



## BYW100-200

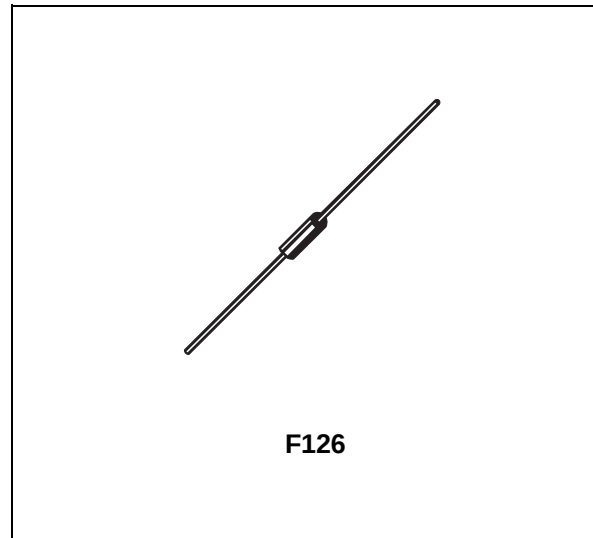
### HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODE

#### 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 *                                  | $t_p = 5 \mu s \quad F = 1KHz$                | 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                               | $t_p = 10 \text{ ms} \quad \text{sinusoidal}$ | 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 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   | $\mu\text{A}$ |
|            |                         |                      | $T_j = 100^\circ\text{C}$ |      | 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 : \*  $t_p = 5\text{ ms}$ ,  $\delta < 2\%$

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

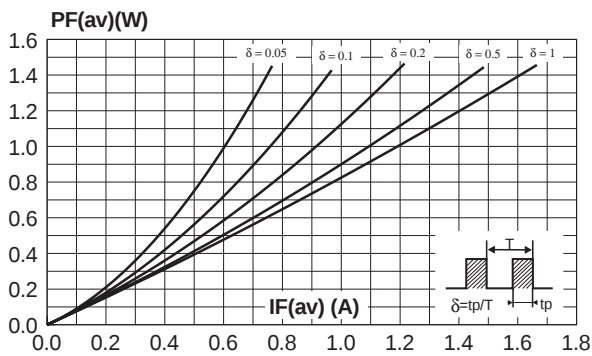
To evaluate the maximum conduction losses use the following equation :

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

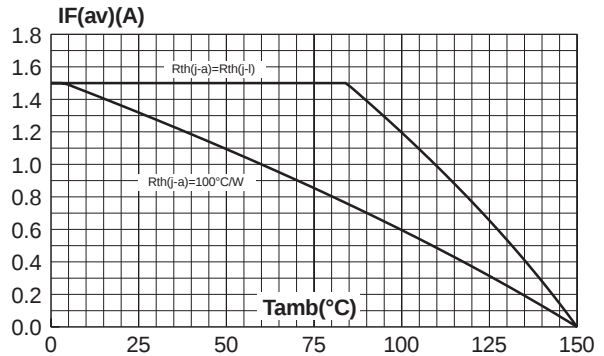
### RECOVERY CHARACTERISTICS

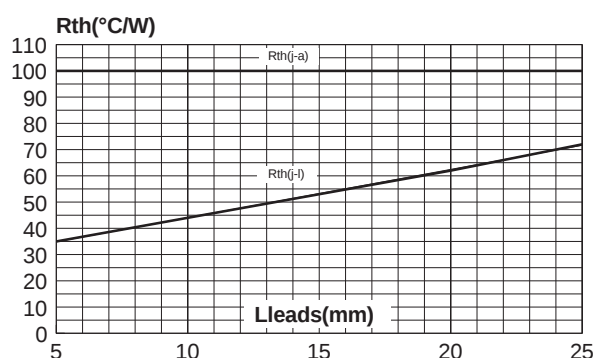
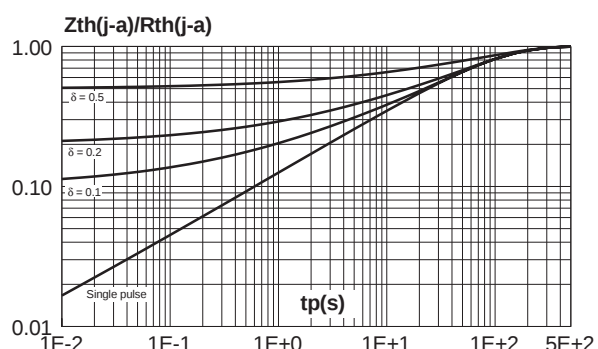
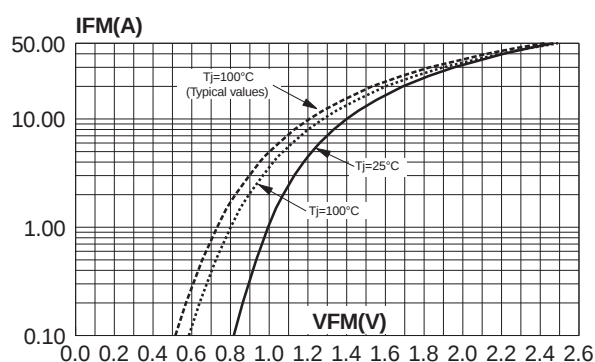
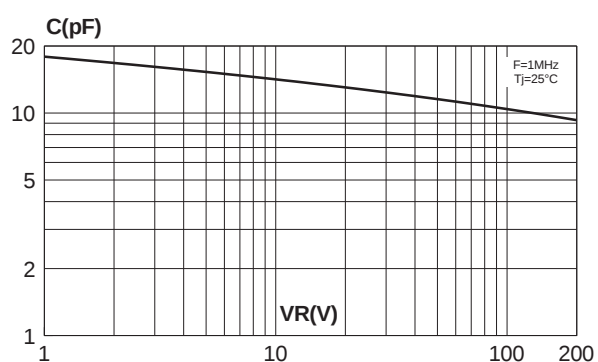
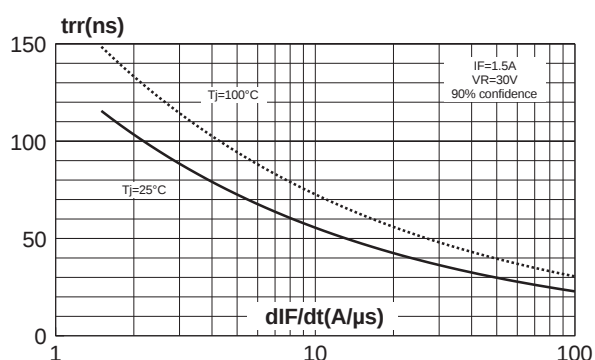
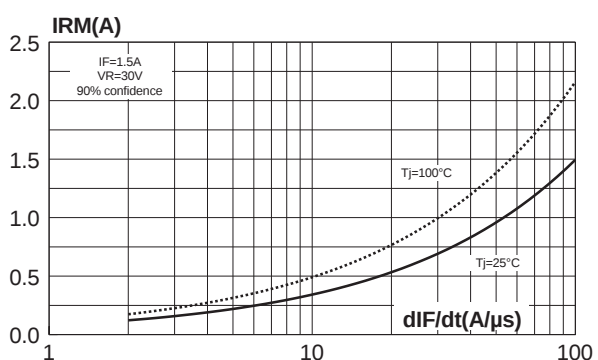
| Symbol   | Tests conditions                                                                                                     | Min. | Typ. | Max. | Unit |
|----------|----------------------------------------------------------------------------------------------------------------------|------|------|------|------|
| $t_{rr}$ | $I_F = 1\text{ A}$ $di_F/dt = -50\text{ A}/\mu\text{s}$ $V_R = 30\text{ V}$ $T_j = 25^\circ\text{C}$                 |      |      | 35   | ns   |
| $t_{fr}$ | $I_F = 1.5\text{ A}$ $di_F/dt = -50\text{ A}/\mu\text{s}$ Measured at $1.1 \times V_F$ max. $T_j = 25^\circ\text{C}$ |      | 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.

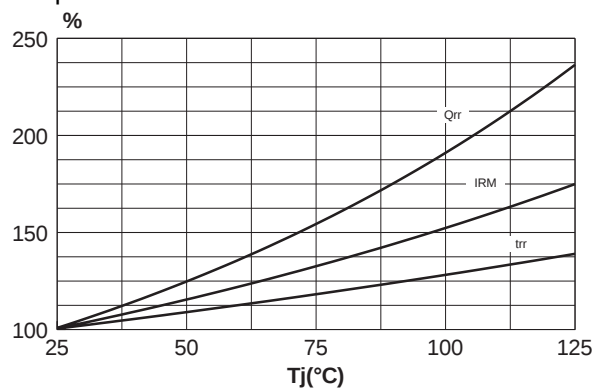


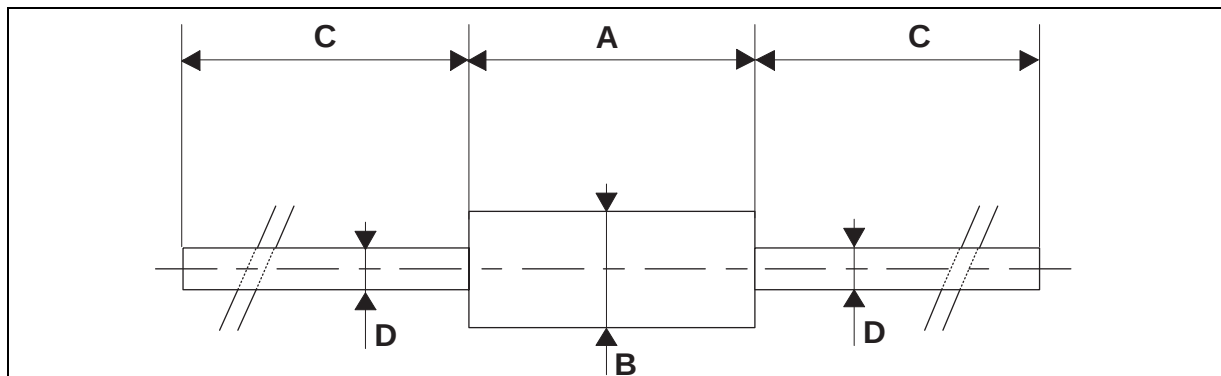
**Fig. 2:** Average forward current versus ambient temperature ( $\delta=0.5$ ).



**Fig. 3:** Thermal resistance versus lead length.**Fig. 4:** Variation of thermal impedance 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**  
**F126**


| REF.     | DIMENSIONS  |      |      |        |       |       |
|----------|-------------|------|------|--------|-------|-------|
|          | Millimeters |      |      | Inches |       |       |
|          | Min.        | Typ. | Max. | Min.   | Typ.  | Max.  |
| <b>A</b> | 6.05        | 6.20 | 6.35 | 0.238  | 0.244 | 0.250 |
| <b>B</b> | 2.95        | 3.00 | 3.05 | 0.116  | 0.118 | 0.120 |
| <b>C</b> | 26          |      | 31   | 1.024  |       | 1.220 |
| <b>D</b> | 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

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