

**FAST RECOVERY RECTIFIER DIODE**
**MAJOR PRODUCTS CHARACTERISTICS**

<b><math>I_{F(AV)}</math></b>	<b>3 A</b>
<b><math>V_{RRM}</math></b>	<b>400 V</b>
<b><math>t_{rr}</math></b>	<b>25 ns</b>
<b><math>V_F</math> (max)</b>	<b>1.4 V</b>

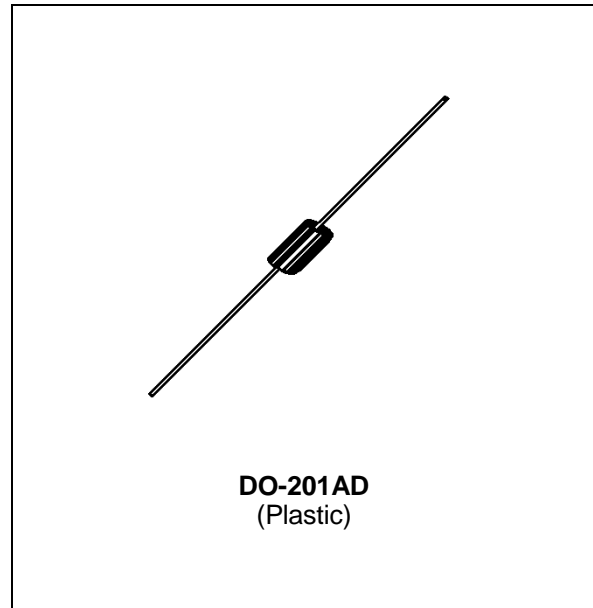
**FEATURES**

- 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)

<b>Symbol</b>	<b>Parameter</b>		<b>Value</b>	<b>Unit</b>
$V_{RRM}$	Repetitive peak reverse voltage		400	V
$V_{RSM}$	Non repetitive peak reverse voltage		400	V
$I_{FRM}$	Repetive peak forward current	$t_p$ 10 $\mu$ 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
$I_R$	$T_j = 25C$	$V_R = V_{RRM}$			20	$\mu A$
	$T_j = 100C$				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
$t_{rr}$	$T_j = 25C$	$I_F = 1A$ $di_F/dt = -15A/\mu s$ $V_R = 30V$			55	ns
		$I_F = 0.5A$ $I_R = 1A$ $I_{rr} = 0.25A$			25	

### TURN-OFF SWITCHING CHARACTERISTICS - Without series inductance

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

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.

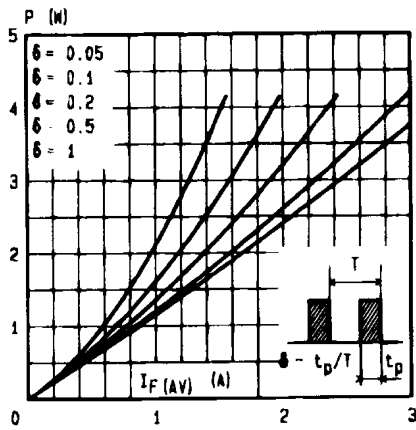


Fig. 2: Average forward current versus ambient temperature.

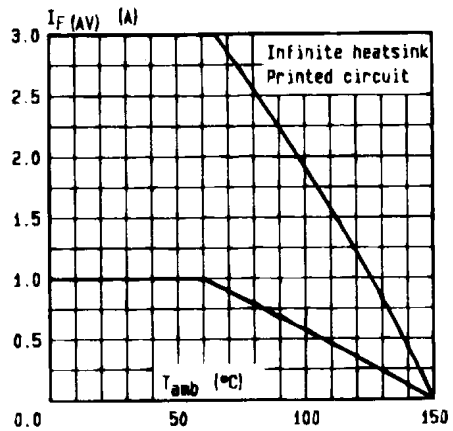


Fig.3 : Thermal resistance versus lead length.

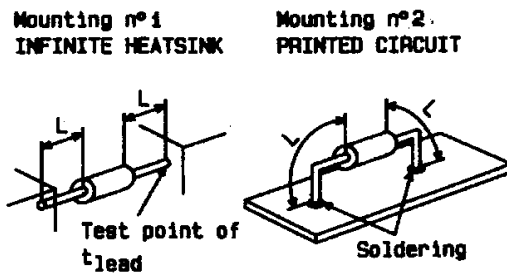
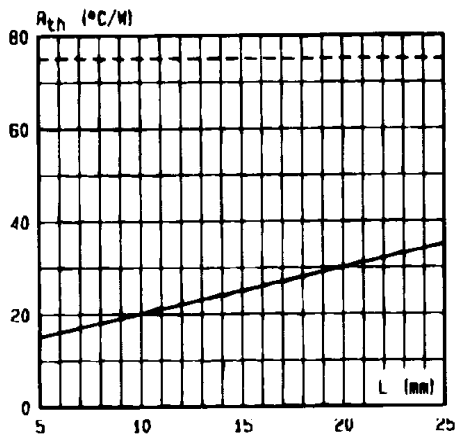


Fig. 5: Peak forward current versus peak forward voltage drop (maximum values).

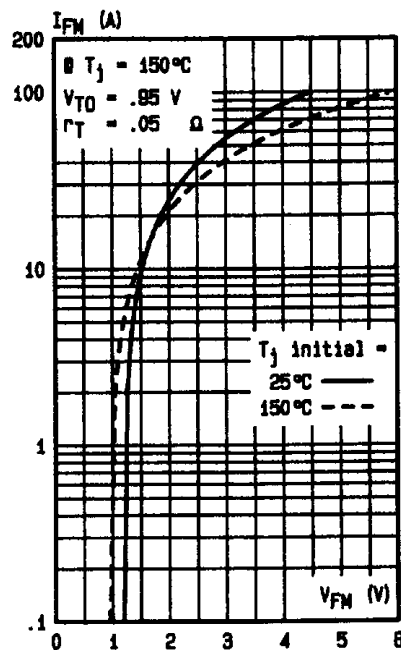


Fig. 4: Transient thermal impedance junction ambient for mounting n° 2 versus pulse duration (L = 10 mm).

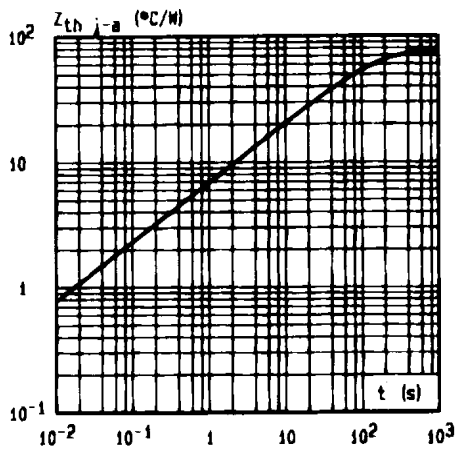


Fig. 7: Recovery time versus  $di_F/dt$ .

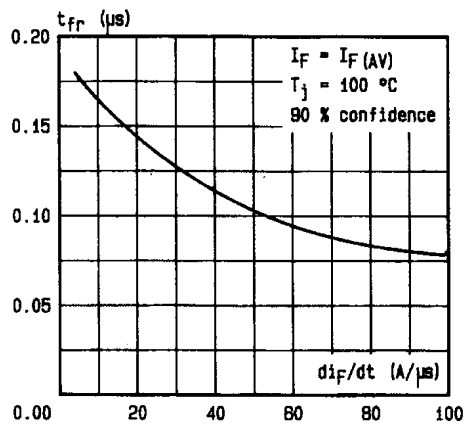


Fig. 8: Peak forward voltage versus  $di_F/dt$ .

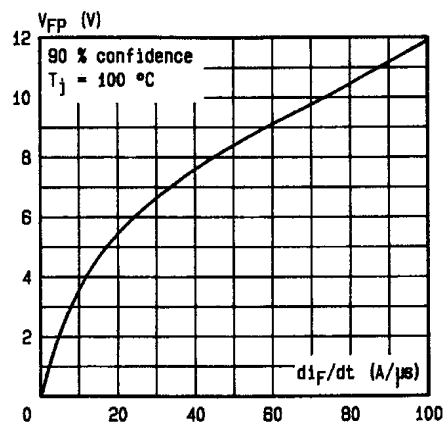


Fig. 9: Peak reverse current versus  $di_F/dt$ .

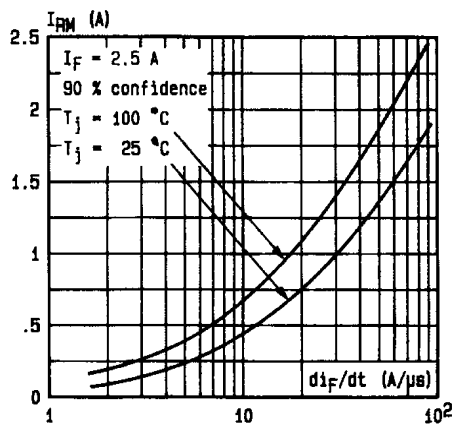


Fig. 10: Recovery charge versus  $di_F/dt$  (typical values).

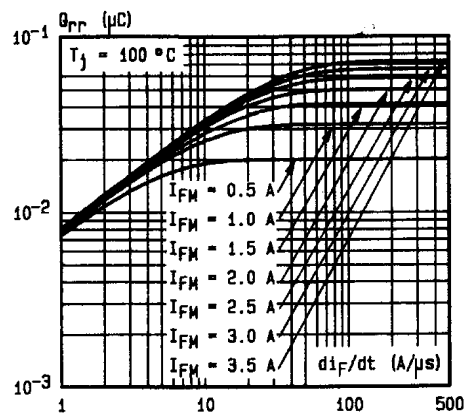


Fig. 11: Dynamic parameters versus junction temperature.

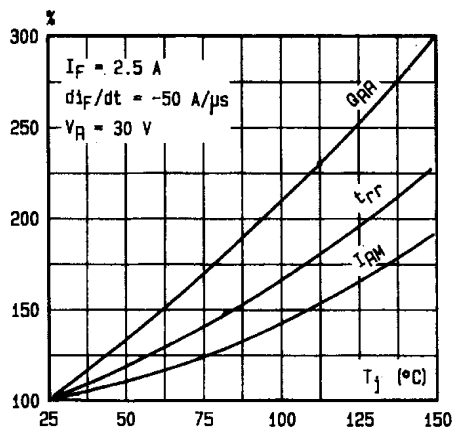
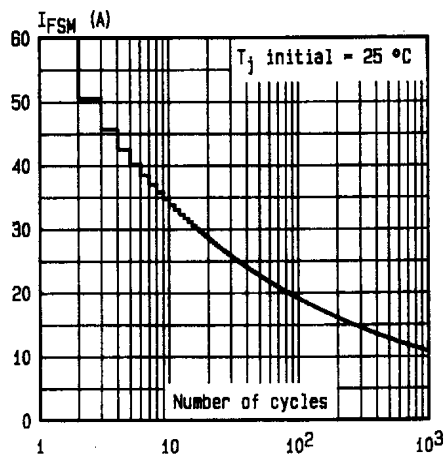
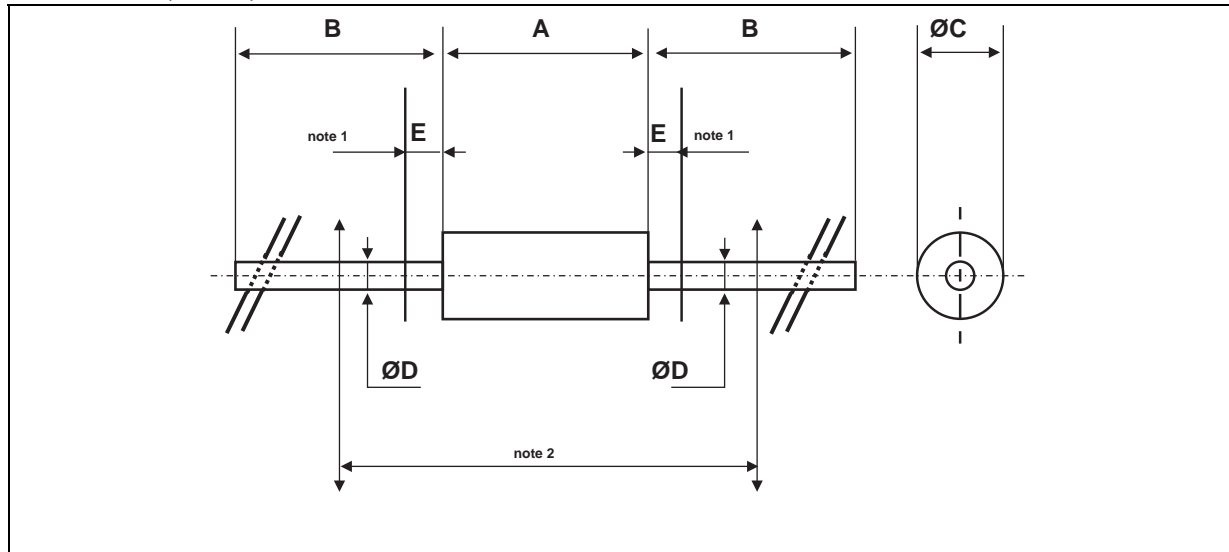


Fig. 12: Non repetitive surge peak current versus number of cycle.



**PACKAGE MECHANICAL DATA**  
 DO-201AD (Plastic)


REF.	DIMENSIONS				NOTES
	Millimeters		Inches		
	Min.	Max.	Min.	Max.	
A		9.50		0.374	1 - The lead diameter $\varnothing D$ 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	

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