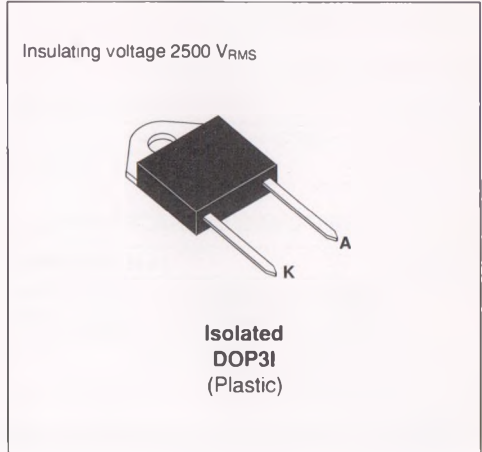


**FAST RECOVERY RECTIFIER DIODES**

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



**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 <sub>FRM</sub>	Repetitive Peak Forward Current	t <sub>p</sub> ≤ 10μs	500	A
I <sub>F(RMS)</sub>	RMS Forward Current		50	A
I <sub>F(AV)</sub>	Average Forward Current	T <sub>case</sub> = 60°C δ = 0.5	30	A
I <sub>FSM</sub>	Surge non Repetitive Forward Current	t <sub>p</sub> = 10ms Sinusoidal	350	A
P	Power Dissipation	T <sub>case</sub> = 60°C	50	W
T <sub>stg</sub> T <sub>j</sub>	Storage and Junction Temperature Range		- 40 to + 150	°C

Symbol	Parameter	BYT 30PI-			Unit
		200	300	400	
V <sub>RRM</sub>	Repetitive Peak Reverse Voltage	200	300	400	V
V <sub>RSM</sub>	Non Repetitive Peak Reverse Voltage	220	330	440	V

**THERMAL RESISTANCE**

Symbol	Test Conditions	Value	Unit
R <sub>th(j-c)</sub>	Junction-case	1.8	°C/W

**ELECTRICAL CHARACTERISTICS**

**STATIC CHARACTERISTICS**

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub>	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>			35	μA
	T <sub>j</sub> = 100°C				6	mA
V <sub>F</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 30A			1.5	V
	T <sub>j</sub> = 100°C				1.4	

**RECOVERY CHARACTERISTICS**

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t <sub>rr</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A    di <sub>F</sub> /dt = - 15A/μs    V <sub>R</sub> = 30V			100	ns
		I <sub>F</sub> = 0.5A    I <sub>R</sub> = 1A    ,    I <sub>rr</sub> = 0.25A			50	

**TURN -OFF SWITCHING CHARACTERISTICS (Without Series Inductance)**

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t <sub>IRM</sub>	di <sub>F</sub> /dt = - 120A/μs	V <sub>CC</sub> = 200V    I <sub>F</sub> = 30A L <sub>p</sub> ≤ 0.05μH    T <sub>j</sub> = 100°C See Figure 11			75	ns
	di <sub>F</sub> /dt = - 240A/μs			50		
I <sub>RM</sub>	di <sub>F</sub> /dt = - 120A/μs				9	A
	di <sub>F</sub> /dt = - 240A/μs			12		

**TURN -OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)**

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$C = \frac{V_{RP}}{V_{CC}}$	T <sub>j</sub> = 100°C di <sub>F</sub> /dt = - 30A/μs	V <sub>CC</sub> = 60V    I <sub>F</sub> = I <sub>F(AV)</sub> See note L <sub>p</sub> = 1μH    See Figure 12		3.3		

Note : Applicable to BYT 30 PI-400 only

To evaluate the conduction losses use the following equations :

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

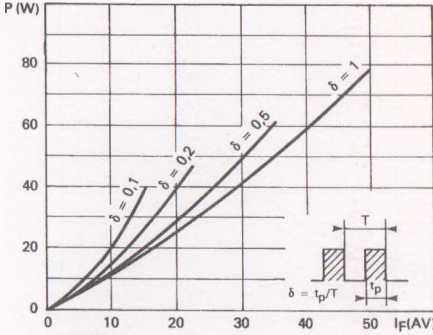


FIGURE 1 : Low frequency power losses versus average current.

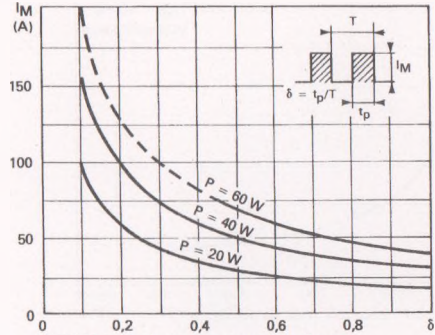


FIGURE 2 : Peak current versus form factor.

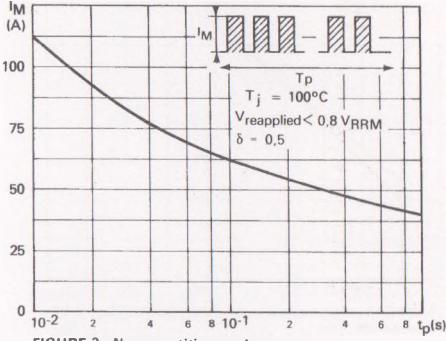


FIGURE 3 : Non repetitive peak surge current versus overload duration.

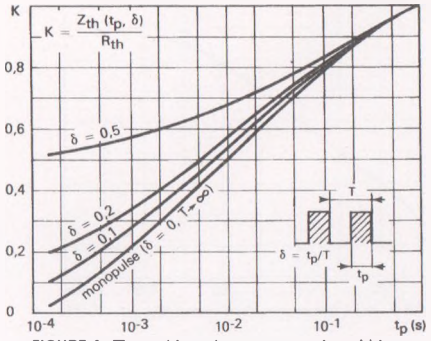


FIGURE 4 : Thermal impedance versus pulse width.

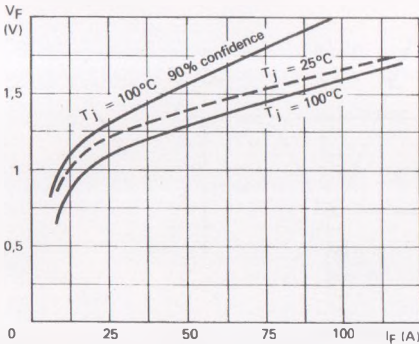


FIGURE 5 : Voltage drop versus forward current.

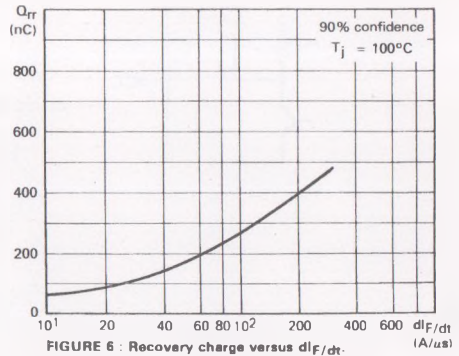


FIGURE 6 : Recovery charge versus  $dI_F/dt$ .

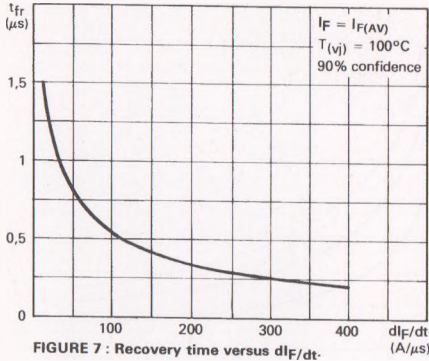


FIGURE 7 : Recovery time versus  $dI_F/dt$ .

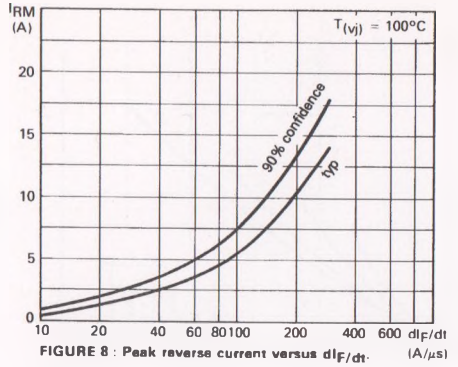


FIGURE 8 : Peak reverse current versus  $dI_F/dt$ .

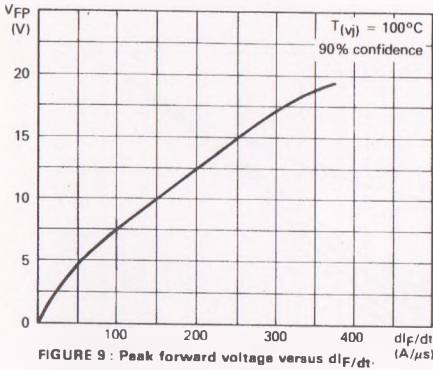


FIGURE 9 : Peak forward voltage versus  $dI_F/dt$ .

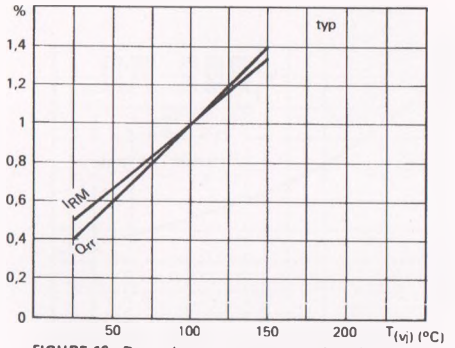


FIGURE 10 : Dynamic parameters versus junction temperature.

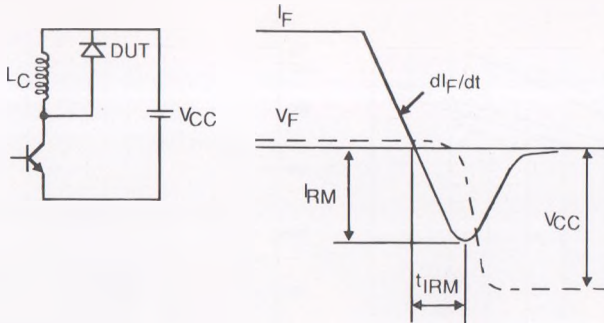


Figure 11 : Turn-off switching characteristics (without series inductance).

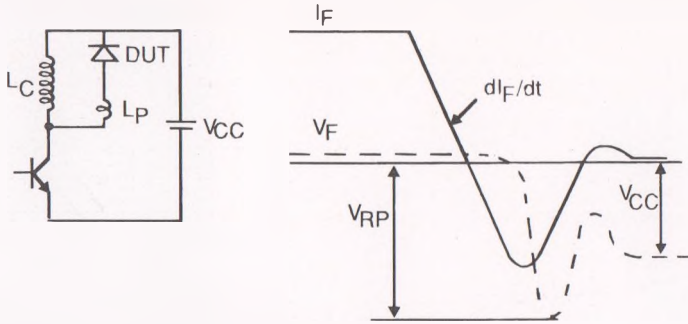


Figure 12 : Turn-off switching characteristics (with series inductance).