

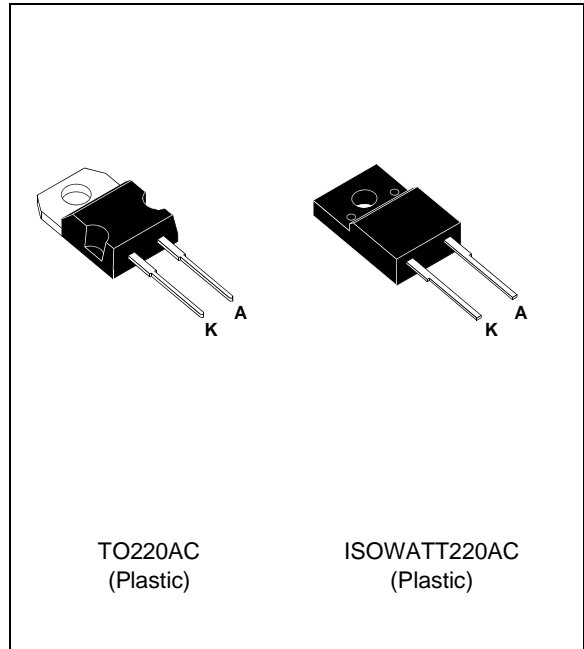
## FAST RECOVERY RECTIFIER DIODES

### 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
		600	800	
V <sub>R</sub> RM	Repetitive peak off-state voltage	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> RM			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 %

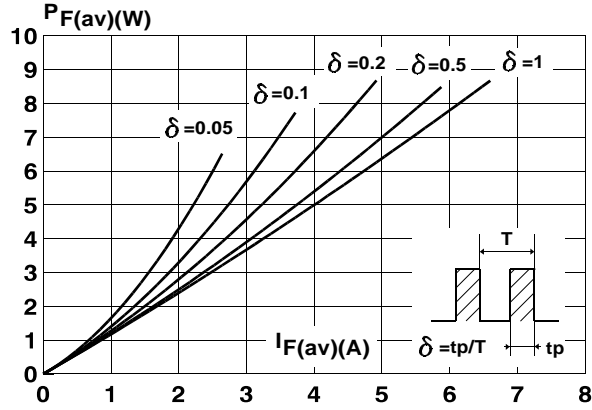
**RECOVERY CHARACTERISTICS**

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
trr	T <sub>j</sub> = 25°C	I <sub>F</sub> = 1A V <sub>R</sub> = 30V dI <sub>F</sub> /dt = -15A/μs			300	ns

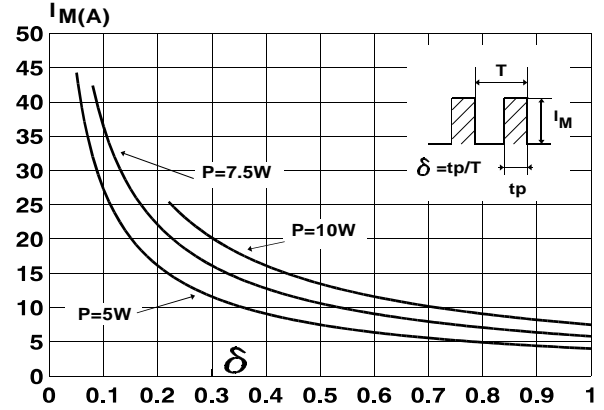
To evaluate the conduction losses use the following equations :

$$P = 1.15 \times I_F(AV) + 0.025 \times I_F^2(RMS)$$

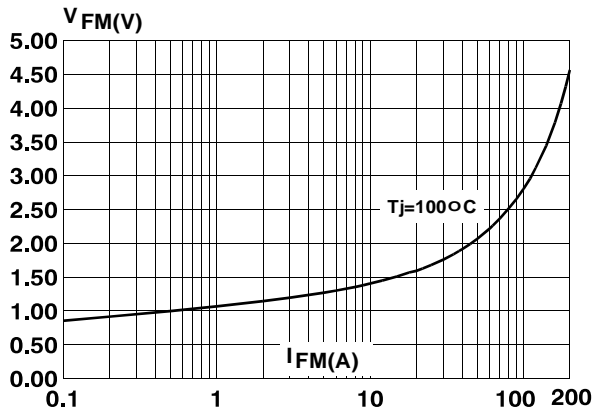
**Fig.1 :** Average forward power dissipation versus average forward current.



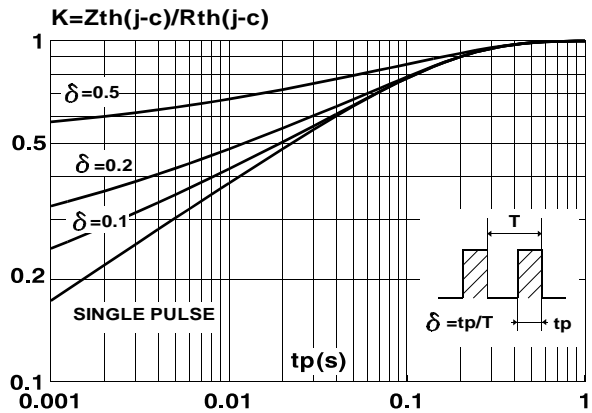
**Fig.2 :** Peak current versus form factor.



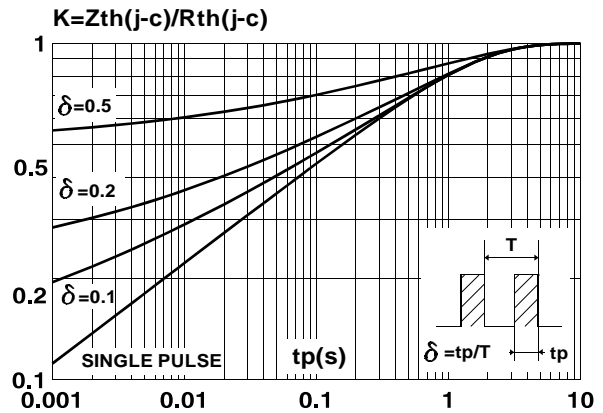
**Fig.3 :** Forward voltage drop versus forward current (maximum values).



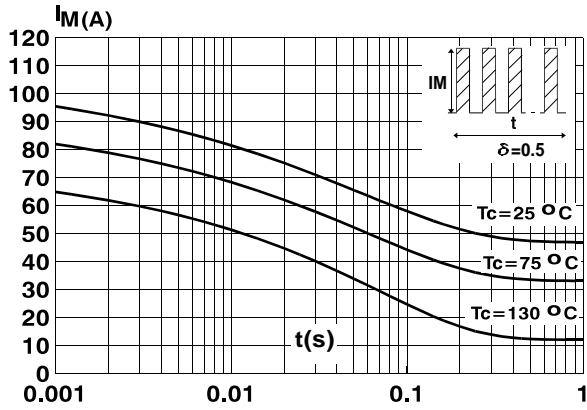
**Fig.4 :** Relative variation of thermal impedance junction to case versus pulse duration. (TO 220 AC)



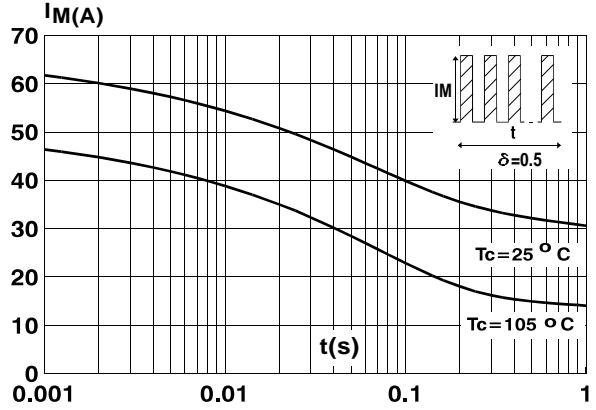
**Fig.5 :** Relative variation of thermal impedance junction to case versus pulse duration. (ISOWATT220AC)



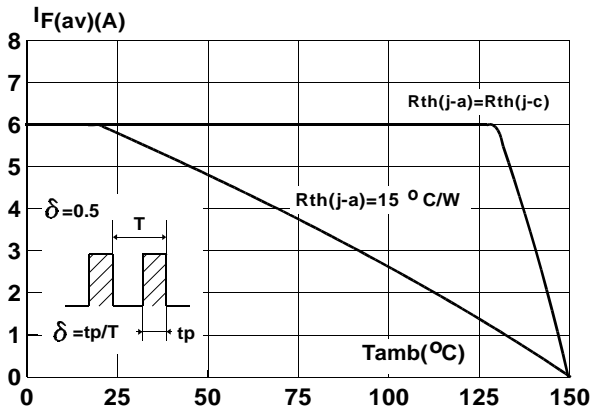
**Fig.6 :** Non repetitive surge peak forward current versus overload duration. (TO 220 AB)



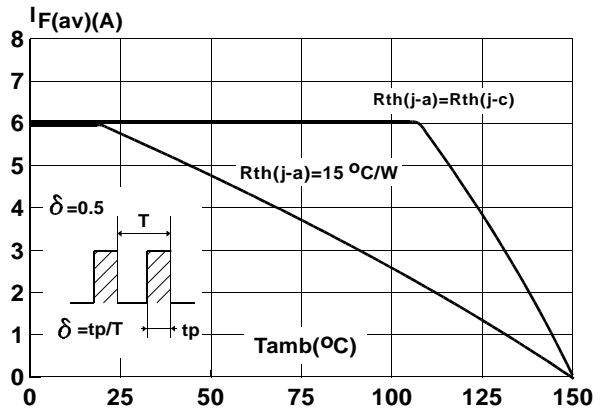
**Fig.7 :** Non repetitive surge peak forward current versus overload duration. (ISOWATT220AB)



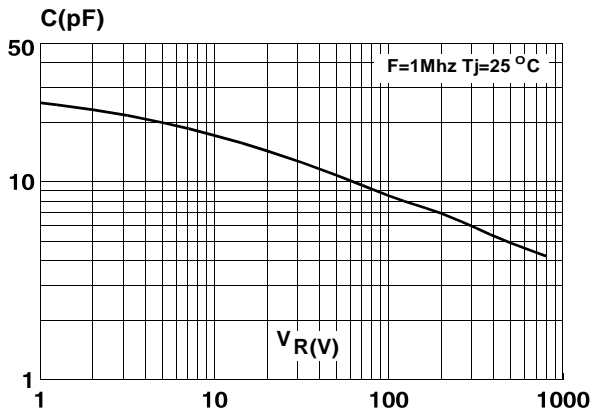
**Fig.8 :** Average current versus ambient temperature. (duty cycle : 0.5) (TO 220 AB)



**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.

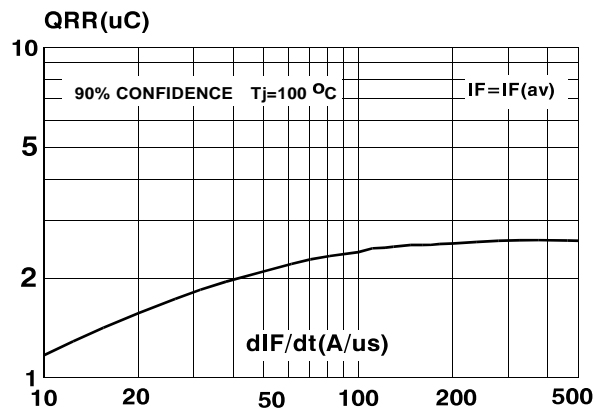


Fig.12 : Peak reverse current versus dIF/dt.

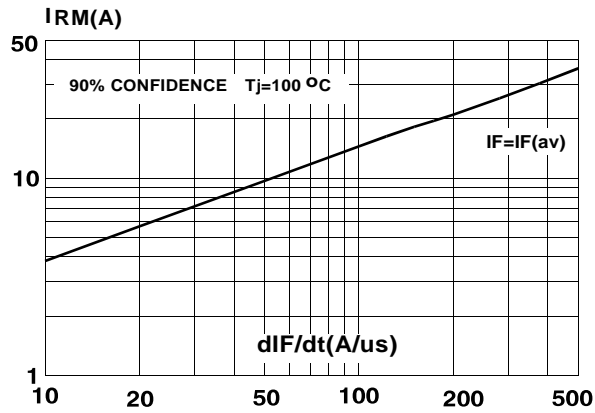


Fig.14 : Peak forward voltage versus dIF/dt.

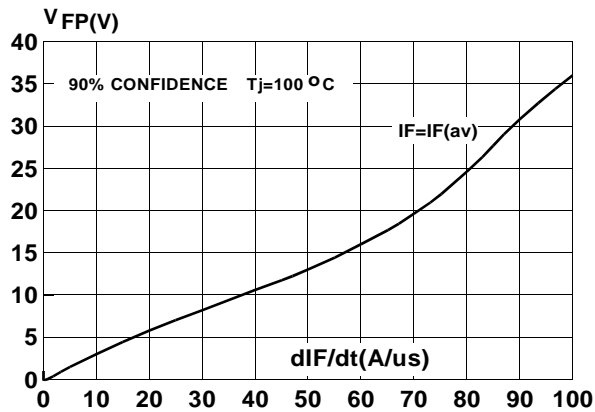


Fig.13 : Dynamic parameters versus junction temperature.

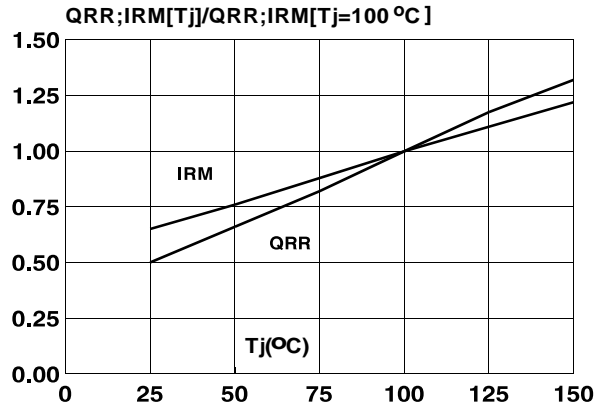
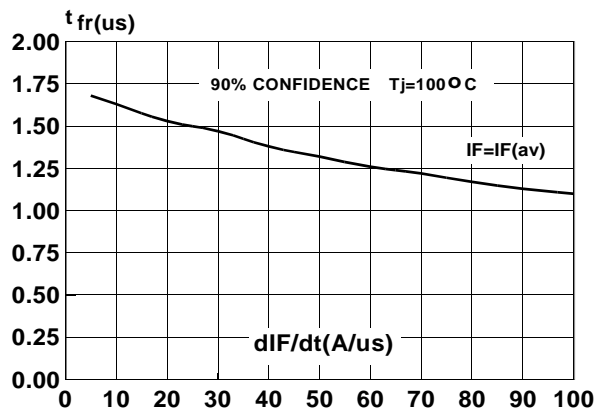
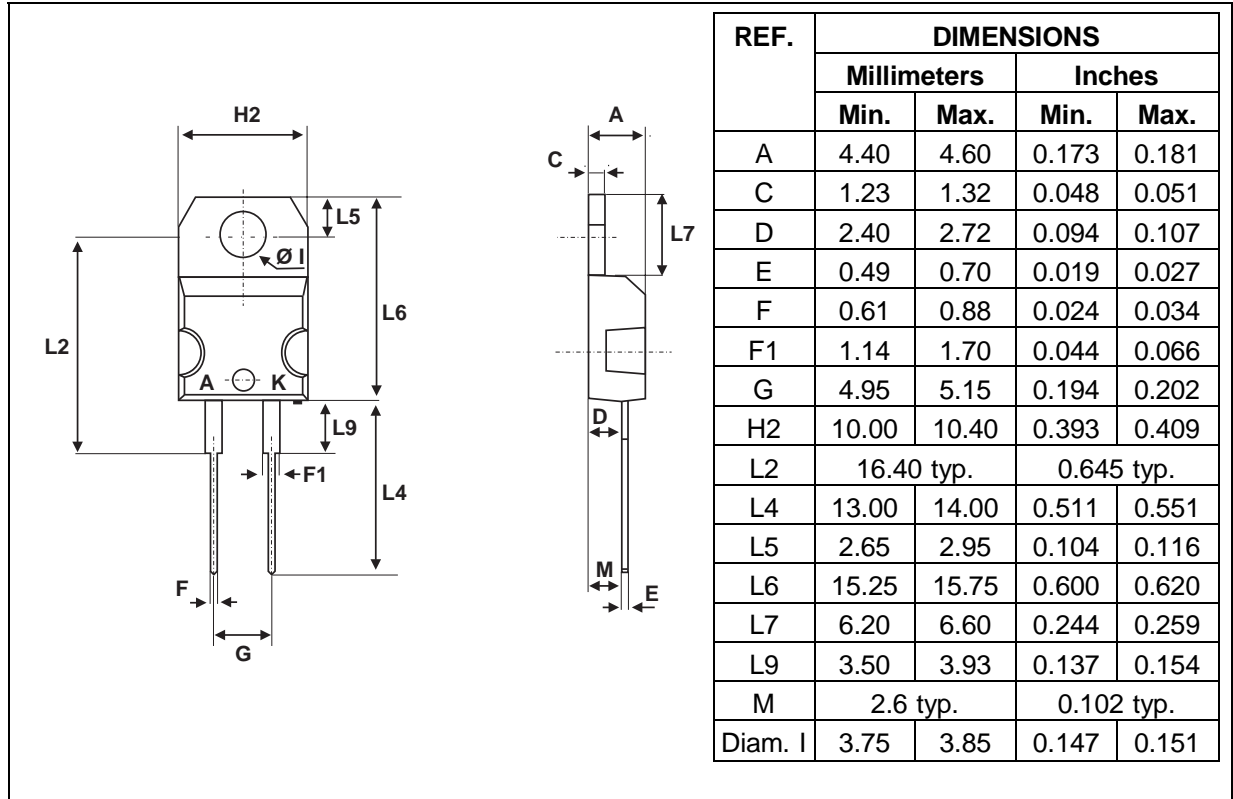


Fig.15 : Recovery time versus dIF/dt.



PACKAGE MECHANICAL DATA

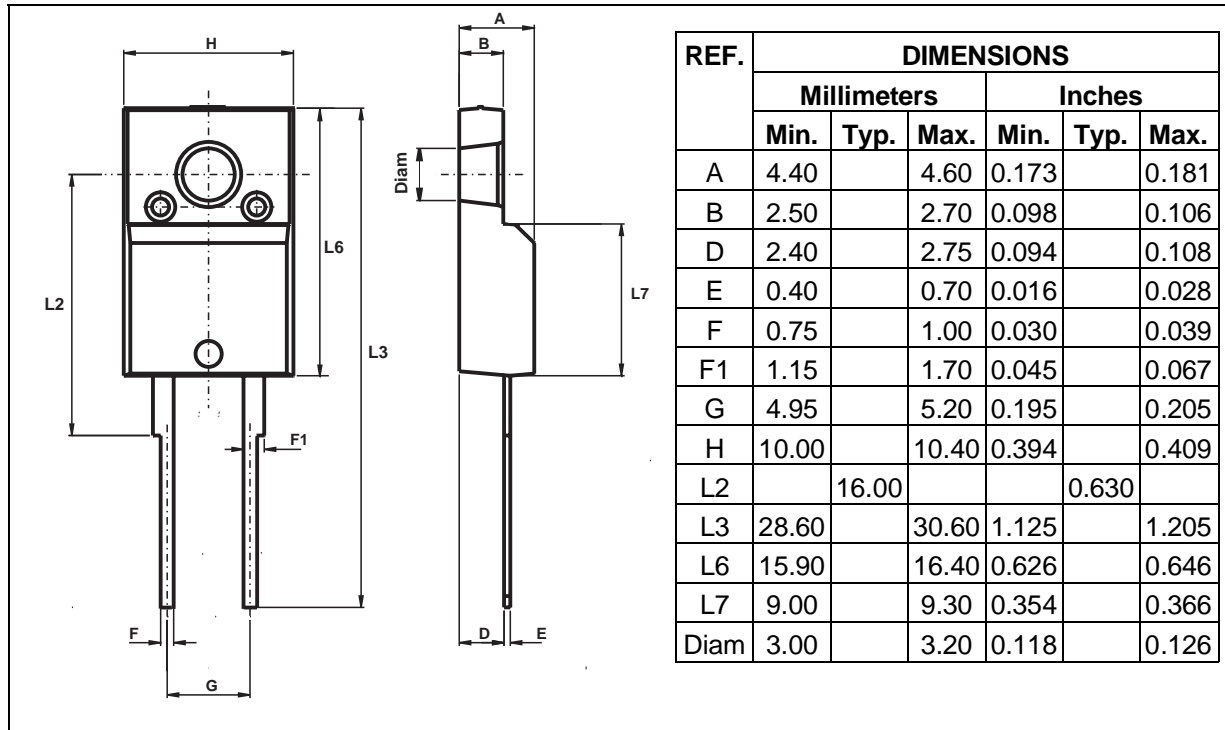
TO220 AC Plastic



- **Marking** : Type number
- **Cooling method** : C
- **Weight** : 1.86 g
- **Recommended torque value** : 0.55m.N
- **Maximum torque value** : 0.70m.N

## PACKAGE MECHANICAL DATA

ISOWATT220AC Plastic



- **Marking** : Type number
- **Cooling method** : C
- **Weight** : 2 g
- **Recommended torque value** : 0.55m.N
- **Maximum torque value** : 0.70m.N

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