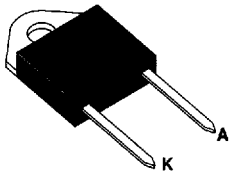
BYT 30PI-200→400

FAST RECOVERY RECTIFIER DIODES

- VERY LOW REVERSE RECOVERY TIME
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING
- INSULATED : Capacitance 15pF

Insulating voltage 2500 V_{RMS}



Isolated
DOP3I
(Plastic)

SUITABLE APPLICATIONS

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

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{FRM}	Repetitive Peak Forward Current	$t_p \leq 10\mu s$	500	A
$I_{F(RMS)}$	RMS Forward Current		50	A
$I_{F(AV)}$	Average Forward Current	$T_{case} = 60°C$ $\delta = 0.5$	30	A
I_{FSM}	Surge non Repetitive Forward Current	$t_p = 10ms$ Sinusoïdal	350	A
P	Power Dissipation	$T_{case} = 60°C$	50	W
T_{stg} T_j	Storage and Junction Temperature Range		− 40 to + 150	°C

Symbol	Parameter	BYT 30PI–			Unit
		200	300	400	
V_{RRM}	Repetitive Peak Reverse Voltage	200	300	400	V
V_{RSM}	Non Repetitive Peak Reverse Voltage	220	330	440	V

THERMAL RESISTANCE

Symbol	Test Conditions	Value	Unit
$R_{th\ (j-c)}$	Junction-case	1.8	°C/W

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_R	$T_j = 25°C$	$V_R = V_{RRM}$			35	µA
	$T_j = 100°C$				6	mA
V_F	$T_j = 25°C$	$I_F = 30A$			1.5	V
	$T_j = 100°C$				1.4	

RECOVERY CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t_{rr}	$T_j = 25°C$	$I_F = 1A$ $di_F/dt = -15A/\mu s$ $V_R = 30V$			100	ns
		$I_F = 0.5A$ $I_R = 1A$, $I_{rr} = 0.25A$			50	

TURN -OFF SWITCHING CHARACTERISTICS (Without Series Inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t_{IRM}	$di_F/dt = -120A/\mu s$	$V_{CC} = 200V$ $I_F = 30A$ $L_p \leq 0.05\mu H$ $T_j = 100°C$ See Figure 11			75	ns
	$di_F/dt = -240A/\mu s$			50		
I_{RM}	$di_F/dt = -120A/\mu s$				9	A
	$di_F/dt = -240A/\mu s$			12		

TURN -OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$C = \frac{V_{RP}}{V_{CC}}$	$T_j = 100°C$ $V_{CC} = 60V$ $I_F = I_{F(AV)}$ See note $di_F/dt = -30A/\mu s$ $L_p = 1\mu H$ See Figure 12			3.3		

Note : Applicable to BYT 30 PI-400 only

To evaluate the conduction losses use the following equations :

$V_F = 1.1 + 0.0095\ I_F$ $\qquad$ $P = 1.1 \times I_{F(AV)} + 0.0095 I_F^2{}_{(RMS)}$

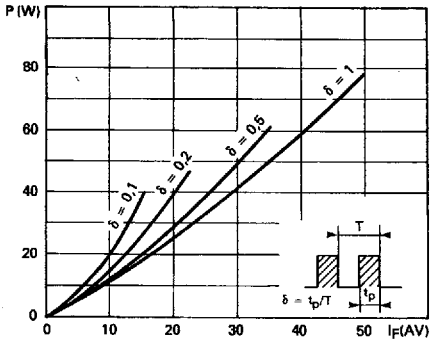


FIGURE 1 : Low frequency power losses versus average current.

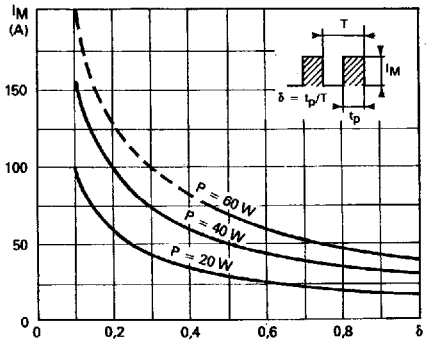


FIGURE 2 : Peak current versus form factor.

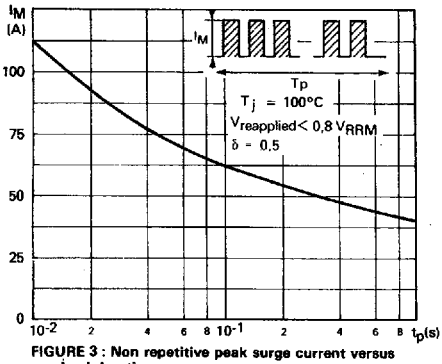


FIGURE 3 : Non repetitive peak surge current versus overload duration.

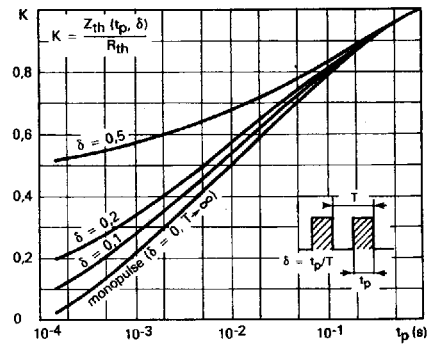


FIGURE 4 : Thermal impedance versus pulse width.

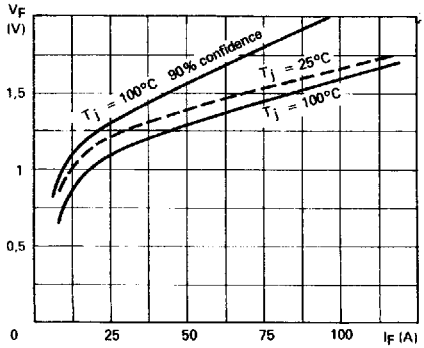


FIGURE 5 : Voltage drop versus forward current.

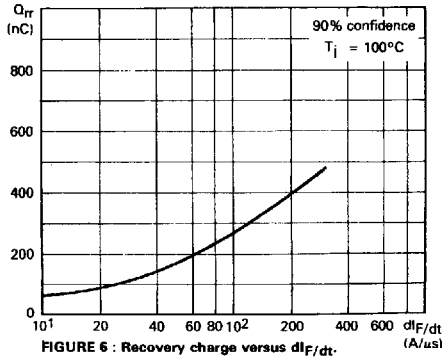


FIGURE 6 : Recovery charge versus $dI_{F/dt}$.

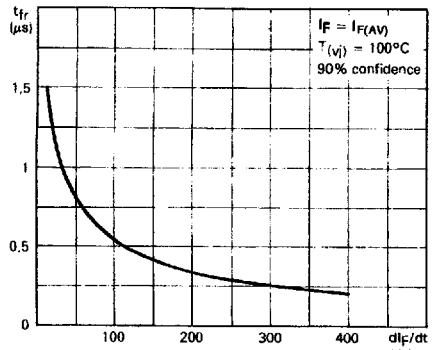


FIGURE 7 : Recovery time versus dI_F/dt.

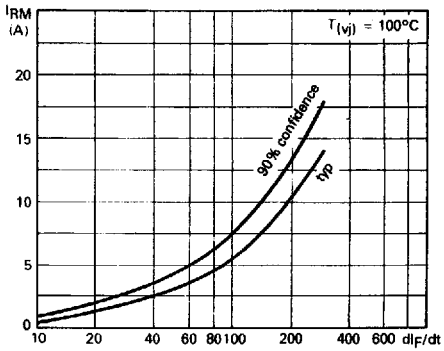


FIGURE 8 : Peak reverse current versus dI_F/dt.

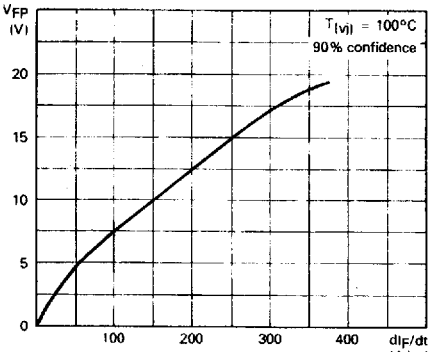


FIGURE 9 : Peak forward voltage versus dI_F/dt.

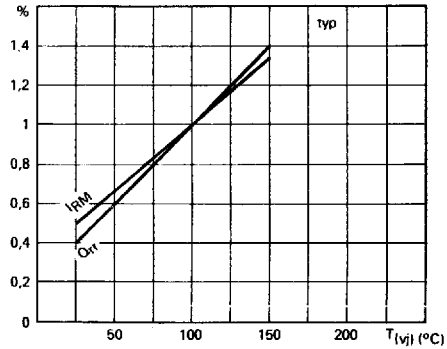


FIGURE 10 : Dynamic parameters versus junction temperature.

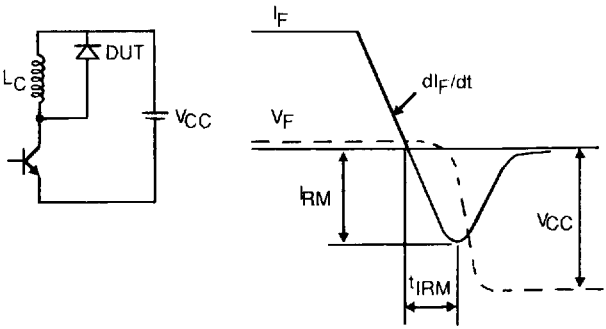


Figure 11 : Turn-off switching characteristics (without series inductance).

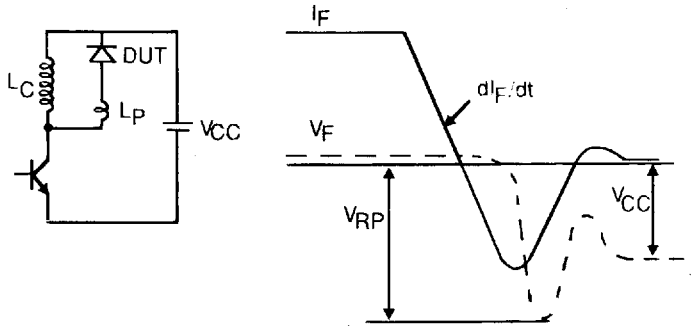


Figure 12 : Turn-off switching characteristics (with series inductance).