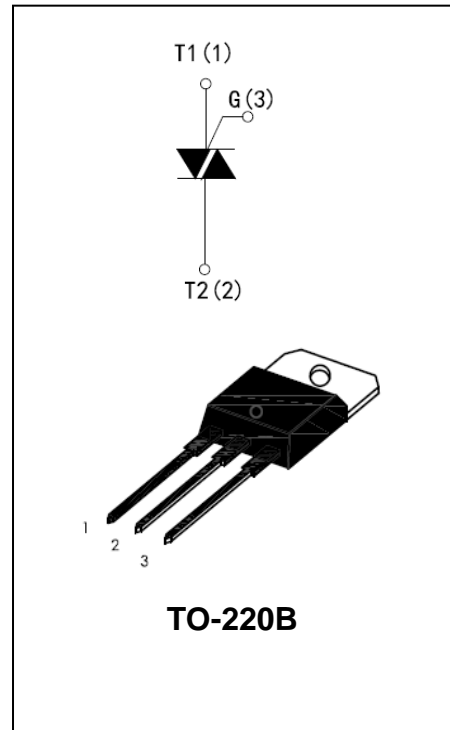




High current density due to double mesa technology; SIPOS and Glass Passivation. IPT12Q06-xx series are suitable for general purpose AC Switching. They can be used as an ON/OFF function In application such as static relays, heating regulation, Induction motor starting circuits... or for phase Control operation light dimmers, motor speed Controllers.



**MAIN FEATURES**

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
$V_{DRM} / V_{RRM}$	600	V
$V_{TM}$	$\leq 1.55$	V

**ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Value	Unit
Storage Junction Temperature Range	$T_{stg}$	-40 to +150	$^{\circ}C$
Operating Junction Temperature Range	$T_j$	-40 to +125	$^{\circ}C$
Repetitive Peak Off-state Voltage Repetitive Peak Reverse Voltage	$V_{DRM}$ $V_{RRM}$	600 600	V
Non Repetitive Peak Off-state Voltage Non Repetitive Peak Reverse Voltage	$V_{DSM}$ $V_{RSM}$	700 700	V
RMS on-state current (Full sine wave)	$I_{T(RMS)}$	12	A
Non repetitive surge peak on-state Current (full cycle, $T_j = 25^{\circ}C$ )	$I_{TSM}$	126 120	A
$I^2t$ Value for fusing	$I^2t$	78	$A^2s$
Critical Rate of rise of on-state current $I_G = 2xI_{GT}$ , $t_r \leq 100ns$ , $f = 120Hz$ , $T_j = 125^{\circ}C$	$di / dt$	50	A/us
Peak gate current	$I_{GM}$	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W

## ELECTRICAL CHARACTERISTICS (T<sub>j</sub> = 25 °C unless otherwise specified)

Symbol	Test Condition	Quadrant		IPT12Q06-xxB		Unit
				CE	BE	
I <sub>GT</sub>	V <sub>D</sub> = 12V R <sub>L</sub> = 30Ω	I – II – III IV	MAX	25 50	50 100	mA
V <sub>GT</sub>		ALL	MAX	1.3		V
V <sub>GD</sub>	V <sub>D</sub> =V <sub>DRM</sub> , R <sub>L</sub> =3.3KΩ, T <sub>j</sub> = 125 °C	ALL	MIN	0.2		V
I <sub>L</sub>	I <sub>G</sub> = 1.2 I <sub>GT</sub>	I – III – IV	MAX	40	50	mA
		II		80	100	
I <sub>H</sub>	I <sub>T</sub> = 100mA		MAX	25	50	mA
dV/dt	V <sub>D</sub> = 67% V <sub>DRM</sub> gate open T <sub>j</sub> = 125 °C		MIN	200	400	V/us

## STATIC CHARACTERISTICS

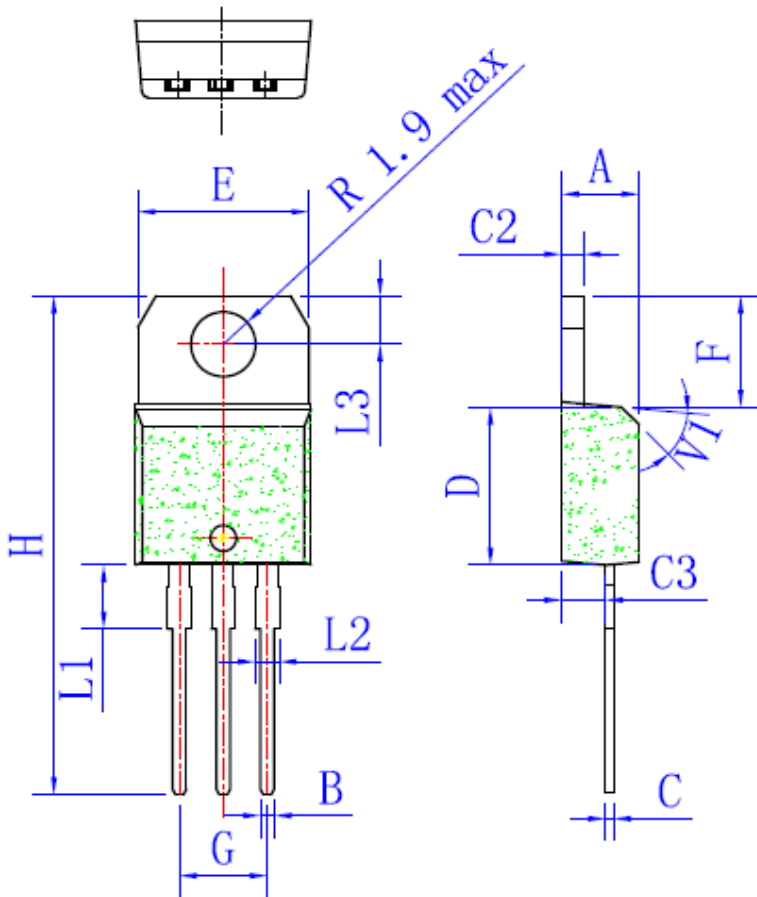
Symbol	Test Conditions		Value(MAX)	Unit
V <sub>TM</sub>	I <sub>TM</sub> = 17A, t <sub>p</sub> = 380uS	T <sub>j</sub> = 25 °C	1.55	V
I <sub>DRM</sub>	V <sub>D</sub> = V <sub>DRM</sub>	T <sub>j</sub> = 25 °C	5	uA
I <sub>RRM</sub>	V <sub>R</sub> = V <sub>RRM</sub>	T <sub>j</sub> = 125 °C	1	mA

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R <sub>th(j-c)</sub>	Junction to case (AC)	1.4	°C/W

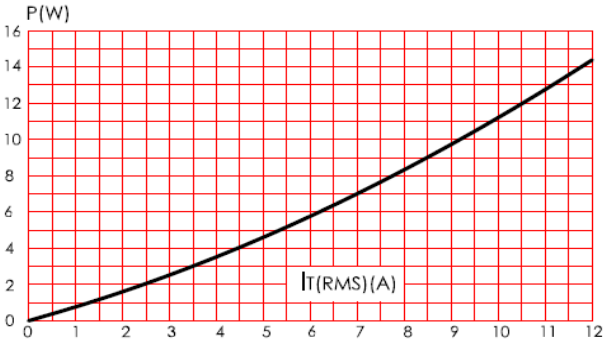
## PACKAGE MECHANICAL DATA

### TO-220B

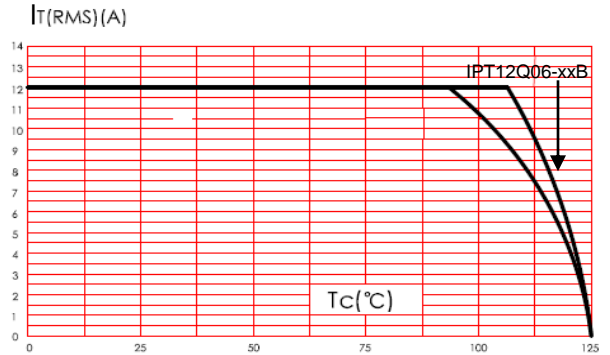


	Millimeters		
	Min	Typ	Max
A	4.4		4.6
B	0.61		0.88
C	0.46		0.70
C2	1.23		1.32
C3	2.4		2.72
D	8.6		9.7
E	9.8		10.4
F	6.2		6.6
G	4.8		5.4
H	28		29.8
L1		3.75	
L2	1.14		1.7
L3	2.65		2.95
V		40°	

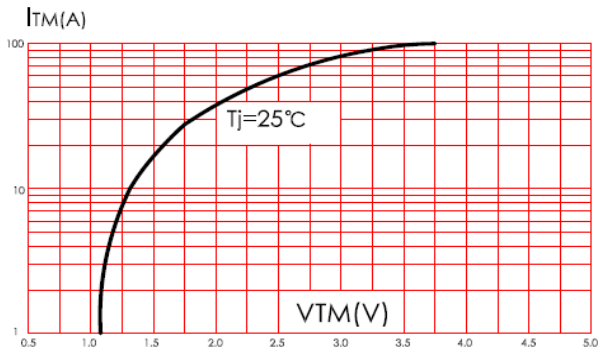
**Fig. 1:** Maximum power dissipation versus RMS on-state current(full cycle)



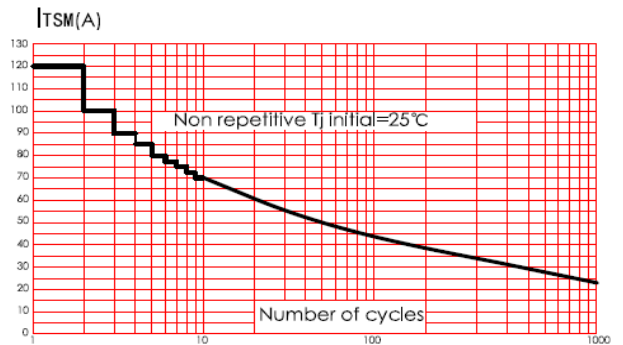
**Fig. 2:** RMS on-state current versus case temperature(full cycle)



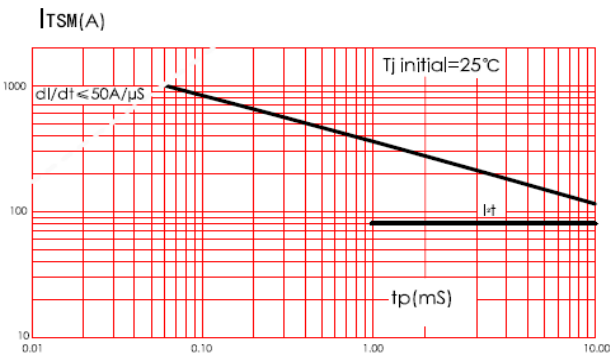
**Fig. 3:** on-state characteristics (maximum values)



**Fig. 4:** Surge peak on-state current versus number of cycles



**Fig. 5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$



**Fig. 6:** Relative variation of gate trigger current, holding current and latching current versus junction temperature(typical values)

