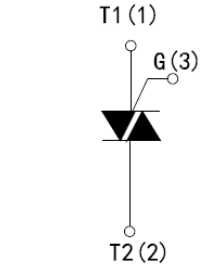
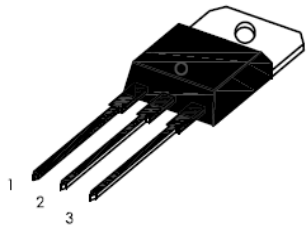
IPT20Q08-xxA

High current density due to double mesa technology; SIPOS and Glass Passivation. IPT20Q08-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 IPT20Q08-xxA(Insulated version) series are isolated internally, they provided a 2500V RMS isolation voltage from all three termials to external heatsink.





TO-220A

MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	20	A
V_{DRM} / V_{RRM}	800	V
V_{TM}	≤ 1.65	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 = 90℃ (360° conduction angle)	$I_{T(RMS)}$	20	A
Non repetitive surge peak on–state Current t = 8.3ms (full cycle, Tj = 25℃) t = 10ms	I_{TSM}	210 200	A
I^2t Value for fusing tp = 10ms	I^2t	200	A^2s
Critical Rate of rise of on-state current Repetitive F = 50Hz Gate supply : I_G = 500mA dIG/dt = 1A/us Non repetitive	dI / dt	20 100	A/us
Peak gate current tp = 20us, Tj = 125 ℃	I_{GM}	8	A
Average gate power dissipation Tj = 125 ℃	$P_{G(AV)}$	1	W

4F, Cheong won B/D, 269 Hyoje-dong, Jongno-gu, Seoul, 110-480 Korea
TEL : +82-70 - 7574 - 2839, Fax : +82-2-6280-6382, sales@ipsemiconductor.com

ELECTRICAL CHARACTERISTICS (Tj = 25 ℃ unless otherwise specified)

Symbol	Test Condition	Quadrant		IPT20Q08-xxA			Unit
				TE	SE	CE	
I_{GT}	V_D = 12V R_L = 30Ω	I – II – III IV	MAX		10	25 50	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		30	40	mA
		II			40	80	
I_H	I_T = 100mA		MAX		25	35	mA
dV/dt	V_D = 67% V_{DRM} gate open Tj = 125 ℃		MIN		40	200	V/us
(dI/dt)c	(dV/dt) c = 0.1V/us Tj = 125 ℃		MIN		8.5		
	(dV/dt) c = 10V/us Tj = 125 ℃				3.0		
	Without snubber Tj = 125 ℃						

STATIC CHARACTERISTICS

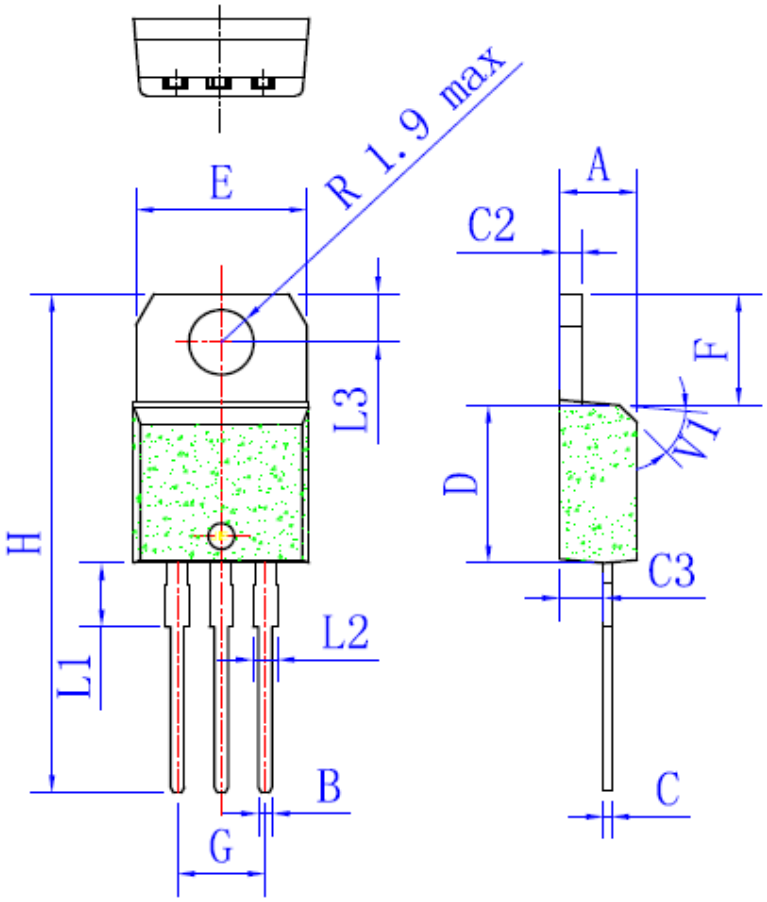
Symbol	Test Conditions		Value (MAX)	Unit
V_{TM}	I_{TM} = 28A, tp = 380uS	Tj = 25 ℃	1.65	V
I_{DRM}	V_D = V_{DRM}	Tj = 25 ℃	20	uA
I_{RRM}	V_R = V_{RRM}	Tj = 125 ℃	3	mA

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R_{th} (j – c)	Junction to case (AC)	2.1	℃/W

PACKAGE MECHANICAL DATA

TO-220A



	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)

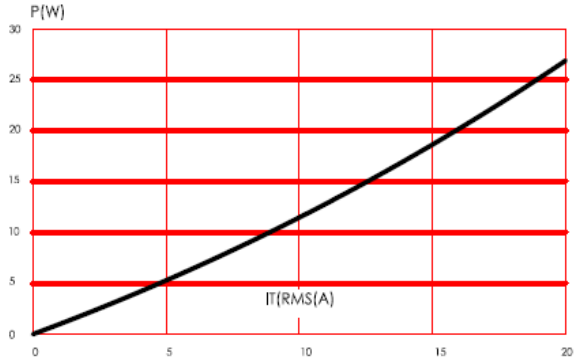


FIG.2: RMS on-state current versus case temperature(full cycle)

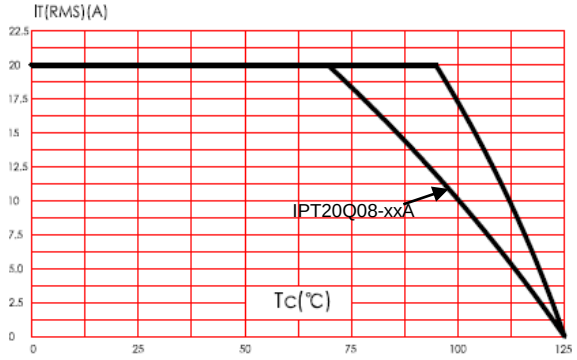


FIG.3: On-state characteristics (maximum values)

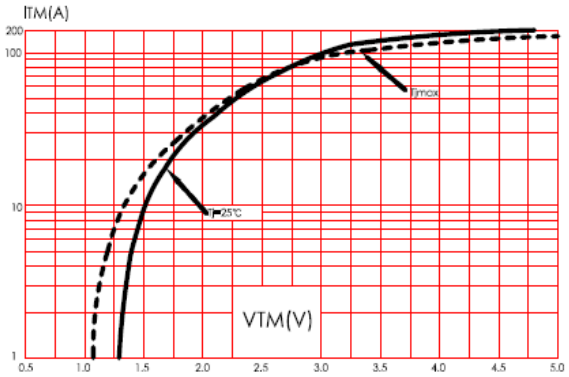


FIG.4: Surge peak on-state current versus number of cycles.

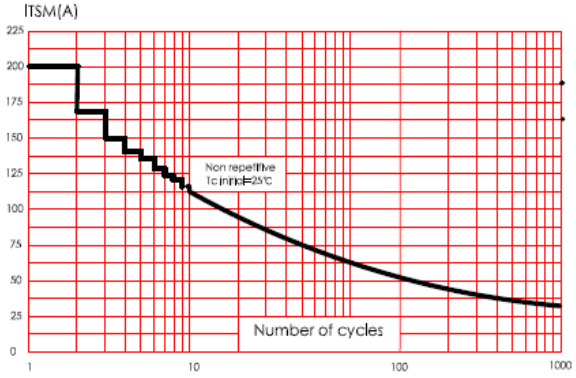


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<10ms, and corresponding value of I²t

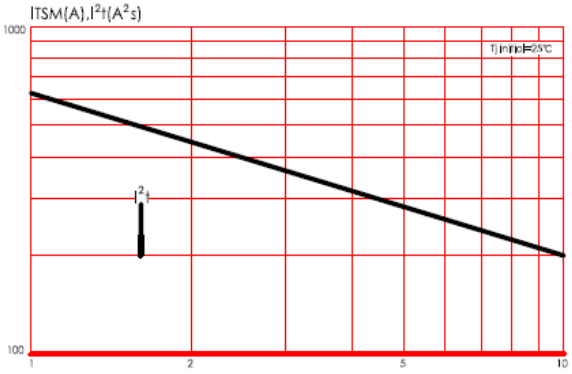


FIG.6: Relative variation of gate trigger current,holding current and latching current versus junction temperature(typical values).

