature.

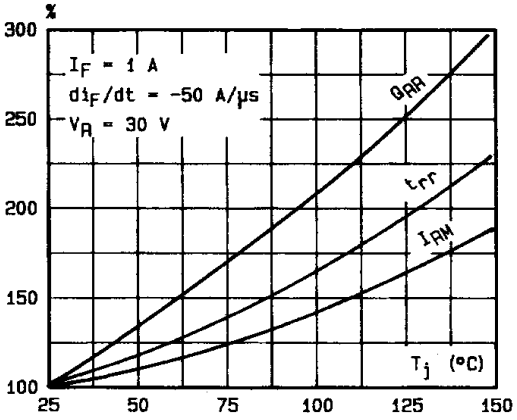
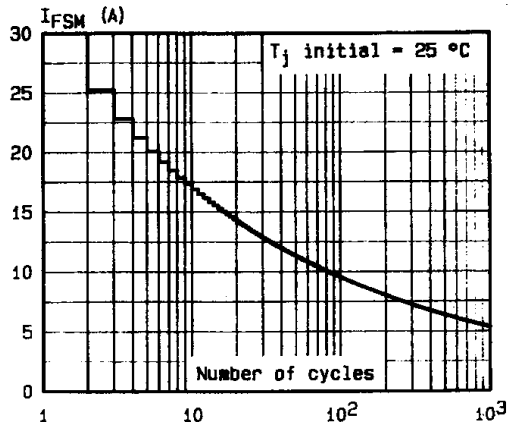
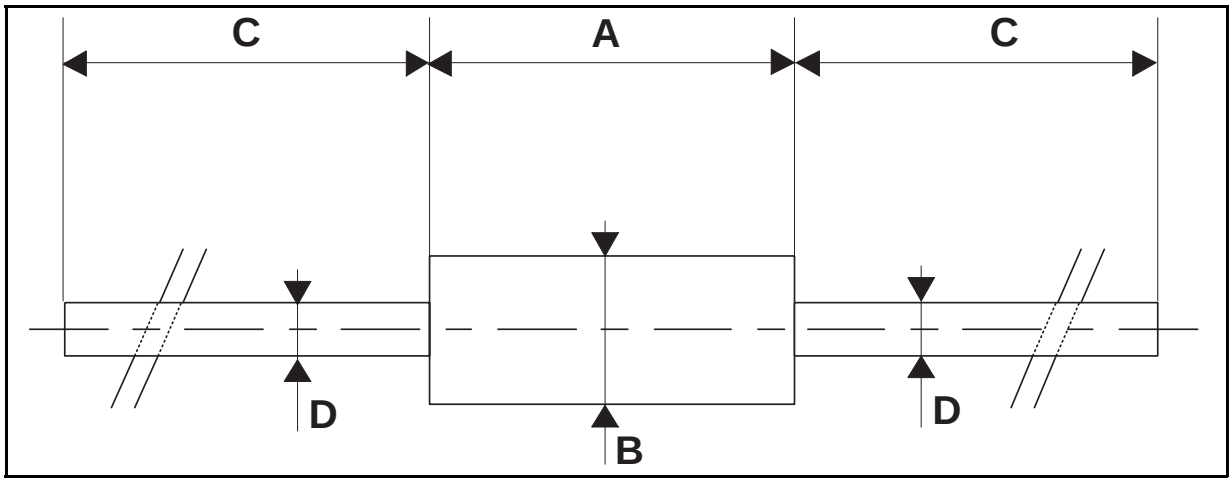


Figure 12. Non repetitive surge peak current versus number of cycles.



PACKAGE MECHANICAL DATA

F 126 (Plastic)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	6.05	6.20	6.35	0.238	0.244	0.250
B	2.95	3.00	3.05	0.116	0.118	0.120
C	26		31	1.024		1.220
D	0.76	0.81	0.86	0.030	0.032	0.034

- **Marking**: type number
- Cooling method: by convection (method A)
- Weight: 0.393g

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