

Phase Control Thyristors

Features

- 1200PT series Thyristors are designed for various power controls
- Voltage rating up to 1600V
- Typical application

- DC motor control
- Controlled DC power supplies
- AC controllers

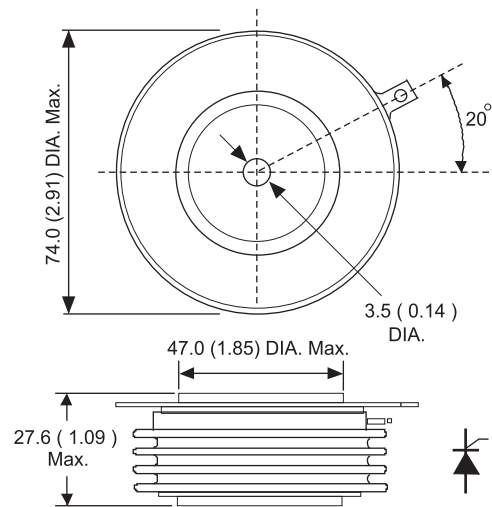
Ordering code

1200	PT	xx	D	0
(1)	(2)	(3)	(4)	(5)

- (1) Maximum average on-state current , A
- (2) For Phase Control Thyristor
- (3) Voltage code , code x 100 = V_{RRM} / V_{DRM}
- (4) package style : A , B , C , D , E for Disc Type
- (5) Terminal types
0 - for eyelet

Electrical Characteristics

D TYPE



All dimensions in millimeters (inches)

Symbol	Parameter	Condition	Value			Unit
			Min.	Type	Max.	
$I_T(AV)$	Mean on-state current	180° half sine wave , 50Hz Double side cooled , $T_C = 55^\circ C$			1200	A
$I_T(RMS)$	Max. RMS on-state current	Double side cooled, $T_{hs} = 55^\circ C$			1900	A
V_{RRM} V_{DRM}	Repetitive peak off-state voltage Repetitive peak reverse voltage	V_{DRM} & V_{RRM} $t_p = 10ms$ V_{DSM} & $V_{RSM} = V_{DRM} + V_{RRM} + 100V$	1000		1600	V
I_{TSM}	Surge on-state current	10 ms half sine wave			24400	A
I_t^2	For fusing coordination	$V_R = 0.6V_{RRM}$			2986	Ka ² s
$V_{T(TO)}$	Threshold voltage				1.06	V
r_t	On-state slope resistance				0.25	mΩ
V_{TM}	Max. Forward voltage drop	$I_{TM} = 3000A$, $F = 24.0KN$			2.2	V
I_H	Holding current	$V_A = 12V$, $I_A = 1A$	20		300	mA
d_i/dt	Critical rate of rise of turned-on current	Gate drive 20V , 20 Ω , $t_r \leq 0.5 \mu s$			500	A/μs
t_q	Typical turn-off time	$I_{TM} = 600A$, $d_v/dt = 30V/\mu s$ $d_iRR/dt = -10 A/\mu s$		300	400	μs
d_v/dt	Critical rate of rise of off-state voltage	$V_{DM} = 0.67 V_{DRM}$	200		1000	V/μs
I_{RRM} I_{DRM}	Repetitive peak reverse current	$V_R = V_{RRM}$ $V_D = V_{DRM}$			80	mA
P_G	Max. average gate power	Square wavepulse width 100 μs			2	W
P_{GM}	Max. peak gate power square				12.0	W
I_{GT}	Gate trigger current	$V_A = 12V$, $I_A = 1A$	40		300	mA
V_{GT}	Gate trigger voltage		0.8		3.0	V
V_{GD}	DC voltage not to trigger	At 67% V_{DRM} , $T_j = T_j \text{ max.}$	0.30			V
I_{FGM}	Max. peak positive gate current	$T_j = T_j \text{ max.}$ $t_p \leq 3s$			4	A
V_{FGM}	Max. peak positive gate voltage				25	V
V_{RGM}	Max. peak negative gate voltage				5	V
T_j	Max. operating temperature range		- 40		125	°C
T_{stg}	Storage temperature		- 40		140	°C
$R_{th(j-h)}$	Thermal resistance(junction to heatsink)	Double side cooled , clamping force 24.0 KN			0.024	°C/ W
F_m	Mounting force		19		26	KN
W_t	Approximate weight			425		g

Fig. 1
Peak on-state voltage Vs. Peak on-state Current

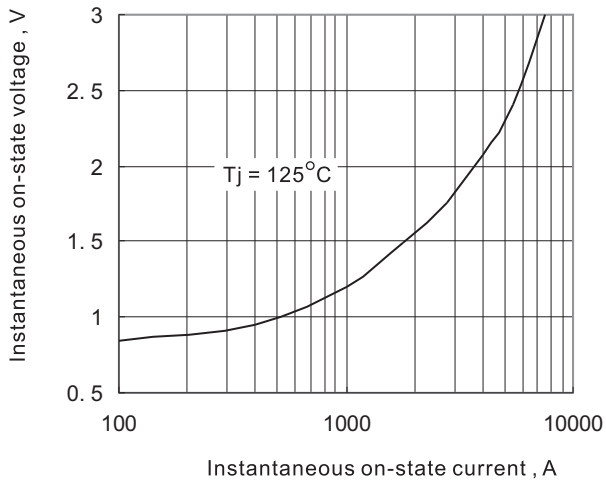


Fig. 2
Max. Junction to heatsink thermal impedance Vs. Time

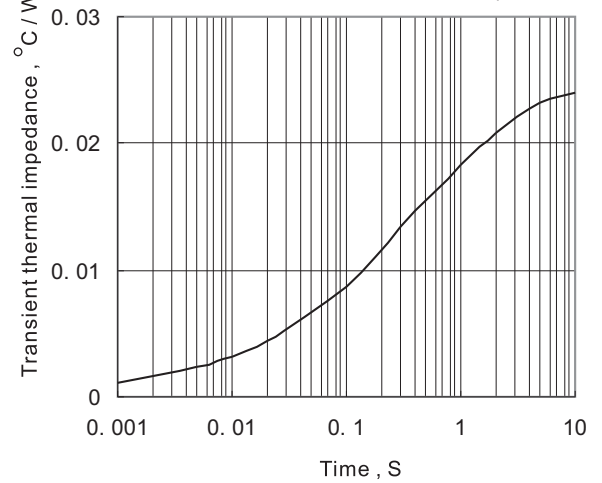


Fig. 3
Max. Power Dissipation Vs. Mean on-state Current

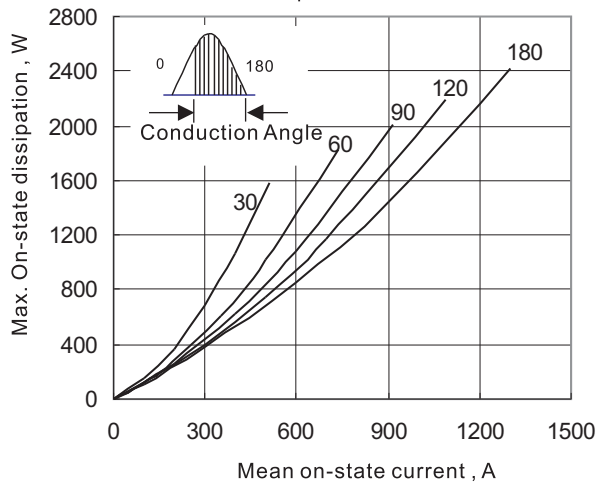


Fig. 4
Max. heatsink Temperature Vs. Mean on-state Current

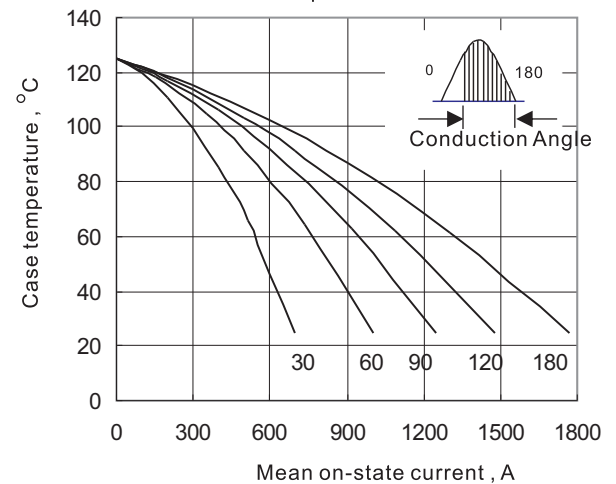


Fig. 5
Max. Power Dissipation Vs. Mean on-state Current

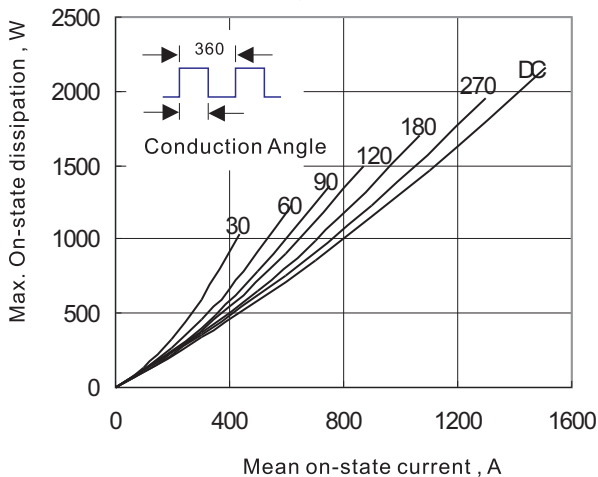


Fig. 6
Max. heatsink Temperature Vs. Mean on-state Current

