



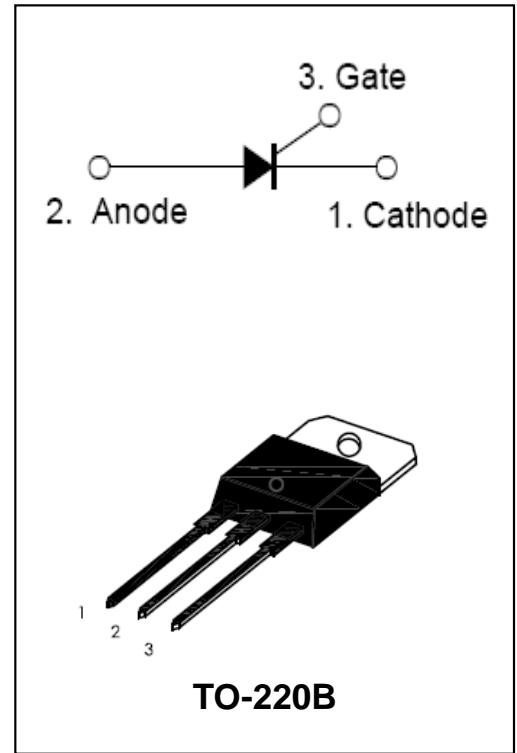
IPS612 series of silicon controlled rectifiers are specifically designed for medium power switching and phase control applications.

High current density due to double mesa technology SIPOS and Glass passivation technology used has reliable operation up to 125°C junction temperature. Low Igt parts available.

IPS612 series are suitable for general purpose applications, a high gate sensitivity is required.

MAIN FEATURES

Symbol	Value	Unit
IT(RMS)	12	A
IT(AV)	8	A
VDRM / VRRM	600	V
VTM	≤ 1.6	V



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit	
RMS on-state current (Tc = 105°C, 180° conduction half sine wave)	IT(RMS)	12	A	
Average on-state current (Tc = 105°C, 180° conduction half sine wave)	IT(AV)	8	A	
Storage Junction Temperature Range	Tstg	-40 to +150	°C	
Operating Junction Temperature Range	Tj	-40 to +110	°C	
Repetitive Peak Off-state Voltage Repetitive Peak Reverse Voltage	Tj = 25°C Tj = 25°C	VDRM VRRM	600 600	V
Non Repetitive Peak Off-state Voltage Non Repetitive Peak Reverse Voltage	Tj = 25°C Tj = 25°C	VDSM VRSM	700 700	V
One cycle Non Repetitive surge current (Half Cycle, 50Hz)	ITSM	140	A	
I²t Value for fusing (tp = 10ms, Half Cycle)	I²t	98	A²s	
Critical rate of rise of turned – on current (Ig = 2 X IGT, Tj = 125°C)	dI/dt	50	A/us	
Peak gate current	tp = 20us, Tj = 125°C	IGM	4	A
Average gate power dissipation	Tj = 125°C	PG(AV)	1	W

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

Symbol	Test Condition		IPS612-xxB		Unit
			05	15	
I _{GT}	Required DC gate current to trigger	MAX	5	15	mA
V _{GT}	Required DC voltage to trigger (anode supply = 6V, resistive load)	MAX	1.3		V
V _{GD}	DC gate voltage not to trigger (T _j = 110 °C, V _{DRM} = rated value)	MAX	0.2		V
I _L	I _G = 1.2 I _{GT}	MAX	30	60	mA
I _H	Holding current	MAX	15	30	mA
dV/dt	V _D = 67% V _{DRM} gate open T _j = 125 °C	MIN	40	200	V/us

STATIC CHARACTERISTICS

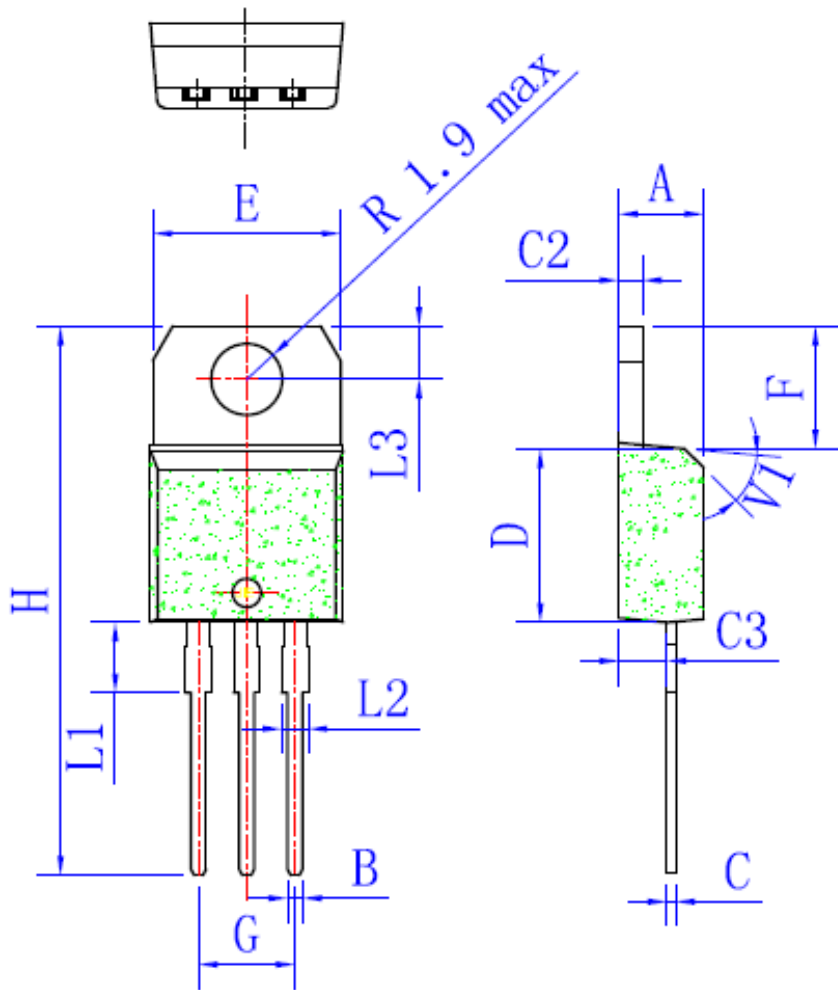
Symbol	Test Conditions		Value (MAX)	Unit
V _{TM}	I _{TM} = 24A, t _p = 380uS	T _j = 25 °C	1.6	V
I _{DRM} / I _{RRM}	V _D = V _{DRM}	T _j = 25 °C	5	uA
	V _R = V _{RRM}	T _j = 125 °C	2	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th} (j - c)	Junction to case	TO-220B	2.8	°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 average power dissipation versus average on-state current

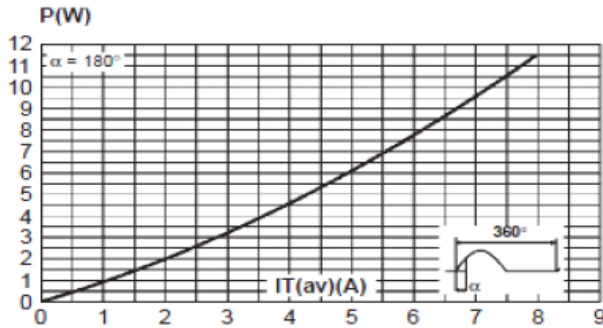


FIG. 2 : Average and D.C. on-state current versus case temperature.

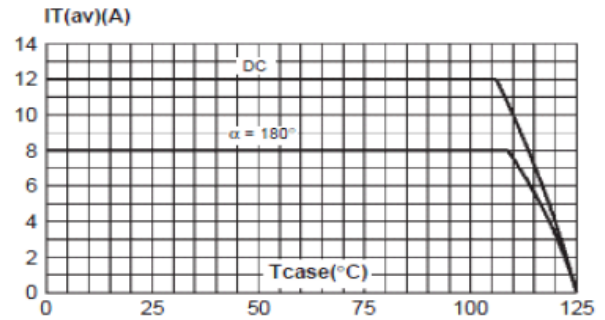


FIG. 3 : Relative variation of thermal impedance junction to case versus pulse duration

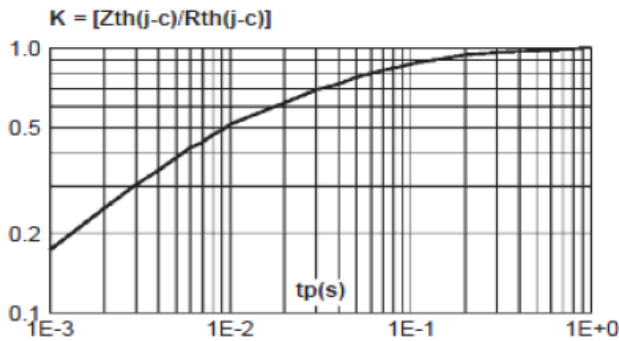


FIG. 4 : Relative variation of gate trigger current, holding current and latching current versus junction temperature

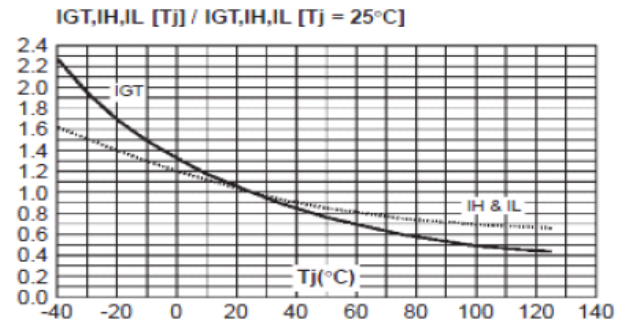


FIG. 5 : On-state characteristics (maximum values).

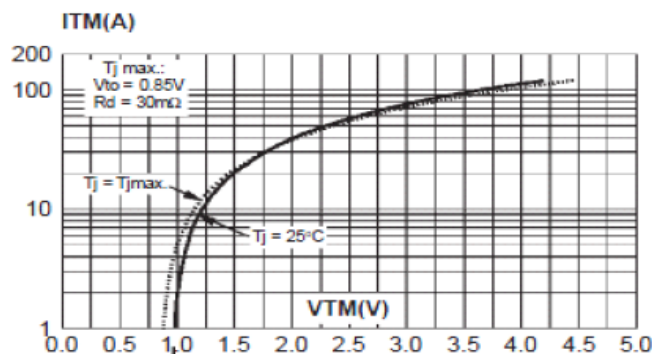


FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $tp < 10$ ms, and corresponding value of I^2t

