



BYW100-200

HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODE

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	1.5 A
V_{RRM}	200 V
$T_j(\text{max})$	150 °C
$V_F(\text{max})$	0.85 V

FEATURES AND BENEFITS

- VERY LOW CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD AND REVERSE RECOVERY TIMES
- THE SPECIFICATIONS AND CURVES ENABLE THE DETERMINATION OF t_{rr} AND I_{RM} AT 100°C UNDER USERS CONDITIONS



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 *	$t_p = 5 \mu s$ $F = 1 KHz$	80	A
$I_{F(AV)}$	Average forward current *	$T_a = 95^\circ C$ $\delta = 0.5$	1.5	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10 ms$ sinusoidal	50	A
T_{stg}	Storage temperature range		-65 +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.

BYW100-200

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient *	45	°C/W

* On infinite heatsink with 10mm lead length.

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests conditions	Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$V_R = V_{RRM}$	$T_j = 25^\circ\text{C}$		10	μA
			$T_j = 100^\circ\text{C}$		0.5	mA
V_F^{**}	Forward voltage drop	$I_F = 4.5\text{ A}$	$T_j = 25^\circ\text{C}$		1.2	V
		$I_F = 1.5\text{ A}$	$T_j = 100^\circ\text{C}$	0.78	0.85	

Pulse test : * $t_p = 5\text{ ms}$, $\delta < 2\%$

** $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

To evaluate the maximum conduction losses use the following equation :

$$P = 0.75 \times I_{F(AV)} + 0.075 I_{F(RMS)}^2$$

RECOVERY CHARACTERISTICS

Symbol	Tests conditions	Min.	Typ.	Max.	Unit
t_{rr}	$I_F = 1\text{ A}$ $di_F/dt = -50\text{ A}/\mu\text{s}$ $V_R = 30\text{ V}$			35	ns
t_{fr}	$I_F = 1.5\text{ A}$ $di_F/dt = -50\text{ A}/\mu\text{s}$ Measured at $1.1 \times V_F$ max.		30		ns
V_{FP}	$I_F = 1.5\text{ A}$ $di_F/dt = -50\text{ A}/\mu\text{s}$		5		V
Q_{rr}	$I_F = 1.5\text{ A}$ $di_F/dt = -20\text{ A}/\mu\text{s}$ $V_R \leq 30\text{ V}$		10		nC

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

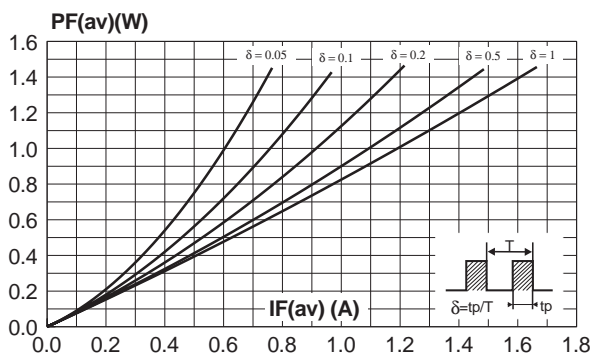


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$).

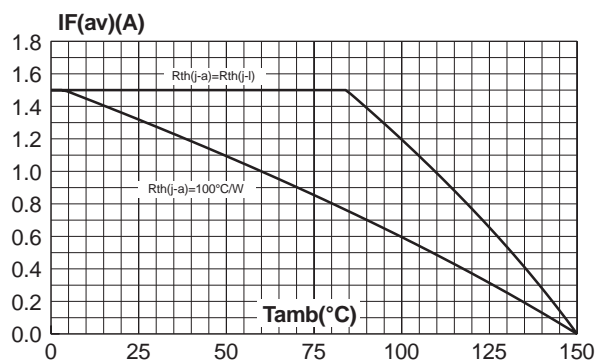


Fig. 3: Thermal resistance versus lead length.

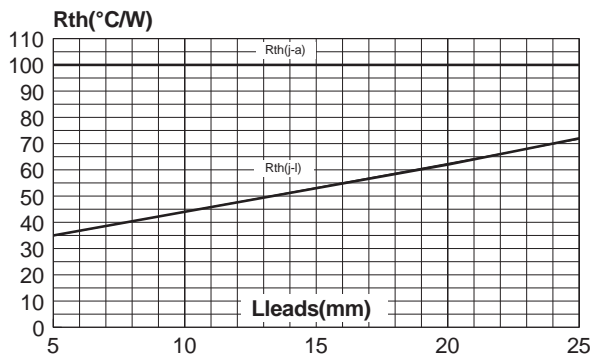


Fig. 4: Variation of thermal impedance junction to ambient versus pulse duration (recommended pad layout, epoxy FR4, e(Cu)=35µm).

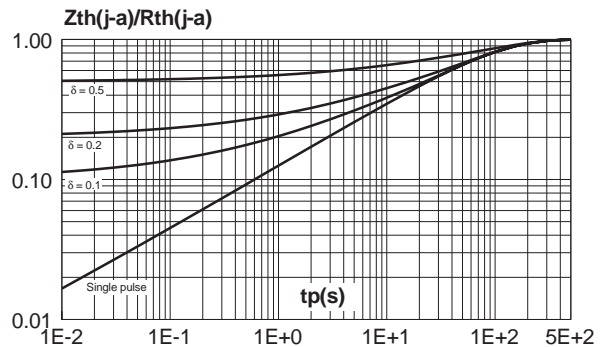


Fig. 5: Forward voltage drop versus forward current (maximum values).

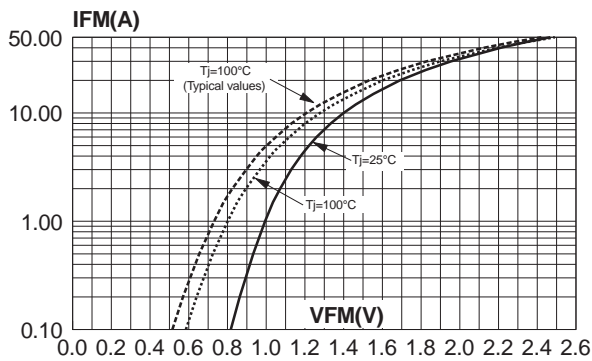


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

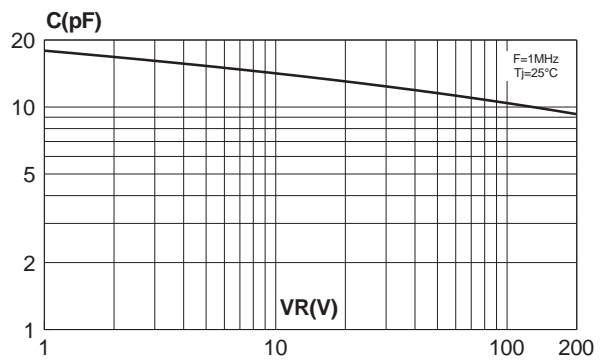


Fig. 7: Reverse recovery time versus dIF/dt.

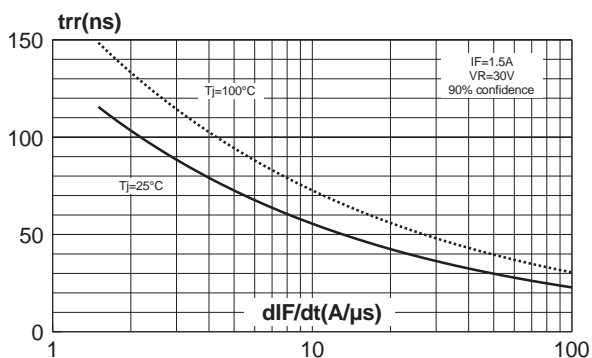
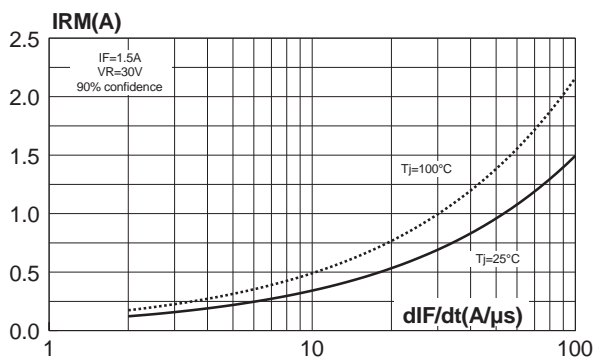
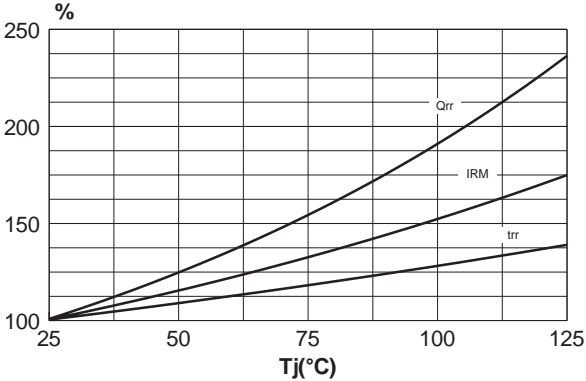


Fig. 8: Peak reverse recovery current versus dIF/dt.



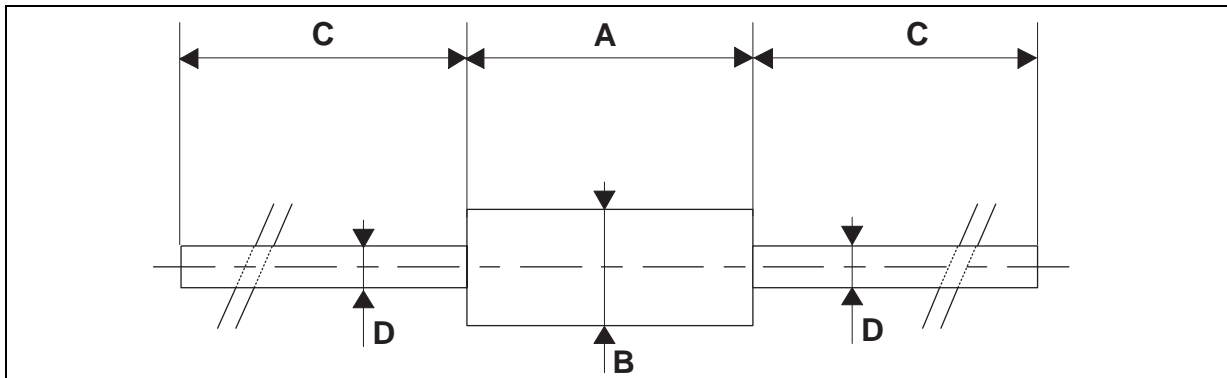
BYW100-200

Fig. 9: Dynamic parameters versus junction temperature.



PACKAGE MECHANICAL DATA

F126



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

Ordering code	Marking	Package	Weight	Base qty	Delivery mode
BYW100-200	BYW100-200	F126	0.393g	1000	Ammopack
BYW100-200RL	BYW100-200	F126	0.393g	6000	Tape and reel

- Cooling method: by conduction (method A)
- Epoxy meets UL 94,V0

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

© 1999 STMicroelectronics - Printed in Italy - All rights reserved.

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia
Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>