

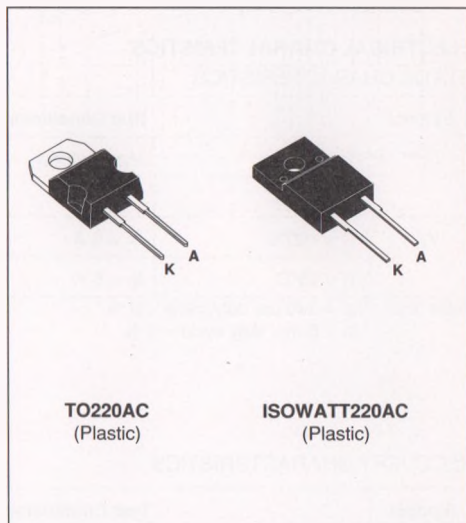
## FAST RECOVERY RECTIFIER DIODES

### FEATURES

- HIGH VOLTAGE CAPABILITY
- FAST AND SOFT RECOVERY
- INSULATED PACKAGE :  
insulating voltage = 2000V<sub>DC</sub>  
capacitance = 12 pF

### DESCRIPTION

Single chip rectifier suited for power conversion and polarity protection applications. This device is packaged in TO220AC and in ISOWATT220AC.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit	
I <sub>F(RMS)</sub>	RMS on-state current		12	A	
I <sub>F(AV)</sub>	Average forward current $\delta = 0.5$	TO220AC	T <sub>c</sub> =130°C	6	A
		ISOWATT220AC	T <sub>c</sub> =105°C	6	
I <sub>FSM</sub>	Surge non repetitive forward current		tp=10ms sinusoidal	90	A
T <sub>stg</sub> T <sub>j</sub>	Storage and junction temperature range		- 65 to + 150 - 65 to + 150	°C °C	

Symbol	Parameter	BYT71- (F)					Unit
		100	200	400	600	800	
V <sub>RRM</sub>	Repetitive peak off-state voltage	100	200	400	600	800	V

## THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
Rth (j-c)	Junction to case	TO220AC	2.3	°C/W
		ISOWATT220AC	4.9	

## 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>R</sub> RRM			20	μA
	T <sub>j</sub> = 100°C				1	mA
V <sub>F</sub> *	T <sub>j</sub> = 100°C	I <sub>F</sub> = 6 A			1.3	V
	T <sub>j</sub> = 25°C	I <sub>F</sub> = 6 A			1.4	

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

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

## RECOVERY CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
t <sub>rr</sub>	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A V <sub>R</sub> = 30V			300	ns

To evaluate the conduction losses use the following equations :

$$P = 1.15 \times I_{F(AV)} + 0.025 \times I_{F(RMS)}^2$$

Fig.1 : Average forward power dissipation versus average forward current.

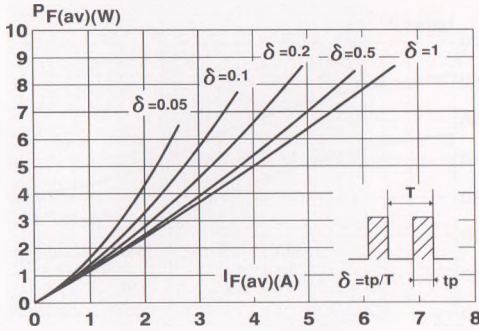


Fig.2 : Peak current versus form factor.

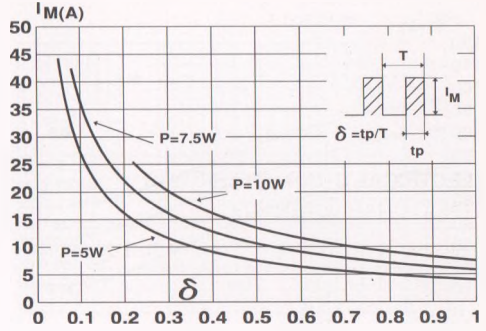


Fig.3 : Forward voltage drop versus forward current (maximum values).

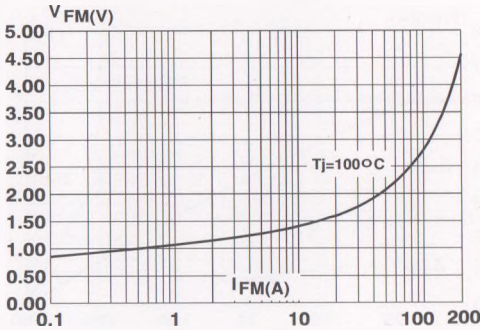


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration. (TO 220 AC)

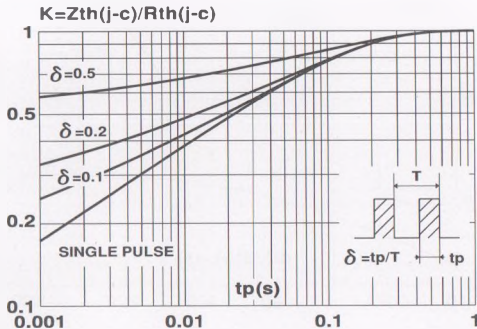


Fig.5 : Relative variation of thermal impedance junction to case versus pulse duration. (ISOWATT220AC)

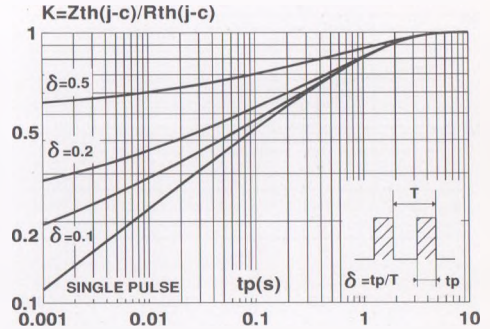


Fig.6 : Non repetitive surge peak forward current versus overload duration.  
(TO 220 AB)

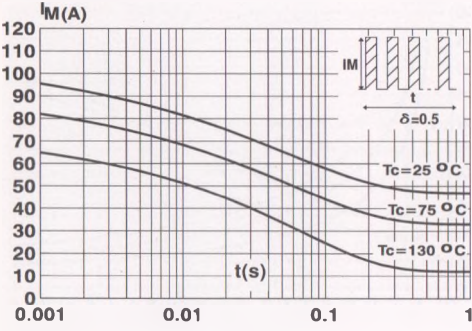


Fig.7 : Non repetitive surge peak forward current versus overload duration.  
(ISOWATT220AB)

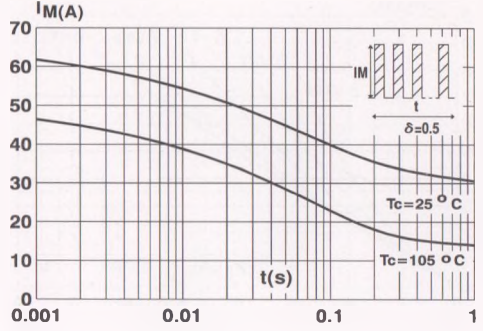


Fig.8 : Average current versus ambient temperature.  
(duty cycle : 0.5) (TO 220 AB)

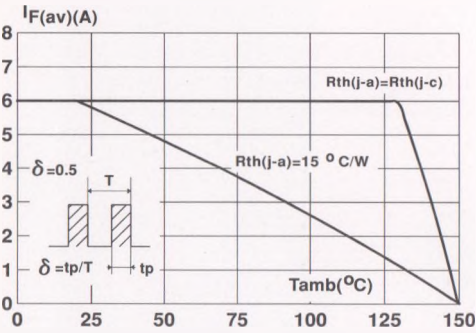


Fig.9 : Average current versus ambient temperature.  
(duty cycle : 0.5) (ISOWATT220AB)

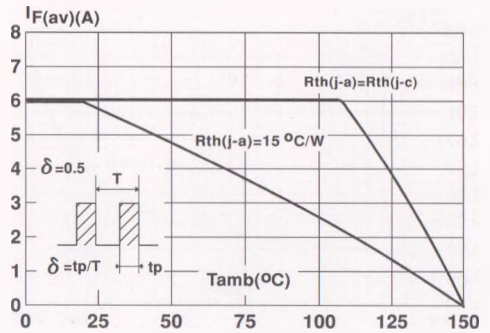


Fig.10 : Junction capacitance versus reverse voltage applied (Typical values).

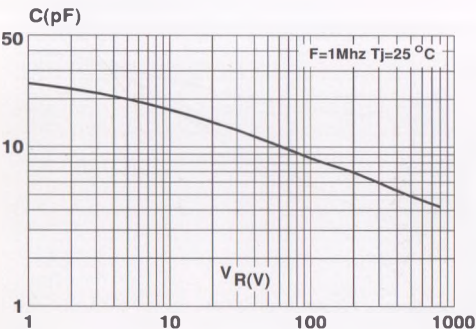


Fig.11 : Recovery charges versus dIF/dt.

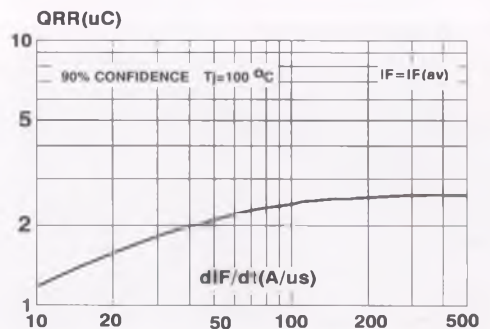


Fig.12 : Peak reverse current versus dIF/dt.

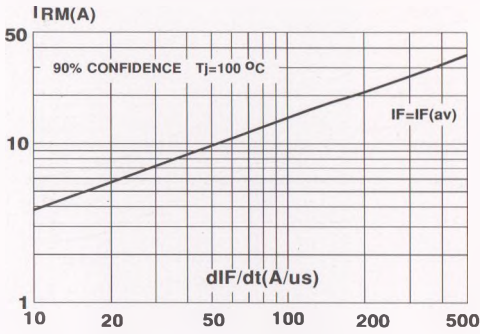


Fig.14 : Peak forward voltage versus dIF/dt.

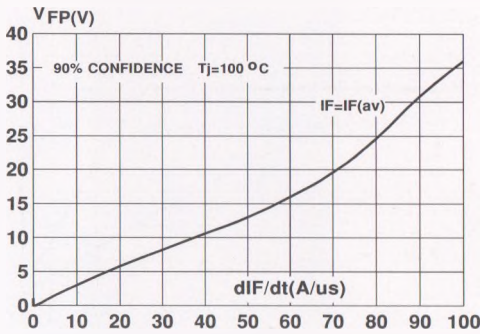


Fig.13 : Dynamic parameters versus junction temperature.

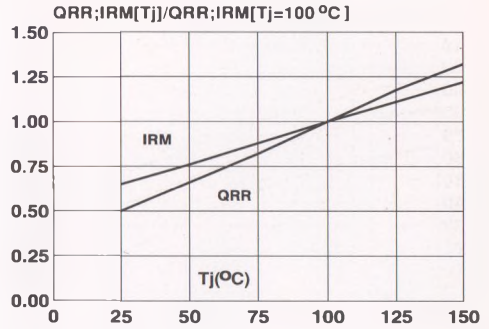


Fig.15 : Recovery time versus dIF/dt.

