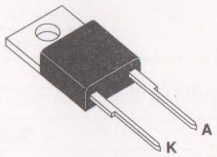
SGS-THOMSON MICROELECTRONICS

BYT 08PI-1000

FAST RECOVERY RECTIFIER DIODE

- VERY HIGH REVERSE VOLTAGE CAPABILITY
- VERY LOW REVERSES RECOVERY TIME
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING
- INSULATED : Capacitance 7pF

Insulting voltage 500 V_{RMS}



Isolated
TO220AC
(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
V_{RRM}	Repetitive Peak Reverse Voltage		1000	V
V_{RSM}	Non Repetitive Peak Reverse Voltage		1000	V
I_{FRM}	Repetitive Peak Forward Current	$t_p \leq 10\mu s$	100	A
$I_{F(RMS)}$	RMS Forward Current		16	A
$I_{F(AV)}$	Average Forward Current	$T_{case} = 80°C$ $\delta = 0.5$	8	A
I_{FSM}	Surge non Repetitive Forward Current	$t_p = 10ms$ Sinusoidal	50	A
P	Power Dissipation	$T_{case} = 80°C$	17	W
T_{stg} T_j	Storage and Junction Temperature Range		– 40 to + 150	°C

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th\ (j-c)}$	Junction-case	4	°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				2	mA
V_F	T_j = 25°C	I_F = 8A			1.9	V
	T_j = 100°C				1.8	

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			155	ns
		I_F = 0.5A I_R=1A I_{rr} = 0.25A			65	

TURN -OFF SWITCHING CHARACTERISTICS (Without Series Inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t_{IRM}	di_F/dt = – 32A/µs	V_{CC} = 200V I_F = 8A $L_p \leq 0.05\mu H$ T_j = 100°C See Figure 1			200	ns
	di_F/dt = – 64A/µs			120		
I_{RM}	di_F/dt = – 32A/µs				5.5	A
	di_F/dt = – 64A/µs			6		

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 = – 8A/µs	V_{CC} = 200V $I_F = I_{F(AV)}$ L_p = 12µH See Figure 2			4.5	

To evaluate the conduction losses use the following equations :

$V_F = 1.47 + 0.04\ I_F$ $\qquad P = 1.47 \times I_{F(AV)} + 0.04\ I_F{}^2{}_{(RMS)}$

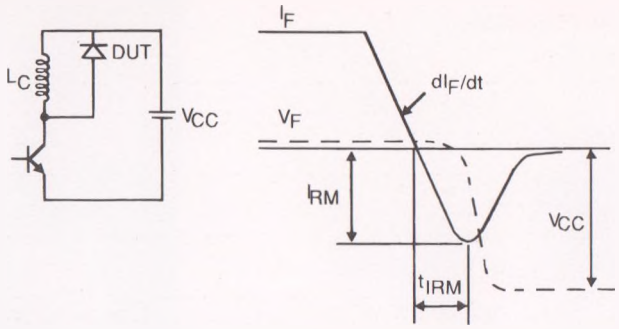


Figure 1 : Turn-off switching characteristics (without series inductance).

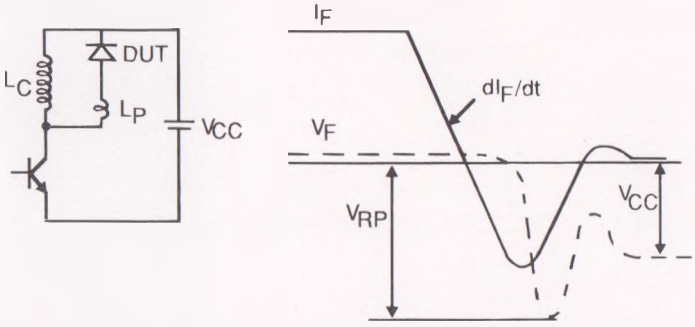


Figure 2 : Turn-off switching characteristics (with series inductance).