

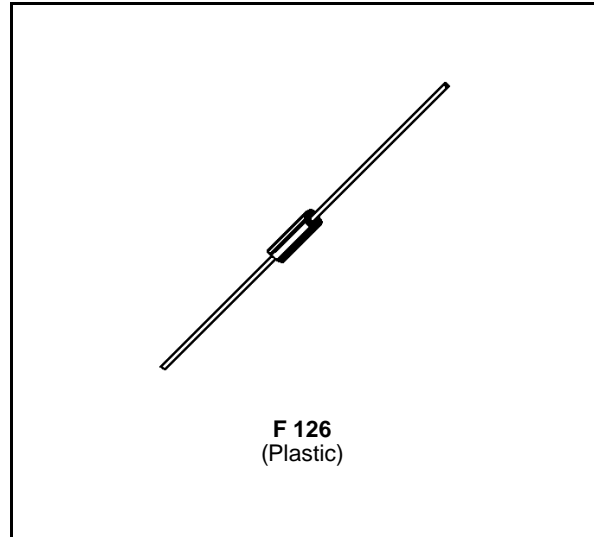
FAST RECOVERY RECTIFIER DIODES

FAST RECOVERY RECTIFIER

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

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

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	$^\circ C/W$

* On infinite heatsink with 10mm lead length.

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

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

RECOVERY CHARACTERISTICS

Symbol	Test Conditions				Min.	Typ.	Max.	Unit
t_{rr}	$T_j = 25^\circ\text{C}$	$I_F = 1\text{A}$	$di_F/dt = -15\text{A}/\mu\text{s}$	$V_R = 30\text{V}$			55	ns
	$T_j = 25^\circ\text{C}$	$I_F = 0.5\text{A}$	$I_R = 1\text{A}$	$I_{rr} = 0.25\text{A}$			25	

TURN-OFF SWITCHING CHARACTERISTICS (Without Series inductance)

Symbol	Test Conditions				Min.	Typ.	Max.	Unit
t_{lRM}	$di_F/dt = -50\text{A}/\mu\text{s}$	$T_j = 100^\circ\text{C}$	$V_{CC} = 200\text{V}$	$I_F = 1\text{A}$		35	50	ns
I_{RM}	$di_F/dt = -50\text{A}/\mu\text{s}$	$L_p \leq 0.05\text{ }\mu\text{H}$	See figure 12			1.5	2	A

To evaluate the conduction losses use the following equations:

$$V_F = 1.05 + 0.145 I_F$$

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

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

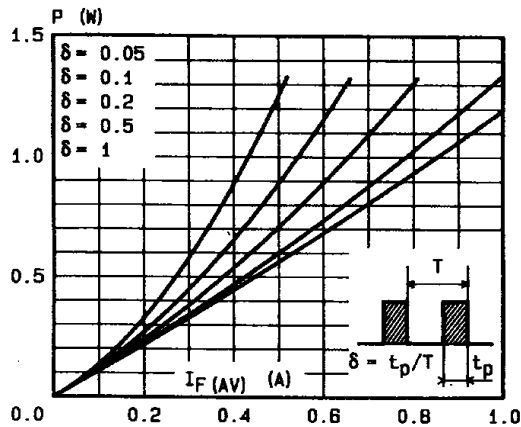


Figure 2. Average forward current versus ambient temperature.

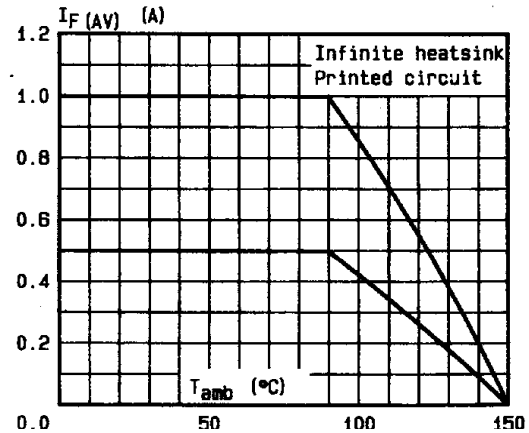
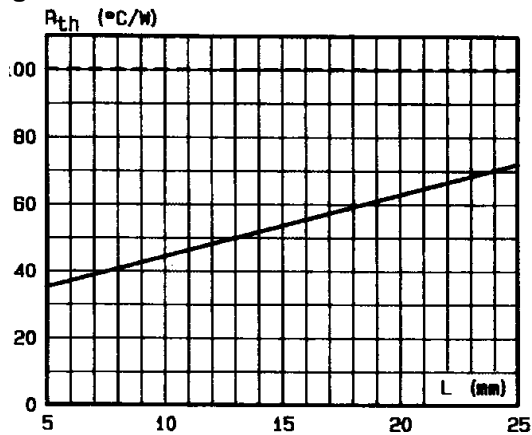


Figure 3. Thermal resistance versus lead length.



Mounting n°1
INFINITE HEATSINK

Mounting n°2
PRINTED CIRCUIT

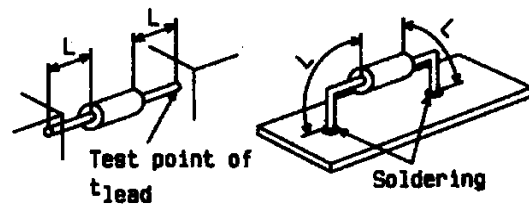


Figure 5. Peak forward current versus peak forward voltage drop (maximum values).

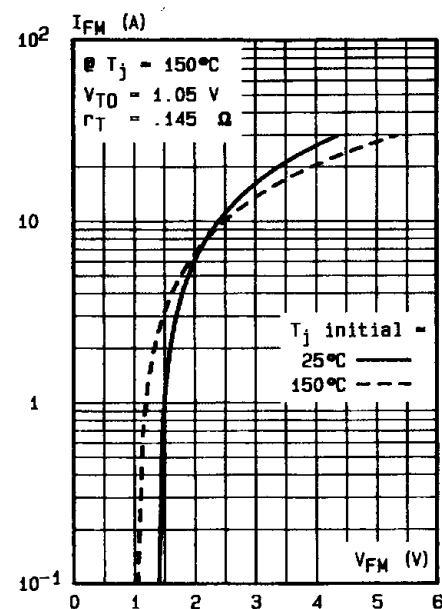


Figure 7. Recovery time versus di_F/dt .

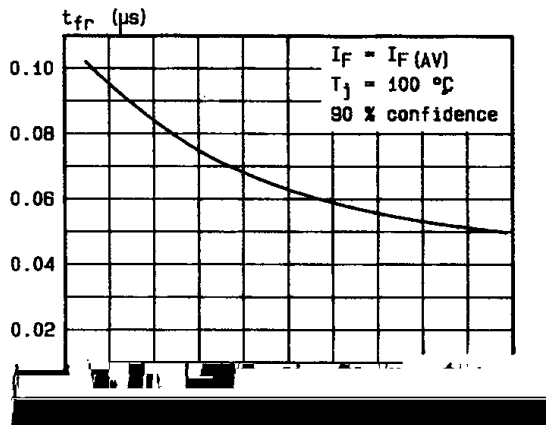


Figure 8. Peak forward voltage versus di_F/dt .

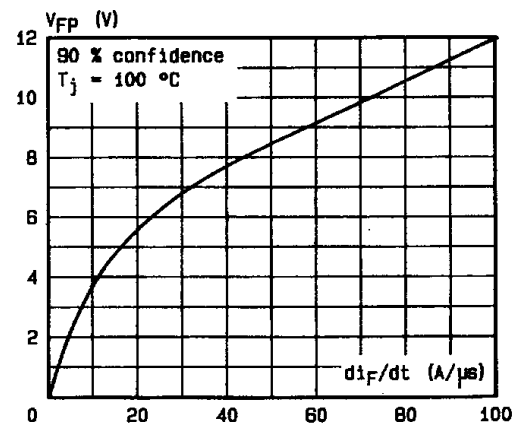


Figure 9. Peak reverse current versus di_F/dt .

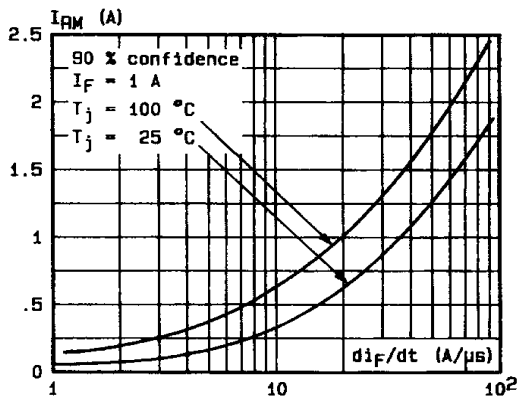


Figure 10. Recovered charge versus di_F/dt (typical values).

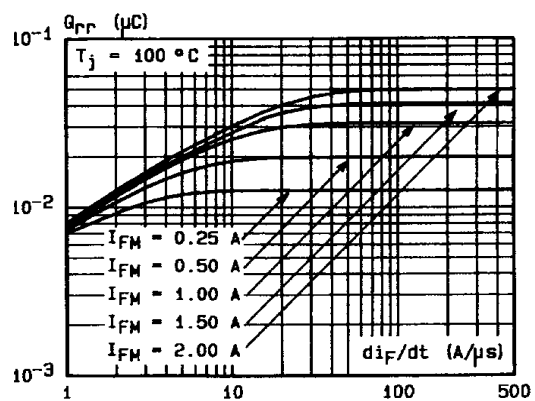


Figure 11. Dynamic parameters versus junction temperature.

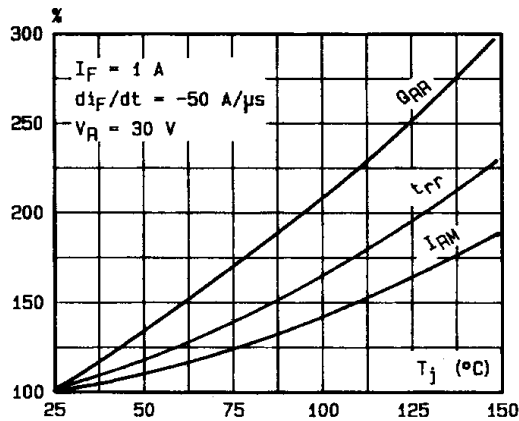
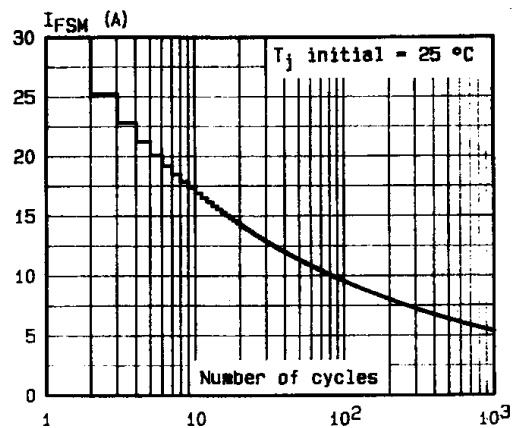
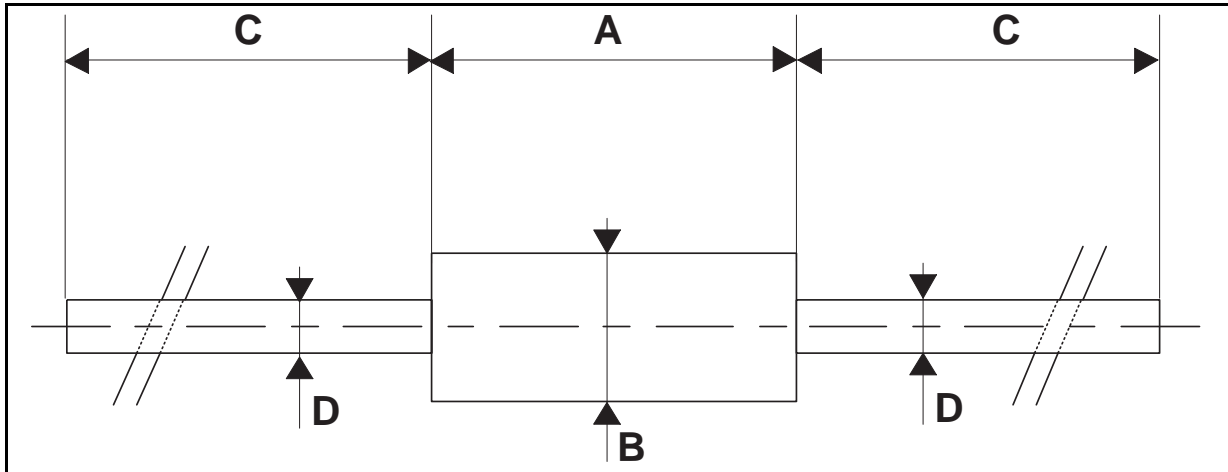


Figure 12. Non repetitive surge peak current versus number of cycles.



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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