



## BYW100-200

### HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODE

#### MAIN PRODUCT CHARACTERISTICS

|             |        |
|-------------|--------|
| $I_{F(AV)}$ | 1.5 A  |
| $V_{RRM}$   | 200 V  |
| $T_j (max)$ | 150 °C |
| $V_F (max)$ | 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 *                                  | $t_p = 5\mu s \quad F = 1KHz$         | 80       | A    |
| $I_{F(AV)}$ | Average forward current*                                           | $T_a = 95^\circ C \quad \delta = 0.5$ | 1.5      | A    |
| $I_{FSM}$   | Surge non repetitive forward current                               | $t_p = 10 ms \quad \text{Sinusoidal}$ | 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 infinitive 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

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

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

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

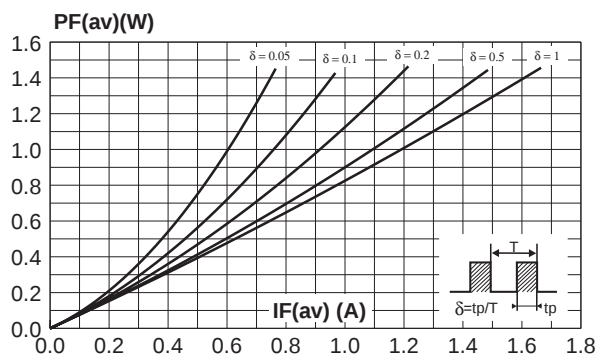
To evaluate the maximum conduction losses use the following equation :

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

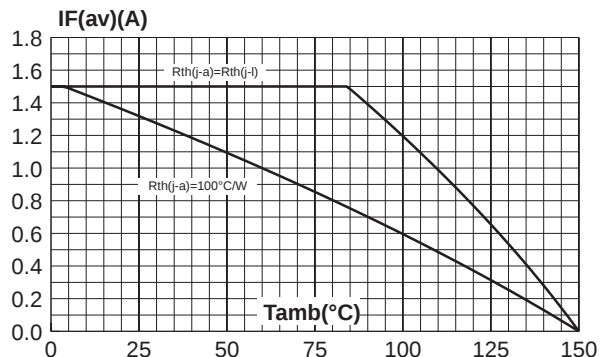
### RECOVERY CHARACTERISTICS

| Symbol   | Tests conditions    |                                     |                                   | Min.                     | Typ. | Max. | Unit |
|----------|---------------------|-------------------------------------|-----------------------------------|--------------------------|------|------|------|
| $t_{rr}$ | $I_F = 1\text{A}$   | $di_F/dt = -50\text{A}/\mu\text{s}$ | $V_R = 30\text{V}$                | $T_j = 25^\circ\text{C}$ |      | 35   | ns   |
| $t_{fr}$ | $I_F = 1.5\text{A}$ | $di_F/dt = -50\text{A}/\mu\text{s}$ | Measured at $1.1 \times V_{Fmax}$ | $T_j = 25^\circ\text{C}$ | 30   |      | ns   |
| $V_{FP}$ | $I_F = 1.5\text{A}$ | $di_F/dt = -50\text{A}/\mu\text{s}$ | $T_j = 25^\circ\text{C}$          |                          | 5    |      | V    |
| $Q_{rr}$ | $I_F = 1.5\text{A}$ | $di_F/dt = -20\text{A}/\mu\text{s}$ | $V_R \leq 30\text{V}$             | $T_j = 25^\circ\text{C}$ | 10   |      | nC   |

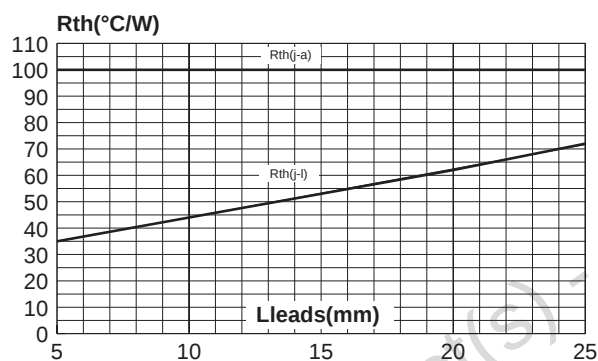
**Fig. 1:** Average forward power dissipation versus average forward current.



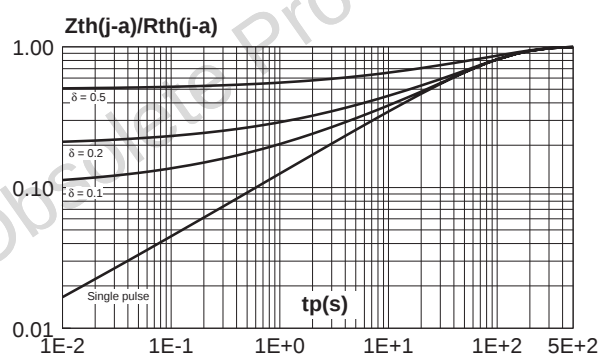
**Fig. 2:** Average forward current versus ambient temperature ( $\delta=0.5$ ).



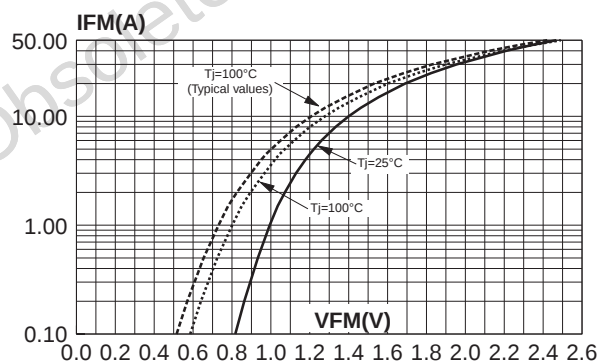
**Fig. 3:** Thermal resistance versus lead length.



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



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



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

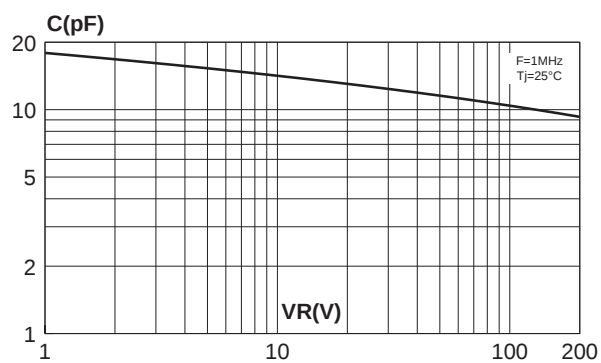


Fig. 7: Reverse recovery time versus  $dI_F/dt$ .

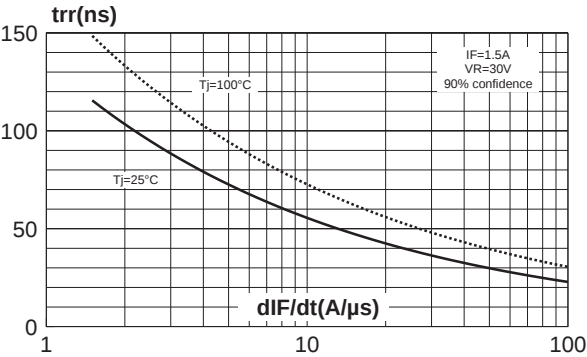


Fig. 8: Peak reverse recovery current versus  $dI_F/dt$ .

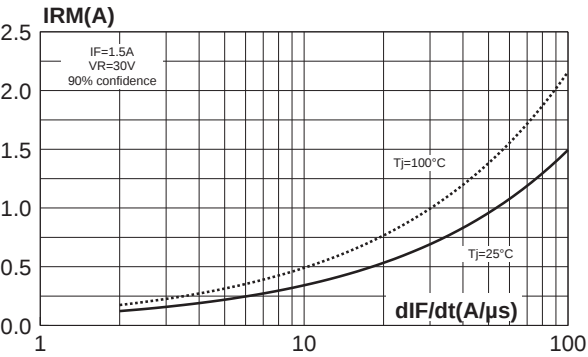
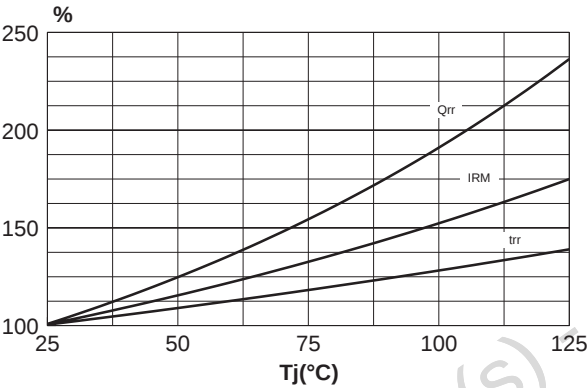
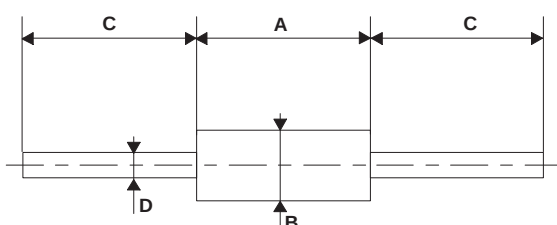


Fig. 9: Dynamic parameters versus junction temperature.



## PACKAGE MECHANICAL DATA

DO-15

|  | DIMENSIONS  |      |        |       |
|-----------------------------------------------------------------------------------|-------------|------|--------|-------|
|                                                                                   | Millimeters |      | Inches |       |
|                                                                                   | Min.        | Max. | Min.   | Max.  |
| A                                                                                 | 6.05        | 6.75 | 0.238  | 0.266 |
| B                                                                                 | 2.95        | 3.53 | 0.116  | 0.139 |
| C                                                                                 | 26          | 31   | 1.024  | 1.220 |
| D                                                                                 | 0.71        | 0.88 | 0.028  | 0.035 |

| Ordering code | Marking    | Package | Weight | Base qty | Delivery mode |
|---------------|------------|---------|--------|----------|---------------|
| BYW100-200    | BYW100-200 | DO-15   | 0.4 g  | 1000     | Ammopack      |
| BYW100-200RL  | BYW100-200 | DO-15   | 0.4 g  | 6000     | Tape and reel |

- White band indicates cathode
- 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

© 2001 STMicroelectronics - Printed in Italy - All rights reserved.

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - Finland - France - Germany  
 Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore  
 Spain - Sweden - Switzerland - United Kingdom - United States.

<http://www.st.com>

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[STMicroelectronics:](#)

[BYW100-200](#) [BYW100-200RL](#)