

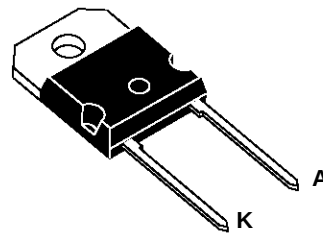
FAST RECOVERY RECTIFIER DIODES

FEATURES

- VERY LOW REVERSE RECOVERY TIME
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING

DESCRIPTION

Single high voltage rectifier suited for Switch Mode Power Supplies and other power converters.



SOD 93
(Plastic)

ABSOLUTE MAXIMUM RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		1000	V
I_{FRM}	Repetitive peak forward current	$t_p \leq 10\mu s$	750	A
$I_{F(RMS)}$	RMS forward current		85	A
$I_{F(AV)}$	Average forward current	$T_c = 50^\circ C$ $\delta = 0.5$	60	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10ms$ sinusoidal	400	A
T_{stg} T_j	Storage and junction temperature range		- 65 to + 150 - 65 to + 150	$^\circ C$ $^\circ C$

BYT60P-1000

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
R _{th} (j-c)	Junction to case	0.8	°C/W

ELECTRICAL CHARACTERISTICS (Per diode) STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
V _F *	T _j = 25°C	I _F = 60 A			1.9	V
	T _j = 100°C				1.8	
I _R **	T _j = 25°C	V _R = V _{RRM}			100	μA
	T _j = 100°C				6	mA

Pulse test : * tp = 380 μs, duty cycle < 2 %

** tp = 5 ms, duty cycle < 2 %

RECOVERY CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
trr	T _j = 25°C	I _F = 0.5A I _{rr} = 0.25A I _R = 1A			70	ns
		I _F = 1A dI _F /dt = -15A/μs V _R = 30V			170	

TURN-OFF SWITCHING CHARACTERISTICS (Without serie inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t _{IRM}	dI _F /dt = -240A/μs	V _{CC} = 200V I _F = 60A L _p ≤ 0.05μH T _j = 100°C see fig. 1			200	ns
	dI _F /dt = -480A/μs			120		
I _{RM}	dI _F /dt = -240A/μs				40	A
	dI _F /dt = -480A/μs			44		

TURN-OFF OVERVOLTAGE COEFFICIENT (With serie inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$C = \frac{V_{RP}}{V_{CC}}$	T _j = 100°C V _{CC} = 200V I _F = I _{F(AV)} dI _F /dt = -60A/μs L _p = 2μH see fig12			3.3	4.5	/

To evaluate the conduction losses use the following equation :

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

Fig.1 : Low frequency power losses versus average current.

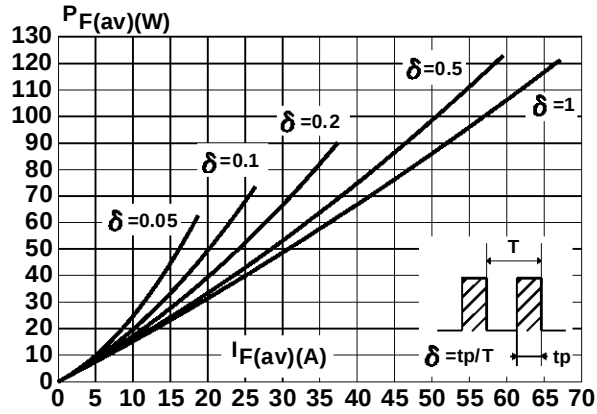


Fig.2 : Peak current versus form factor.

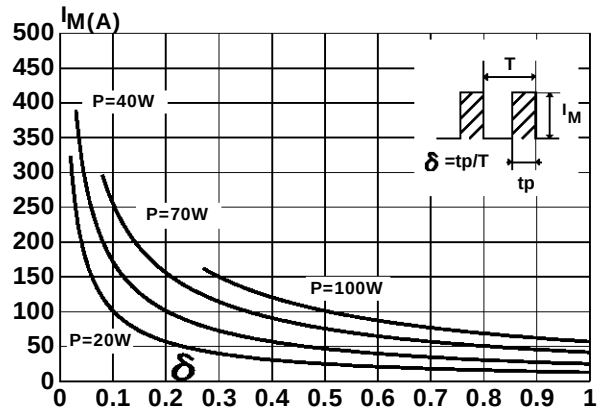


Fig.3 : Non repetitive peak surge current versus overload duration.

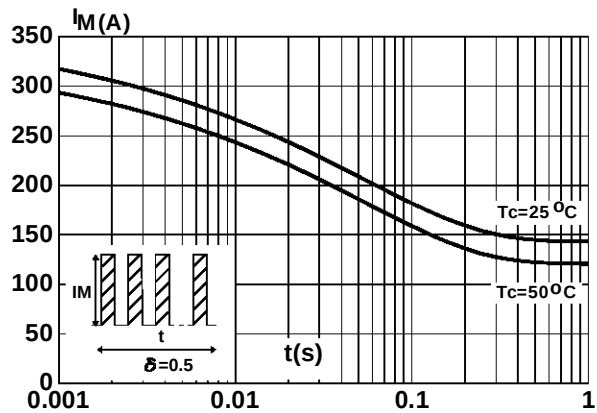


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

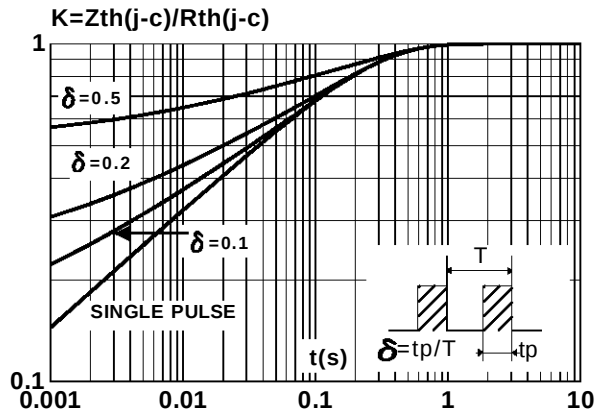


Fig.5 : Voltage drop versus forward current.

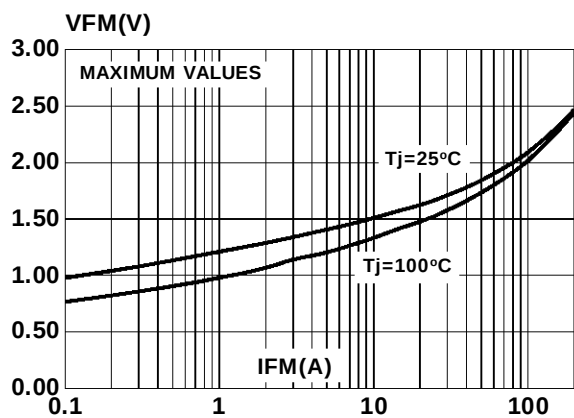


Fig.6 : Recovery charge versus di/dt.

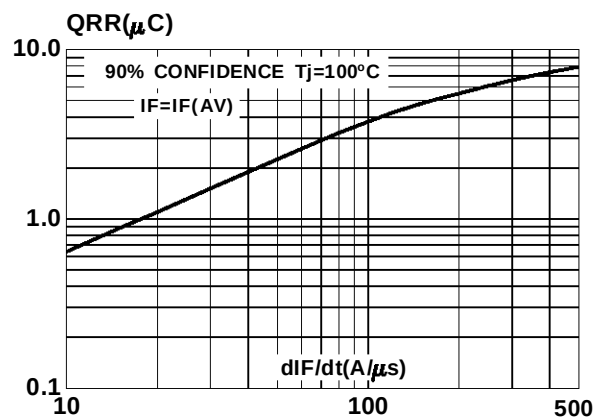


Fig.7 : Recovery time versus di_F/dt .

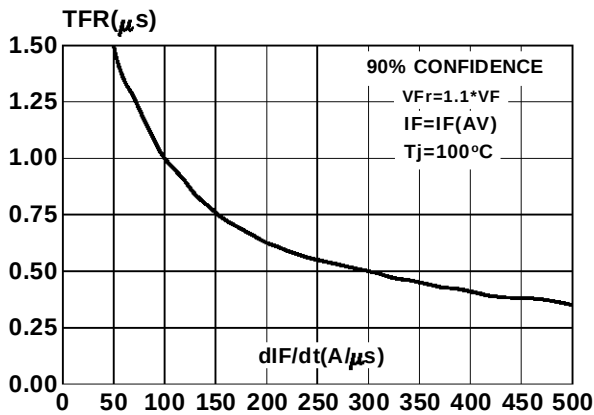


Fig.9 : Peak forward voltage versus di_F/dt .

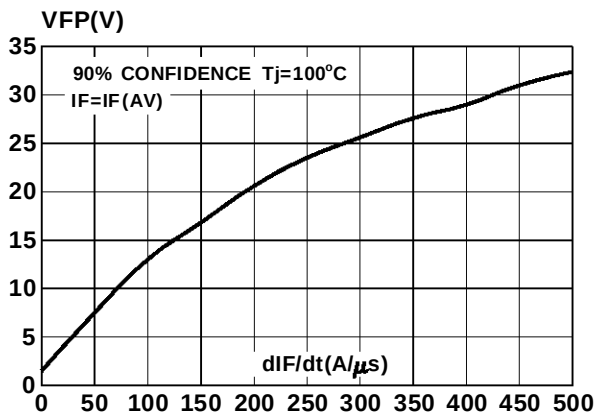


Fig.11 : TURN-OFF SWITCHING CHARACTERISTICS (Without serie inductance)

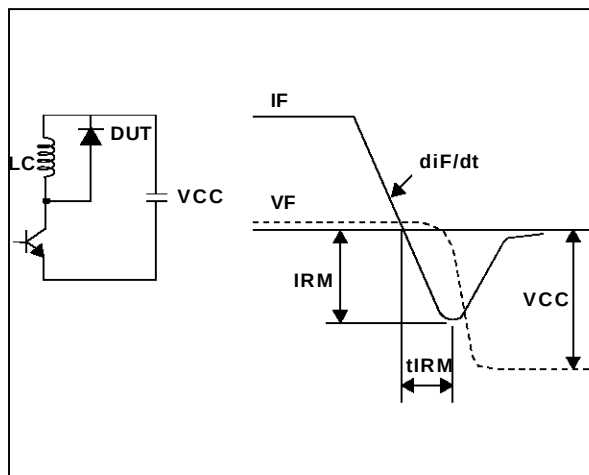


Fig.8 : Peak reverse current versus di_F/dt .

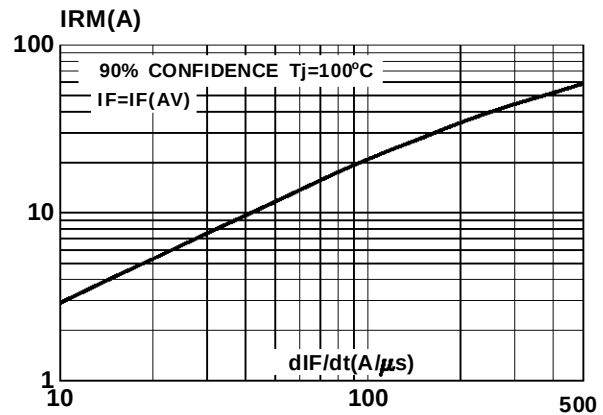


Fig.10 : Dynamic parameters versus junction temperature.

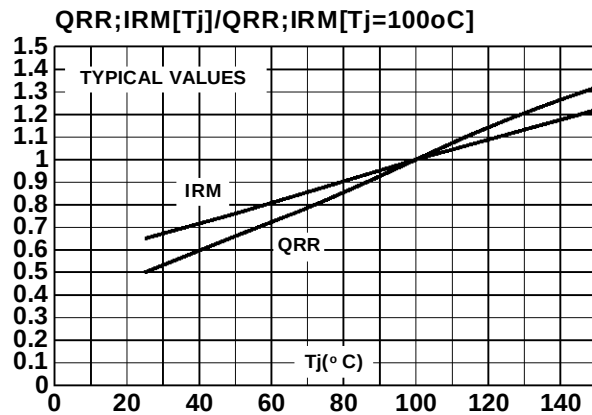
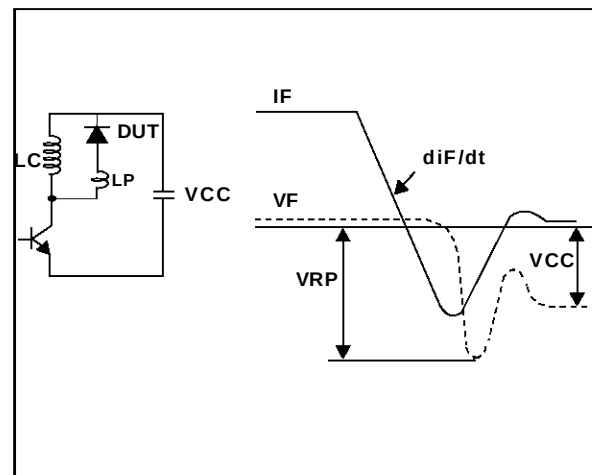
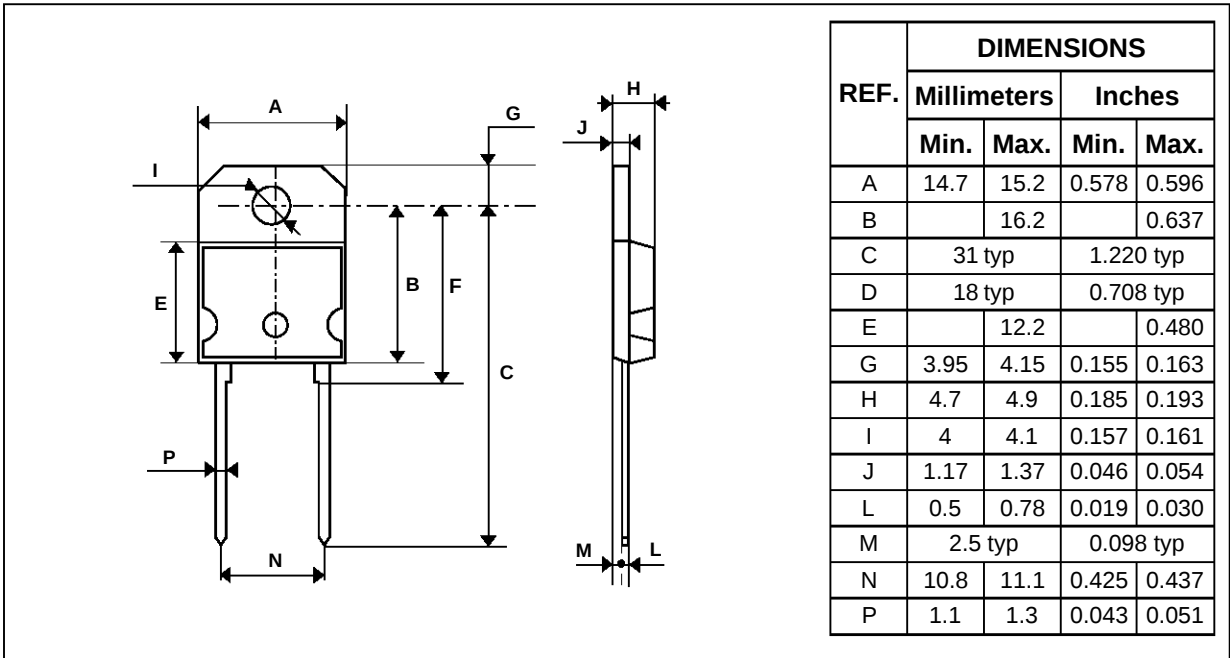


Fig.12 : TURN-OFF SWITCHING CHARACTERISTICS (With serie inductance)



PACKAGE MECHANICAL DATA
SOD93 Plastic



Cooling method : C
Marking : Type number
Weight : 4.0 g
Recommended torque values : 0.8 m.N.
Maximum torque values : 1.0 m.N.

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