

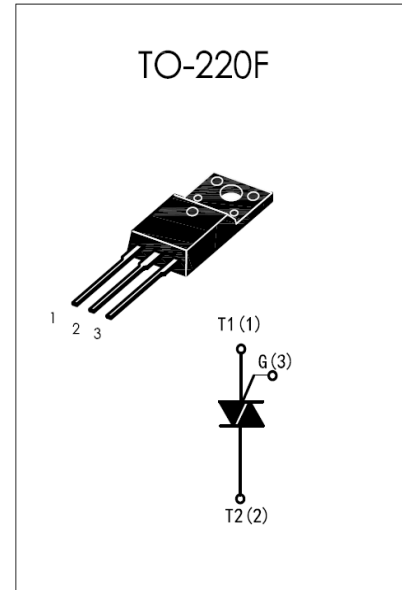


High current density due to double mesa technology; SIPOS and Glass Passivation. IPT12Q08-xx series are suitable for general purpose AC Switching. They can be used as an ON/OFF function In application such as static relays, heating regulation, Induction motor starting circuits... or for phase Control operation light dimmers, motor speed Controllers.

The IPT12Q08-xxF(Insulated version) series are isolated internally, they provided a 2500V RMS isolation voltage from all three terminals to external heatsink..

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	12	A
V_{DRM} / V_{RRM}	800	V
V_{TM}	≤ 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}	800 800	V
Non Repetitive Peak Off-state Voltage Non Repetitive Peak Reverse Voltage	V_{DSM} V_{RSM}	900 900	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 $t_p = 10ms$	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

IPT12Q08-xxF

ELECTRICAL CHARACTERISTICS(T_j = 25 °C unless otherwise specified)

Symbol	Test Condition	Quadrant		IPT12Q08-xx F		Unit
				CE	BE	
I _{GT}	V _D = 12V R _L = 30Ω	I – II – III IV	MAX	25 50	50 100	mA
V _{GT}		ALL	MAX	1.3		V
V _{GD}	V _D =V _{DRM} , R _L =3.3KΩ, T _j = 125 °C	ALL	MIN	0.2		V
I _L	I _G = 1.2 I _{GT}	I – III – IV	MAX	40	50	mA
		II		80	100	
I _H	I _T = 100mA		MAX	25	50	mA
dV/dt	V _D = 67% V _{DRM} gate open T _j = 125 °C		MIN	200	400	V/us
(dI/dt) _c	(dV/dt) c=0.1V/us T _j = 125 °C		MIN	-	-	A/ms
	(dV/dt) c=10V/us T _j = 125 °C			-	-	
	Without snubber T _j = 125 °C			-	-	

STATIC CHARACTERISTICS

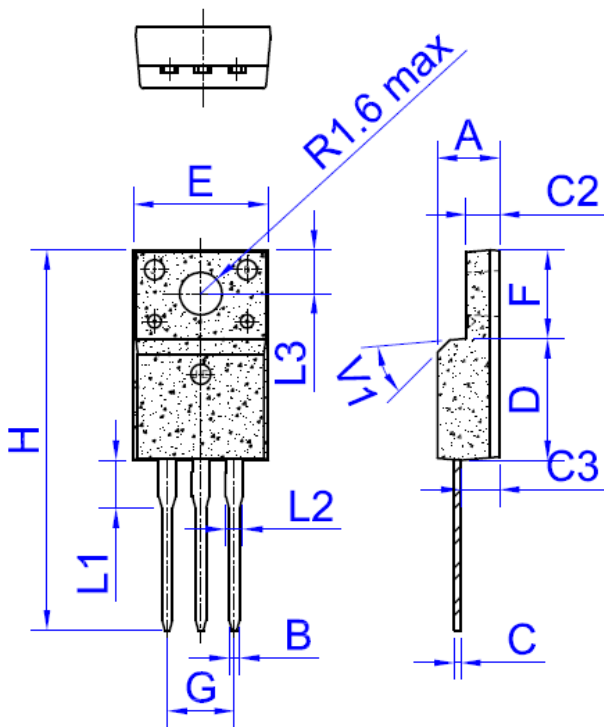
Symbol	Test Conditions		Value(MAX)	Unit
V _{TM}	I _{TM} = 17A, t _p = 380uS	T _j = 125 °C	1.55	V
I _{DRM}	V _D = V _{DRM}	T _j = 125 °C	5	uA
I _{RRM}	V _R = V _{RRM}	T _j = 125 °C	1	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case(AC)	3.3	°C/W

PACKAGE MECHANICAL DATA

TO-220F



Ref	Dimensions					
	Millimeters			Inches		
	Min	Typ	Max	Min	Typ	Max
A	4.4		4.8	0.173		0.189
B	0.74	0.8	0.83	0.029	0.031	0.033
C	0.5		0.75	0.020		0.030
C2	2.4		2.7	0.094		0.106
C3	2.6		3	0.102		0.118
D	8.8		9.3	0.346		0.367
E	9.7		10.3	0.382		0.406
F	6.4		6.8	0.252		0.268
G	5		5.2	0.197		0.205
H	28.0		29.8	11.0		11.7
L1		3.63			0.143	
L2	1.14		1.7	0.044		0.067
L3		3.3			0.130	
V1		40°			40°	

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

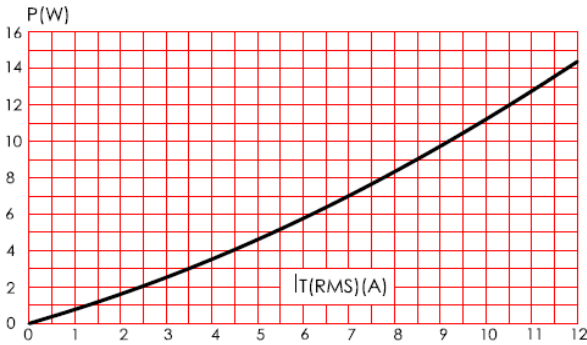


Fig. 2: RMS on-state current versus case temperature(full cycle)

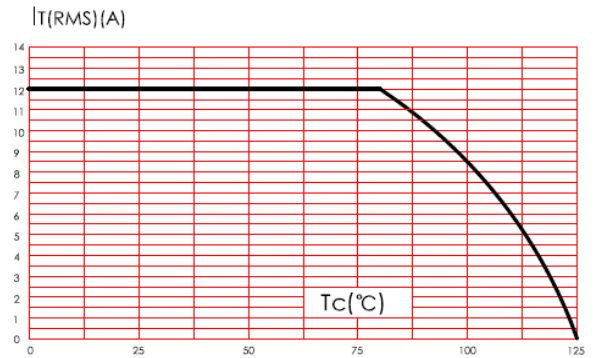


Fig. 3: on-state characteristics (maximum values)

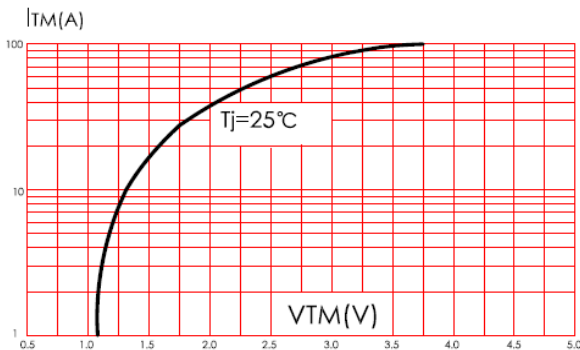


Fig. 4: Surge peak on-state current versus number of cycles

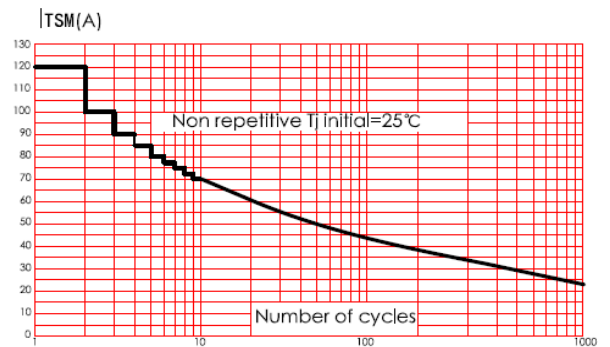


Fig. 5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10mS$

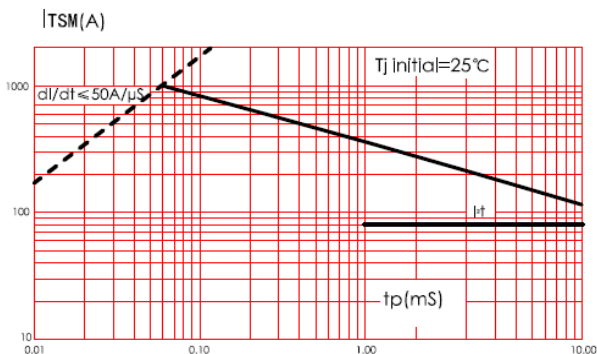


Fig. 6: Relative variation of gate trigger current, holding current and latching current versus junction temperature(typical values)

