

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

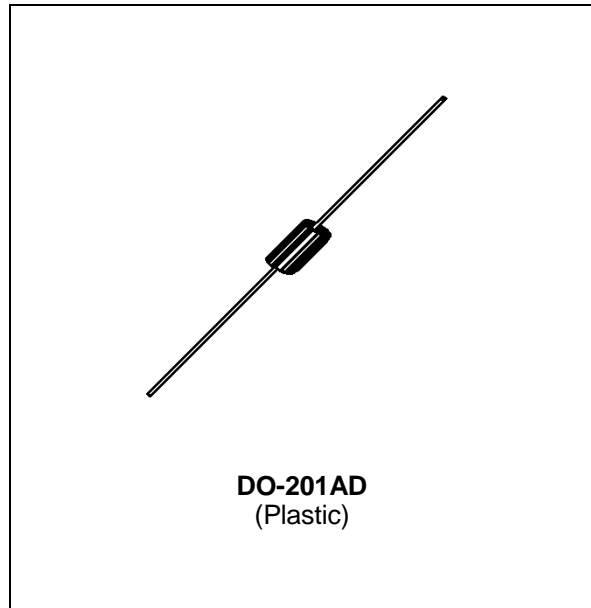
FEATURES

- 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}	Storage temperature range		- 40 to + 150	°C
T_j	Maximum operating junction temperature		+ 150	

* On infinite heatsink with 10mm lead length.

BYT03-400

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	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			20	μA
	$T_j = 100^\circ\text{C}$				0.5	mA
V_F	$T_j = 25^\circ\text{C}$	$I_F = 3\text{A}$			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
		$I_F = 0.5\text{A}$ $I_R = 1\text{A}$ $I_{rr} = 0.25\text{A}$			25	

TURN-OFF SWITCHING CHARACTERISTICS - Without series inductance

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t_{IRM}	$di_F/dt = -50\text{A}/\mu\text{s}$	$V_{CC} = 200\text{V}$ $I_F = 3\text{A}$ $L_p \leq 0.05\mu\text{H}$ $T_j = 100^\circ\text{C}$		35	50	ns
I_{RM}	$di_F/dt = -50\text{A}/\mu\text{s}$			1.5	2	A

To evaluate the conduction losse use the following equations :

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

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

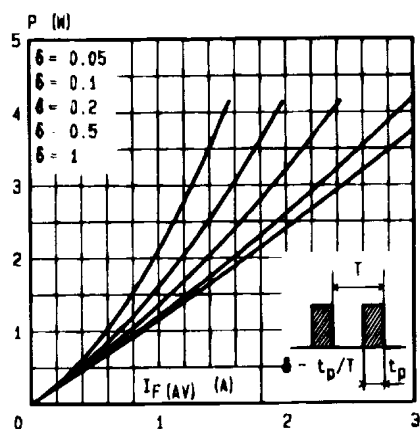


Fig. 2: Average forward current versus ambient temperature.

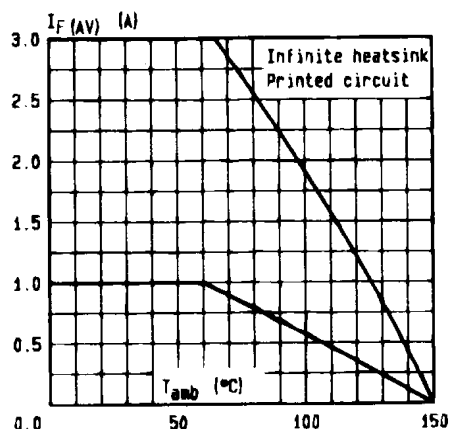


Fig.3 : Thermal resistance versus lead length.

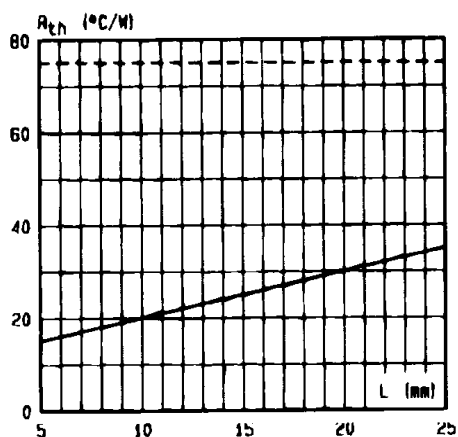


Fig. 4: Transient thermal impedance junction ambient for mounting n° 2 versus pulse duration ($L = 10$ mm).

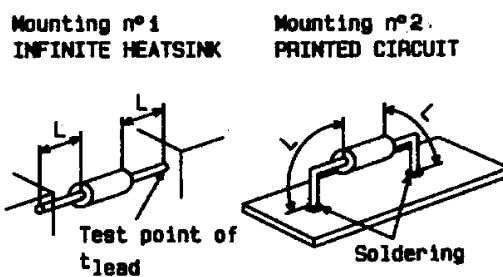
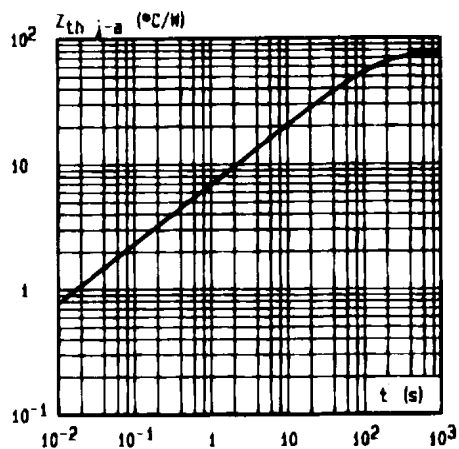


Fig. 5: Peak forward current versus peak forward voltage drop (maximum values).

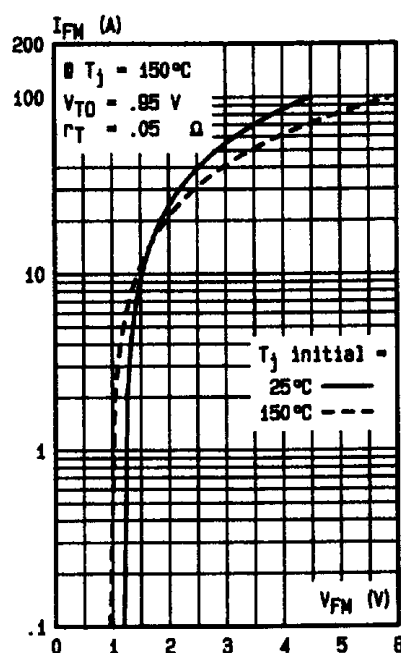


Fig. 7: Recovery time versus di_F/dt .

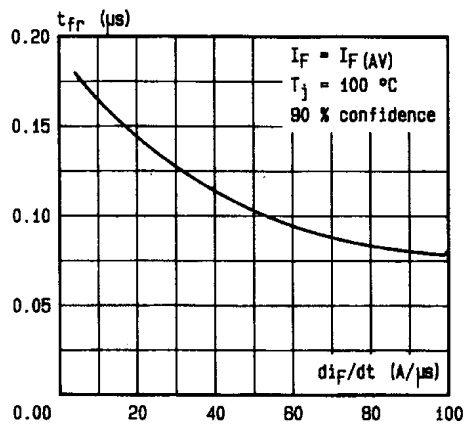


Fig. 8: Peak forward voltage versus di_F/dt .

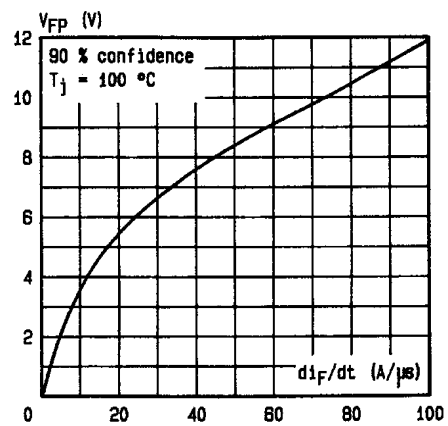


Fig. 9: Peak reverse current versus di_F/dt .

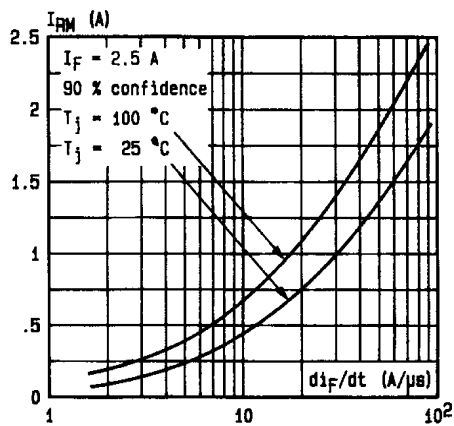


Fig. 10: Recovery charge versus di_F/dt (typical values).

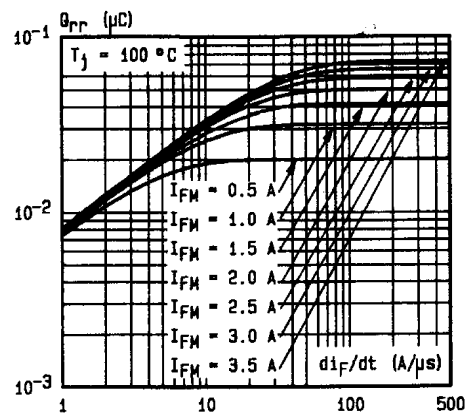


Fig. 11: Dynamic parameters versus junction temperature.

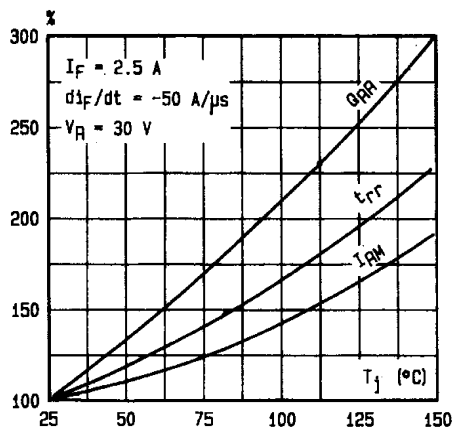
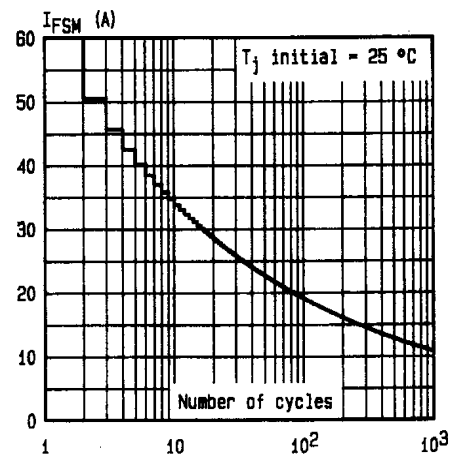
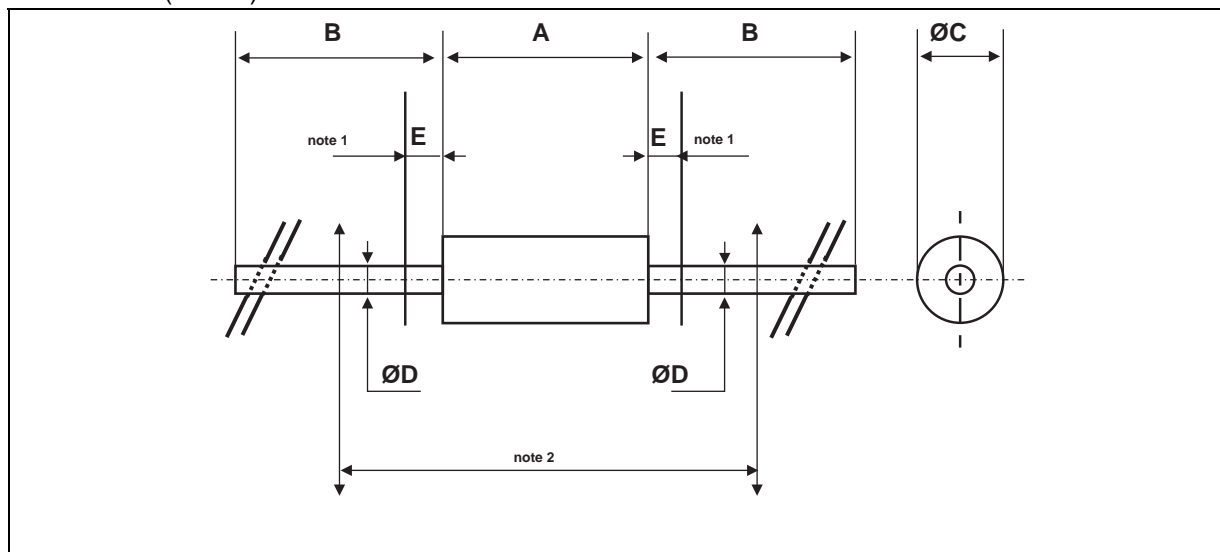


Fig. 12: Non repetitive surge peak current versus number of cycle.



PACKAGE MECHANICAL DATA

DO-201AD (Plastic)



REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A		9.50		0.374	1 - The lead diameter Ø 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		
Ø C		5.30		0.209	
Ø D		1.30		0.051	
E		1.25		0.049	

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