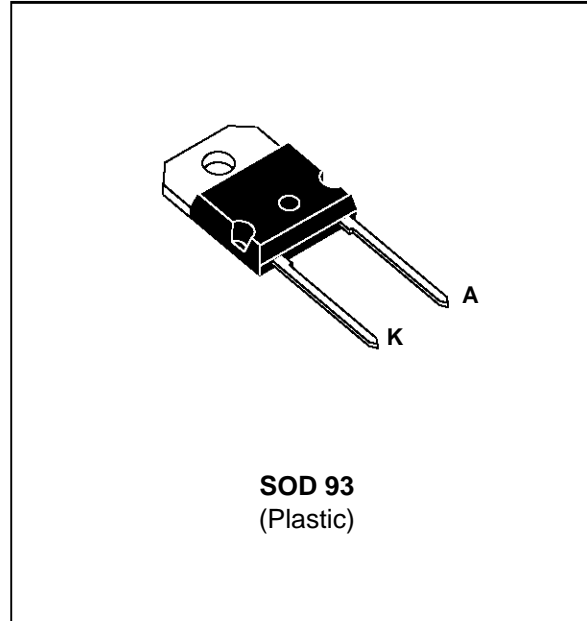


**FAST RECOVERY RECTIFIER DIODES**

**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.

**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
Rth (j-c)	Junction to case	0.8	°C/W

### ELECTRICAL CHARACTERISTICS (Per diode) STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
V <sub>F</sub> *	T <sub>j</sub> = 25°C	I <sub>F</sub> = 60 A			1.9	V
	T <sub>j</sub> = 100°C				1.8	
I <sub>R</sub> **	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>R</sub> RM			100	μA
	T <sub>j</sub> = 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 <sub>j</sub> = 25°C	I <sub>F</sub> = 0.5A      I <sub>rr</sub> = 0.25A I <sub>R</sub> = 1A			70	ns
		I <sub>F</sub> = 1A      dI <sub>F</sub> /dt = -15A/μs V <sub>R</sub> = 30V			170	

### TURN-OFF SWITCHING CHARACTERISTICS (Without serie inductance)

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t <sub>IRM</sub>	dI <sub>F</sub> /dt = -240A/μs	V <sub>CC</sub> = 200V      I <sub>F</sub> = 60A L <sub>p</sub> ≤ 0.05μH      T <sub>j</sub> = 100°C see fig. 1			200	ns
	dI <sub>F</sub> /dt = -480A/μs			120		
I <sub>RM</sub>	dI <sub>F</sub> /dt = -240A/μs				40	A
	dI <sub>F</sub> /dt = -480A/μs			44		

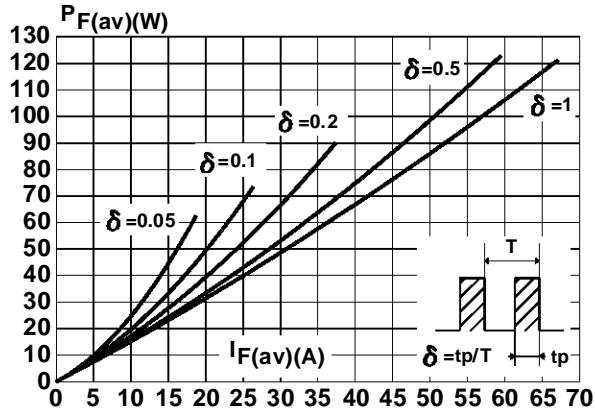
### TURN-OFF OVERVOLTAGE COEFFICIENT (With serie inductance)

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

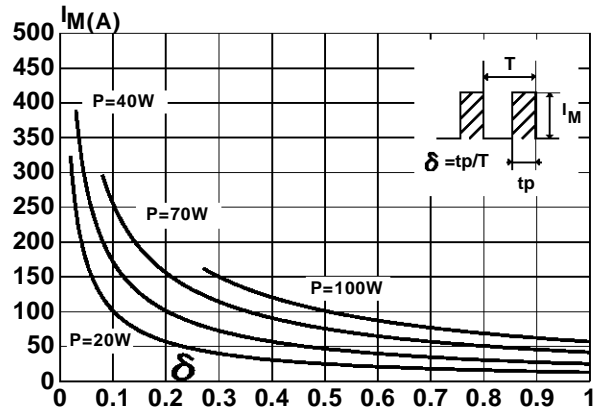
To evaluate the conduction losses use the following equation :

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

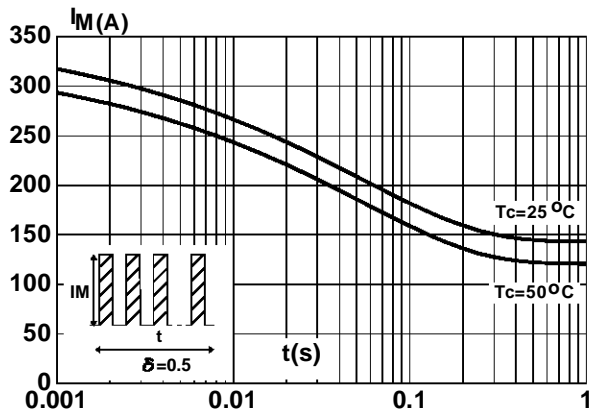
**Fig.1** : Low frequency power losses versus average current.



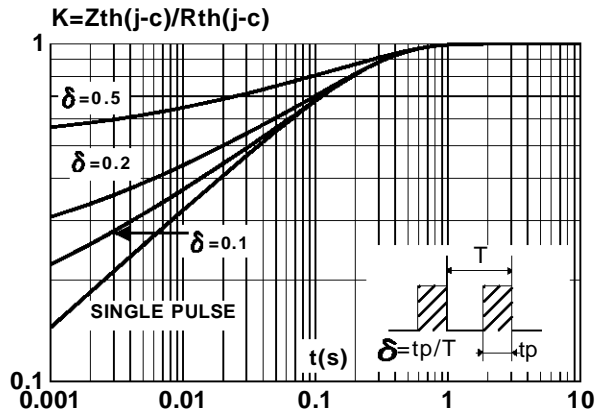
**Fig.2** : Peak current versus form factor.



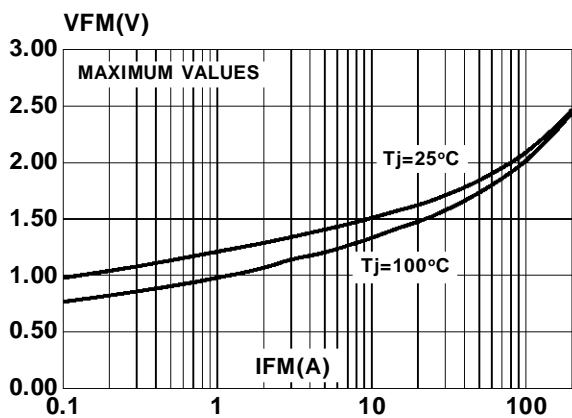
**Fig.3** : Non repetitive peak surge current versus overload duration.



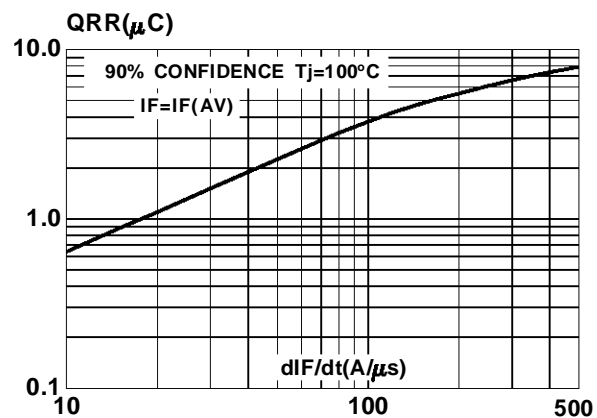
**Fig.4** : Relative variation of thermal impedance junction to case versus pulse duration.



**Fig.5** : Voltage drop versus forward current.

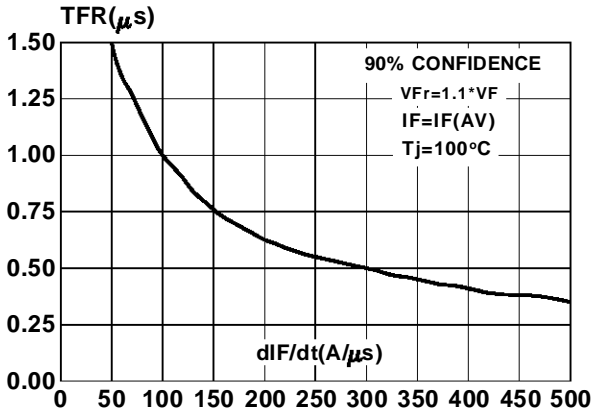


**Fig.6** : Recovery charge versus di/dt.

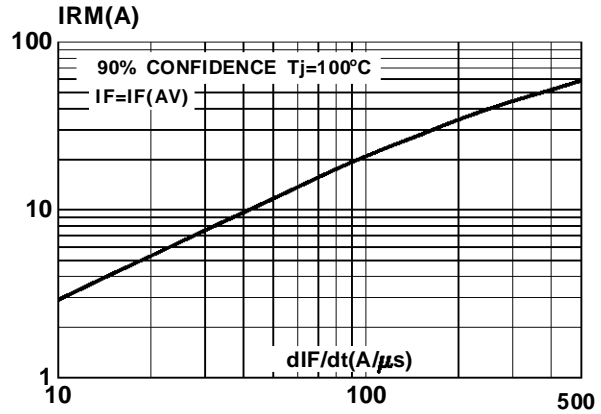


# BYT60P-1000

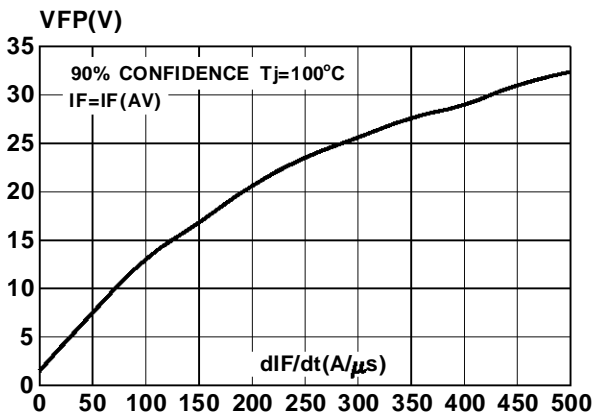
**Fig.7 :** Recovery time versus  $di_F/dt$ .



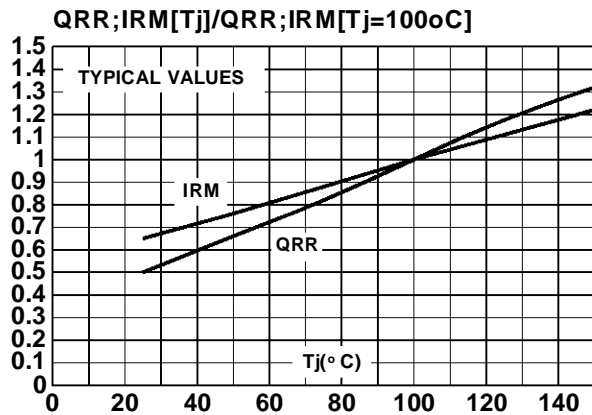
**Fig.8 :** Peak reverse current versus  $di_F/dt$ .



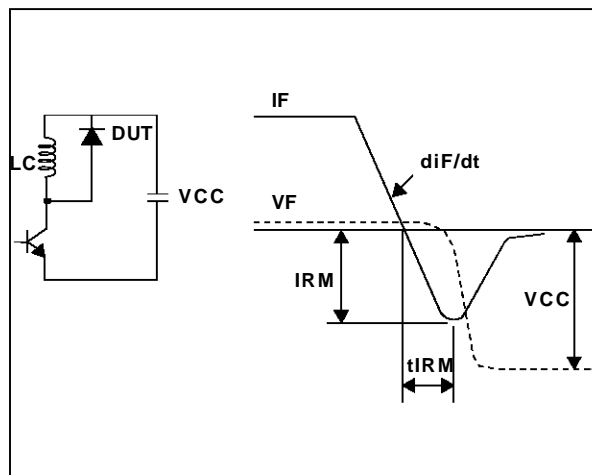
**Fig.9 :** Peak forward voltage versus  $di_F/dt$ .



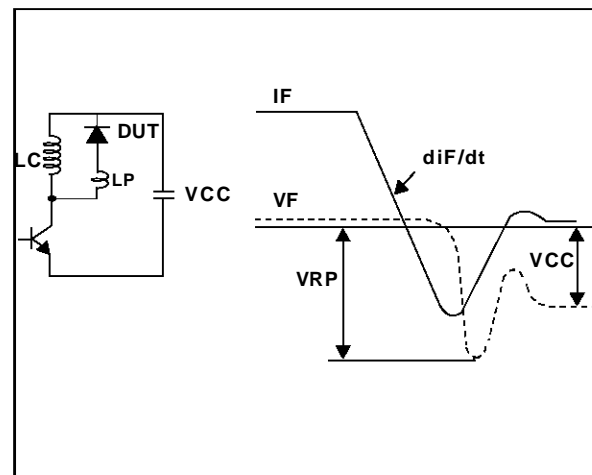
**Fig.10 :** Dynamic parameters versus junction temperature.



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

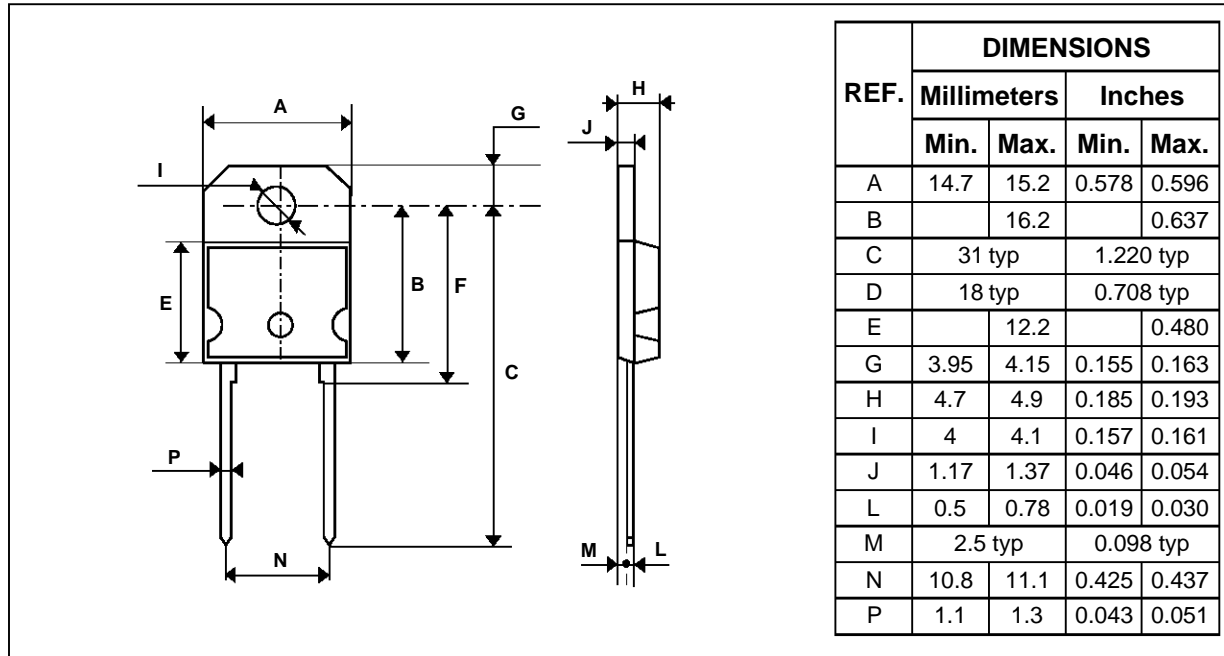


**Fig.12 :** TURN-OFF SWITCHING CHARACTERISTICS (With serie inductance)



**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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