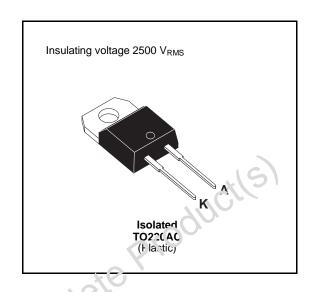


BYT 12PI-1000

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	t _p ≤ 10μs	150	Α
I _{F (RMS)}	RMS Forward Current	25	Α	
I _{F (AV)}	Average Forward ourtent	$T_c = 50^{\circ}C$ $\delta = 0.5$	12	А
I _{FSM}	Surge For Repetitive Forward Current	t _p = 10ms Sinusoidal	75	А
Р	P Fower Dissipation		25	W
T _t 'g	Storage and Junction Temperature Range	- 40 to + 150 - 40 to + 150	°C	

THERMAL RESISTANCE

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

October 1999 Ed: 1A 1/5

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Synbol	Tes	Min.	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	$di_F/dt = -15A/\mu s$	$V_R = 30V$			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/μs	$L_p \le 0.05 \mu H$ $T_j = 100^{\circ} C$ See figure 11		120		
I _{RM}	$di_F/dt = -50A/\mu s$				7.8	Α
	$di_F/dt = -100A/\mu s$			9		

TURN-OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)

Symbol		Min.	Тур.	Max.	Unit		
$C = \frac{V_{RP}}{V_{CC}}$	$T_j = 100^{\circ}C$ $di_F/dt = -12A/\mu s$	$V_{CC} = 200V$ $L_p = 12\mu H$	I _F = I _{F (AV)} See figure 12			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

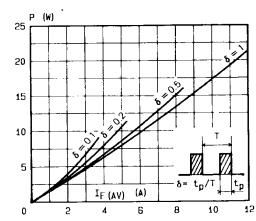
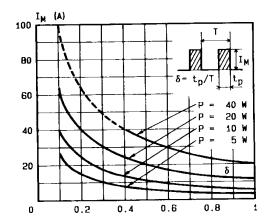


Figure 2. Peak current versus form factor



2/5

Figure 3. Non repetitive peak surge current versus overload duration

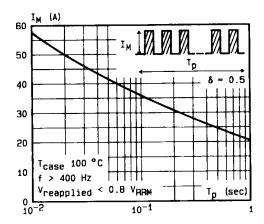


Figure 5. Voltage drop versus forward current

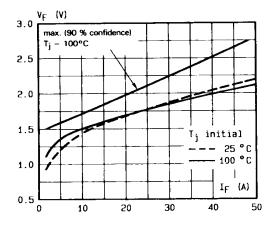


Figure 7. Recovery time versus di_F/d_t-

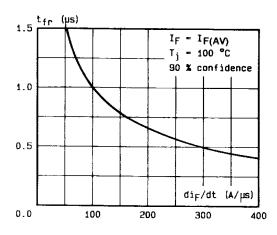


Figure 4. Thermal impedance versus pulse width

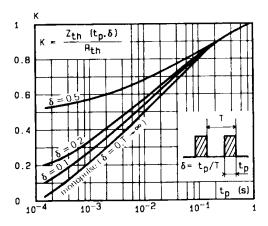


Figure 6. Recovery charge versus di_F/d_{t-}

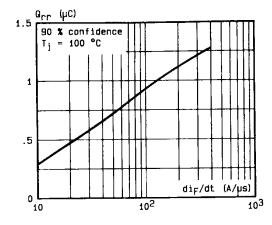
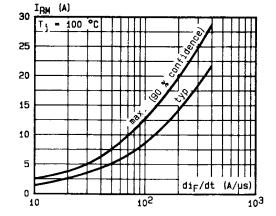


Figure 8. Peak reverse current versus di_F/d_t-



577

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

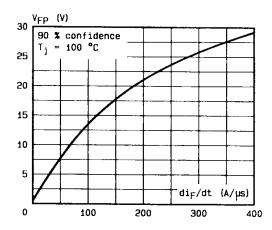


Figure 11. Turn-off switching characteristics (without series inductance).

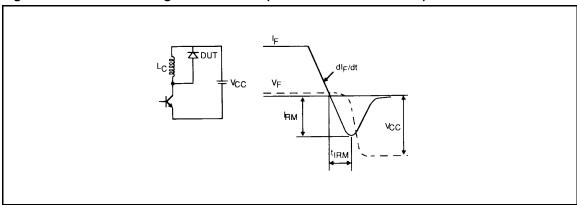
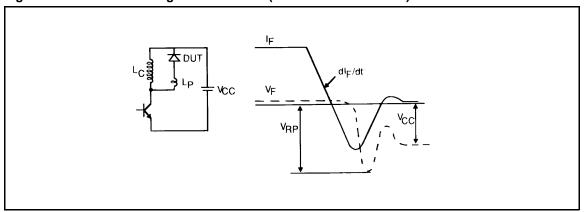


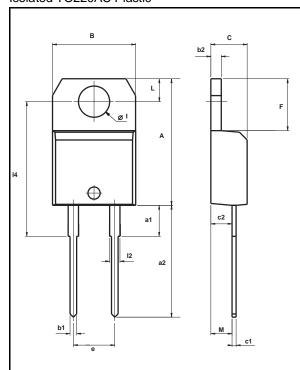
Figure 12. Turn-off switching characteristics (with series inductance)



4/5

PACKAGE MECHANICAL DATA:

Isolated TO220AC Plastic



REF.	DIMENSIONS						
	Millimeters		ers		3		
	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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