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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 * | $t_p = 5\mu s$ $F = 1KHz$ | 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

| Symbol | Parameter | Tests conditions | | Min. | Typ. | Max. | Unit |
|------------|-------------------------|---------------------------|---------------------|------|------|------|---------------|
| I_R^* | Reverse leakage current | $T_j = 25^\circ\text{C}$ | $V_R = V_{RRM}$ | | | 10 | μA |
| | | $T_j = 100^\circ\text{C}$ | | | | 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 : * $t_p = 5\text{ ms}$, $\delta < 2\%$

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

To evaluate the maximum conduction losses use the following equation :

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

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 $1.1 \times V_{Fmax}$ | | 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.

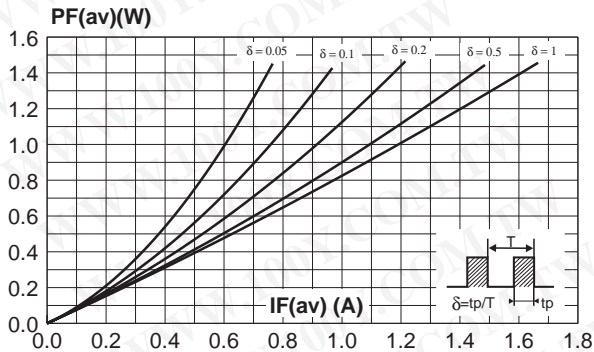


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$).

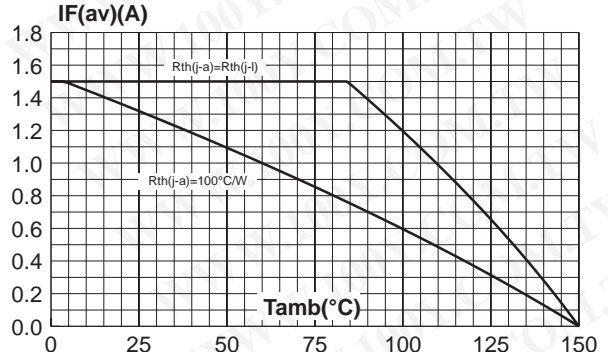


Fig. 3: Thermal resistance versus lead length.

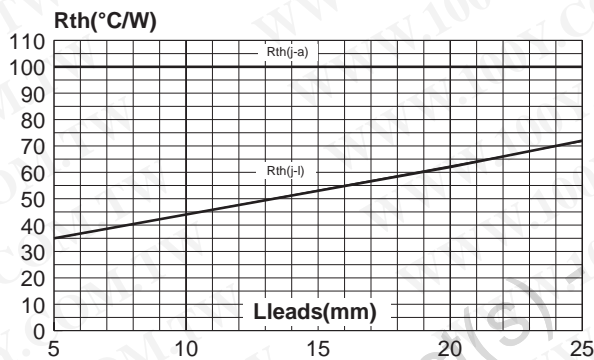


Fig. 4: Variation of thermal impedance junction to ambient versus pulse duration (recommended pad layout, epoxy FR4, e(Cu) = 35µm).

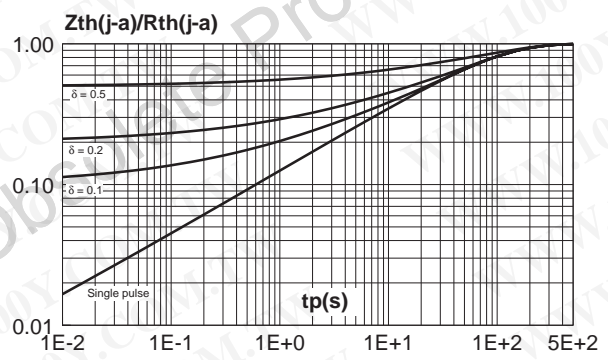


Fig. 5: Forward voltage drop versus forward current (maximum values).

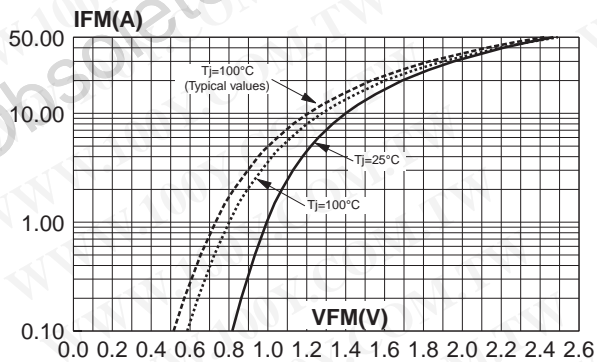


Fig. 6: Junction capacitance versus reverse voltage applied (typical values).

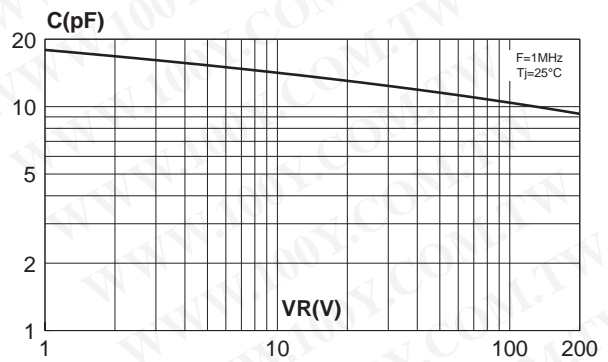


Fig. 7: Reverse recovery time versus di_F/dt .

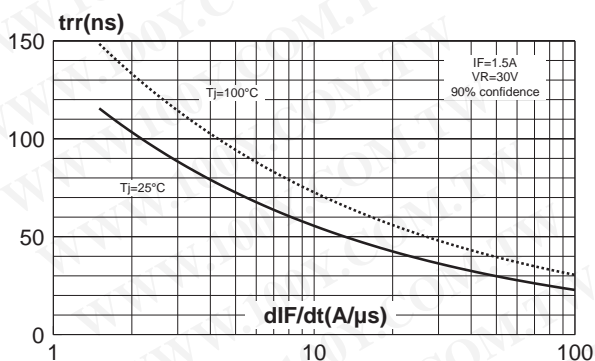


Fig. 8: Peak reverse recovery current versus di_F/dt .

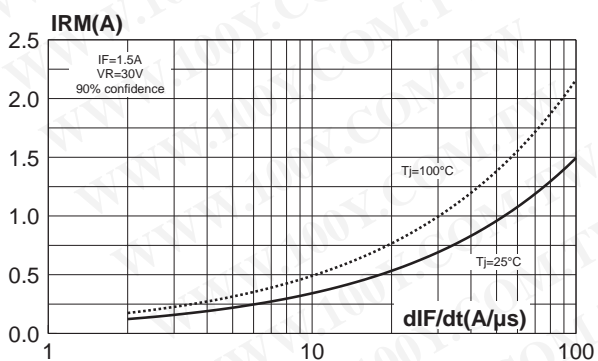
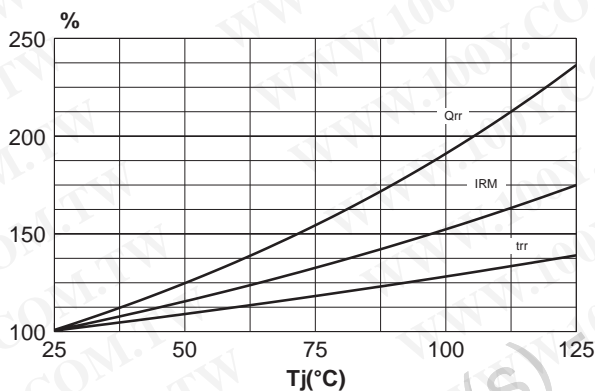
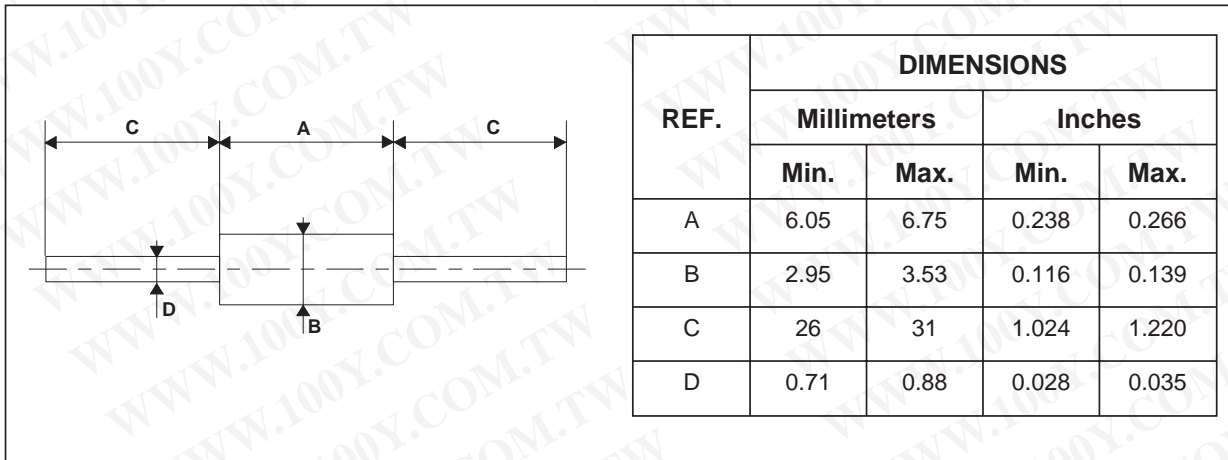


Fig. 9: Dynamic parameters versus junction temperature.



PACKAGE MECHANICAL DATA
DO-15



| 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

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