HIGH POWER THYRISTOR FOR PHASE CONTROL APPLICATIONS

C612PN

Features:

- **. All Diffused Structure**
- **. Interdigitated 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)
1800	1800	1900

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 leakage	I_{RRM} / I_{DRM}	15 mA 50 mA (3)
Critical rate of voltage rise	dV/dt (4)	500 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 addition to that obtained from a ubber circuit,comprising a 0.2 μF capacitor and 20 ohmsresistance in parallel with the thristor under test.

Conducting - on state

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Max. average value of on-state current	$I_{T(AV)M}$		900		A	Sinewave,180° conduction,T_c=55°C
RMS value of on-state current	$I_{T(RMS)M}$		1150		A	Nominal value
Peak one cycle surge (non repetitive) current	I_{TSM}		9 8.2		kA kA	8.3 msec (60Hz), sinusoidal wave-shape, 180° conduction, T_j = 125 °C 10.0 msec (50Hz), sinusoidal wave- shape, 180° conduction, T_j = 125 °C
I square t	I^2t		336x10^3		A^2s	8.3 msec
Latching current	I_L		1000		mA	V_D = 24 V; R_L= 12 ohms
Holding current	I_H		500		mA	V_D = 24 V; I = 2.5 A
Peak on-state voltage	V_{TM}		2.5		V	I_{TM} = 2300 A
Critical rate of rise of on-state current (5, 6)	di/dt		800		A/μs	Switching from V_{DRM} ≤ 1000 V, non-repetitive
Critical rate of rise of on-state current (6)	di/dt		400		A/μs	Switching from V_{DRM} ≤ 1000 V

Tel: +86-514-87782298, 87782296 FAX:+86-514-87782297, 87367519
E-mail :positioning@china.com; yzforever@vip.tom.com; yzpst@pst888.com
WEB SITE：http://www.pst888.com www.yzpst.cc

Gating

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Peak gate power dissipation	P_{GM}		200		W	
Average gate power dissipation	$P_{G(AV)}$		5		W	
Peak gate current	I_{GM}		10		A	
Gate current required to trigger all units	I_{GT}		200		mA	V_D = 10 V;I_T=3A;T_j = +25 ^oC
Gate voltage required to trigger all units	V_{GT}		3.0		V	V_D = 10 V;I_T=3A;T_j = +25 ^oC
Peak negative voltage	V_{RGM}		5		V	

Dynamic

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Delay time	t_{gd}		1.5	0.5-	μs	V_D=67% V_{DRM}, I_T=2000A, di/dt=60A/us, I_{FG}=2A, t_r=0.5us, T_j=25C
Turn-on time	t_{gt}		-	-		
Turn-off time (with V_R = -5 V)	t_q	-	-	55	μs	I_{TM}=1000A, t_p=1000us, di/dt=60A/us, V_r=50V, V_{dr}=33%V_{DRM}, dV_{dr}/dt=200V/us
Reverse recovery current	I_{rm}		-		A	I_{TM}=4000A, t_p=2000us, di/dt=60A/us

THERMAL AND MECHANICAL CHARACTERISTICS AND RATINGS

Parameter	Symbol	Min.	Max.	Typ.	Units	Conditions
Operating temperature	T_j	-40	+125		^oC	
Storage temperature	T_{stg}	-40	+150		^oC	
Thermal resistance - junction to case	$R_{\Theta (j-c)}$		40 80		^oC/kW	Double sided cooled Single sided cooled
Thermal resistamce - case to sink	$R_{\Theta (c-s)}$		15 30		^oC/kW	Double sided cooled * Single sided cooled *
Thermal resistance - junction to case	$R_{\Theta (j-s)}$		- -		^oC/kW	Double sided cooled Single sided cooled
Mounting force	F	13.3	15.5	-	kN	
Weight	W			225	g	about

* Mounting surfaces smooth, flat and greased

Note : for case outline and dimensions, see case outline drawing in page 3 of this Technical Data

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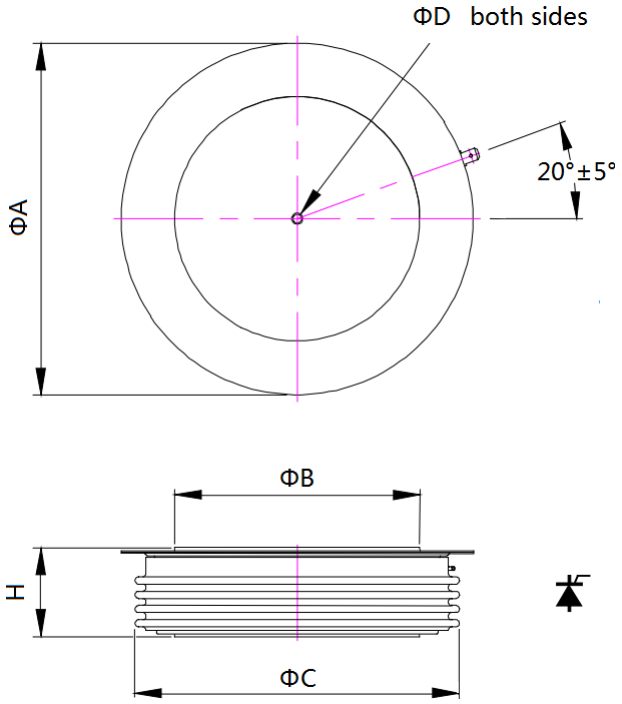

Sym	A	B	C	D	H
mm	59	34	53	3.5×3	26±1

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