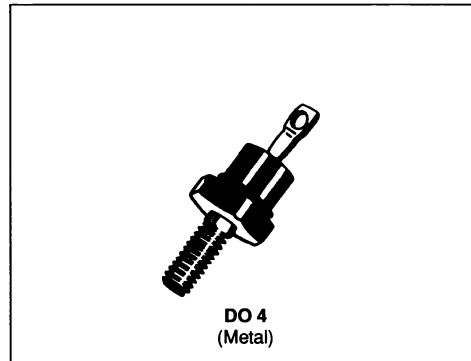


FAST RECOVERY RECTIFIER DIODES

- 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.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{FRM}	Repetitive Peak Forward Current	$t_p \leq 10\mu s$	200	A
$I_{F(RMS)}$	RMS Forward Current		25	A
$I_{F(AV)}$	Average Forward Current	$T_{case} = 100^\circ C$ $\delta = 0.5$	12	A
I_{FSM}	Surge non Repetitive Forward Current	$t_p = 10ms$ sinusoidal	200	A
P	Power Dissipation	$T_{case} = 100^\circ C$	20	W
T_{stg} T_J	Storage and Junction Temperature Range		- 40 to + 150	$^\circ C$

Symbol	Parameter	BYT 12-			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	2.5	$^\circ C/W$

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_R	$T_J = 25^\circ\text{C}$	$V_R = V_{RRM}$			15	μA
	$T_J = 100^\circ\text{C}$				2.5	mA
V_F	$T_J = 25^\circ\text{C}$	$I_F = 12\text{A}$			1.5	V
	$T_J = 100^\circ\text{C}$				1.4	

RECOVERY CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t_{rr}	$T_J = 25^\circ\text{C}$	$I_F = 1\text{A}$ $di_F/dt = -15\text{A}/\mu\text{s}$ $V_R = 30\text{V}$			100	ns
		$I_F = 0.5\text{A}$ $I_R = 1\text{A}$ $I_{rr} = 0.25\text{A}$			50	

TURN -OFF SWITCHING CHARACTERISTICS (Without Series Inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t_{IRM}	$di_F/dt = -50\text{A}/\mu\text{s}$	$V_{CC} = 200\text{V}$ $I_F = 12\text{A}$ $L_p \leq 0.05\mu\text{H}$ $T_J = 100^\circ\text{C}$ See Figure 11			75	ns
	$di_F/dt = -100\text{A}/\mu\text{s}$			50		
I_{RM}	$di_F/dt = -50\text{A}/\mu\text{s}$				3.8	A
	$di_F/dt = -100\text{A}/\mu\text{s}$			4.3		

TURN -OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)

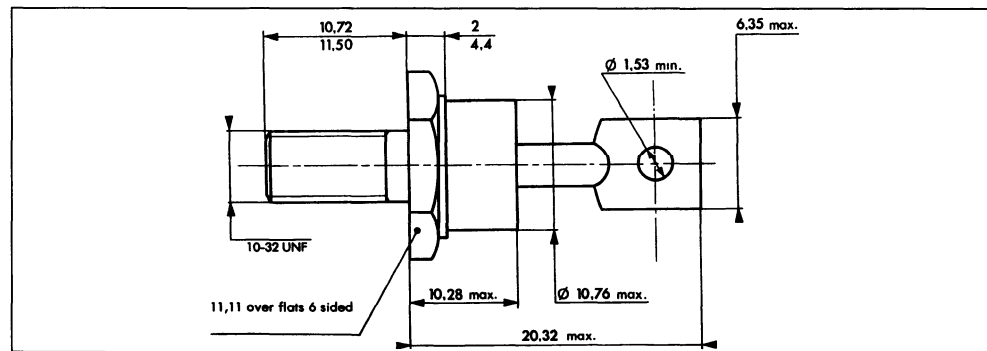
Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$C = \frac{V_{RP}}{V_{CC}}$	$T_J = 100^\circ\text{C}$ $di_F/dt = -12\text{A}/\mu\text{s}$	$V_{CC} = 120\text{V}$ $I_F = I_{F(AV)}$ See note $L_p = 7\mu\text{H}$ See Figure 12		3.3		

Note : Applicable to BYT12-400 only

To evaluate the conduction losses use the following equations :

$$V_F = 1.1 + 0.022 I_F \quad P = 1.1 \times I_{F(AV)} + 0.022 I_F^2 (RMS)$$

PACKAGE MECHANICAL DATA : DO 4 Metal



Cooling method : by conduction (method C)

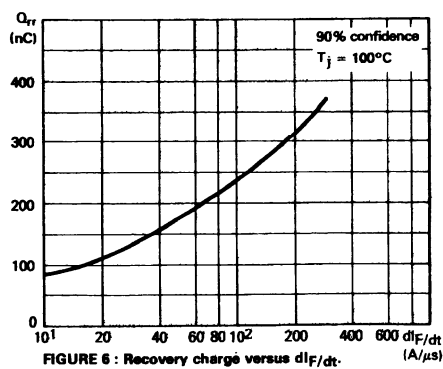
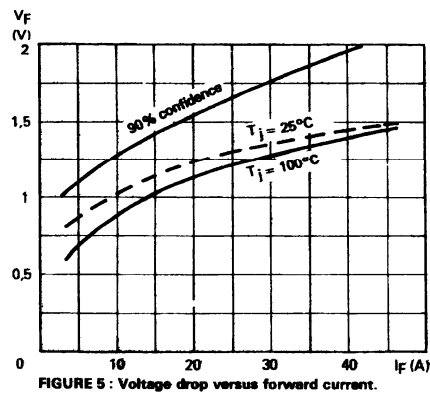
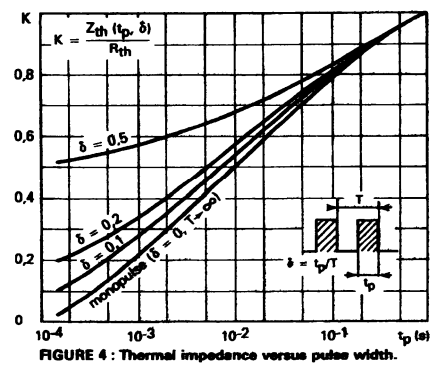
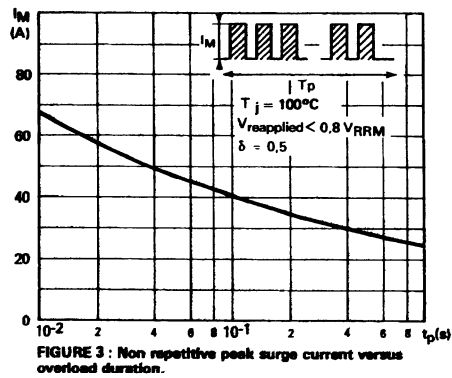
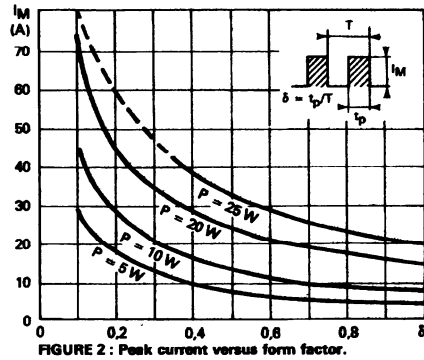
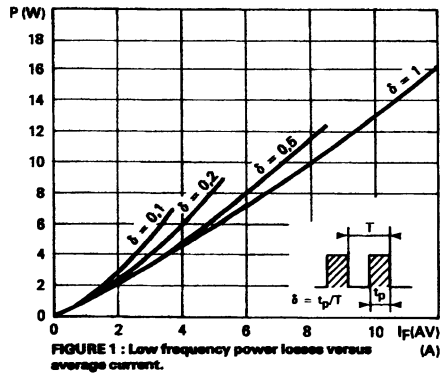
Marking : Cathode connected to case : type number

Anode connected to case : type number + suffix R (consult us for these reverse version data sheets)

Weight : 51g

Recommended torque value : 180cm.N

Maximum torque value : 220cm.N



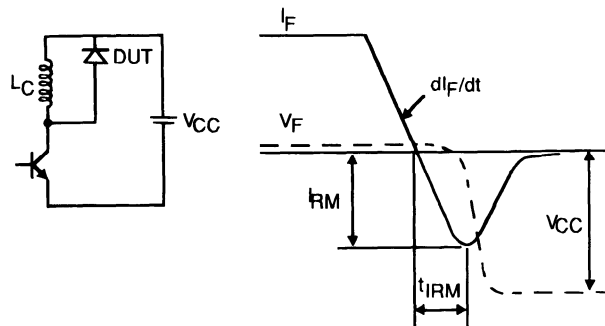
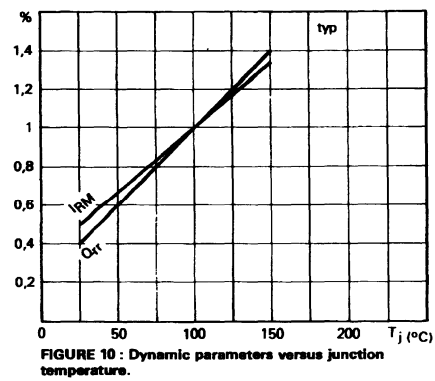
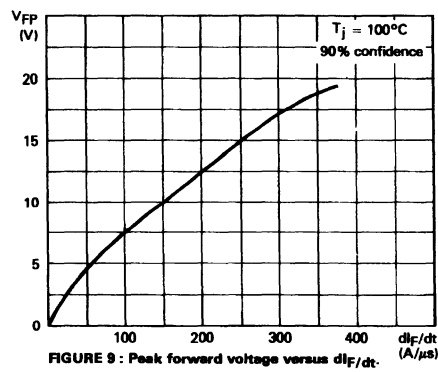
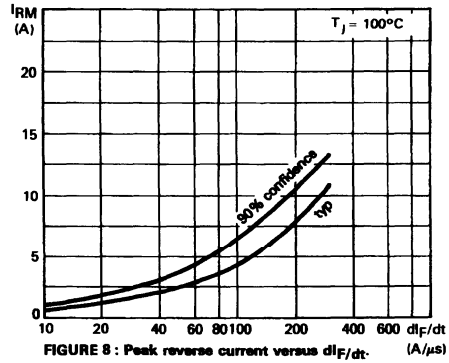
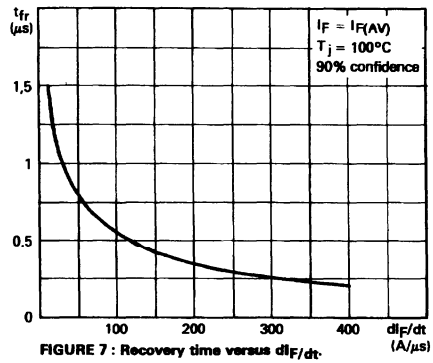


Figure 11 : Turn-off switching characteristics (without series inductance).

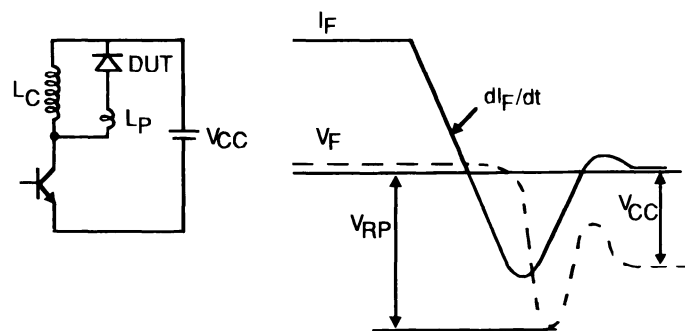


Figure 12 : Turn-off switching characteristics (with series inductance).