

FAST RECOVERY RECTIFIER DIODES

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

SUITABLE APPLICATIONS

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

Cathode connected to case



DO 5
(Metal)

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{FRM}	Repetitive Peak Forward Current	$t_p \leq 10\mu s$	750	A
$I_{F(RMS)}$	RMS Forward Current		140	A
$I_{F(AV)}$	Average Forward Current	$T_{case} = 50^\circ C$ $\delta = 0.5$	60	A
I_{FSM}	Surge non Repetitive Forward Current	$t_p = 10ms$ Sinusoidal	400	A
P	Power Dissipation	$T_{case} = 50^\circ C$	125	W
T_{stg} T_j	Storage and Junction Temperature Range		- 40 to + 150	$^\circ C$

Symbol	Parameter	BYT 60-		Unit
		600	800	
V_{RRM}	Repetitive Peak Reverse Voltage	600	800	V
V_{RSM}	Non Repetitive Peak Reverse Voltage	640	850	V

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction-case	0.8	$^\circ C/W$

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_R	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			100	μA
	$T_j = 100^\circ\text{C}$				6	mA
V_F	$T_j = 25^\circ\text{C}$	$I_F = 60\text{A}$			1.9	V
	$T_j = 100^\circ\text{C}$				1.8	

RECOVERY CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
t_{rr}	$T_j = 25^\circ\text{C}$	$I_F = 1\text{A}$	$di_F/dt = -15\text{A}/\mu\text{s}$	$V_R = 30\text{V}$		135	ns
		$I_F = 0.5\text{A}$	$I_R = 1\text{A}$	$I_{rr} = 0.25\text{A}$		65	

TURN -OFF SWITCHING CHARACTERISTICS - Without Series Inductance

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t_{IRM}	$di_F/dt = -240\text{A}/\mu\text{s}$	$V_{CC} = 200\text{V}$ $I_F = 60\text{A}$ $L_p \leq 0.05\mu\text{H}$ $T_j = 100^\circ\text{C}$ See fig. 2			160	ns
	$di_F/dt = -480\text{A}/\mu\text{s}$			100		
I_{RM}	$di_F/dt = -240\text{A}/\mu\text{s}$				30	A
	$di_F/dt = -480\text{A}/\mu\text{s}$			38		

TURN -OFF OVERVOLTAGE COEFFICIENT - With Series Inductance

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$C = \frac{V_{RM}}{V_{CC}}$	$T_j = 100^\circ\text{C}$ $di_F/dt = -60\text{A}/\mu\text{s}$	$V_{CC} = 150\text{V}$ $I_F = I_{F(AV)}$ $L_p = 2\mu\text{H}$ See fig. 3		3.3	4	

To evaluate the conduction losses use the following equations :

$$V_F = 1.47 + 0.005 I_F \quad P = 1.47 \times I_{F(AV)} + 0.005 I_{F(RMS)}^2$$

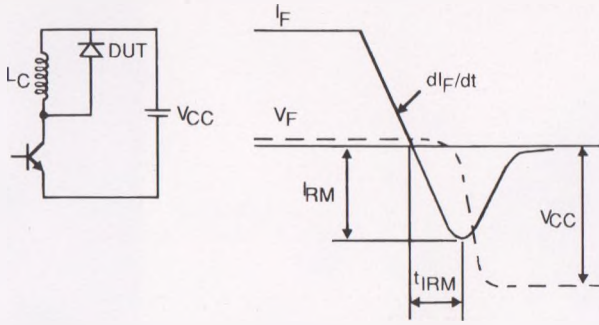


Figure 1 : Turn-off switching characteristics (without series inductance).

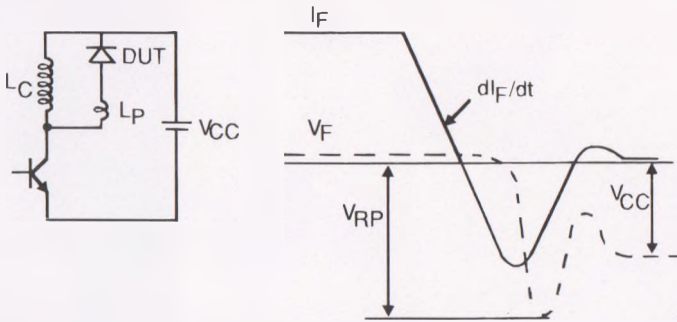


Figure 2 : Turn-off switching characteristics (with series inductance).