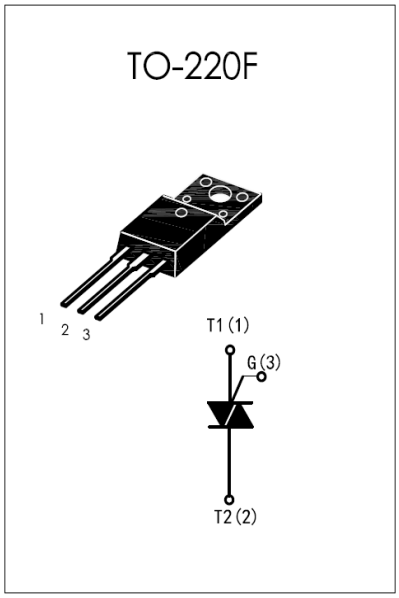
High current density due to double mesa technology; SIPOS and Glass Passivation. IPT12Q08-xx series are suitable for general purpose AC Switching. They can be used as an ON/OFF function In application such as static relays, heating regulation, Induction motor stating circuits… or for phase Control operation 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 Operating Junction Temperature Range	Tstg Tj	-40 to +150 -40 to +125	℃
Repetitive Peak Off-state Voltage Tj = 25℃ Repetitive Peak Reverse Voltage	V_{DRM} V_{RRM}	800 800	V
Non Repetitive Peak Off-state Voltage Tj = 25℃ Non Repetitive Peak Reverse Voltage	V_{DSM} V_{RSM}	900 900	V
RMS on–state current Tc = 79 ℃ (Full sine wave)	$I_{T(RMS)}$	12	A
Non repetitive surge peak on–state Current f = 60Hz t = 16.7ms (full cycle, Tj = 25℃) f = 50 Hz t = 20ms	I_{TSM}	126 120	A
I^2t Value for fusing tp = 10ms	I^2t	78	A^2s
Critical Rate of rise of on-state current I_G = 2xI_{GT}, tr ≤ 100ns, f = 120Hz, Tj = 125 ℃	dI / dt	50	A/us
Peak gate current tp = 20us, Tj = 125 ℃	I_{GM}	4	A
Average gate power dissipation Tj = 125 ℃	$P_{G(AV)}$	1	W

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ELECTRICAL CHARACTERISTICS(Tj = 25 ℃ 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, Tj = 125 ℃	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 Tj = 125 ℃		MIN	200	400	V/us
(dI/dt)c	(dV/dt) c=0.1V/us Tj = 125 ℃		MIN	-	-	A/ms
	(dV/dt) c=10V/us Tj = 125 ℃			-	-	
	Without snubber Tj = 125 ℃			-	-	

STATIC CHARACTERISTICS

Symbol	Test Conditions		Value(MAX)	Unit
V_{TM}	I_{TM} = 17A, t p = 380uS	Tj = 125 ℃	1.55	V
I_{DRM}	V_D = V_{DRM}	Tj = 125 ℃	5	uA
I_{RRM}	V_R = V_{RRM}	Tj = 125 ℃	1	mA

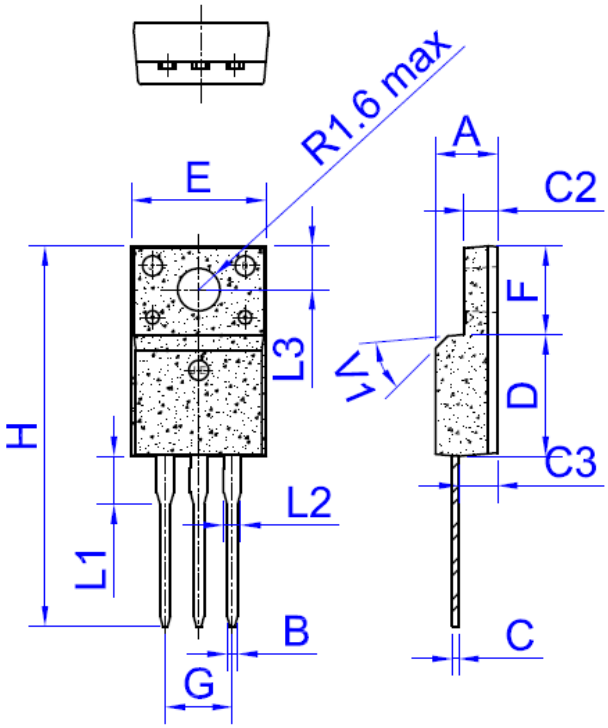
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R_{th} (j – c)	Junction to case(AC)	3.3	℃/W

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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		40º			40º	

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

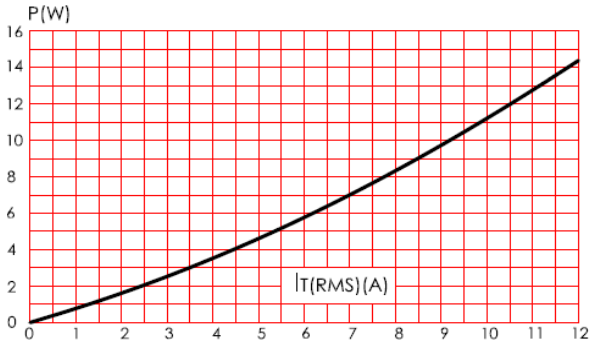


Fig. 2: RMS on-state current versus case temperrature(full cycle)

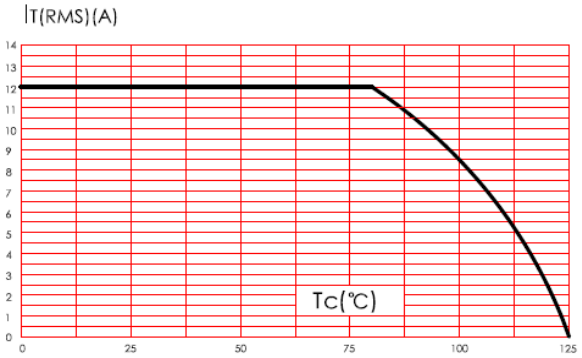


Fig. 3: on-state characteristics (maximum values)

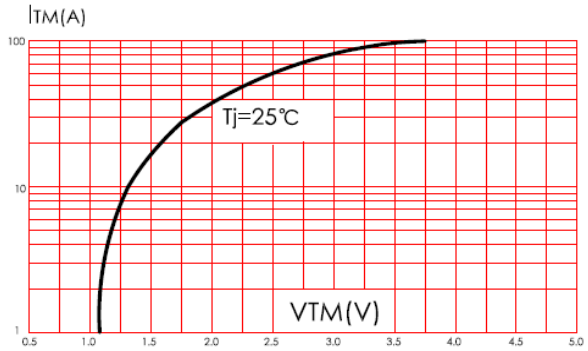


Fig. 4: Surge peak on-state current versus number of cycyles

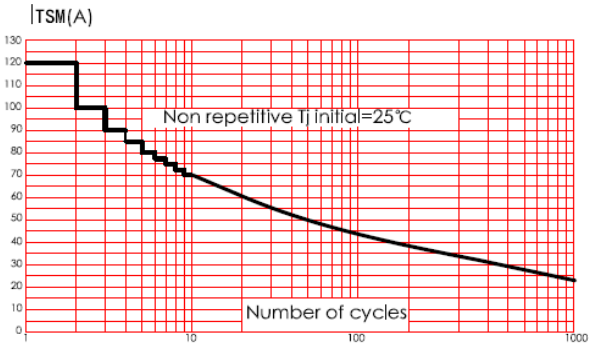


Fig. 5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10mS

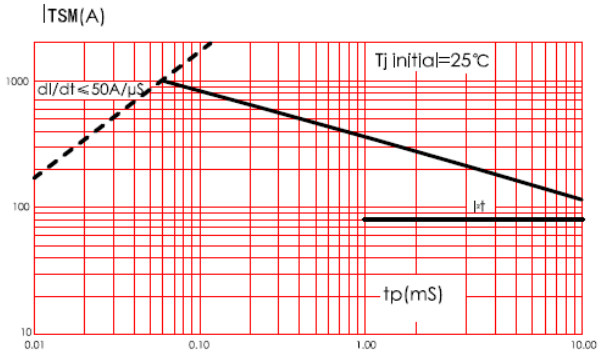


Fig. 6: Relative variation of gate trigger currunt, holding current and latching current versus junction temperature(typical values)

