

## Phase Control Thyristors

### Features

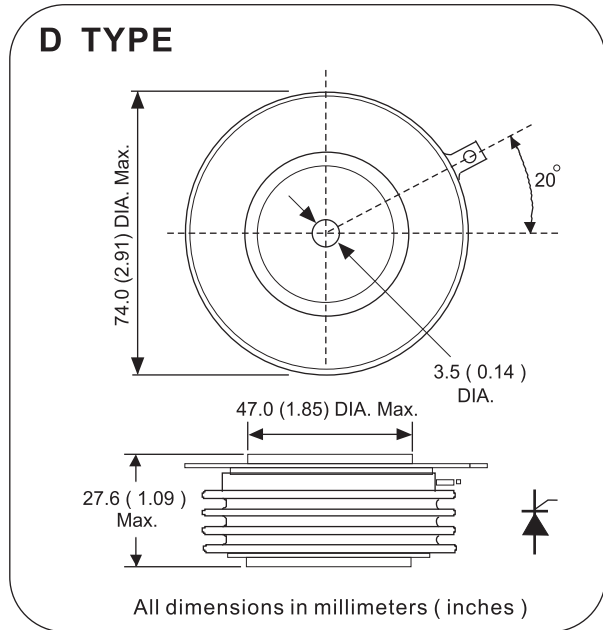
- 1200PT series Thyristors are designed for various power controls
- Voltage rating up to 1600V
- Typical application
  - DC motor control
  - Controlled DC power supplies
  - AC controllers

Ordering code

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

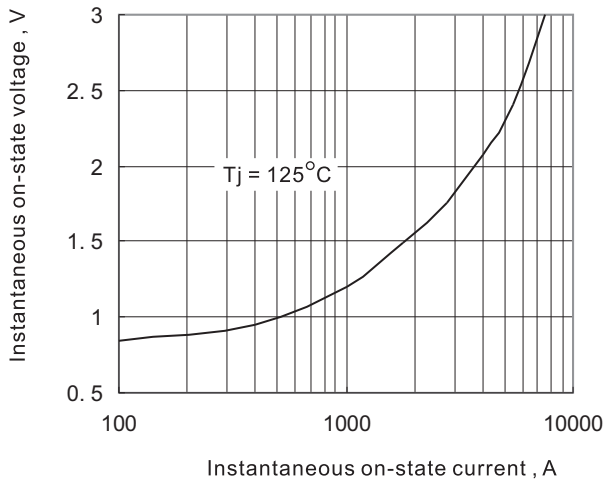
- (1) Maximum average on-state current, A
- (2) For Phase Control Thyristor
- (3) Voltage code, code x 100 =  $V_{RRM} / V_{DRM}$
- (4) package style: A, B, C, D, E for Disc Type
- (5) Terminal types  
0 - for eyelet

### Electrical Characteristics

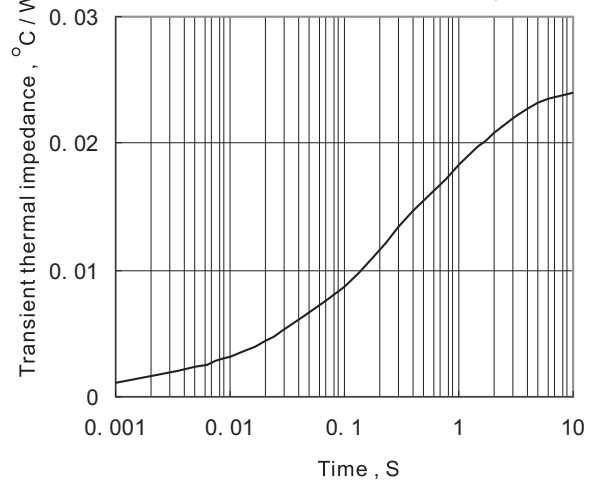


Symbol	Parameter	Condition	Value			Unit
			Min.	Type	Max.	
$I_T(AV)$	Mean on-state current	180° half sine wave, 50Hz Double side cooled, $T_C = 55^\circ C$			1200	A
$I_T(RMS)$	Max. RMS on-state current	Double side cooled, $T_{hs} = 55^\circ C$			1900	A
$V_{RRM}$ $V_{DRM}$	Repetitive peak off-state voltage 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	$Ka^2s$
$V_{T(TO)}$	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, 20Ω, $t_r \leq 0.5 \mu s$			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

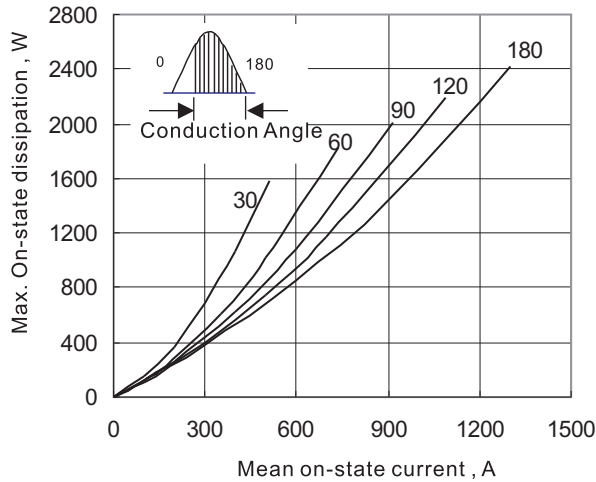
**Fig. 1**  
Peak on-state voltage Vs. Peak on-state Current



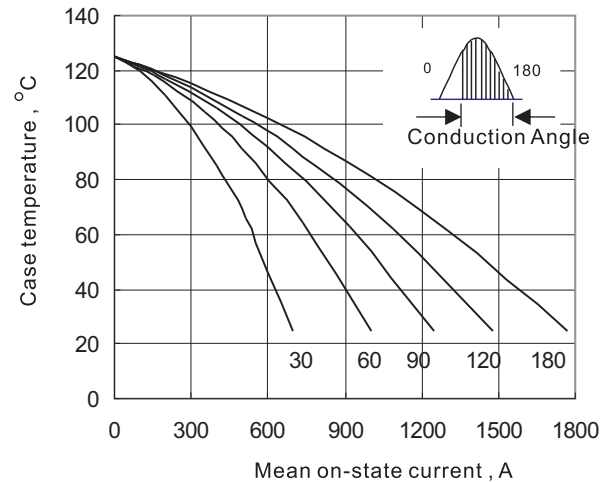
**Fig. 2**  
Max. Junction to heatsink thermal impedance Vs. Time



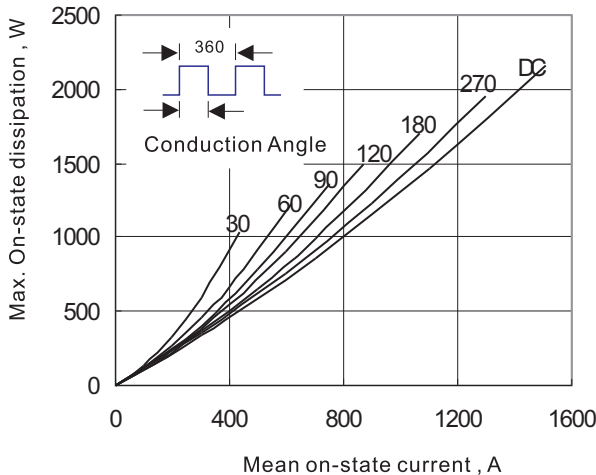
**Fig. 3**  
Max. Power Dissipation Vs. Mean on-state Current



**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

