

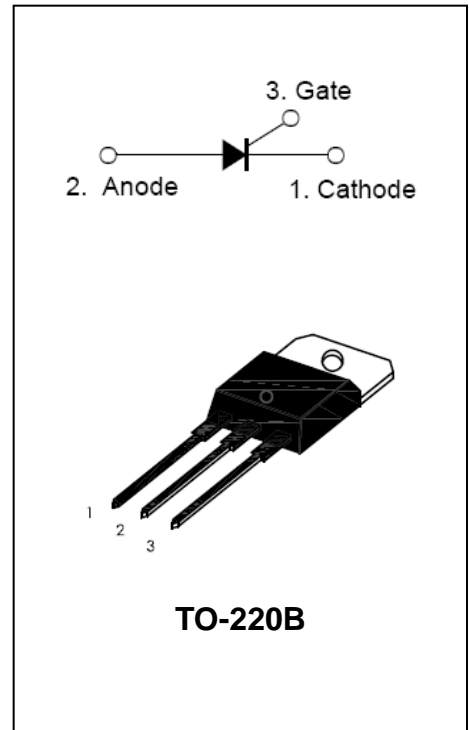


IPS616 series of silicon controlled rectifiers are specifically designed for medium power switching and phase control applications.

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

Low lgt parts available.

IPS616 series are suitable for general purpose applications, a high gate sensitivity is required.



MAIN FEATURES

Symbol	Value	Unit
IT(RMS)	16	A
IT(AV)	10	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)	16	A
Average on-state current (Tc = 105°C, 180° conduction half sine wave)	IT(AV)	10	A
Storage Junction Temperature Range	Tstg	-40 to +150	°C
Operating Junction Temperature Range	Tj	-40 to +110	°C
Repetitive Peak Off-state Voltage Tj = 25°C	VDRM	600	V
Repetitive Peak Reverse Voltage Tj = 25°C	VRRM	600	
Non Repetitive Peak Off-state Voltage Tj = 25°C	VDSM	700	V
Non Repetitive Peak Reverse Voltage Tj = 25°C	VRSM	700	
One cycle Non Repetitive surge current (Half Cycle, 50Hz)	ITSM	160	A
I²t Value for fusing (tp = 10ms, Half Cycle)	I²t	128	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		IPS616-xxB		Unit
				25	
I _{GT}	Required DC gate current to trigger at 25 °C at - 40 °C at 125 °C	MAX	25 55 15		mA
V _{GT}	Required DC voltage to trigger at 25 °C (anode supply = 6V, resistive load) at - 40 °C at 125 °C	MAX	1.3 2.0 1.1		V
V _{GD}	DC gate voltage not to trigger (T _j = 125 °C, V _{DRM} = rated value)	MAX	0.2		V
I _L	I _G = 1.2 I _{GT}	MAX	60		mA
I _H	Holding current	MAX	40		mA
dV/dt	V _D = 67% V _{DRM} gate open T _j = 125 °C	MIN	500		V/us

STATIC CHARACTERISTICS

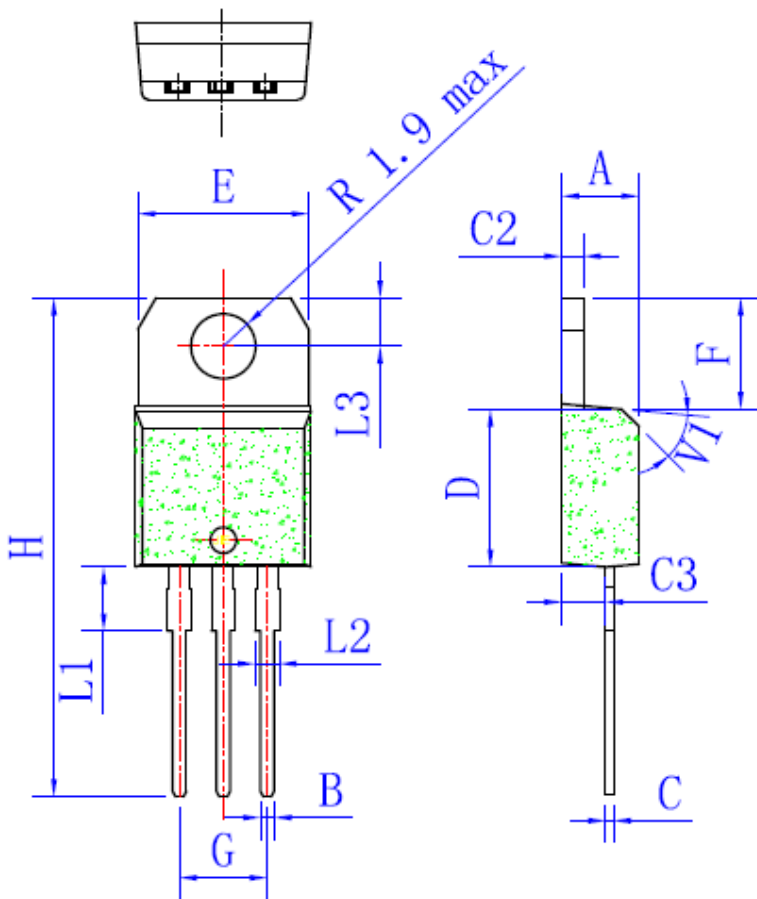
Symbol	Test Conditions		Value (MAX)	Unit
V _{TM}	I _{TM} = 24A, t _p = 380uS	T _j = 25 °C	1.6	V
I _{DRM} / I _{RRM}	V _D = V _{DRM}	T _j = 25 °C	5	uA
	V _R = V _{RRM}	T _j = 125 °C	2	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th} (j - c)	Junction to case	TO-220B	1.1	°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 RMS on-state current

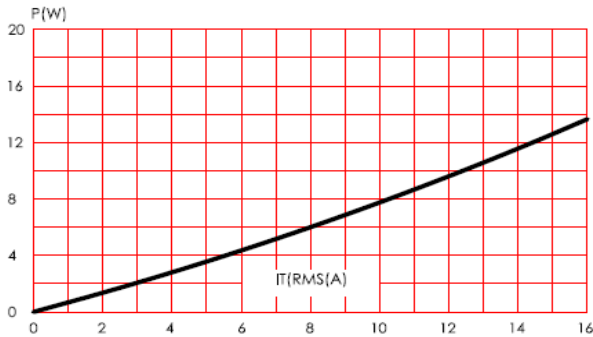


FIG.2: RMS on-state current versus case temperature.

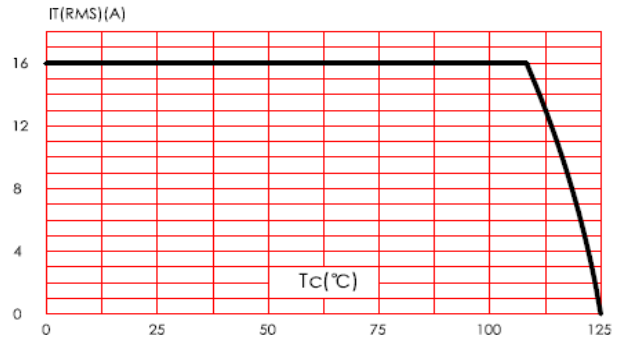


FIG.3: Relative variation of gate trigger current, holding current and latching current versus junction temperature.

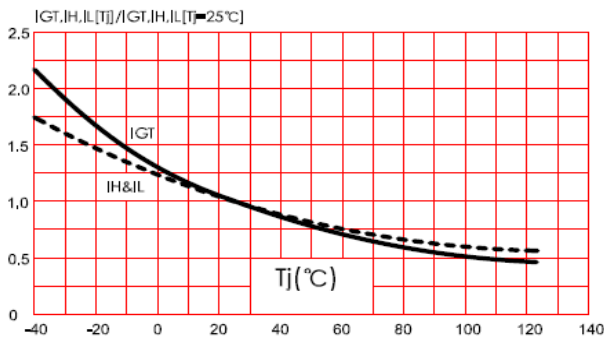


FIG.4: Surge peak on-state current versus number of cycles.

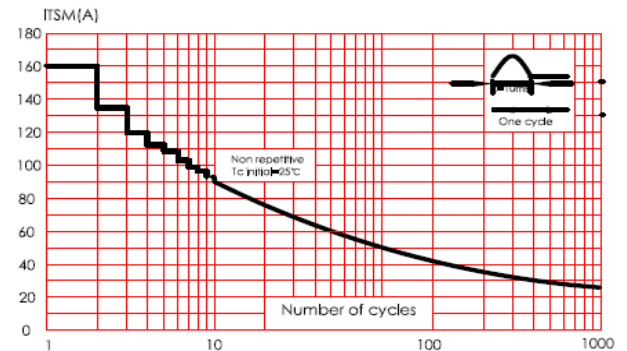


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms, and corresponding value of I²t

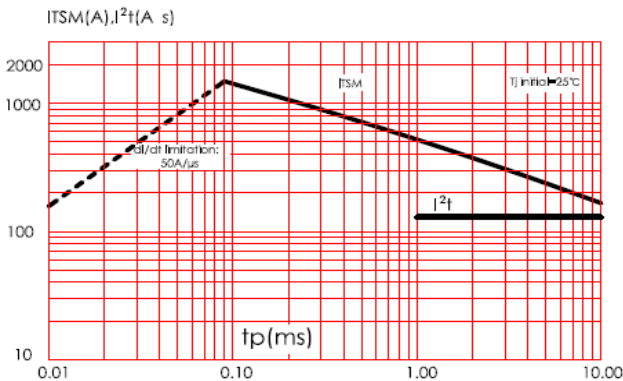


FIG.6: On-state characteristics (maximum values).

