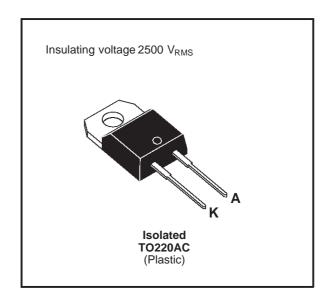


BYT 12PI-1000

FAST RECOVERY RECTIFIER DIODE

- VERY HIGH REVERSE VOLTAGE CAPABILITY
- VERY LOW REVERSE RECOVERY TIME
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING
- INSULATED: Capacitance 7pF



SUITABLE APPLICATIONS

- FREE WHEELING DIODE IN CONVERTERS AND MOTOR CONTROL CIRCUITS
- RECTIFIER IN S.M.P.S.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit	
V_{RRM}	Repetitive Peak Reverse Voltage	1000	V	
V _{RSM}	Non Repetitive Peak Reverse Voltage	1000	V	
I _{FRM}	Repetive Peak Forward Current	150	А	
I _{F (RMS)}	RMS Forward Current	25	А	
I _{F (AV)}	Average Forward Current $ T_c = 50^{\circ}C $ $ \delta = 0.5 $		12	А
I _{FSM}	Surge non Repetitive Forward Current $t_p = 10 ms$ Sinusoidal		75	А
Р	Power Dissipation	25	W	
T _{stg} T _j	Storage and Junction Temperature Range	- 40 to + 150 - 40 to + 150	°C	

THERMAL RESISTANCE

Sy	mbol	Test Conditions	Value	Unit
R _{th}	h (j - c)	Junction-case	4	°C/W

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ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Synbol	Test Conditions			Тур.	Max.	Unit
I _R	T _j = 25°C	$V_R = V_{RRM}$			50	μΑ
	T _j = 100°C				2.5	mA
V _F	T _j = 25°C	I _F = 12A			1.9	V
	T _j = 100°C				1.8	

RECOVERY CHARACTERISTICS

Symbol	Test Conditions					Тур.	Max.	Unit
t _{rr}	T _j = 25°C	I _F = 1A	$I_F = 1A$ $di_F/dt = -15A/\mu s$ $V_R = 30V$				155	ns
		I _F = 0.5A	$I_R = 1A$	$I_{rr} = 0.25A$			65	

TURN-OFF SWITCHING CHARACTERISTICS (Without Series Inductance)

Symbol	Test Conditions			Тур.	Max.	Unit
t _{IRM}	di _F /dt = - 50A/μs	V _{CC} = 200 V I _F = 12A			200	ns
	$di_F/dt = -100A/\mu s$	$L_p \le 0.05 \mu H$ $T_j = 100^{\circ} C$ See figure 11		120		
I _{RM}	$di_F/dt = -50A/\mu s$				7.8	А
	di _F /dt = - 100A/μs			9		

TURN-OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)

Symbol	Test Conditions	Min.	Тур.	Max.	Unit
$C = \frac{V_{RP}}{V_{CC}}$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$			4.5	

To evaluate the conduction losses use the following equations:

$$V_F = 1.47 + 0.026 I_F$$
 $P = 1.47 \times IF_{(AV)} + 0.026 I_F^2_{(RMS)}$

Figure 1. Low frequency power losses versus average current

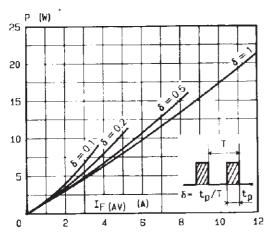


Figure 2. Peak current versus form factor

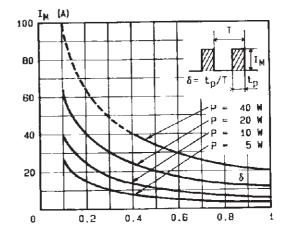


Figure 3. Non repetitive peak surge current versus overload duration

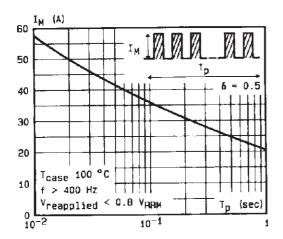


Figure 5. Voltage drop versus forward current

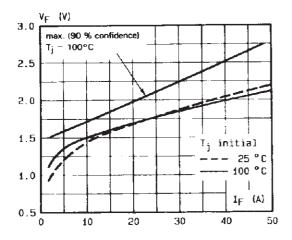


Figure 7. Recovery time versus di_F/d_t-

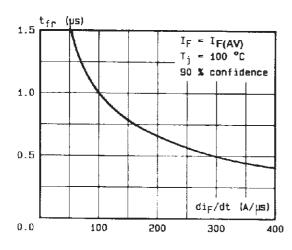


Figure 4. Thermal impedance versus pulse width

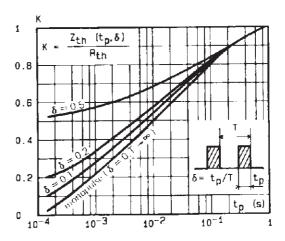


Figure 6. Recovery charge versus di_F/dt-

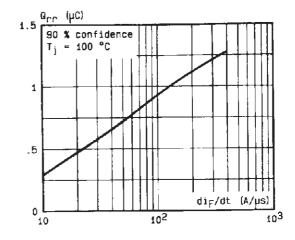
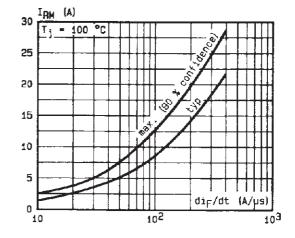


Figure 8. Peak reverse current versus di_F/d_t-



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Figure 9. Peak forward voltage versus di_F/d_{t-}

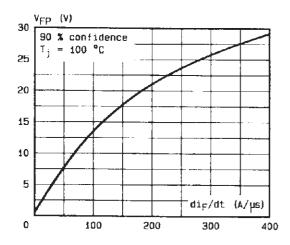


Figure 11. Turn-off switching characteristics (without series inductance).

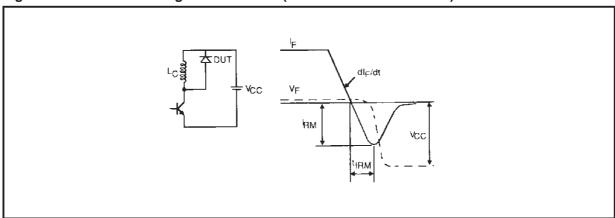
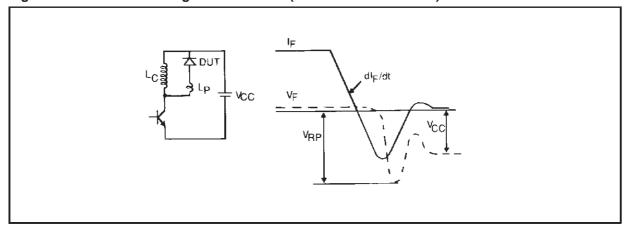


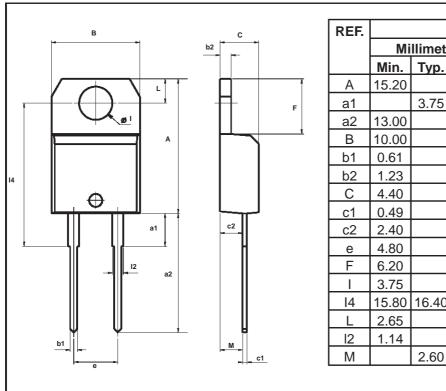
Figure 12. Turn-off switching characteristics (with series inductance)



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PACKAGE MECHANICAL DATA:

Isolated TO220AC Plastic



REF.	DIMENSIONS						
	Millimeters			Inches			
	Min.	Тур.	Max.	Min.	Тур.	Max.	
Α	15.20		15.90	0.598		0.625	
a1		3.75			0.147		
a2	13.00		14.00	0.511		0.551	
В	10.00		10.40	0.393		0.409	
b1	0.61		0.88	0.024		0.034	
b2	1.23		1.32	0.048		0.051	
С	4.40		4.60	0.173		0.181	
c1	0.49		0.70	0.019		0.027	
c2	2.40		2.72	0.094		0.107	
е	4.80		5.40	0.189		0.212	
F	6.20		6.60	0.244		0.259	
I	3.75		3.85	0.147		0.151	
14	15.80	16.40	16.80	0.622	0.646	0.661	
L	2.65		2.95	0.104		0.116	
12	1.14		1.70	0.044		0.066	
М		2.60			0.102		

■ Marking: type number

■ Cooling method: by conduction (method C)

■ Weight: 1.86g

Recommended torque value: 80cm. NMaximum torque value: 100cm. N

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