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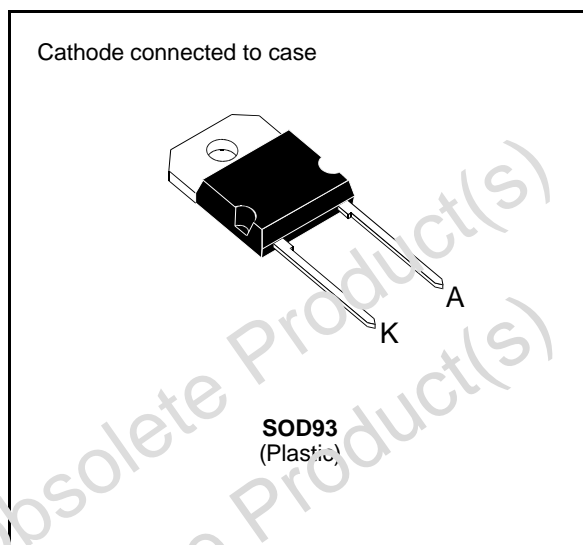
BYT 30P- 400

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 $t_p \leq 10\mu s$	500	A
$I_F (RMS)$	RMS Forward Current	50	A
$I_F (AV)$	Average Forward Current $T_c = 100^\circ C$ $\delta = 0.5$	30	A
I_{FSM}	Surge non Repetitive Forward Current $t_p = 10ms$ Sinusoidal	350	A
P_F	Power Dissipation $T_c = 100^\circ C$	50	W
T_{stg} T_j	Storage and Junction Temperature Range	- 40 to + 150 - 40 to + 150	$^\circ C$

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	400	V
V_{RSM}	Non Repetitive Peak Reverse Voltage	440	V

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction-case	1	$^\circ C/W$

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ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_R	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			35	μA
	$T_j = 100^\circ\text{C}$				6	mA
V_F	$T_j = 25^\circ\text{C}$	$I_F = 30\text{A}$			1.5	V
	$T_j = 100^\circ\text{C}$				1.4	

RECOVERY CHARACTERISTICS

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

TURN-OFF SWITCHING CHARACTERISTICS (Without Series Inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit	
t_{IRM}	$di_F/dt = -120\text{A}/\mu\text{s}$	$V_{CC} = 200\text{V}$ $I_F = 30\text{A}$ $L_p \leq 0.05\mu\text{H}$ $T_j = 100^\circ\text{C}$ See figure 11			75	ns	
	$di_F/dt = -240\text{A}/\mu\text{s}$				50		
I_{RM}	$di_F/dt = -120\text{A}/\mu\text{s}$					9	A
	$di_F/dt = -240\text{A}/\mu\text{s}$					12	

TURN-OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$C = \frac{V_{RP}}{V_{CC}}$	$T_j = 100^\circ\text{C}$ $di_F/dt = -30\text{A}/\mu\text{s}$	$V_{CC} = 60\text{V}$ $I_F = I_{F(AV)}$ $L_p = 1\mu\text{H}$ See figure 12		3.3		

To evaluate the conduction losses use the following equations:

$$V_F = 1.1 + 0.0035 I_F \quad P = 1.1 \times I_{F(AV)} + 0.0095 I_{F(RMS)}^2$$

Figure 1. Low frequency power losses versus average current

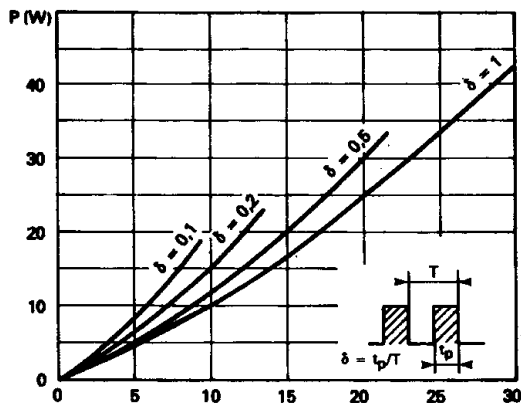
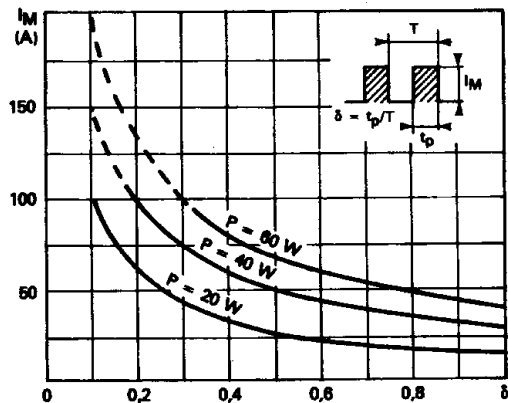


Figure 2. Peak current versus form factor



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Figure 3. Non repetitive peak surge current versus overload duration

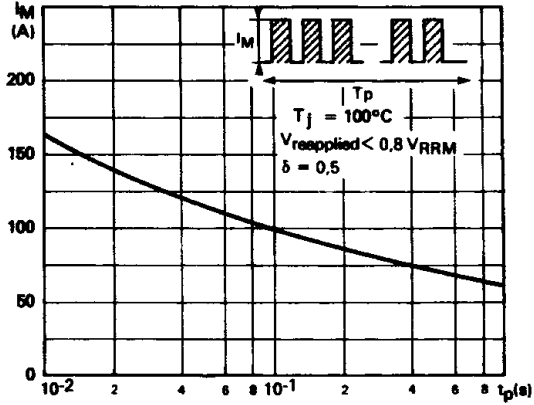


Figure 4. Thermal impedance versus pulse width

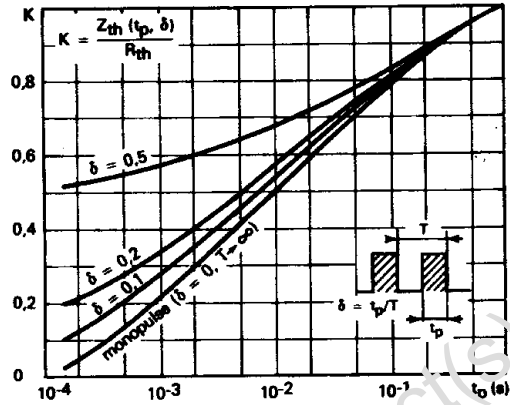


Figure 5. Voltage drop versus forward current

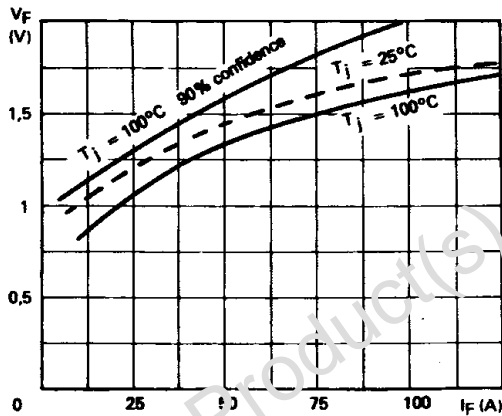


Figure 6. Recovery charge versus di_F/dt

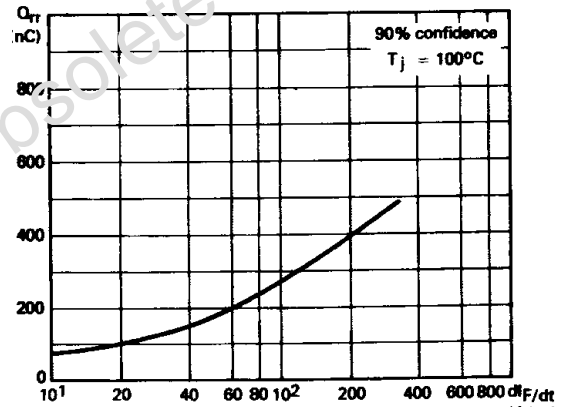


Figure 7. Recovery time versus di_F/dt

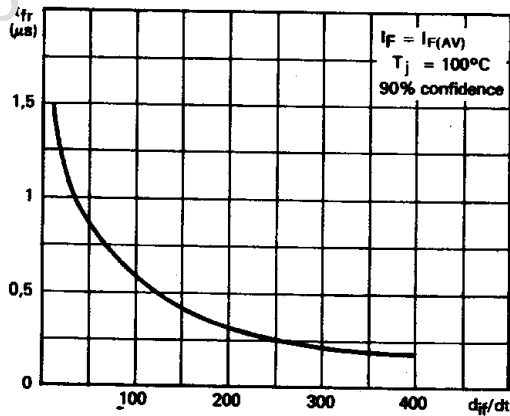
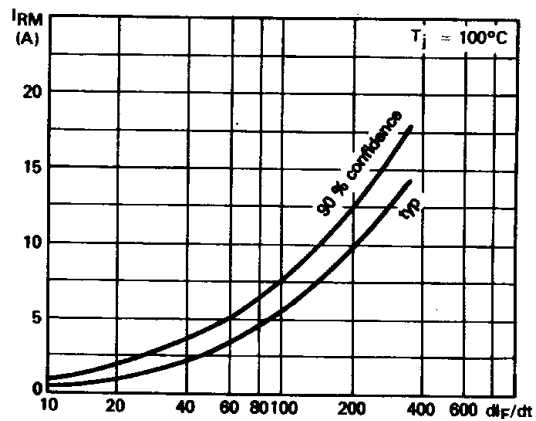


Figure 8. Peak reverse current versus di_F/dt



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Figure 9. Peak forward voltage versus di_F/dt .

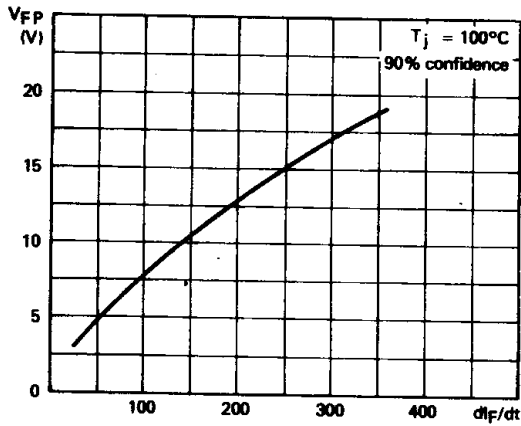


Figure 10. Dynamic parameters versus junction temperature.

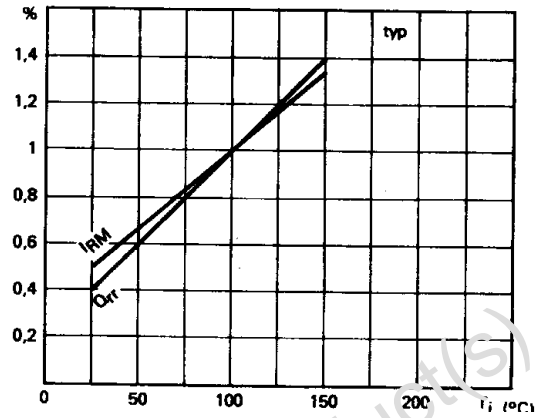


Figure 11. Turn-off switching characteristics (without series inductance).

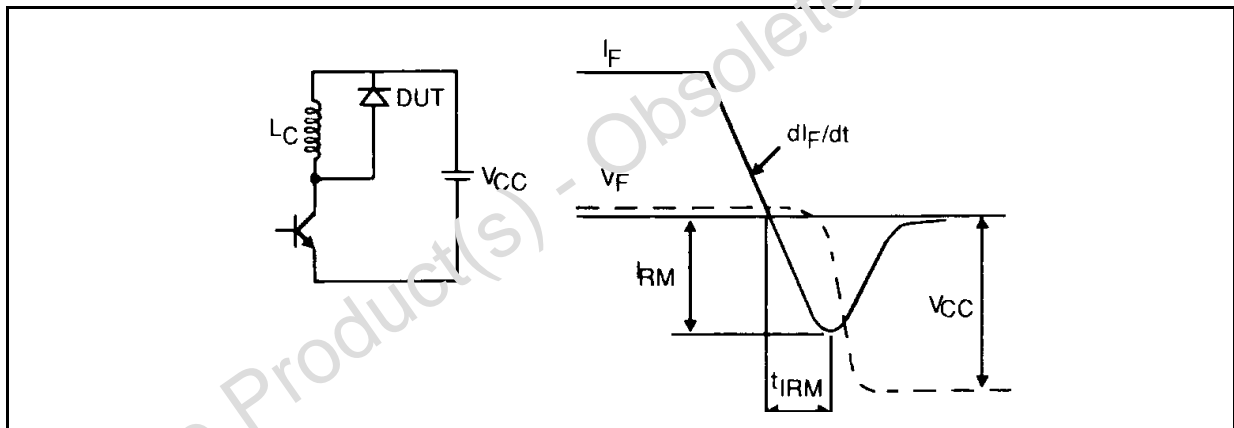
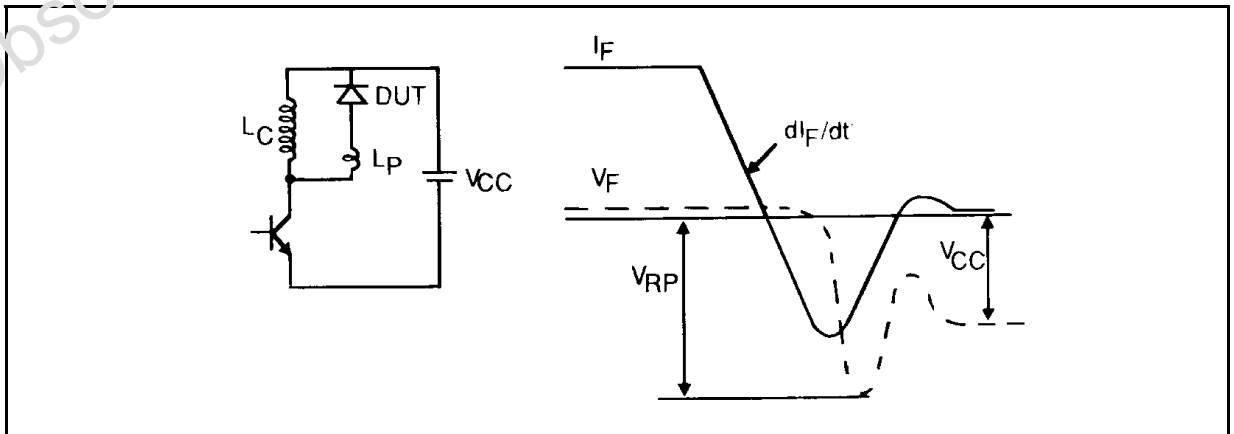


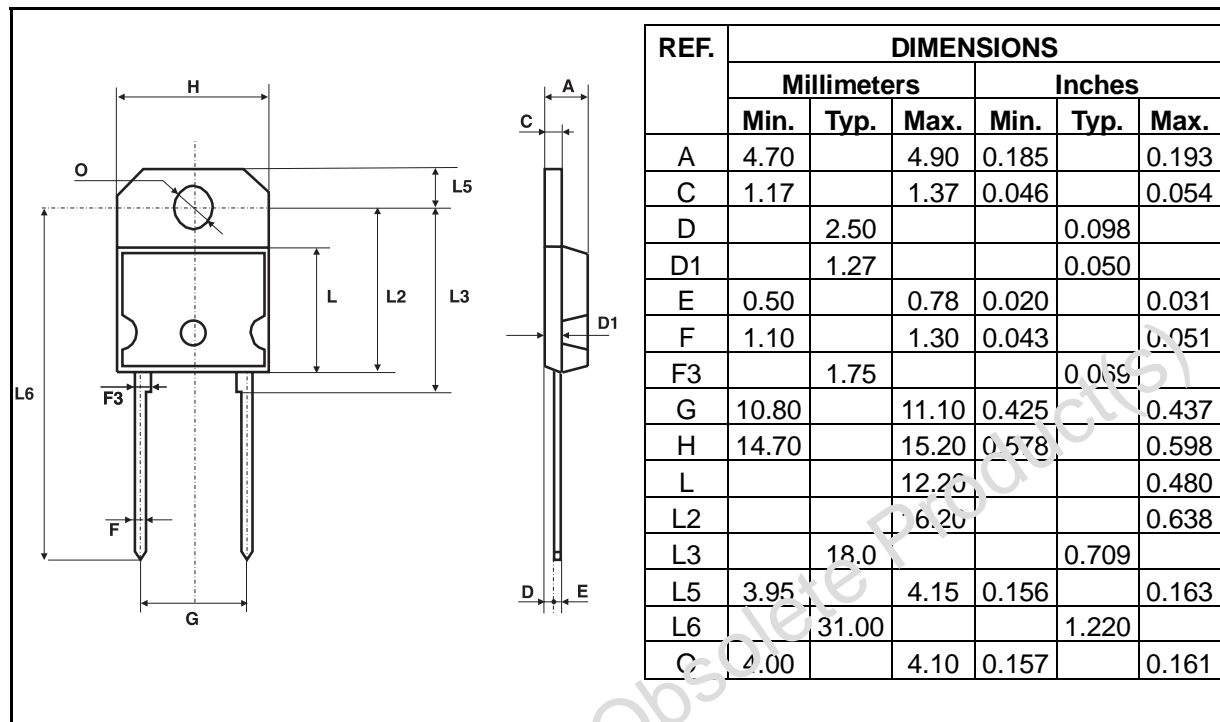
Figure 12. Turn-off switching characteristics (with series inductance).



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PACKAGE MECHANICAL DATA :

SOD93 Plastic



- **Marking:** type number
- **Cooling method:** by conduction (method C)
- **Weight:** 3.79g
- **Recommended torque value:** 80cm. N
- **Maximum torque value:** 100cm. N

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