

## 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	$\mu\text{A}$
	$T_j = 100^\circ\text{C}$				6	$\text{mA}$
$V_F$	$T_j = 25^\circ\text{C}$	$I_F = 60\text{A}$			1.9	$\text{V}$
	$T_j = 100^\circ\text{C}$				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 :

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

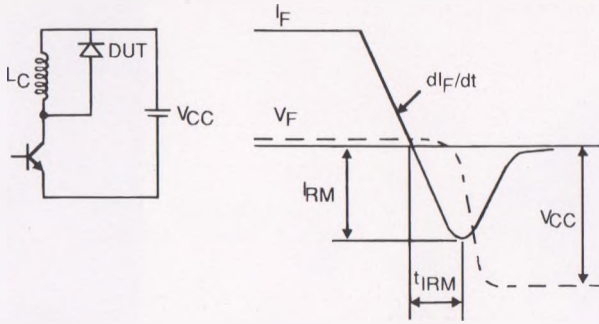


Figure 1 : Turn-off switching characteristics (without series inductance).

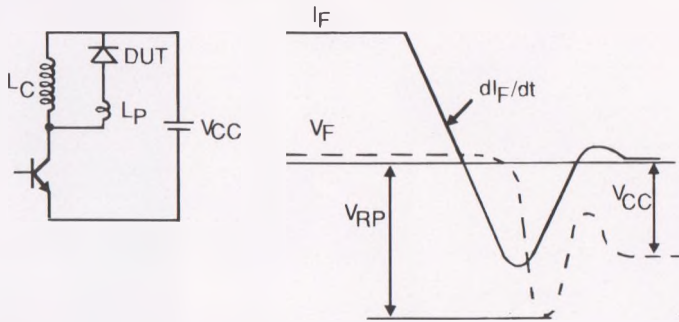


Figure 2 : Turn-off switching characteristics (with series inductance).