# BYW100-200

## HIGH EFFICIENCY FAST RECOVERY RECTIFIER DIODE

### MAIN PRODUCT CHARACTERISTICS

| | |
|---|---|
| $I_{F(AV)}$ | **1.5 A** |
| $V_{RRM}$ | **200 V** |
| **Tj (max)** | **150 °C** |
| $V_F$ **(max)** | **0.85 V** |

**F126**
(JEDEC DO-204AC)

### FEATURES AND BENEFITS

- VERY LOW CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD AND REVERSE RECOVERY TIMES
- THE SPECIFICATIONS AND CURVES ENABLE THE DETERMINATION OF trr 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 * | tp = 5 µs F = 1KHz | 80 | A |
| $I_{F(AV)}$ | Average forward current * | Ta = 95°C δ = 0.5 | 1.5 | A |
| $I_{FSM}$ | Surge non repetitive forward current | tp=10 ms sinusoidal | 50 | A |
| $T_{stg}$ | Storage temperature range | | -65 +150 | °C |
| Tj | 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 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 | $V_R = V_{RRM}$ | Tj = 25°C | | | 10 | µA |
| | | | Tj = 100°C | | | 0.5 | mA |
| $V_F$ ** | Forward voltage drop | $I_F$ = 4.5 A | Tj = 25°C | | | 1.2 | V |
| | | $I_F$ = 1.5 A | Tj = 100°C | | 0.78 | 0.85 | |

Pulse test : * tp = 5 ms, δ < 2 %
** tp = 380 µs, δ < 2 %

To evaluate the maximum conduction losses use the following equation :
$P = 0.75 \times I_{F(AV)} + 0.075\ I_F{}^2{}_{(RMS)}$

## RECOVERY CHARACTERISTICS

| Symbol | Tests conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| trr | $I_F$ = 1 A $dI_F/dt$ = - 50 A/µs $V_R$ = 30 V | Tj = 25°C | | | 35 | ns |
| tfr | $I_F$ = 1.5 A $dI_F/dt$ = -50 A/µs Measured at 1.1 x $V_F$ max. | Tj = 25°C | | 30 | | ns |
| $V_{FP}$ | $I_F$ = 1.5 A $dI_F/dt$ = -50 A/µs | Tj = 25°C | | 5 | | V |
| Qrr | $I_F$ = 1.5 A $dI_F/dt$ = -20 A/µs $V_R \leq$ 30 V | Tj = 25°C | | 10 | | nC |

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

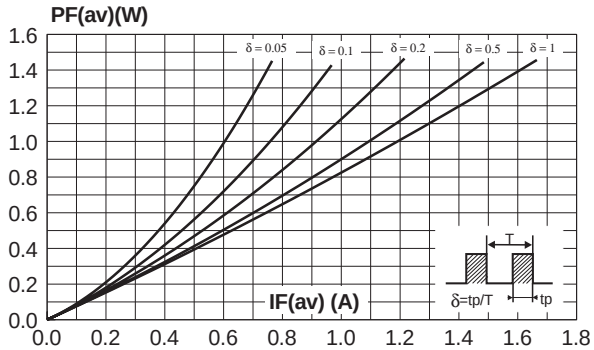



**Fig. 2:** Average forward current versus ambient temperature (δ=0.5).

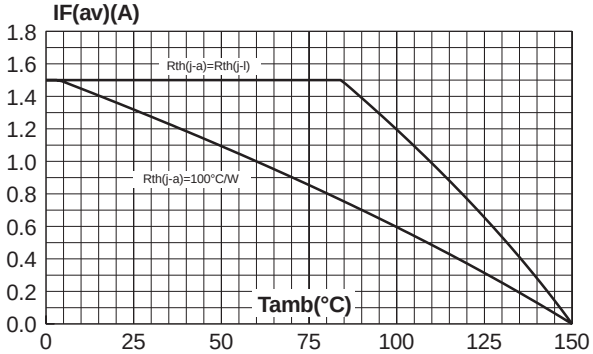


**Fig. 3:** Thermal resistance versus lead length.

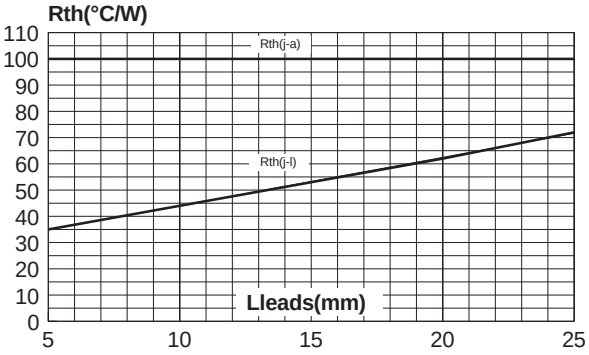



**Fig. 4:** Variation of thermal impedance junction to ambient versus pulse duration (recommended pad layout, epoxy FR4, e(Cu)=35µm)**.**

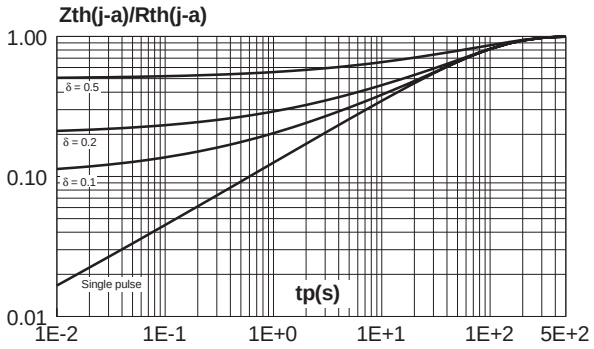



**Fig. 5:** Forward voltage drop versus forward current (maximum values).

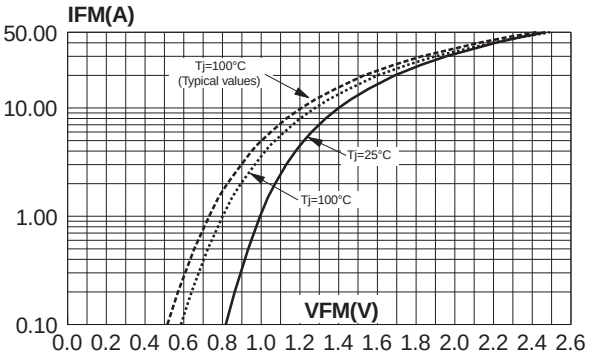



**Fig. 6:** Junction capacitance versus reverse voltage applied (typical values).

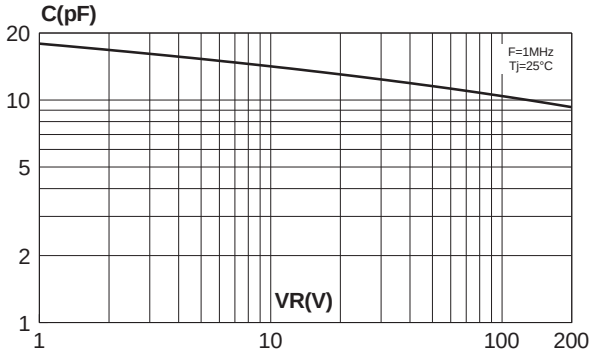



**Fig. 7:** Reverse recovery time versus $dI_F/dt$ .

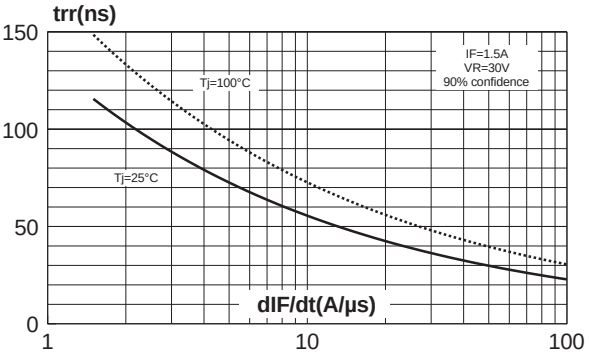



**Fig. 8:** Peak reverse recovery current versus $dI_F/dt$.

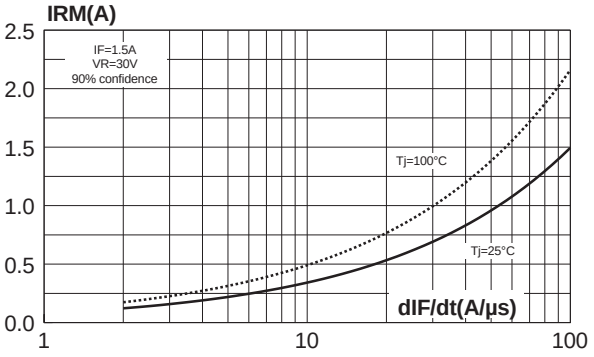
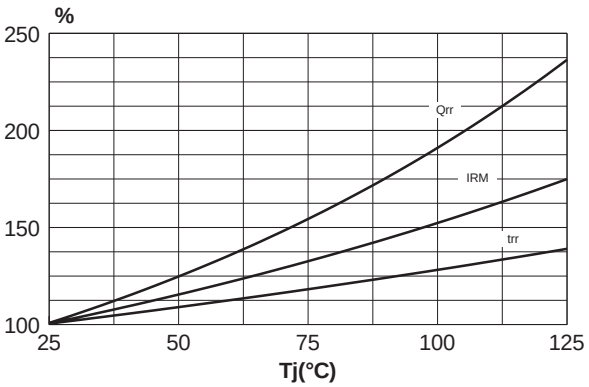
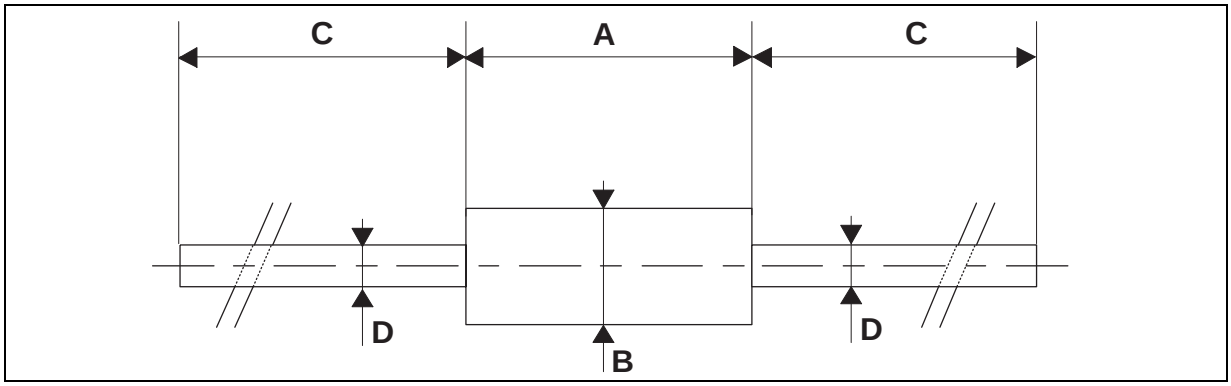


**Fig. 9:** Dynamic parameters versus junction temperature.



## PACKAGE MECHANICAL DATA

F126




| REF. | DIMENSIONS | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| 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