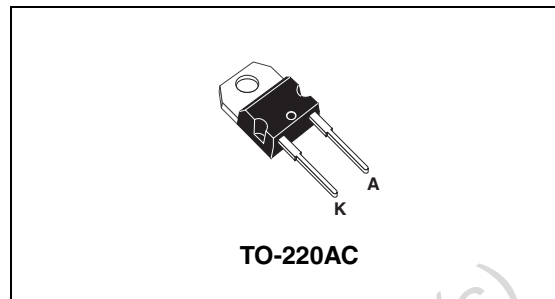


**FAST RECOVERY RECTIFIER DIODES**
**Table 1: Main Product Characteristics**

$I_{F(AV)}$	<b>6 A</b>
$V_{RRM}$	<b>800 V</b>
$T_j$	<b>150°C</b>
$V_F$ (max)	<b>1.4 V</b>
$t_{rr}$ (max)	<b>300 ns</b>


**FEATURES AND BENEFITS**

- High voltage capability
- Fast and soft recovery

**Table 2: Order Code**

Part Number	Marking
BYT71-800	BYT71800

**DESCRIPTION**

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

**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	$T_J = 25^\circ\text{C}$	$V_R = V_{RRM}$			20	$\mu\text{A}$
		$T_J = 100^\circ\text{C}$				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

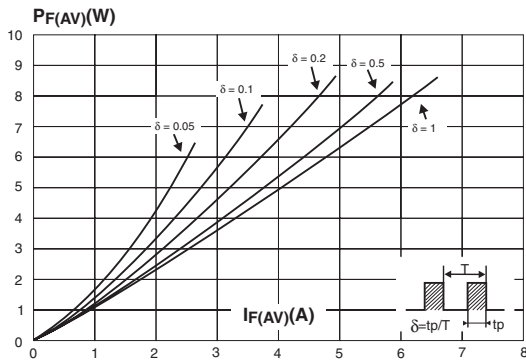


Figure 2: Average current versus ambient temperature ( $\delta = 0.5$ )

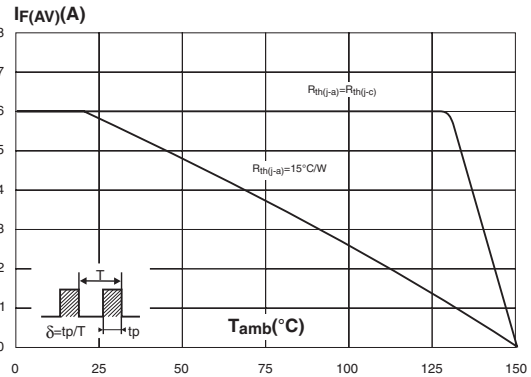


Figure 3: Relative variation of thermal impedance junction to case versus pulse duration

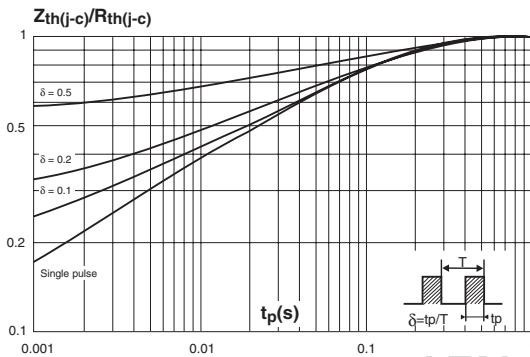


Figure 4: Peak current versus form factor

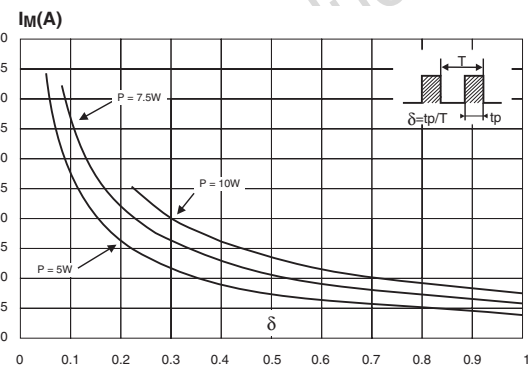


Figure 5: Peak reverse current versus  $di_F/dt$  (90% confidence)

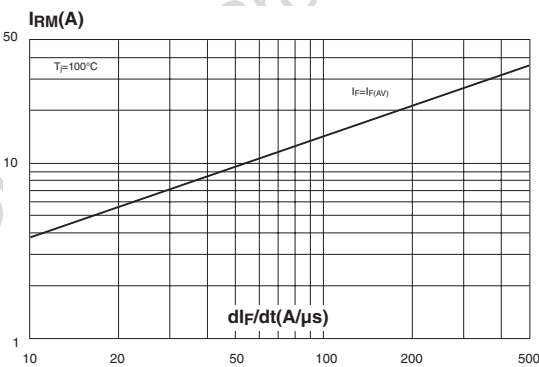


Figure 6: Forward voltage drop versus forward current (maximum values)

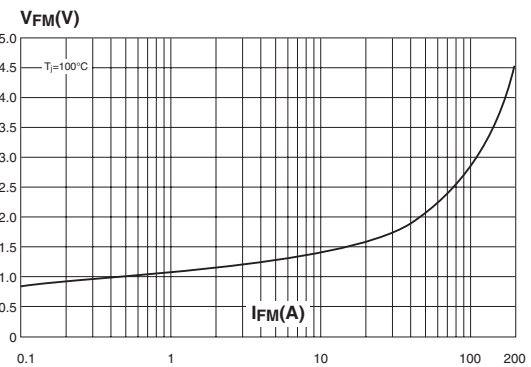


Figure 7: Recovery charges versus  $di_F/dt$  (90% confidence)

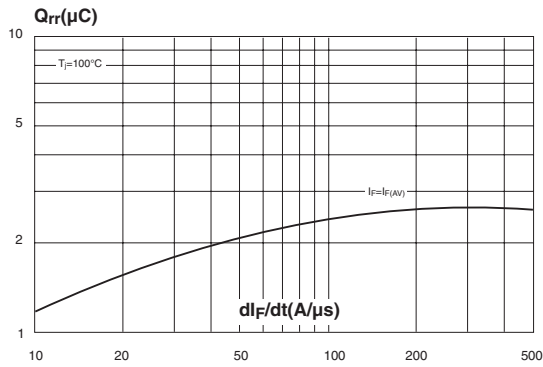


Figure 8: Peak forward voltage versus  $di_F/dt$  (90% confidence)

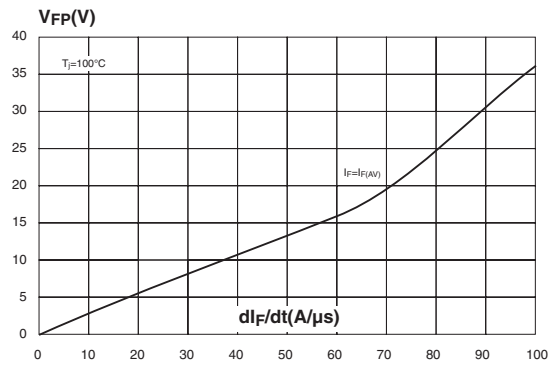


Figure 9: Recovery time versus  $di_F/dt$  (90% confidence)

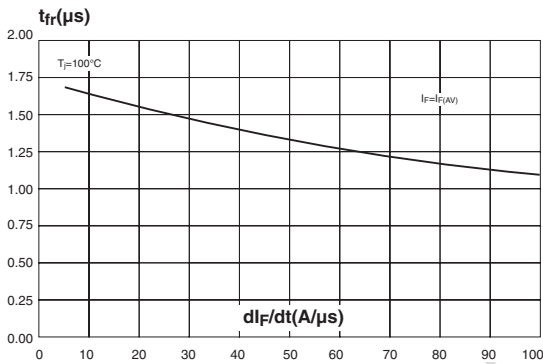


Figure 10: Junction capacitance versus reverse voltage applied (typical values)

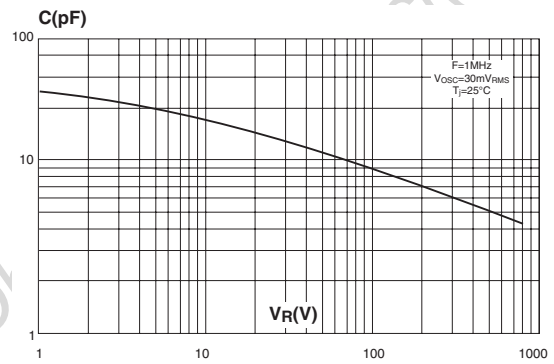


Figure 11: Dynamic parameters versus junction temperature

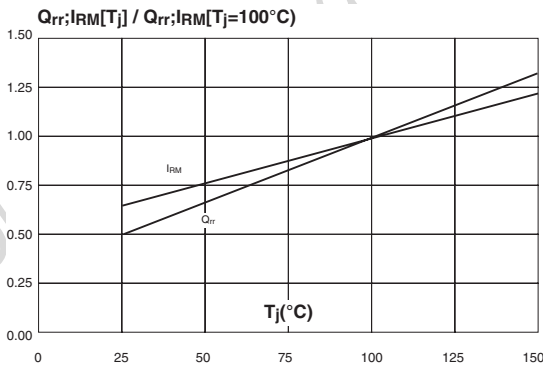


Figure 12: TO-220AC Package Mechanical Data

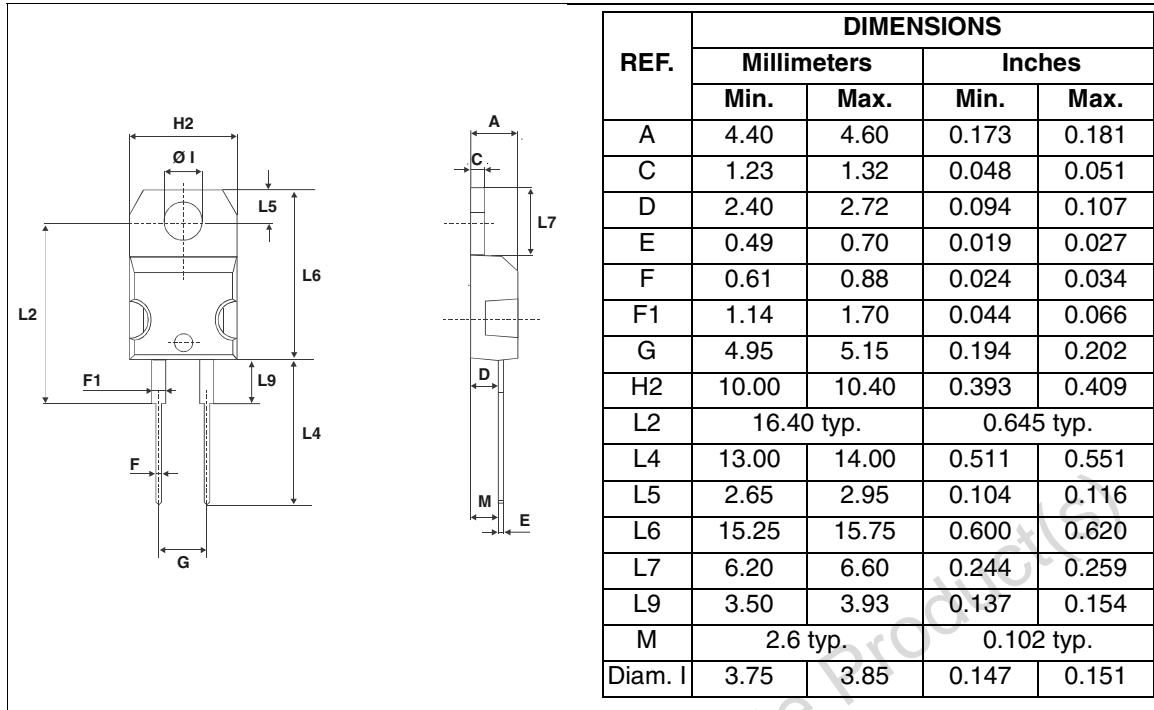


Table 7: Ordering Information

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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