Phase Control Thyristors

Features

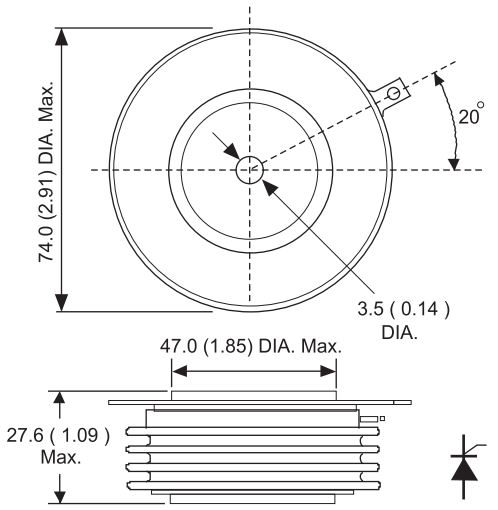
1. 2000PT series Thyristors are designed for various power controls
2. Voltage rating up to 1600V
3. Typical application
   - DC motor control
   - Controlled DC power supplies
   - AC controllers

Ordering code

2000	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
(5) Terminal types
0 - for eyelet

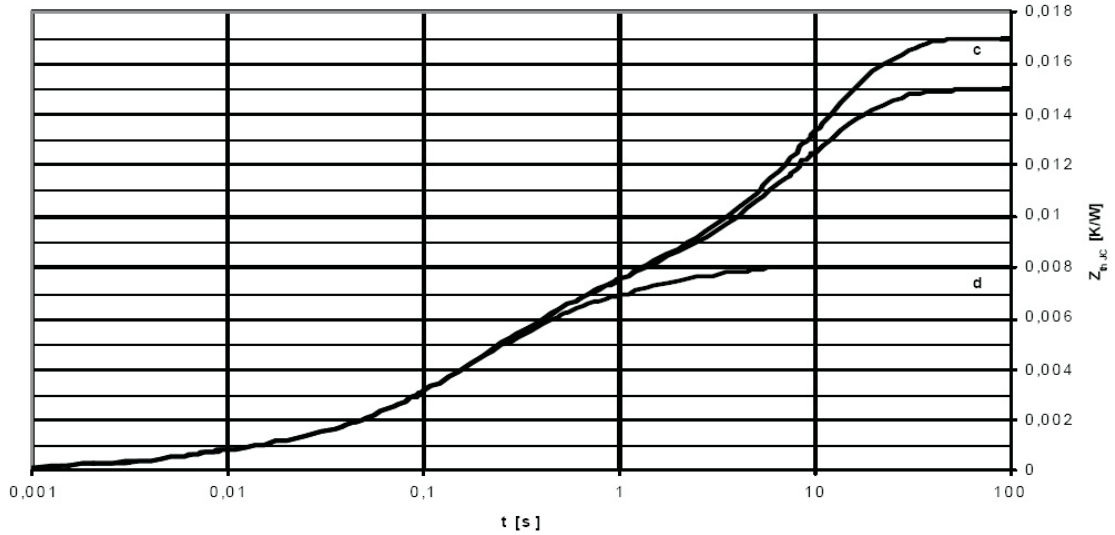
D TYPE

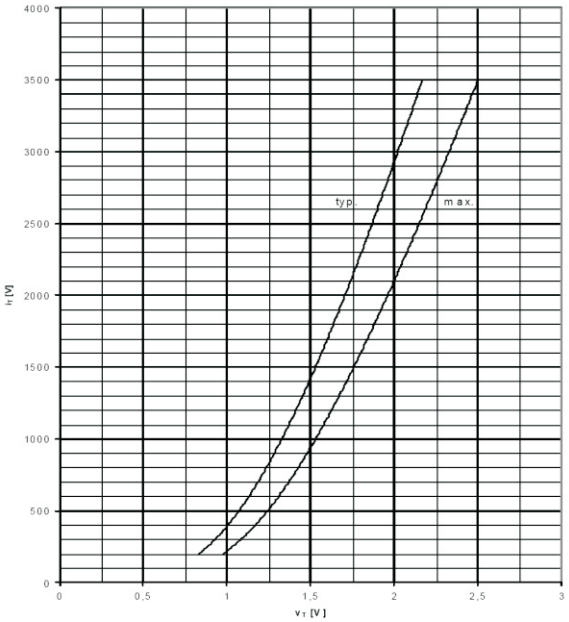


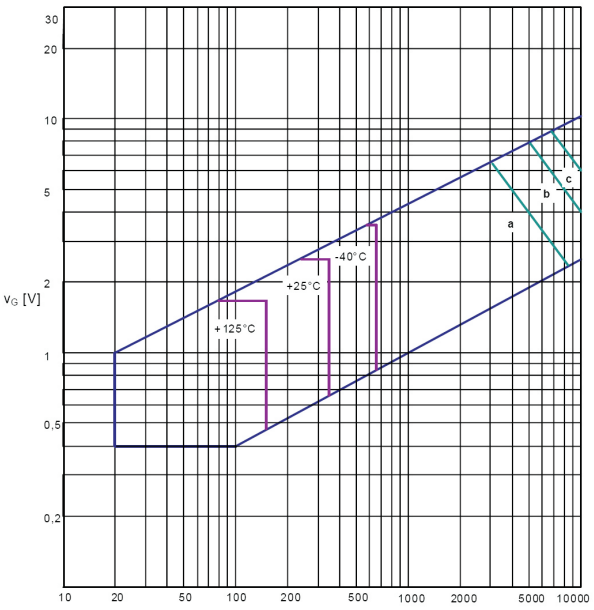
All dimensions in millimeters (inches)

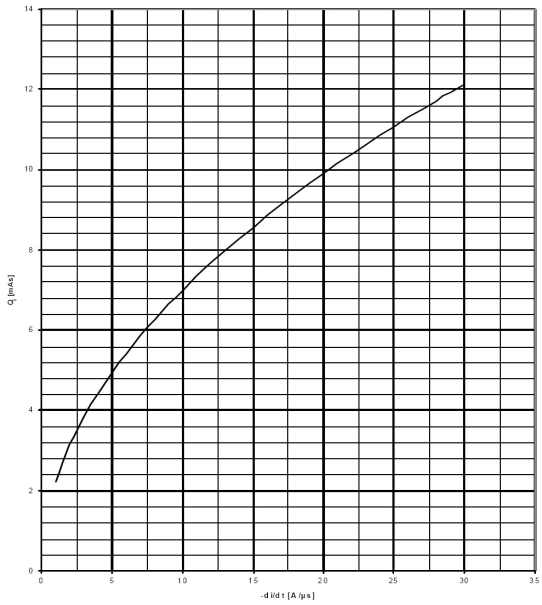
Electrical Characteristics

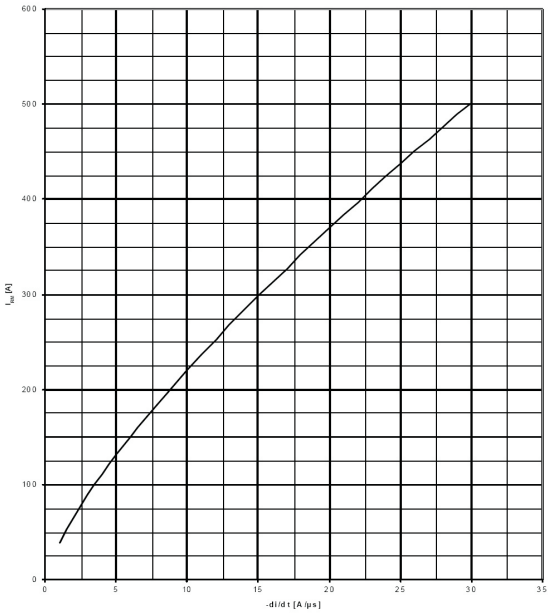
Symbol	Parameter	Condition	Value			Unit
			Min.	Type	Max.	
$I_{T(AV)}$	Mean on-state current	180° half sine wave , 50Hz Double side cooled , T_c = 85°C			2000	A
$I_{T(RMS)}$	Max. RMS on-state current	Double side cooled , T_{hs}=55°C			3175	A
V_{RRM} V_{DRM}	Repetitive peak off-state voltage Repetitive peak reverse voltage	V_{DRM} & V_{RRM} t_p=10ms V_{DsM} & V_{RsM} = V_{DRM} & V_{RRM} + 100V	600		1600	V
I_{TSM}	Surge on-state current	10 ms half sine wave V_R = 0.6V_{RRM}			35	KA
I^2t	For fusing coordination				8200	A^2sx10^3
$V_{T(TO)}$	Threshold voltage				0.82	V
r_t	On-state slope resistance				0.08	mΩ
V_{TM}	Max. Forward voltage drop	I_{TM}=3000A , F=24.0KN			1.8	V
I_H	Holding current	V_A=12V , I_A=1A			300	mA
$d_{i/dt}$	Cirtical rate of rise of turned-on current	Gate drive 20V , 20Ω , t_r ≤ 0.5 μs			300	A/μs
t_q	Typical turn-time				200	μs
I_{RRM} I_{DRM}	Repetitive peak reverse current	V_R=V_{RRM} V_D=V_{DRM}			200	mA
$d_{v/dt}$	Cirtical rate of rise of off-state voltage	V_{DM}=0.67 V_{DRM}			300	V/μs
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 notto trigger	At76% V_{DRM} , T_j=T_j MAX			0.3	V
I_{FGM}	Max.peak positive gate current	T_j=T_j max , t_p ≤ 3s			5	A
V_{FGM}	Max.peak positive gate current				30	V
V_{RGM}	Max.peak positive gate current				0.25	V
T_j	Max.operating temperaturerange		- 40		125	°C
T_{stg}	Storage temperature		- 40		140	°C
$R_{th(j-h)}$	Thermal resistance(junction to heatsink)	Double side cooled , clamping force 8.0 KN			0.011	°C/ W
F_m	Mounting force		19		26	KN
w_t	Approximate weight			425		g


0,018
0,016
0,014
0,012
0,01
0,008
0,006
0,004
0,002
0
c
d
$Z_{th\,JC}$ [K/W]
0,001
0,01
0,1
1
10
100
t [s]


4000
3500
3000
2500
2000
1500
1000
500
0
typ.
max.
i_T [V]
0
0,5
1
1,5
2
2,5
3
v_T [V]


30
20
10
5
2
1
0,5
0,2
v_G [V]
-40°C
+25°C
+125°C
a
b
c
10
20
50
100
200
500
1000
2000
5000
10000


14
12
10
8
6
4
2
0
Q_r [mAs]
0
5
10
15
20
25
30
35
-di/dt [A/µs]


600
500
400
300
200
100
0
I_{RM} [A]
0
5
10
15
20
25
30
35
-di/dt [A/µs]