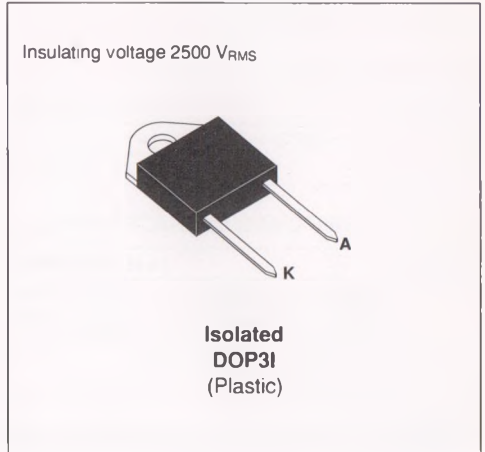


FAST RECOVERY RECTIFIER DIODES

- 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 _{FRM}	Repetitive Peak Forward Current	t _p ≤ 10μs	500	A
I _{F(RMS)}	RMS Forward Current		50	A
I _{F(AV)}	Average Forward Current	T _{case} = 60°C δ = 0.5	30	A
I _{FSM}	Surge non Repetitive Forward Current	t _p = 10ms Sinusoidal	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/μs 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/μs	V _{CC} = 200V I _F = 30A L _p ≤ 0.05μH T _j = 100°C See Figure 11			75	ns
	di _F /dt = - 240A/μs			50		
I _{RM}	di _F /dt = - 120A/μs				9	A
	di _F /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 _j = 100°C di _F /dt = - 30A/μs	V _{CC} = 60V I _F = I _{F(AV)} See note L _p = 1μH See Figure 12		3.3		

Note : Applicable to BYT 30 PI-400 only

To evaluate the conduction losses use the following equations :

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

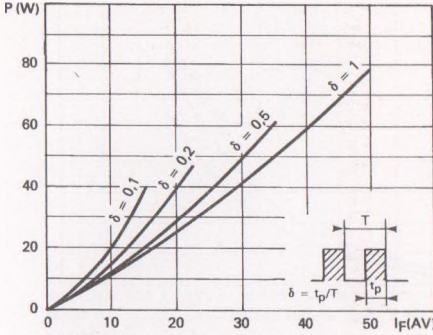


FIGURE 1 : Low frequency power losses versus average current.

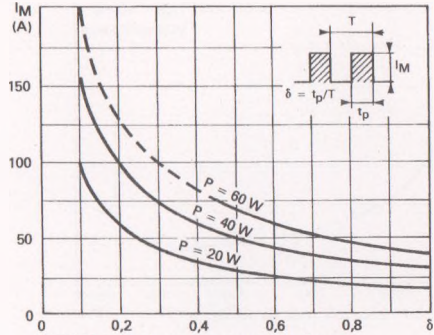


FIGURE 2 : Peak current versus form factor.

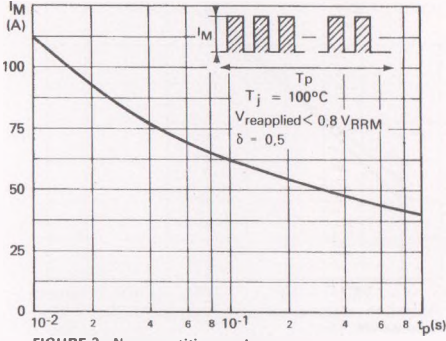


FIGURE 3 : Non repetitive peak surge current versus overload duration.

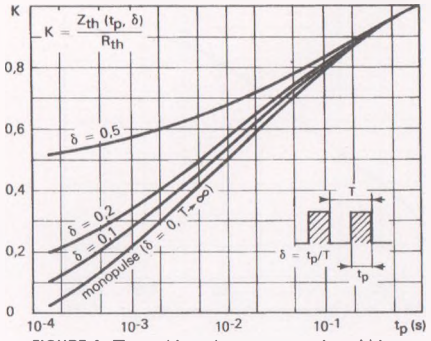


FIGURE 4 : Thermal impedance versus pulse width.

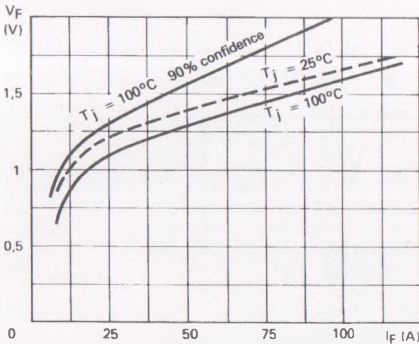


FIGURE 5 : Voltage drop versus forward current.

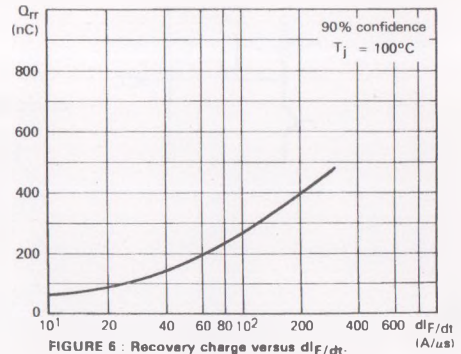


FIGURE 6 : Recovery charge versus dI_F/dt .

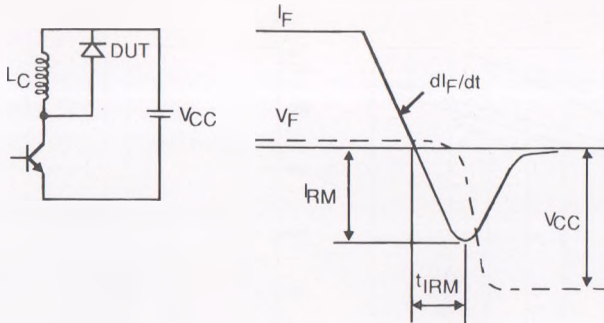
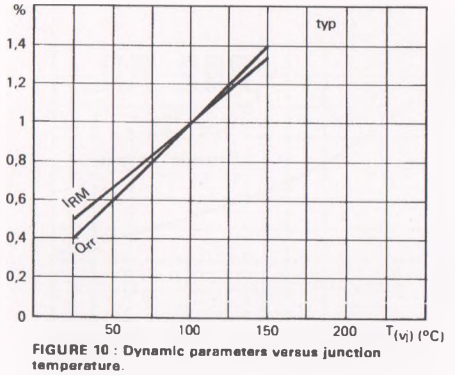
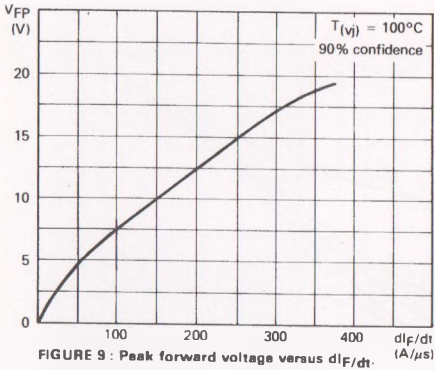
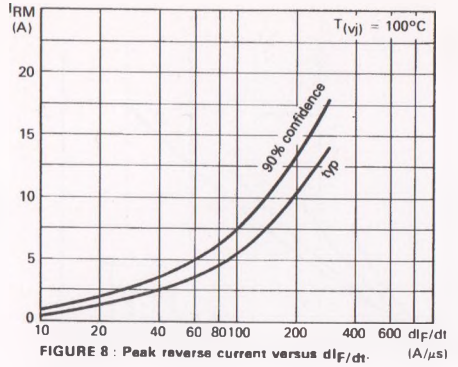
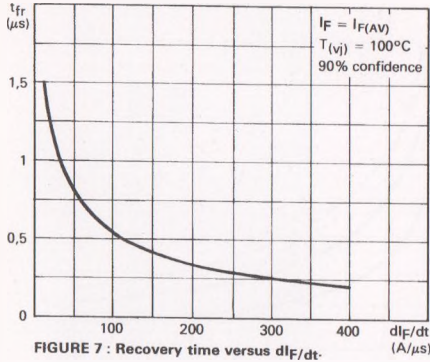


Figure 11 : Turn-off switching characteristics (without series inductance).

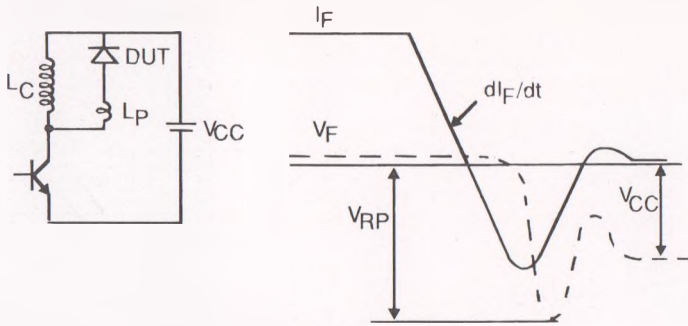


Figure 12 : Turn-off switching characteristics (with series inductance).