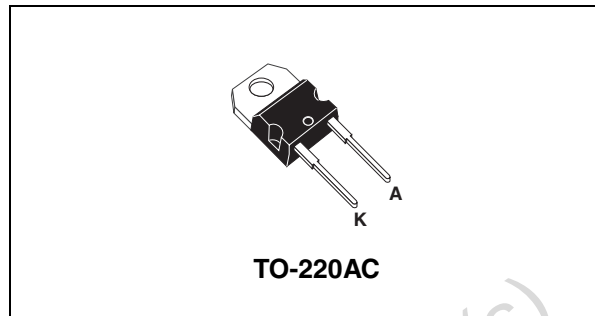


**FAST RECOVERY RECTIFIER DIODES****Table 1: Main Product Characteristics**

| | |
|----------------------|---------------|
| $I_{F(AV)}$ | 6 A |
| V_{RRM} | 800 V |
| T_j | 150°C |
| $V_F(\text{max})$ | 1.4 V |
| $t_{rr}(\text{max})$ | 300 ns |

**FEATURES AND BENEFITS**

- High voltage capability
- Fast and soft recovery

DESCRIPTION

Single chip rectifier suited for power conversion and polarity protection applications.
This device is packaged in TO-220AC.

Table 2: Order Code

| Part Number | Marking |
|--------------------|----------------|
| BYT71-800 | BYT71800 |

Table 3: Absolute Maximum Ratings

| Symbol | Parameter | Value | Unit |
|---------------|--|--------------------------------------|-------------|
| V_{RRM} | Repetitive peak reverse voltage | 800 | V |
| $I_{F(RMS)}$ | RMS forward current | 12 | A |
| $I_{F(AV)}$ | Average forward current $\delta = 0.5$ | $T_c = 130^\circ\text{C}$ 6 | A |
| I_{FSM} | Surge non-repetitive forward current | $t_p = 10\text{ms sinusoidal}$ 90 | A |
| T_{stg} | Storage temperature range | -65 to + 150 | °C |
| T_j | Maximum operating junction temperature | 150 | °C |

Table 4: Thermal Resistance

| Symbol | Parameter | Value (max). | Unit |
|---------------|------------------|--------------|------|
| $R_{th(j-c)}$ | Junction to case | 2.3 | °C/W |

Table 5: Static Electrical Characteristics

| Symbol | Parameter | Test conditions | Min. | Typ | Max. | Unit |
|----------|-------------------------|---------------------------|-------------------|-----|------|---------------|
| I_R * | Reverse leakage current | $T_j = 25^\circ\text{C}$ | | | 20 | μA |
| | | $T_j = 100^\circ\text{C}$ | | | 1 | mA |
| V_F ** | Forward voltage drop | $T_j = 25^\circ\text{C}$ | $I_F = 6\text{A}$ | | 1.4 | V |
| | | $T_j = 100^\circ\text{C}$ | | | 1.3 | |

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

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

To evaluate the conduction losses use the following equation: $P = 1.15 \times I_{F(AV)} + 0.025 I_F^2(\text{RMS})$

Table 6: Recovery Characteristics

| Symbol | Parameter | Test conditions | | Min. | Typ | Max. | Unit |
|----------|-----------------------|--------------------------|---|------|-----|------|------|
| t_{rr} | Reverse recovery time | $T_j = 25^\circ\text{C}$ | $I_F = 1\text{A}$ $di_F/dt = -15\text{ A}/\mu\text{s}$ $V_R = 30\text{V}$ | | | 300 | ns |

Figure 1: Average forward power dissipation versus average forward current

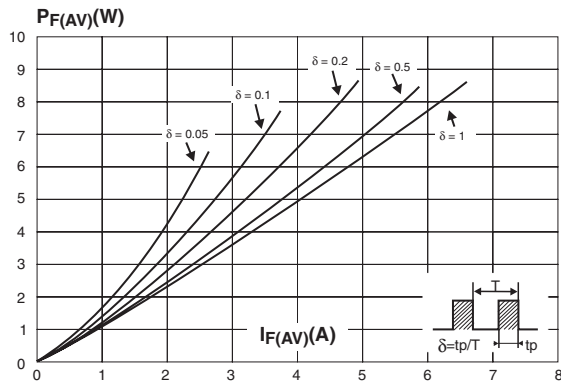


Figure 2: Average current versus ambient temperature ($\delta = 0.5$)

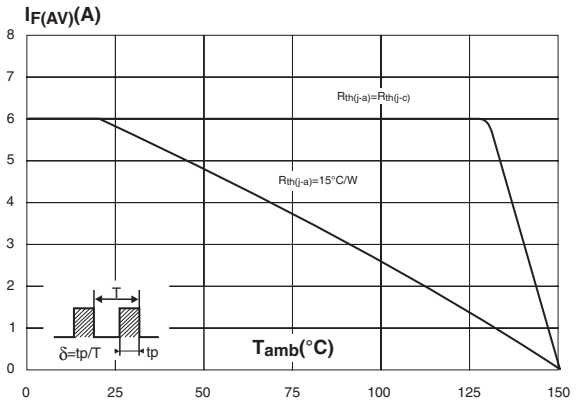


Figure 3: Relative variation of thermal impedance junction to case versus pulse duration

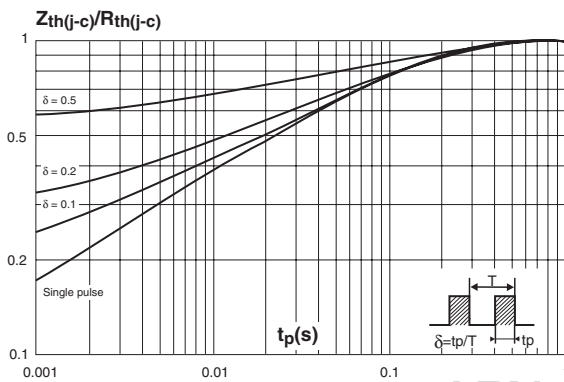


Figure 4: Peak current versus form factor

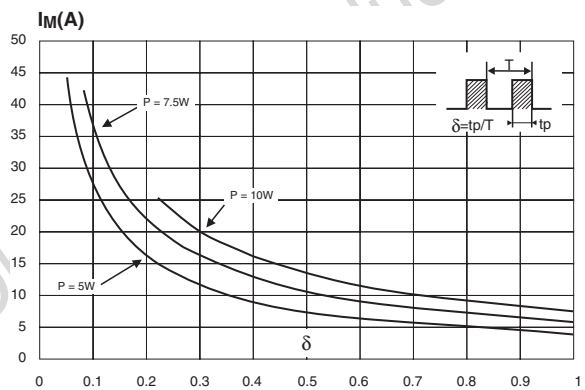


Figure 5: Peak reverse current versus di_F/dt (90% confidence)

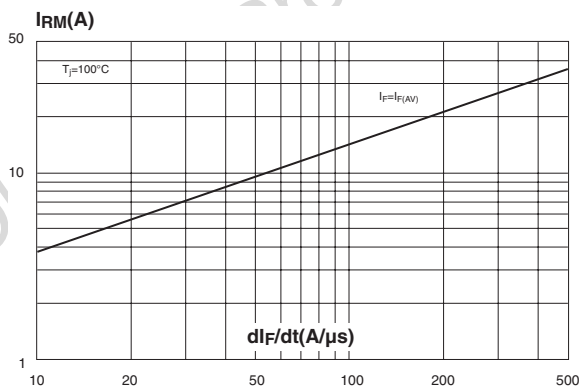


Figure 6: Forward voltage drop versus forward current (maximum values)

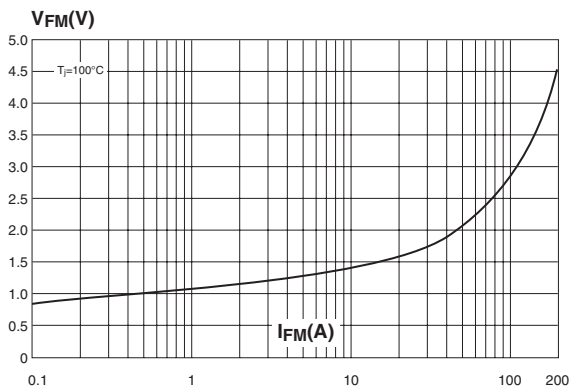


Figure 7: Recovery charges versus di_F/dt (90% confidence)

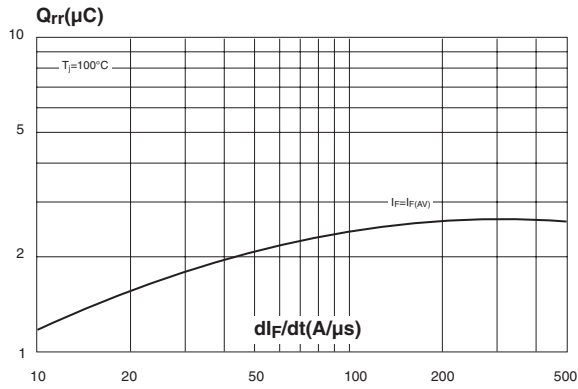


Figure 8: Peak forward voltage versus di_F/dt (90% confidence)

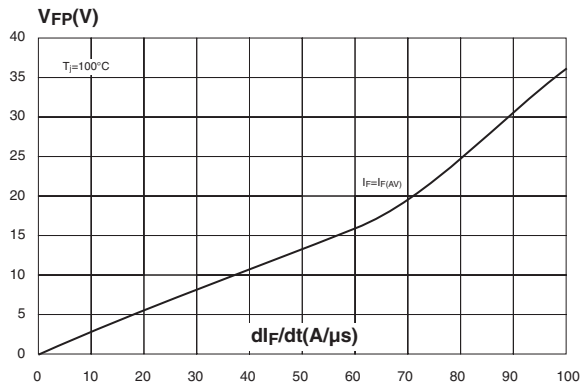


Figure 9: Recovery time versus di_F/dt (90% confidence)

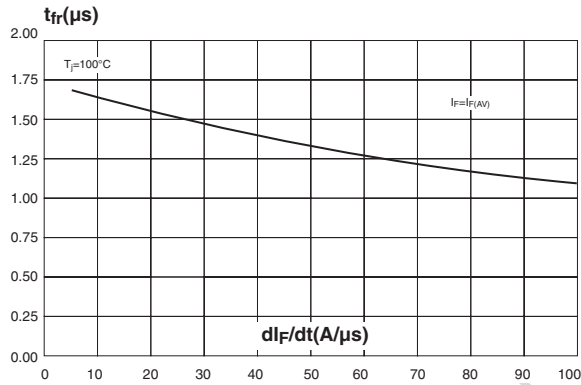


Figure 10: Junction capacitance versus reverse voltage applied (typical values)

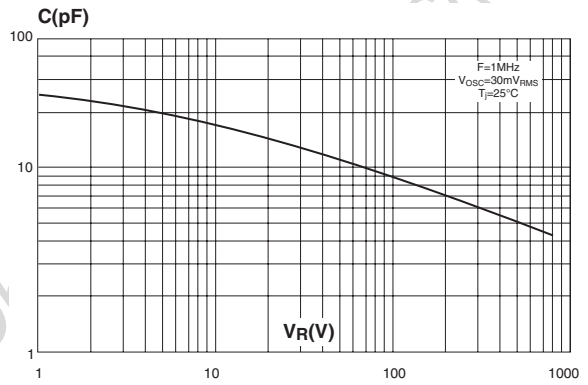


Figure 11: Dynamic parameters versus junction temperature

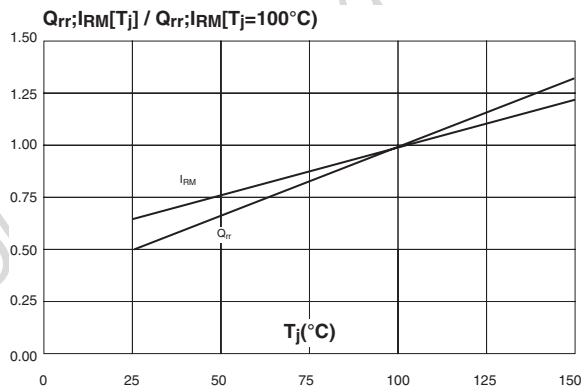


Figure 12: TO-220AC Package Mechanical Data

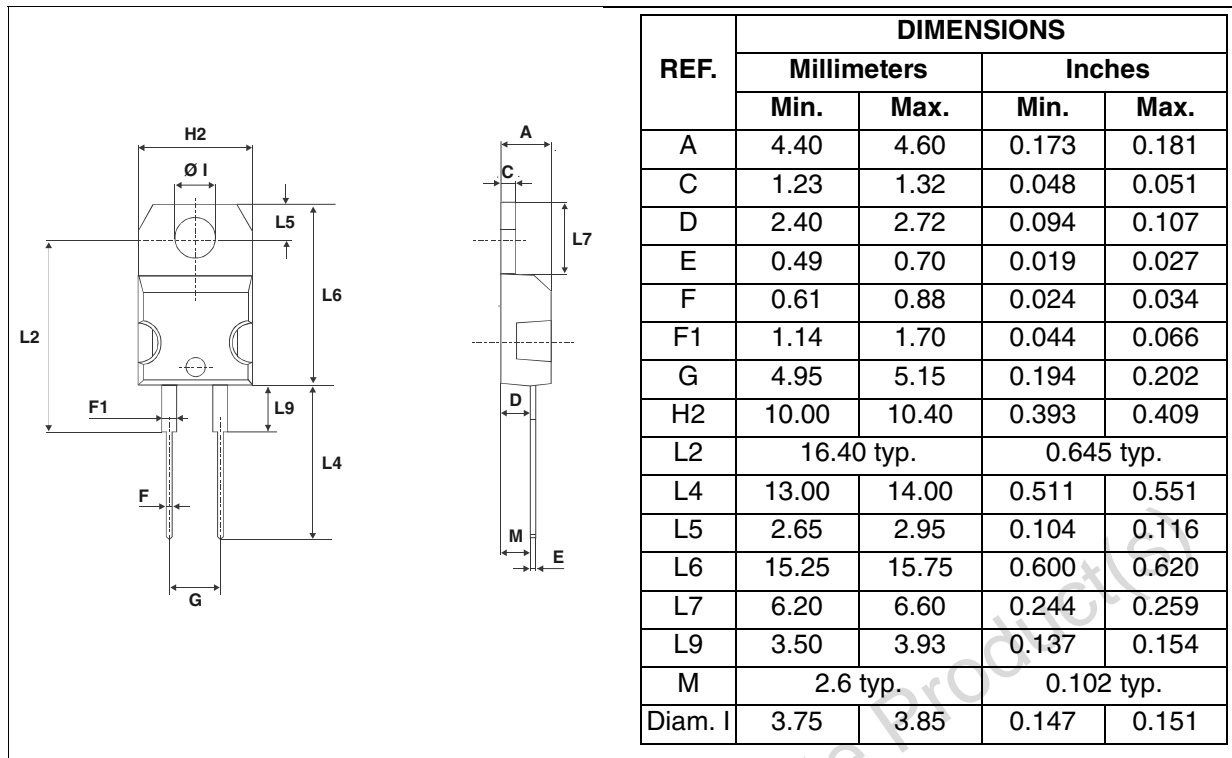


Table 7: Ordering Information

| Ordering type | Marking | Package | Weight | Base qty | Delivery mode |
|---------------|----------|----------|--------|----------|---------------|
| BYW71-800 | BYW71800 | TO-220AC | 1.90 g | 50 | Tube |

- Epoxy meets UL94, V0
- Cooling method: by conduction (C)
- Recommended torque value: 0.55 m.N. (TO-220AC)
- Maximum torque value: 0.70 m.N. (TO-220AC)

Table 8: Revision History

| Date | Revision | Description of Changes |
|-------------|----------|------------------------|
| 16-Apr-2005 | 1 | First issue. |

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