Ruttonsha International Rectifier Ltd.

SILICON CONTROLLED RECTIFIER

High Power Thyristor
Hockey Puk Version
S-Puk Series 6100PS/PSS

Type:- 6100PS/PSS

Features

* *Center amplifying gate*
* *Metal case with ceramic insulator*
* *High Profile hokey-puk*

Typical Applications

* *DC Motor Control (e.g. for machine tools.)*
* *Controlled rectifiers (e.g. for battery Charging, Uninterrupted Power Supply).*
* *AC Controllers. (e.g. for temperature control, lights control).*

MAJOR RATING & CHARACTERISTICS

Parameters		6100PS/PSS	Units
$I_{F(AV)}$		6100	A
	@ Ths	70	°C
$I_{T(RMS)}$		9600	A
	@ Ths	70	°C
I_{TSM}		$94x10^3$	A
I^2t		41.28x10	A^2s
I_{DRM}/V_{RRM}		1200 to 2000	V
t_J		-40 to 125	°C

SILICON CONTROLLED RECTIFIER

Type : 6100PS/PSS SERIES

ELECTRICAL SPECIFICATION

VOLTAGE RATINGS

Type Number	Voltage Code	V_{RRM}/V_{DRM} max. repetitive peak voltage V	V_{RSM} max.Non-repetitive peak voltage	I_{DRM} max. @ $T_J = T_J$ Max. mA
6100PS/PSS	120	1200	1300	350
	140	1400	1500	
	160	1600	1700	
	180	1800	1900	
	200	2000	2100	

ON-STATE CONDUCTION

Parameter		6100PS/PSS	Unit	Conditions	
$I_{T(AV)}$	Max, average on-state current	6100	A	70° conduction, half sine wave Double side cooled	
	@ Heat sink temperature	70	°C		
$I_{T(RMS)}$	Max, average on-state current	9600	A	@ 55°C heat sink temperature double side cooled	
I_{TSM}	Max, peak, one-cycle non-repetitive surge current	$94x10^3$	A	t - 10ms	Sinusoidal half wave, Initial Tj = Tj max,
I^2t	Max, I^2t for fusing	$41.28x10^6$	A^2s	t - 10ms	
V_{TO}	Threshold Voltage	0.9	V	Tj = Tj max,	
r_t	On-state slope resistance	0.05	mΩ	Tj = Tj max,	
V_{TM}	Max, on state voltage	1.08	V	Ipk=3000A, Tj=Tj max, tp = 10ms sine pulse	
I_H	Max, holding current (Typ.)	200	mA	Tj = 25°C anode supply 12V resistive load	
I_L	Typical latching current (Max.)	500	mA	Tj = 25°C anode supply 12V resistive load	

SWITCHING

Parameter		6100PS/PSS	Unit	Conditions
di/dt	Max, non-repetitive rate of rise of turned-on current	500	A/µs	Gate drive 20V, 20Ω, tr ≤ 1µs, Tj=Tj max, anode voltage ≤ 80% V_{DRM}
t_q	Typical turn-off time (Min.)	500	µs	I_{TM}=3000A. Tj=Tj max. di/dt= 20A/µs, V_R=200V, dv/dt= 20V/µs, 0.5V_{DRM} replied, tp=500µs

BLOCKING

Parameter		6100PS/PSS	Unit	Conditions
dv/dt	Max, critical rate of rise of off-state voltage (Repetitive)	1000	V/µs	Tj=Tj max, linear to 80% rated V_{DRM}
I_{RRM} I_{DRM}	Max, peak reverse and off-state leakage current	350	mA	Tj=Tj max. rated V_{DRM}/V_{RRM} applied

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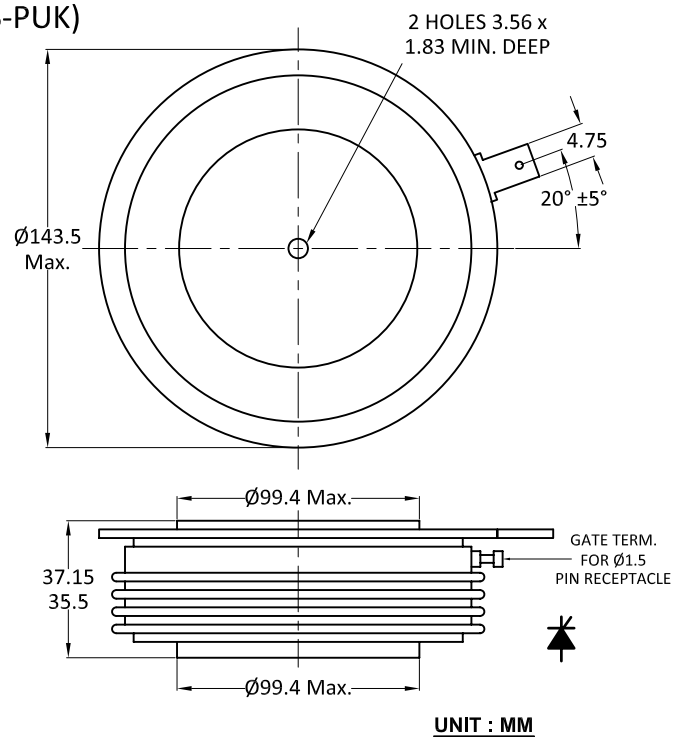
TRIGGERING

Parameter		6100PS/PSS	Unit	Conditions
P_{GM}	Max, peak gate power	50	W	Tj = Tj max. $t_p \leq$ 5ms.
$P_{G(AV)}$	Max, average gate power	4	W	Tj = Tj max. f=50Hz, d% =50
I_{GM}	Max, Peak positive gate current	20	A	Tj = Tj max. $t_p \leq$ 5ms
$+V_{GM}$	Max, peak positive gate voltage	20	V	Tj = Tj max. $t_p \leq$ 5ms
$-V_{GM}$	Max, peak negative gate voltage	5.0	V	Tj = Tj max. $t_p \leq$ 5ms
I_{GT}	DC gate current required to trigger	400	mA	Tj = 25°C Max. required gate trigger /current /voltage are the lowest value which will trigger all unit 12V anode-to cathode applied
V_{GT}	DC gate Voltage required to trigger	3.0	V	
I_{GD}	DC gate current not to trigger	10	mA	Tj = 125°C Max. gate current /voltage not to trigger is the max. value which will trigger any unit with rated V_{DRM} anode-to cathode applied
V_{GD}	DC gate Voltage not to trigger	0.3	V	

THERMAL AND MECHANICAL SPECIFICATION

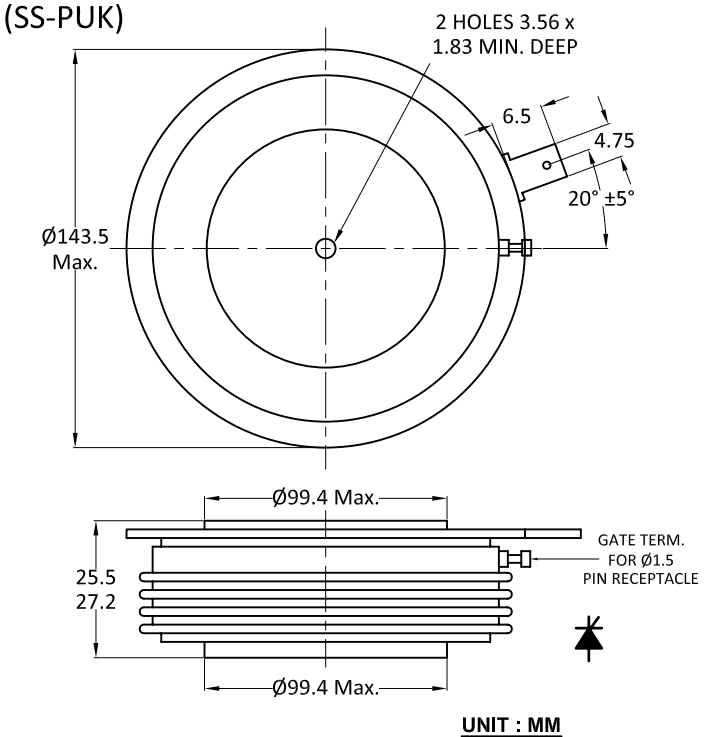
Parameter		6100PS/PSS	Unit	Conditions
T_J	Max, operating temperature	125	°C	
T_{stg}	Max, storage temperature	140	W°C	
$R_{thJ\text{-}hs}$	Max. thermal resistance, junction to heat sink	5	K/kW	DC operation double side cooled
F	Mounting fourse ± 10%	80 - 98	KN	
	Case Style	S/SS-PUK		See Outline table

(S-PUK)



UNIT : MM

(SS-PUK)



UNIT : MM