BYT16P-400

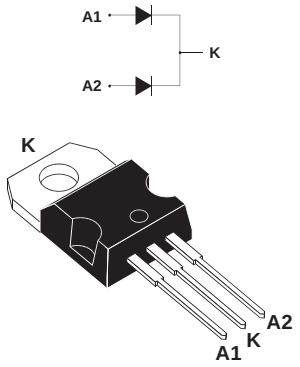
FAST RECOVERY RECTIFIER DIODES

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	16 A
V_{RRM}	400 V
V_F (max)	1.4 V
trr (max)	35 ns

FEATURES AND BENEFITS

- VERY LOW REVERSE RECOVERY TIME
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING



TO-220AB
(Plastic)

DESCRIPTION

This double rectifier is suited for Switch Mode Power Supplies and other power converters.

This device is intended to free-wheeling function in converters and motor control circuits.

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		400	V
I_{FRM}	Repetitive peak forward current	tp=5 µs F=1kHz	300	A
$I_{F(RMS)}$	RMS forward current		30	A
$I_{F(AV)}$	Average forward current	Tc = 100°C δ = 0.5	16	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms Sinusoidal	100	A
T_{stg}	Storage temperature range		- 40 to + 150	°C
Tj	Maximum operating junction temperature		150	°C

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode Total	3.75 2	°C/W
$R_{th(c)}$		Coupling	0.25	

When the diodes 1 and 2 are used simultaneously:
Δ Tj(diode 1) = P(diode) x $R_{th(j-c)}$ (Per diode) + P(diode 2) x $R_{th(c)}$

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
V_F *	Forward voltage drop	Tj = 25°C	I_F = 8 A			1.5	V
		Tj = 100°C				1.4	
I_R **	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$			15	µA
		Tj = 100°C				2.5	mA

Pulse test : * tp = 380 µs, δ < 2%
** tp = 5 ms, δ < 2%

To evaluate the conduction losses use the following equation:
$P = 1.1 \times I_{F(AV)} + 0.024\ I_{F}^{2}{}_{(RMS)}$

RECOVERY CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t_{rr}	Tj = 25°C	I_F = 1A V_R = 30V dI_F/dt = - 15A/µs			75	ns
		I_F = 0.5A I_R = 1A I_{rr} = 0.25A			35	

TURN-OFF SWITCHING CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
t_{IRM}	Maximum reverse recovery time	dI_F/dt = - 32 A/µs	V_{CC} = 200 V I_F = 8 A $L_p \leq 0.05$ µH Tj = 100°C (see fig. 11)			75	ns
		dI_F/dt = - 64 A/µs			50		
I_{RM}	Maximum reverse recovery current	dI_F/dt = - 32 A/µs				2.2	A
		dI_F/dt = - 64 A/µs			2.8		
$C = \frac{V_{RP}}{V_{CC}}$	Turn-off overvoltage coefficient	Tj = 100°C V_{CC} = 120V $I_F = I_{F(AV)}$ dI_F/dt = - 8A/µs L_p = 9µH (see fig. 12)			3.3		/

Fig. 1: Low frequency power losses versus average current.

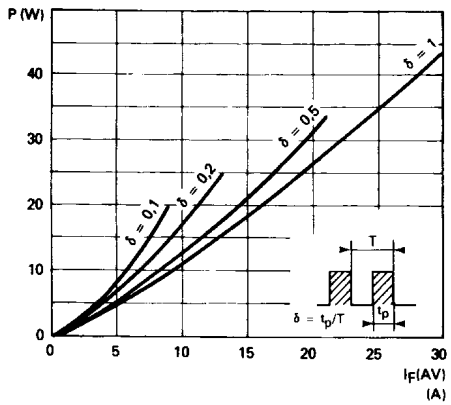


Fig. 2: Peak current versus form factor.