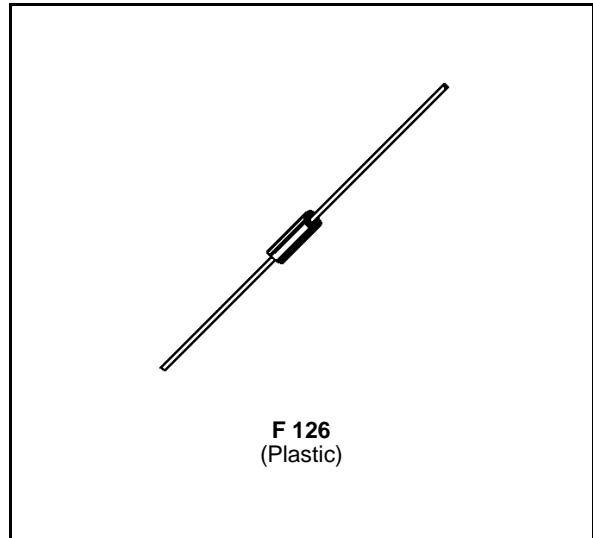


**FAST RECOVERY RECTIFIER DIODES**
**FAST RECOVERY RECTIFIER**

- 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
$I_{FRM}$	Repetive 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 <sub>R</sub>	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>			20	μA
	T <sub>j</sub> = 100°C				0.5	mA
V <sub>F</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A			1.5	V
	T <sub>j</sub> = 100°C				1.4	

RECOVERY CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
t <sub>rr</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A	di <sub>F</sub> /dt = - 15A/μs	V <sub>R</sub> = 30V		55	ns
	T <sub>j</sub> = 25°C	I <sub>F</sub> = 0.5A	I <sub>R</sub> = 1A	I <sub>rr</sub> = 0.25A		25	

TURN-OFF SWITCHING CHARACTERISTICS (Without Series inductance)

Symbol	Test Conditions			Min.	Typ.	Max.	Unit	
t <sub>IRM</sub>	di <sub>F</sub> /dt = - 50A/μs	T <sub>j</sub> = 100°C	V <sub>CC</sub> = 200 V	I <sub>F</sub> = 1A		35	50	ns
I <sub>RM</sub>	di <sub>F</sub> /dt = - 50A/μs	L <sub>p</sub> ≤ 0.05 μA	See figure 12			1.5	2	A

To evaluate the conduction losses use the following equations:

$$V_F = 1.05 + 0.145 I_F$$

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

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

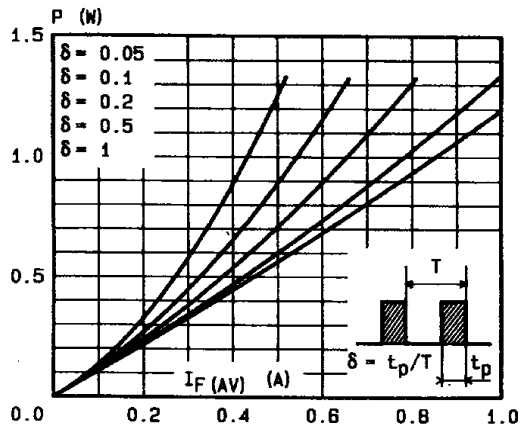


Figure 2. Average forward current versus ambient temperature.

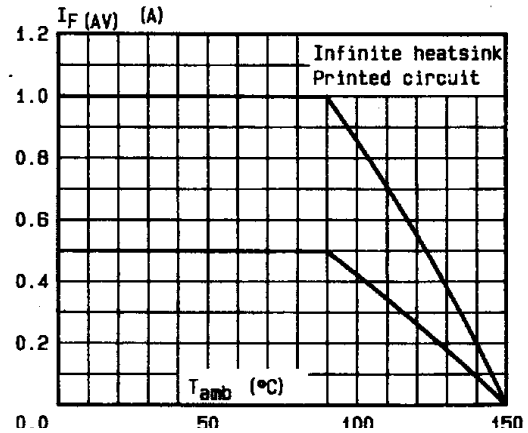
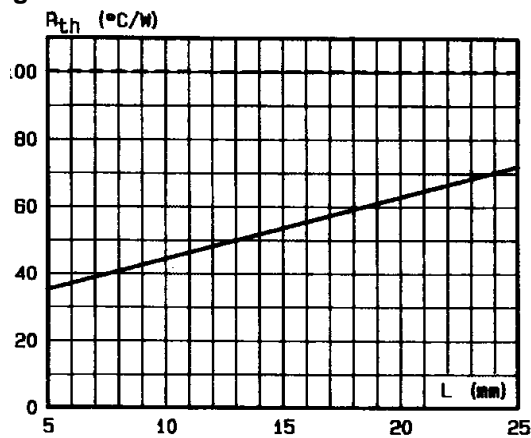


Figure 3. Thermal resistance versus lead length.



Mounting n°1  
INFINITE HEATSINK

Mounting n°2  
PRINTED CIRCUIT

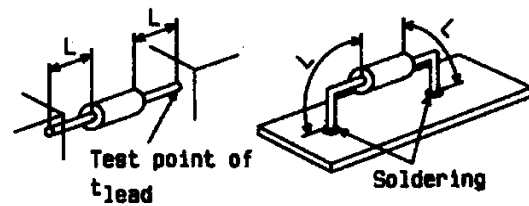


Figure 5. Peak forward current versus peak forward voltage drop (maximum values).

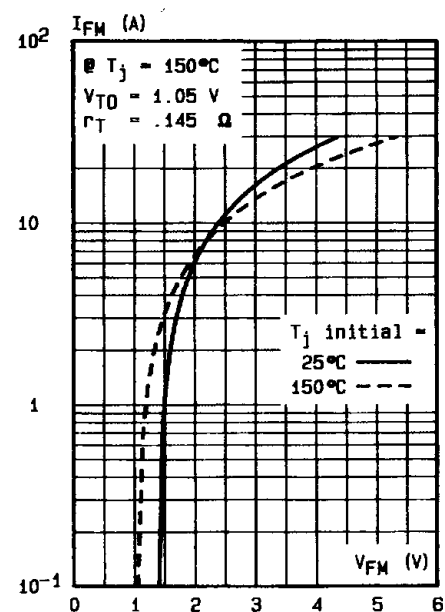


Figure 4. Transient thermal impedance junction-ambient for mounting n°2 versus pulse duration (L = 10 mm).

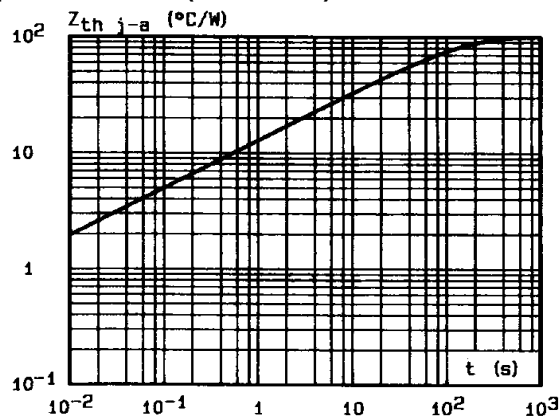


Figure 7. Recovery time versus  $di_F/dt$ .

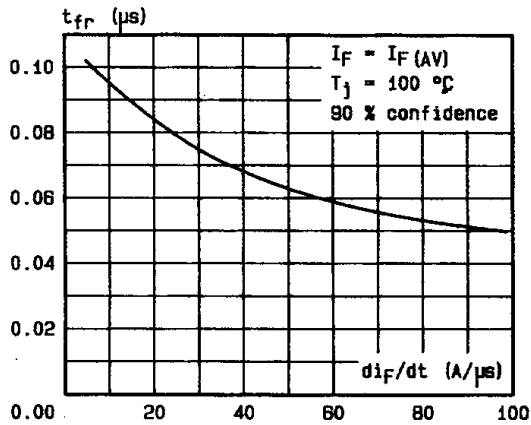


Figure 8. Peak forward voltage versus  $di_F/dt$ .

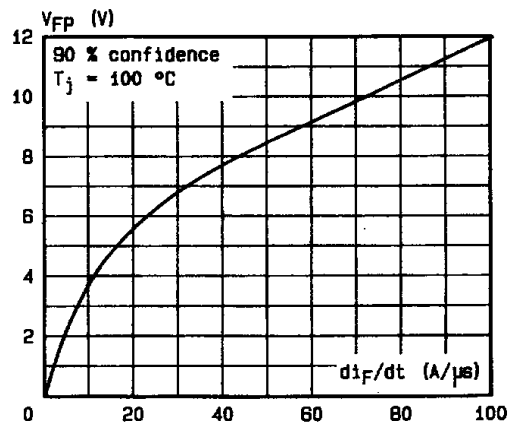


Figure 9. Peak reverse current versus  $di_F/dt$ .

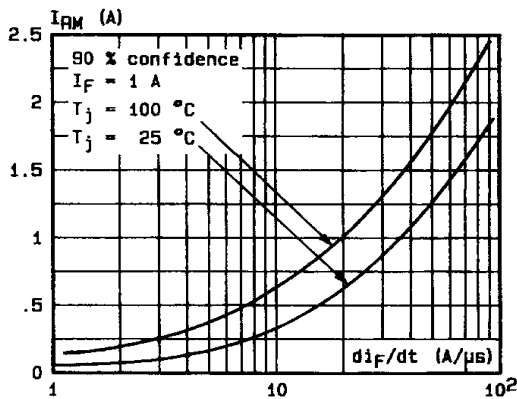


Figure 10. Recovered charge versus  $di_F/dt$  (typical values).

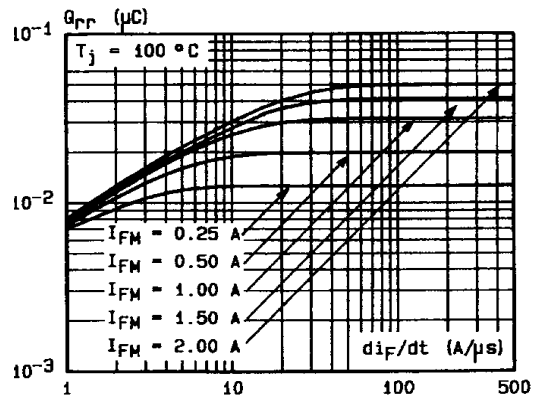


Figure 11. Dynamic parameters versus junction temperature.

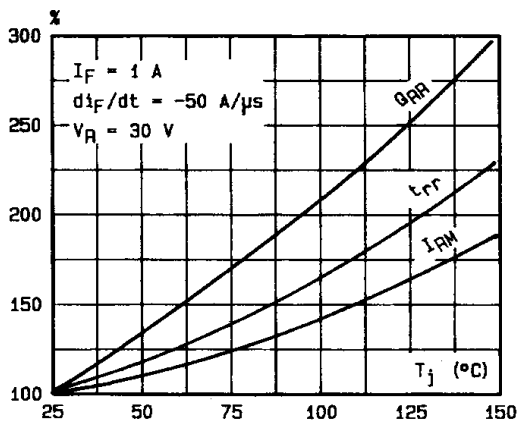
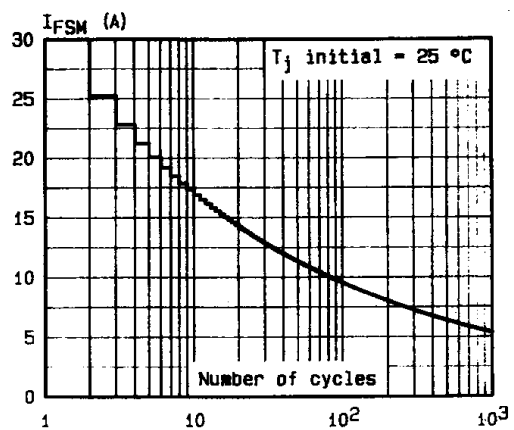
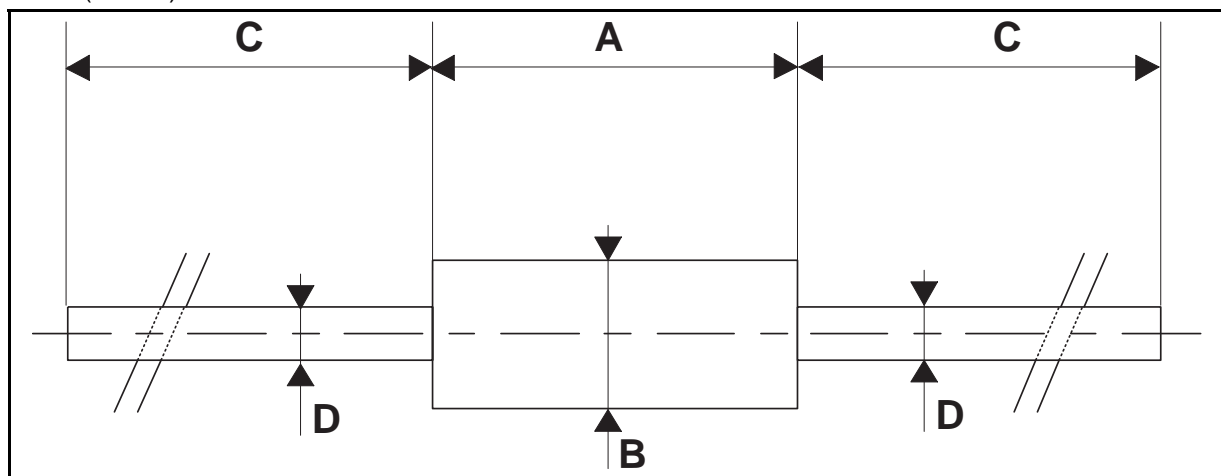


Figure 12. Non repetitive surge peak current versus number of cycles.



## 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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