

FAST RECOVERY RECTIFIER DIODE

MAJOR PRODUCTS CHARACTERISTICS

$I_{F(AV)}$	3 A
V_{RRM}	400 V
t_{rr}	25 ns
V_F (max)	1.4 V

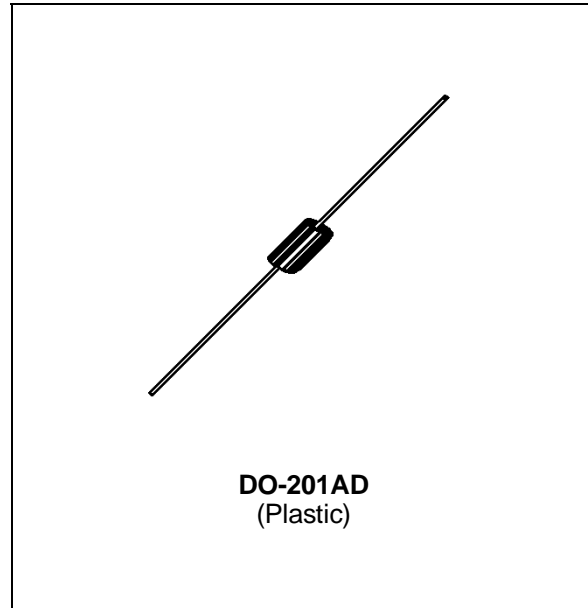
FEATURES

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

DESCRIPTION

Free wheeling diode in converters and motor control circuits.

Rectifiers in S.M.P.S.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		400	V
V_{RSM}	Non repetitive peak reverse voltage		400	V
I_{FRM}	Repetive peak forward current	t_p 10 μ s	60	A
$I_{F(AV)}$	Average forward current*	$T_a = 65^\circ\text{C}$ $\delta = 0.5$	3	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10\text{ms}$ Sinusoidal	60	A
P	Power dissipation *	$T_a = 65^\circ\text{C}$	4.2	W
T_{stg} T_j	Storage and junction temperature range		- 40 to + 150 - 40 to + 150	$^\circ\text{C}$

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction-ambient*	20	C/W

* On infinite heatsink with 10mm lead length.

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I _R	T _j = 25C	V _R = V _{RRM}			20	μA
	T _j = 100C				0.5	mA
V _F	T _j = 25C	I _F = 3A			1.5	V
	T _j = 100C				1.4	

RECOVERY CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t _{rr}	T _j = 25C	I _F = 1A di _F /dt = - 15A/μs V _R = 30V			55	ns
		I _F = 0.5A I _R = 1 A 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	V _{CC} = 200 V I _F = 3A L _p ≤ 0.05μH T _j = 100°C		35	50	ns
I _{RM}	di _F /dt = -50A/μs			1.5	2	A

To evaluate the conduction losse use the following equations :
 $V_F = 1.1 + 0.050 I_F$ $P = 1.1 \times I_{F(AV)} + 0.050 I_{F(RMS)}^2$

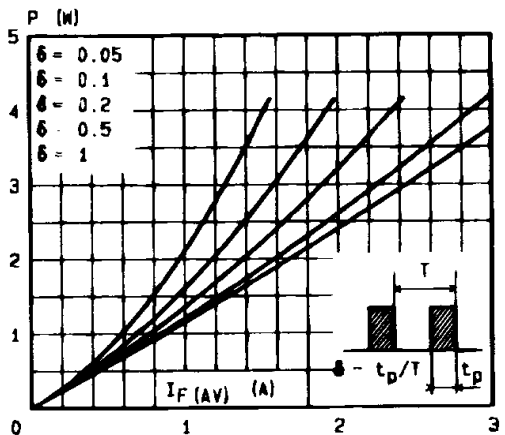


Fig. 1 - Maximum average power dissipation versus average forward current.

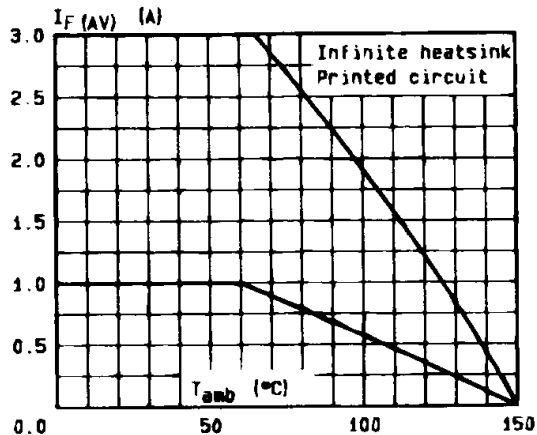


Fig. 2 - Average forward current versus ambient temperature.

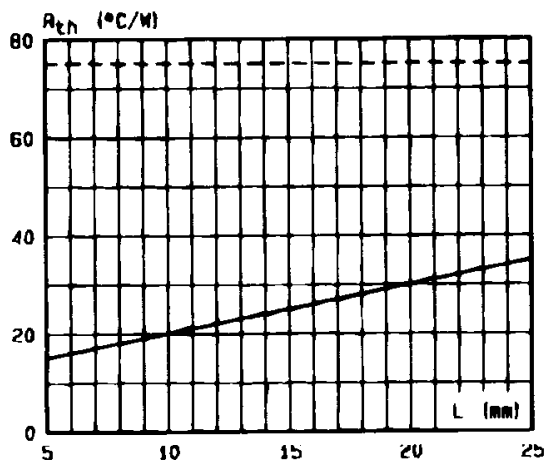


Fig. 3 - Thermal resistance versus lead length.

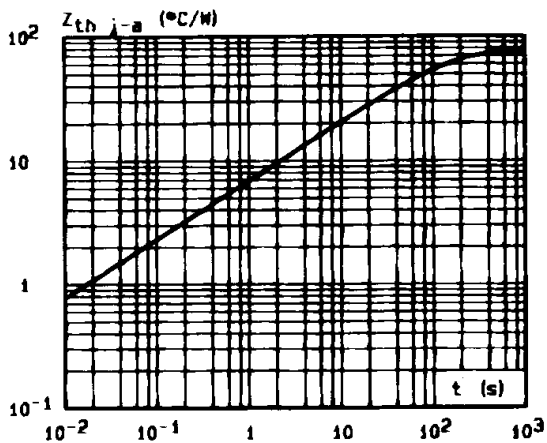


Fig. 4 - Transient thermal impedance junction-ambient for mounting n°2 versus pulse duration (L = 10 mm).

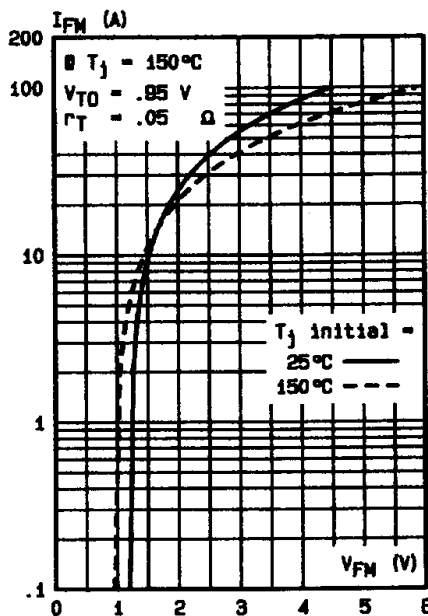
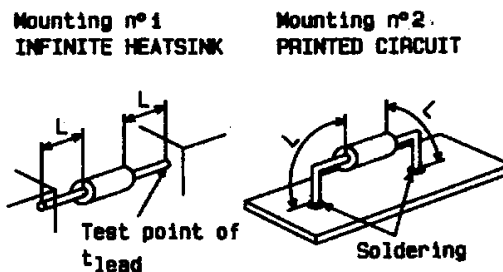


Fig. 5 - Peak forward current versus peak forward voltage drop (maximum values).

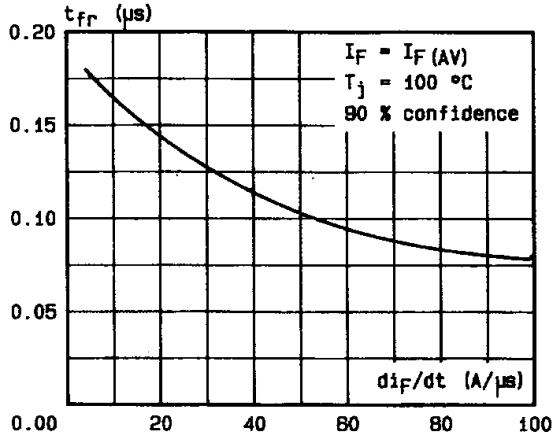


Fig.7 - Recovery time versus di_F/dt .

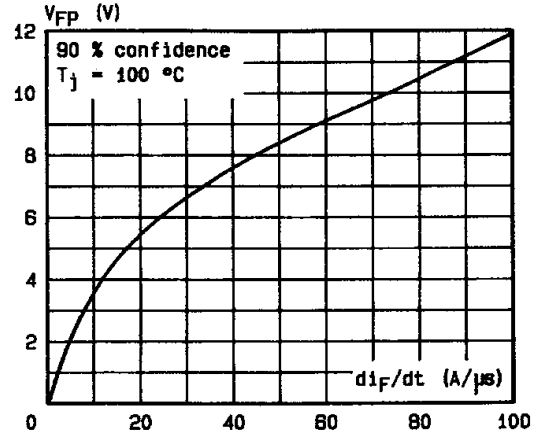


Fig.8 - Peak forward voltage versus di_F/dt .

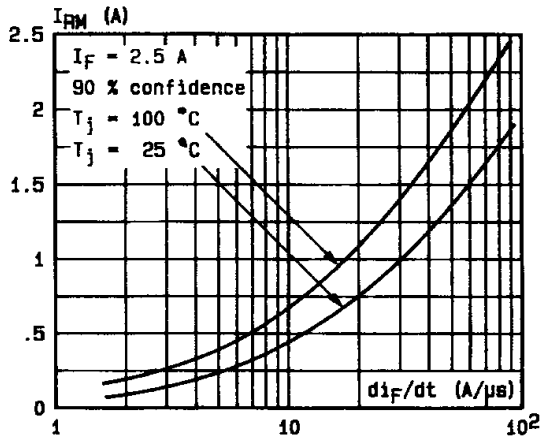


Fig.9 - Peak reverse current versus di_F/dt .

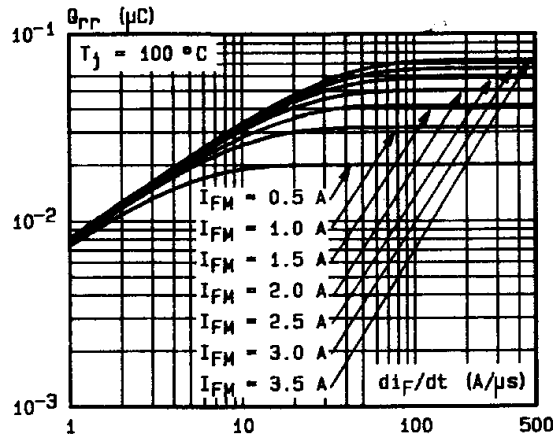


Fig.10 - Recovered charge versus di_F/dt (typical values).

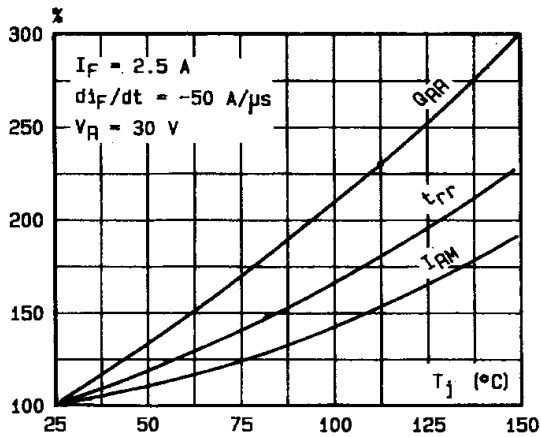


Fig.11 - Dynamic parameters versus junction temperature.

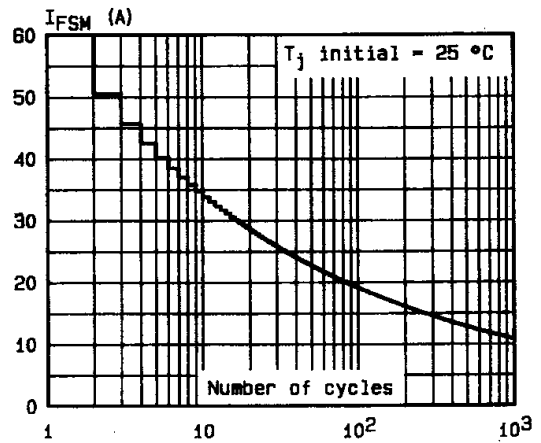
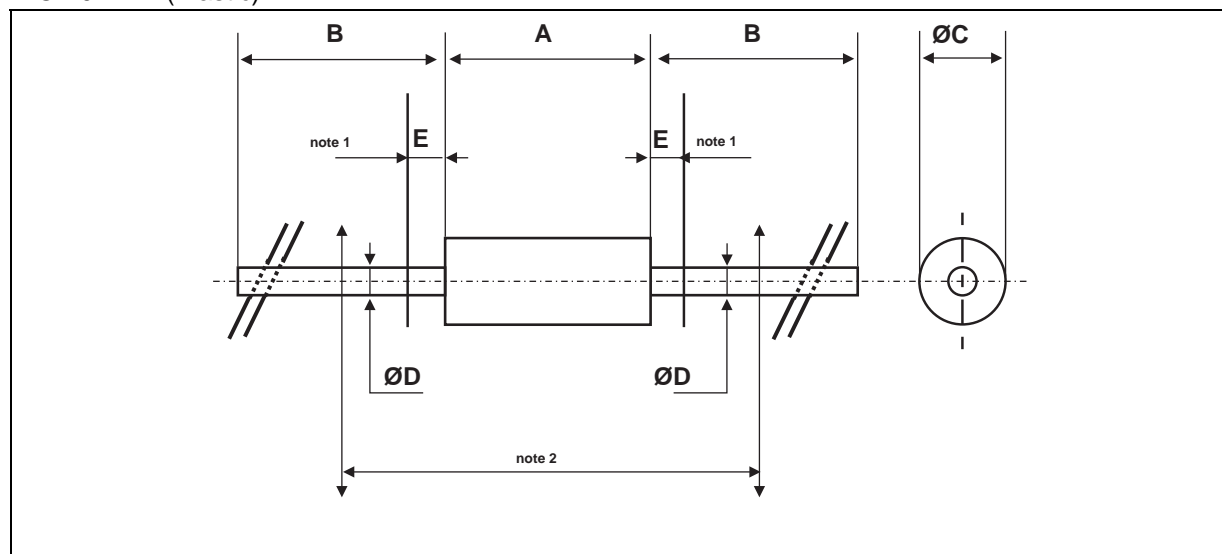


Fig.12 - Non repetitive surge peak current versus number of cycles

PACKAGE MECHANICAL DATA
DO-201AD (Plastic)



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A		9.50		0.374	1 - The lead diameter $\varnothing D$ is not controlled over zone E 2 - The minimum axial length within which the device may be placed with its leads bent at right angles is 0.59"(15 mm)
B	25.40		1.000		
$\varnothing C$		5.30		0.209	
$\varnothing D$		1.30		0.051	
E		1.25		0.049	

- Marking: type number, white band indicate cathode
- Cooling method: by convection (method A)
- Weight: 1g

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