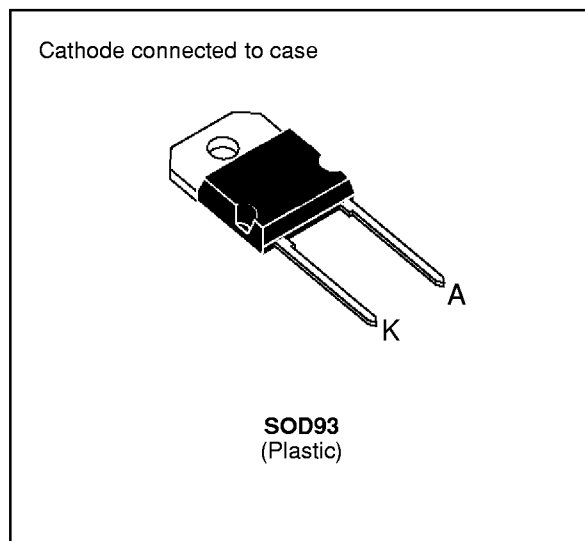


**FAST RECOVERY RECTIFIER DIODES**

- 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	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	BYT 30P-			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	Parameter	Value	Unit
$R_{th(j-c)}$	Junction-case	1	$^\circ C/W$

**ELECTRICAL CHARACTERISTICS**

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub>	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>			35	μA
	T <sub>j</sub> = 100°C				6	mA
V <sub>F</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 30A			1.5	V
	T <sub>j</sub> = 100°C				1.4	

RECOVERY CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
t <sub>rr</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A	di <sub>F</sub> /dt = - 15A/μs	V <sub>R</sub> = 30V		100	ns
		I <sub>F</sub> = 0.5A	I <sub>R</sub> = 1A	I <sub>rr</sub> = 0.25A		50	

TURN-OFF SWITCHING CHARACTERISTICS (Without Series Inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t <sub>iRM</sub>	di <sub>F</sub> /dt = - 120A/μs	V <sub>CC</sub> = 200 V I <sub>F</sub> = 30A L <sub>p</sub> ≤ 0.05μH T <sub>j</sub> = 100°C See figure 11			75	ns
	di <sub>F</sub> /dt = - 240A/μs			50		
I <sub>RM</sub>	di <sub>F</sub> /dt = -120A/μs				9	A
	di <sub>F</sub> /dt = - 240A/μs			12		

TURN-OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
C = $\frac{V_{RP}}{V_{CC}}$	T <sub>j</sub> = 100°C	V <sub>CC</sub> = 60V	I <sub>F</sub> = I <sub>F(AV)</sub>		3.3		
	di <sub>F</sub> /dt = - 30A/μs	L <sub>p</sub> = 1μH	See figure 12				

To evaluate the conduction losses use the following equations:

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

Figure 1. Low frequency power losses versus average current

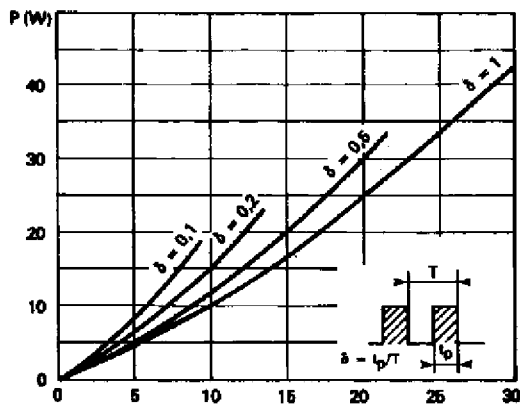


Figure 2. Peak current versus form factor

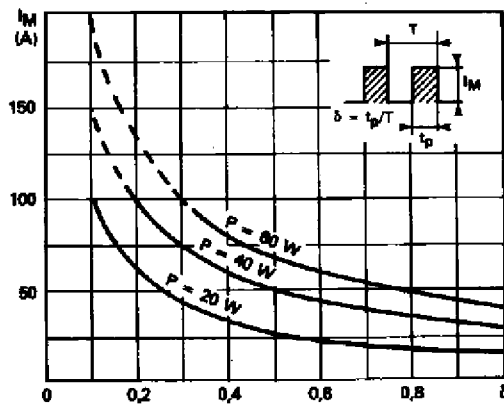


Figure 3. Non repetitive peak surge current versus overload duration

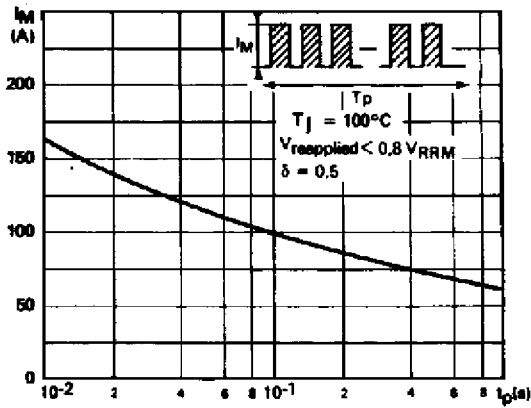


Figure 4. Thermal impedance versus pulse width

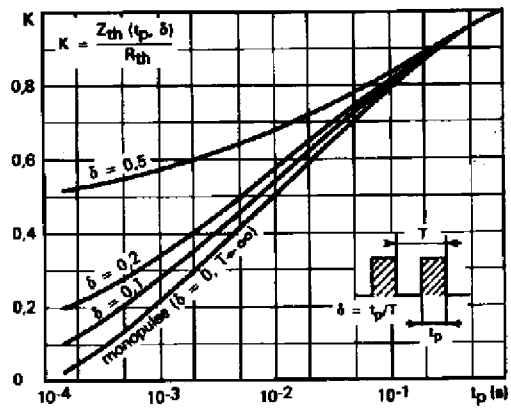


Figure 5. Voltage drop versus forward current

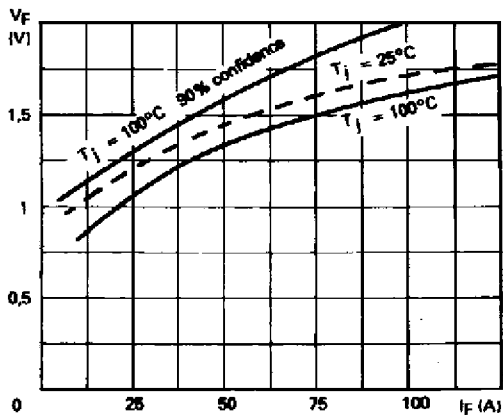


Figure 6. Recovery charge versus di\_F/d\_t

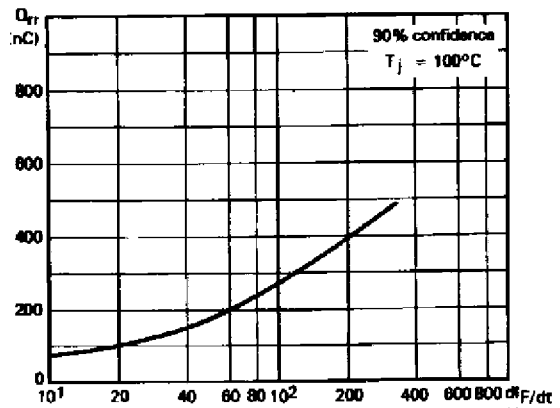


Figure 7. Recovery time versus di\_F/d\_t

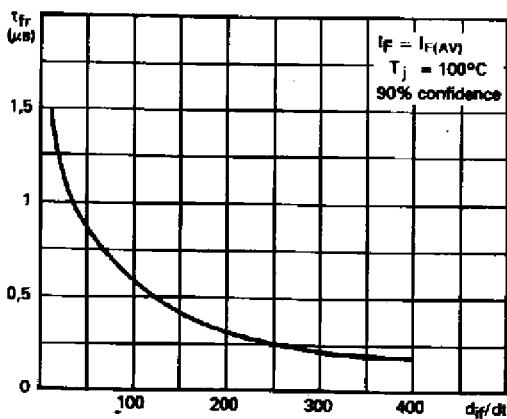


Figure 8. Peak reverse current versus di\_F/d\_t

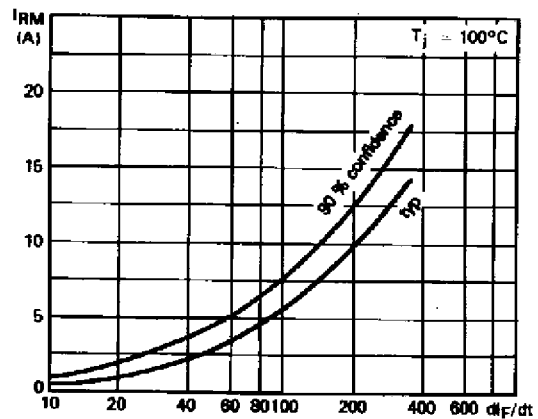


Figure 9. Peak forward voltage versus  $di_F/dt$ .

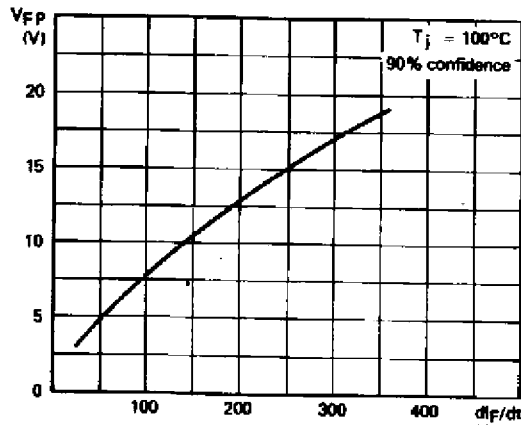


Figure 10. Dynamic parameters versus junction temperature.

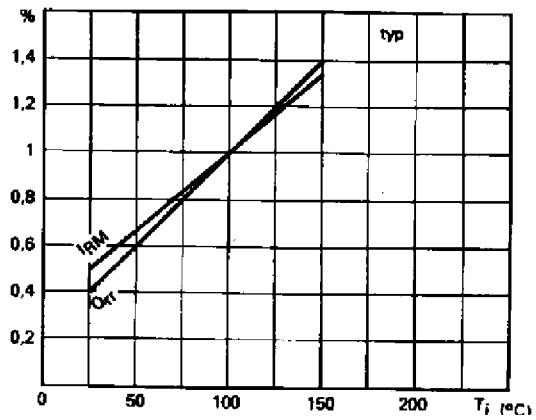


Figure 11. Turn-off switching characteristics (without series inductance).

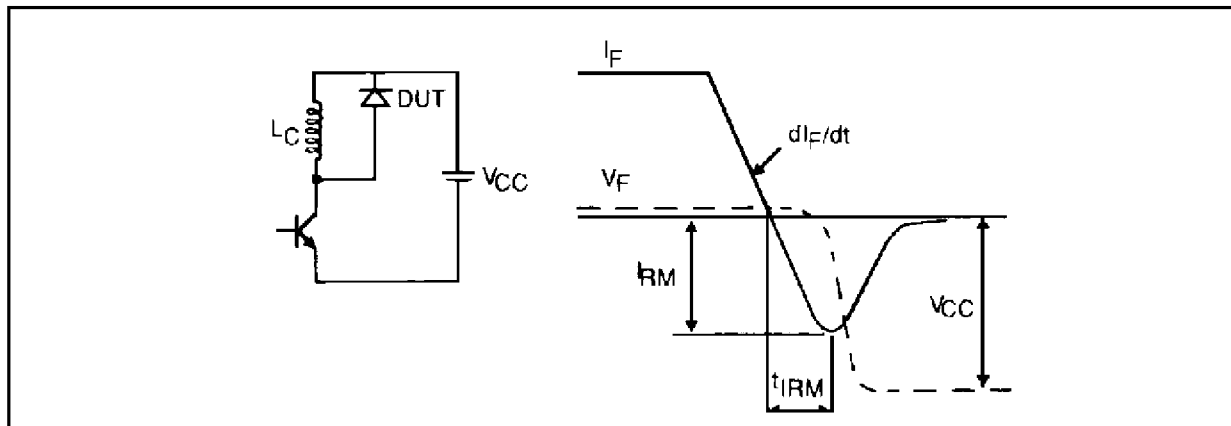
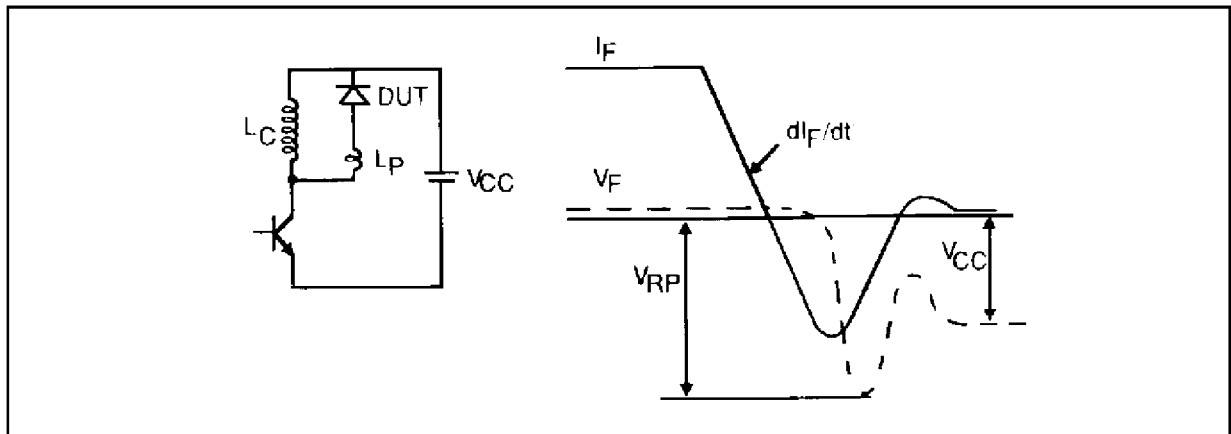
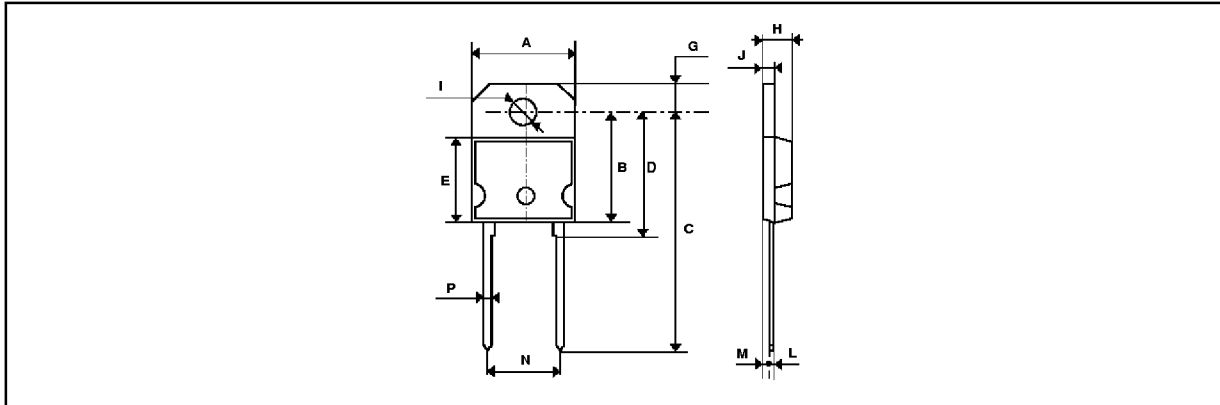


Figure 12. Turn-off switching characteristics (with series inductance)



**PACKAGE MECHANICAL DATA :**  
SOD93 Plastic



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	14.7	15.2	0.578	0.596
B		16.2		0.637
C	31 typ		1.220 typ	
D	18 typ		0.708 typ	
E		12.2		0.480
G	3.95	4.15	0.155	0.163
H	4.7	4.9	0.185	0.193
I	4	4.1	0.157	0.161
J	1.17	1.37	0.046	0.054
L	0.5	0.78	0.019	0.030
M	2.5 typ		0.098 typ	
N	10.8	11.1	0.425	0.437
P	1.1	1.3	0.043	0.051

Cooling method: by conduction (method C)  
 Marking: type number  
 Weight: 4.3g  
 Recommended torque value: 80cm. N  
 Maximum torque value: 100cm. N

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