YZPST-5STP34N5200

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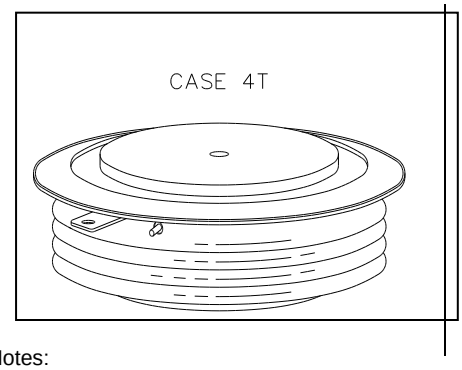
HIGH POWER THYRISTOR FOR PHASE CONTROL APPLICATIONS

Features:

- . All Diffused Structure
- . Center Amplifying Gate Configuration
- . Guaranteed Maximum Turn-Off Time
- . High dV/dt Capability
- . Pressure Assembled Device



ELECTRICAL CHARACTERISTICS AND RATINGS

Blocking - Off State

V_{RRM} (1)	V_{DRM} (1)	V_{RSM} (1)
5200	5200	5300

V_{RRM} = Repetitive peak reverse voltage
V_{DRM} = Repetitive peak off state voltage
V_{RSM} = Non repetitive peak reverse voltage (2)

Repetitive peak reverse leakage and off state	I_{RRM} / I_{DRM}	30 mA 95mA (3)
Critical rate of voltage rise	dV/dt (4)	2000 V/μsec

Notes:
All ratings are specified for Tj=25 °C unless otherwise stated.
(1) All voltage ratings are specified for an applied 50Hz/60zHz sinusoidal waveform over the temperature range -40 to +125 °C.
(2) 10 msec. max. pulse width
(3) Maximum value for Tj = 125 °C.
(4) Minimum value for linear and exponential waveshape to 80% rated V_{DRM}. Gate open. Tj = 125 °C.
(5) Non-repetitive value.
(6) The value of di/dt is established in accordance with EIA/NIMA Standard RS-397, Section 5-2-2-6. The value defined would be in addi- tion to that obtained from a snubber circuit,comprising a 0.2 μF capacitor and 20 ohms resistance in parallel with the thristor under test.

Conducting - on state

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Max. Average value of on-state current	$I_{T(AV)M}$		3600		A	Sinewave,180° conduction T_C = 70 °C
RMS value of on-state current	I_{TRMS}		5850		A	Nominal value
Peak one cpstcle surge (non repetitive) current	I_{TSM}		63		kA	10.0 msec (50Hz), sinusoidal wave-shape, 180° conduction, T_j = 125 °C
I square t	I^2t		19.8×10^3		kA^2s	
Latching current	I_L		500		mA	V_D = 24 V; R_L= 12 ohms
Holding current	I_H		125		mA	V_D = 24 V; I = 2.5 A
Peak on-state voltage	V_{TM}		1.54		V	I_{TM} =3000 A; T_{vj}=125℃
Threshold voltage	V_{TO}		1.03		V	T_{vj}=125℃
Slope resistance	R_t		0.16		mΩ	T_{vj}=125℃
Critical rate of rise of on-state current (5, 6)	di/dt		1000		A/μs	Switching from V_{DRM} ≤ 1500 V, non-repetitive
Critical rate of rise of on-state current (6)	di/dt		200		A/μs	Switching from V_{DRM} ≤ 1500 V

®
Tel: +86-514-87782298, 87782296 FAX:+86-514-87782297, 87367519
E-mail:positioning@china.com; info@yzpst.com; yzpst@pst888.com
Web Site:www. Pst888.com www. yzpstcc.com www. yzpst.net www. yzpst.com

ELECTRICAL CHARACTERISTICS AND RATINGS (cont'd)

Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		-		W	t_p = 40 us
Average gate power dissipation	$P_{G(AV)}$		7		W	
Peak gate current	I_{GM}		10		A	
Gate current required to trigger all units	I_{GT}		- 400 -		mA mA mA	V_D = 6 V;R_L = 3 ohms;T_j = -40 °C V_D = 6 V;R_L = 3 ohms;T_j = +25 °C V_D = 6 V;R_L = 3 ohms;T_j = +125°C
Gate voltage required to trigger all units	V_{GT}		- 2.6 -		V V V	V_D = 6 V;R_L = 3 ohms;T_j = -40 °C V_D = 6 V;R_L = 3 ohms;T_j = 0-125°C V_D = Rated V_{DRM}; R_L = 1000 ohms; T_j = + 125 °C
Peak negative voltage	V_{GRM}		10		V	

Dynamic

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_d		-		μs	I_{TM} = 50 A; V_D = Rated V_{DRM} Gate pulse: V_G = 20 V; R_G = 20 ohms; t_r = 0.1 μs; t_p = 20 μs
Turn-off time (with V_R = -50 V)	t_q		700		μs	I_{TM} = 2000 A; di/dt = 1.5 A/μs; V_R ≥200 V; Re-applied dV/dt = 20 V/μs linear to 67% V_{DRM}; V_G = 0; T_j = 125 °C; Duty cpstcle ≥ 0.01%
Reverse recovery charge	Q_{rr}		5200		μAs	I_{TM} = 2000 A; di/dt = 1.5 A/μs; V_R ≥200 V

* For guaranteed max. value, contact factory.

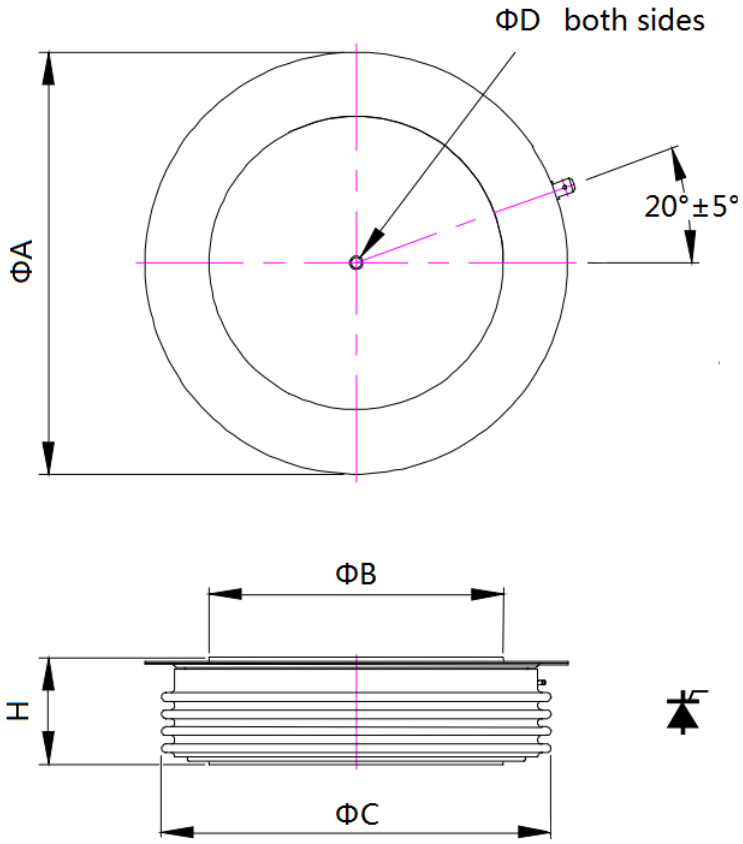
THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+125		°C	
Storage temperature	T_{stg}	-40	+140		°C	
Thermal resistance - junction to case	$R_{\Theta(j-c)}$		5.7 11.4		K/kW	Double sided cooled Single sided cooled
Thermal resistamce - case to sink	$R_{\Theta(c-s)}$		1 2		K/kW	Double sided cooled * Single sided cooled *
Thermal resistance - junction to heatsink	$R_{\Theta(j-s)}$		- -		K/kW	Double sided cooled * Single sided cooled *
Mounting force	P	81	108	-	kN	
Weight	W	-	-	2.9	Kg	

* Mounting surfaces smooth, flat and greased

Note : for case outline and dimensions, see case outline drawing in last page of this Technical Data

CASE OUTLINE AND DIMENSIONS.



Sym	A	B	C	D	H
mm	150	100	108	3.5×3	35±1