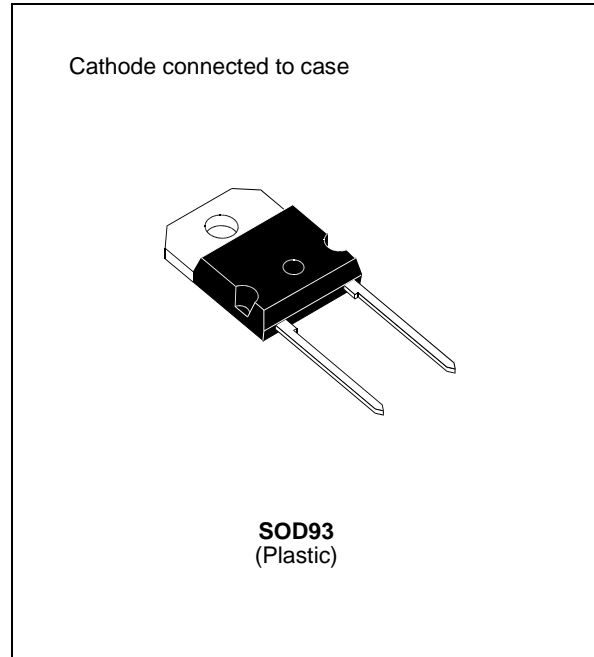


**FAST RECOVERY RECTIFIER DIODE**

- VERY HIGH REVERSE VOLTAGE CAPABILITY
- 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 MAXIMUM RATINGS**

Symbol	Parameter		Value	Unit
$V_{RRM}$	Repetitive Peak Reverse Voltage		1000	V
$V_{RSM}$	Non Repetitive Peak Reverse Voltage		1000	V
$I_{FRM}$	Repetive Peak Forward Current	$t_p \leq 10\mu s$	375	A
$I_{F(RMS)}$	RMS Forward Current		70	A
$I_{F(AV)}$	Average Forward Current	$T_c = 85^\circ C$ $\delta = 0.5$	30	A
$I_{FSM}$	Surge non Repetitive Forward Current	$t_p = 10ms$ Sinusoidal	200	A
P	Power Dissipation	$T_c = 85^\circ C$	60	W
$T_{stg}$ $T_j$	Storage and Junction Temperature Range		- 40 to +150 - 40 to +150	$^\circ C$

**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>			100	μA
	T <sub>j</sub> = 100°C				5	mA
V <sub>F</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 30A			1.9	V
	T <sub>j</sub> = 100°C				1.8	

**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		165	ns
		I <sub>F</sub> = 0.5A	I <sub>R</sub> = 1A		I <sub>rr</sub> = 0.25A		

**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			200	ns
	di <sub>F</sub> /dt = - 240A/μs			120		
I <sub>RM</sub>	di <sub>F</sub> /dt = - 120A/μs	See figure 11			19.5	A
	di <sub>F</sub> /dt = - 240A/μs			22		

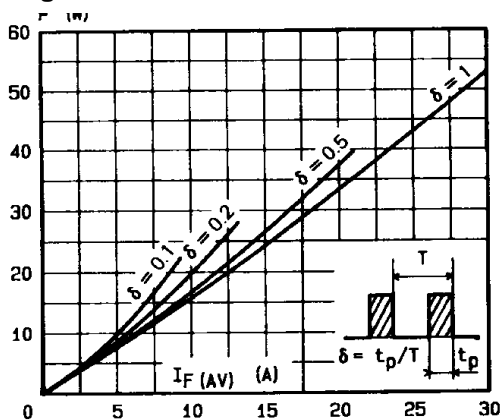
**TURN-OFF OVERVOLTAGE COEFFICIENT (With Series Inductance)**

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$C = \frac{V_{RP}}{V_{CC}}$	T <sub>j</sub> = 100°C di <sub>F</sub> /dt = - 30A/μs	V <sub>CC</sub> = 200V L <sub>p</sub> = 5μH	I <sub>F</sub> = I <sub>F(AV)</sub> See figure 12		4.5	

To evaluate the conduction losses use the following equation:

$$V_F = 1.47 + 0.010 I_F \quad P = 1.47 \times I_{F(AV)} + 0.010 I_{F(RMS)}^2$$

**Figure 1. Low frequency power losses versus average current**



**Figure 2. Peak current versus form factor**

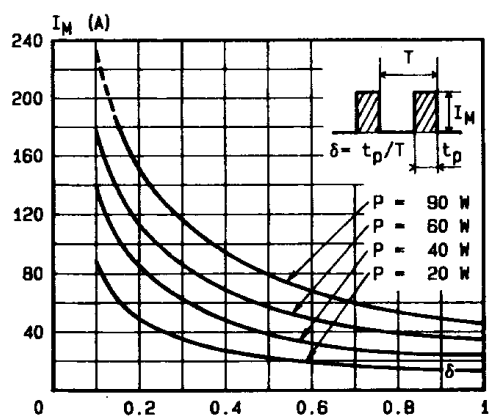


Figure 3. Non repetitive peak surge current versus overload duration

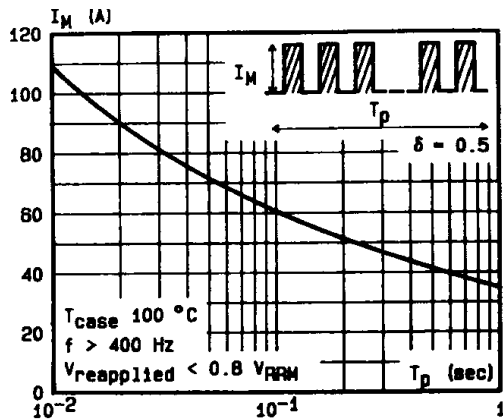


Figure 4. Thermal impedance versus pulse width

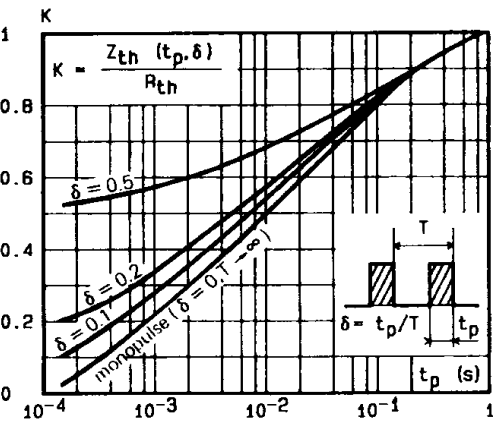


Figure 5. Voltage drop versus forward current

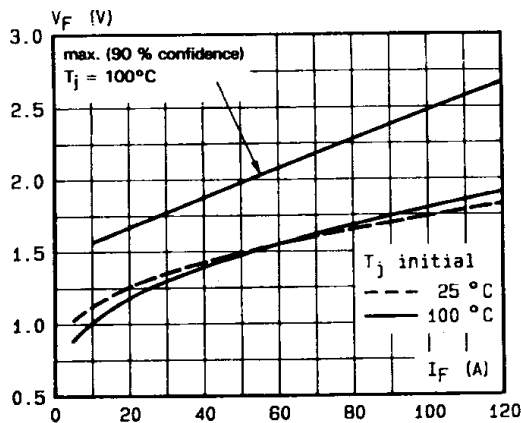


Figure 6. Recovery charge versus di\_F/d\_t

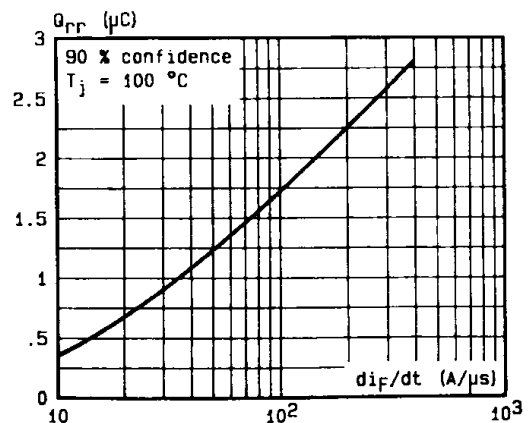


Figure 7. Recovery time versus di\_F/d\_t

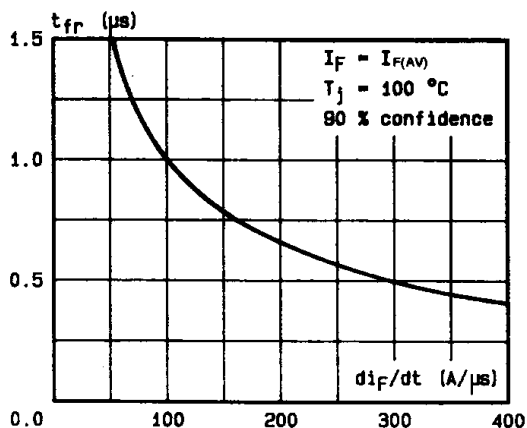


Figure 8. Peak reverse current versus di\_F/d\_t

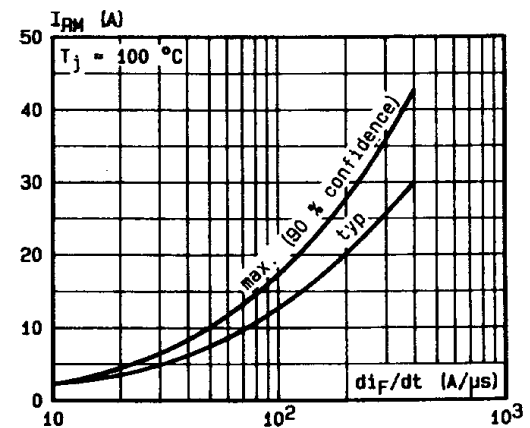


Figure 9. Peak forward voltage versus  $di_F/dt$ .

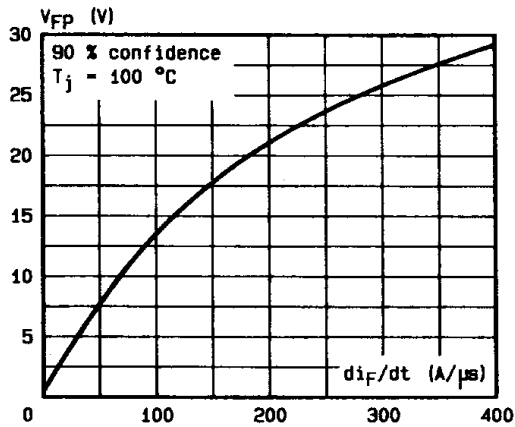


Figure 10. Dynamic parameters versus junction temperature.

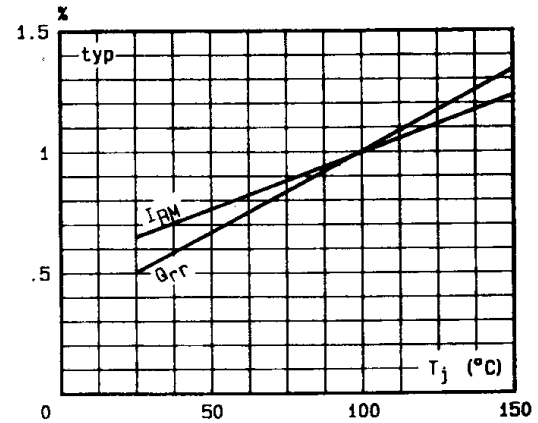


Figure 11. Turn-off switching characteristics (without series inductance).

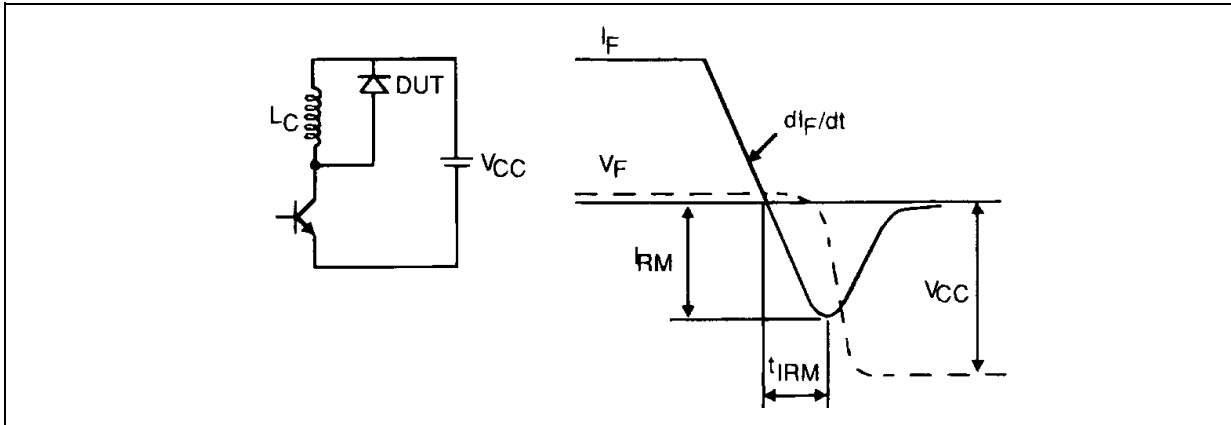
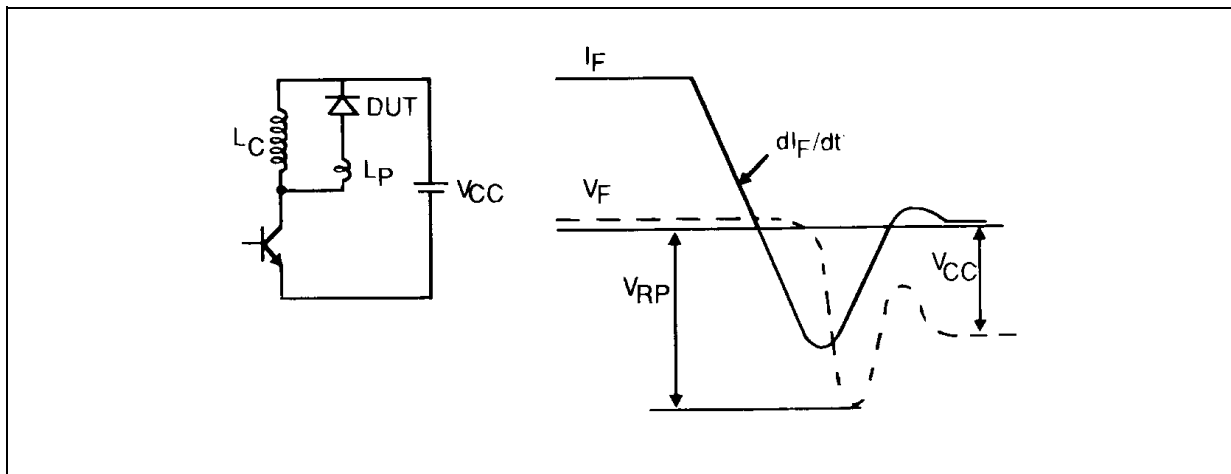
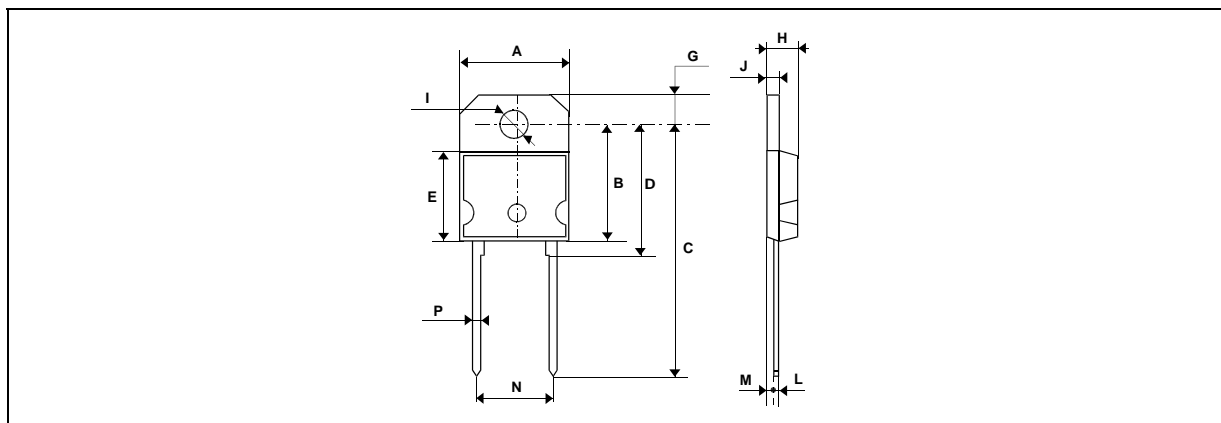


Figure 12. Turn-off switching characteristics (with series inductance).



**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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