

HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODE

MAIN PRODUCT CHARACTERISTICS

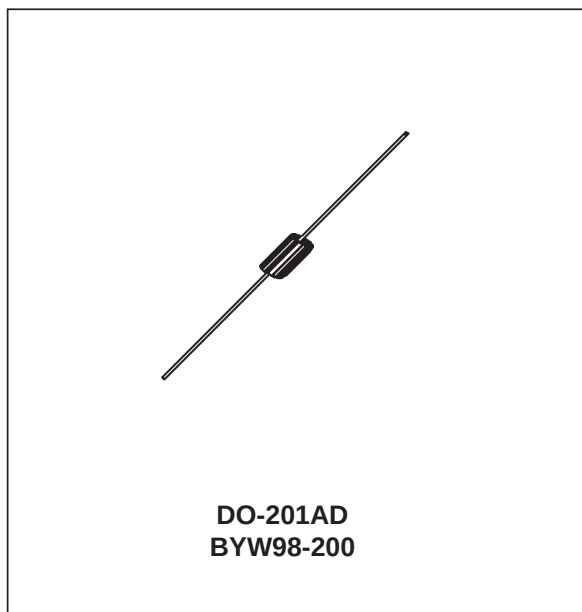
$I_{F(AV)}$	3A
V_{RRM}	200 V
$T_j (max)$	150 °C
$V_F (max)$	0.85 V
$t_{rr} (max)$	35 ns

FEATURES AND BENEFITS

- Very low conduction losses
- Negligible switching losses
- Low forward and reverse recovery times

DESCRIPTION

Low voltage drop and rectifier suited for switching mode base drive and transistor circuits.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		200	V
I_{FRM}	Repetitive peak forward current*	$t_p = 5\mu s$ $F = 1KHz$	110	A
$I_{F(AV)}$	Average forward current	$T_a = 75^\circ C$ $\delta = 0.5$	3	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10ms$ Sinusoidal	70	A
T_{stg}	Storage temperature range		- 65 to + 150	°C
T_j	Maximum operating junction temperature		150	°C
T_L	Maximum lead temperature for soldering during 10s at 4mm from case		230	°C

* On infinite heatsink with 10mm lead length.

THERMAL PARAMETERS

Symbol	Parameter	Value	Unit
Rth (j-a)	Junction-ambient*	25	°C/W

* On infinite heatsink with 10mm lead length.

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I _R *	Reverse leakage current	T _j = 25°C	V _R = V _{RRM}			10	μA
		T _j = 100°C				0.5	mA
V _F **	Forward voltage drop	T _j = 25°C	I _F = 9A			1.2	V
		T _j = 100°C	I _F = 3A		0.78	0.85	

Pulse test : * t_p = 5 ms, δ < 2 %

** t_p = 380 μs, δ < 2 %

To evaluate the maximum conduction losses use the following equations:

$$P = 0.75 \times I_{F(AV)} + 0.04 I_F^2 (RMS)$$

RECOVERY CHARACTERISTICS

Symbol	Test conditions		Min.	Typ.	Max.	Unit
t _{rr}	I _F = 1A dI _F /dt = - 50A/μs V _R = 30V	T _j = 25°C			35	ns
Q _{rr}	I _F = 3A dI _F /dt = - 20A/μs V _R ≤ 30V	T _j = 25°C		15		nC
t _{fr}	I _F = 3A dI _F /dt = - 50A/μs Measured at 1.1 × V _F max	T _j = 25°C		20		ns
V _{FP}	I _F = 3A dI _F /dt = - 50A/μs	T _j = 25°C		5		V

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

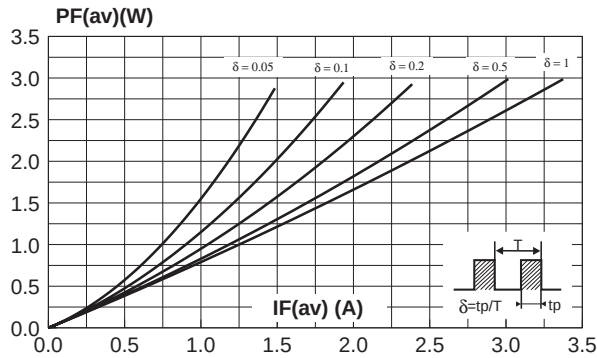


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$).

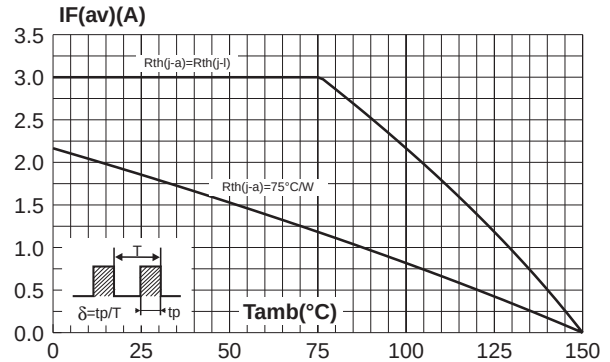


Fig. 3: Thermal resistance versus lead length.

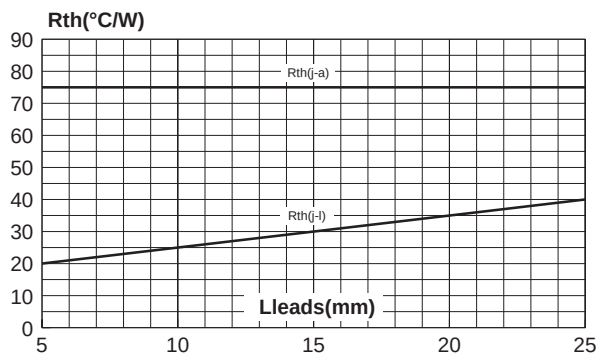


Fig. 4: Variation of thermal impedance junction to ambient versus pulse duration (recommended pad layout, epoxy FR4, $e(\text{Cu}) = 35\mu\text{m}$).

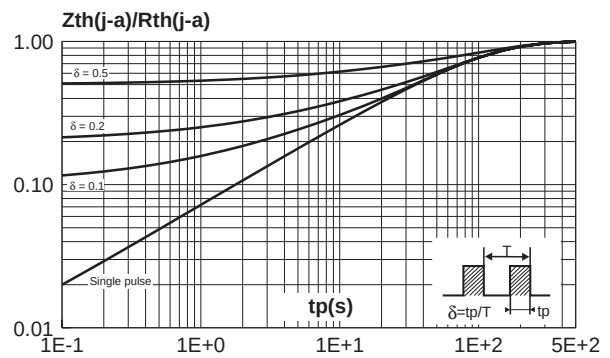


Fig. 5: Forward voltage drop versus forward current (maximum values).

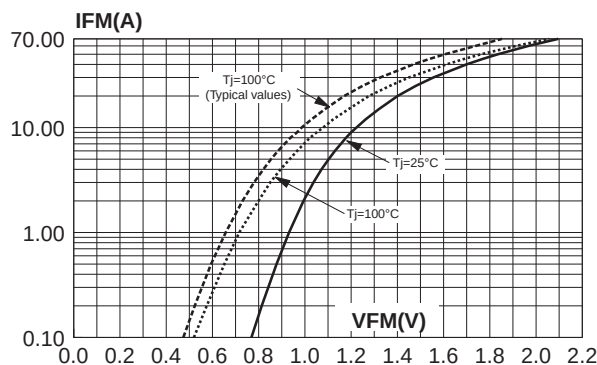


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

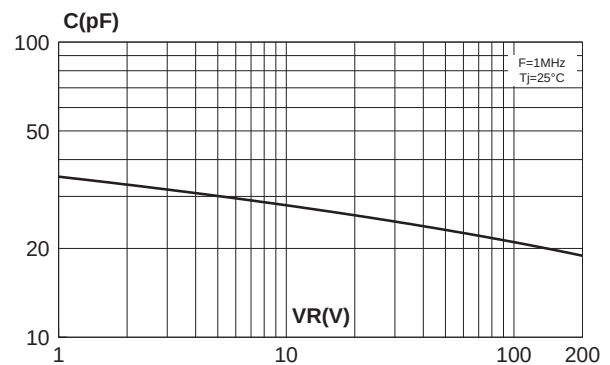


Fig. 7: Reverse recovery time versus dI_F/dt .

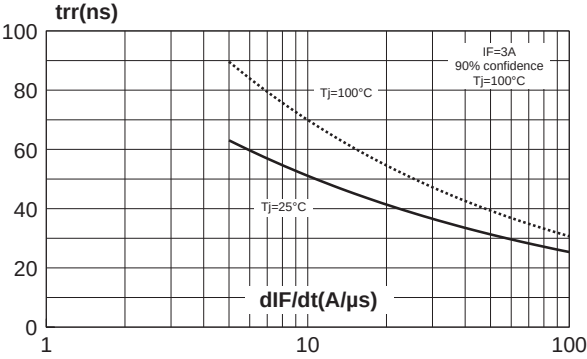


Fig. 8: Peak reverse recovery current versus dI_F/dt .

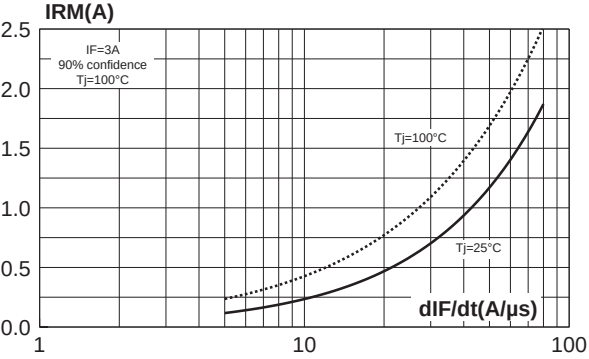
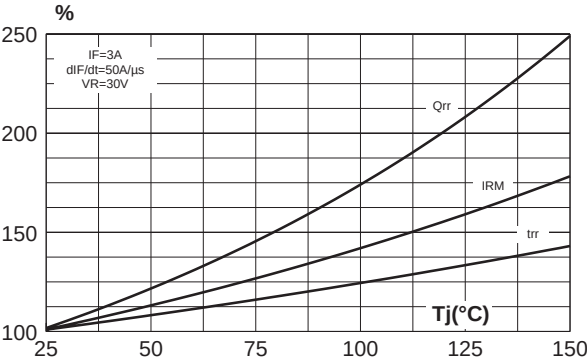
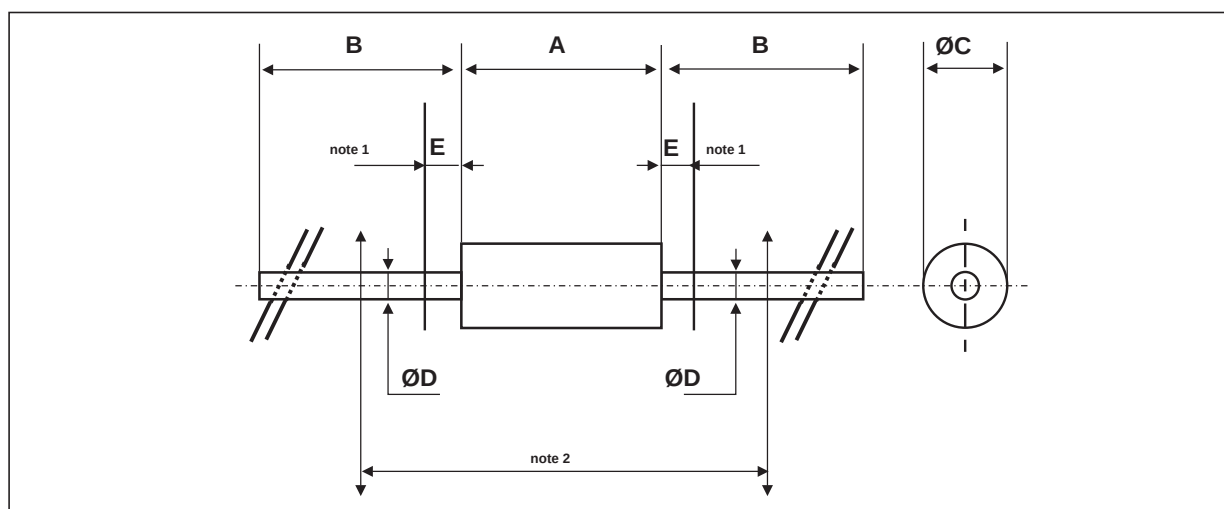


Fig. 9: Dynamic parameters versus junction temperature.



PACKAGE MECHANICAL DATA

DO-201AD



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
B	25.40		1.000		
Ø C		5.30		0.209	2 - The minimum axial length within which the device may be placed with its leads bent at right angles is 0.59"(15 mm)
Ø D		1.30		0.051	
E		1.25		0.049	

Ordering code	Marking	Package	Weight	Base qty	Delivery mode
BYW98-200	BYW98-200	DO-201AD	1.16 g	600	Ammopack
BYW98-200RL	BYW98-200	DO-201AD	1.16 g	1900	Tape and reel

- White band indicates cathode
- Epoxy meets UL94,V0

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