Phase Control Thyristors

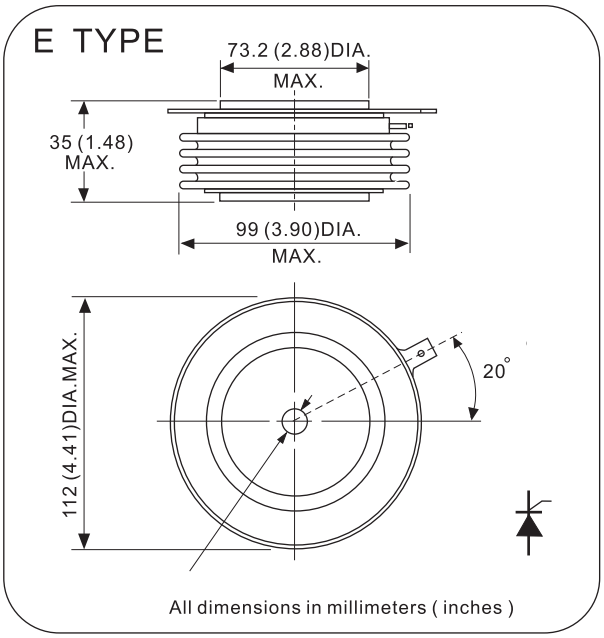
Features

1. Center amplifying gate.
2. Metal Case With Ceramic insulator.
3. Typical application
   - DC motor control
   - Controlled DC power supplies
   - AC controllers

Ordering code

2180	PT	xx	E	0	D
(1)	(2)	(3)	(4)	(5)	(6)

(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 ,EX for Disc Type
(5) Terminal types
0 - for eyelet
(6) D for $d_{i/dt}$=700A/μs



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°C			2180	A
$I_{T(RMS)}$	Max. RMS on-state current	Double side cooled , T_{hs}=25°C			4285	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	4000		4500	V
I_{TSM}	Surge on-state current	10 ms half sine wave V_R = 0.6V_{RRM}			28	KA
I^2t	For fusing coordination				3.92	A^2sx10^6
$V_{T(TO)}$	Threshold voltage				1.35	V
r_t	On-state slope resistance				0.08	mΩ
V_{TM}	Max. Forward voltage drop	I_{TM}=3000A			2.23	V
I_H	Holding current	T_j=25°C			1000	mA
$d_{i/dt}$	Cirtical rate of rise of turned-on current				150	A/μs
		For 2180PT...EOD			700	A/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}=80%V_{DRM}			300	V/μs
P_G	Max. average gate power				5	W
I_{GT}	Gate trigger current	T_j=25°C , V_D=10V I_T=3A			300	mA
V_{GT}	Gate trigger voltage				3.0	V
V_{GD}	DC voltage notto trigger	T_j=T_j MAX			0.25	V
I_{FGM}	Max.peak positive gate current	T_j=T_j MAX ,≤ 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		150	°C
$R_{th(j-h)}$	Thermal resistance(junction to heatsink)	Double side cooled			0.011	K/ W
F_m	Mounting force		35		47	KN
w_t	Approximate weight			1600		g

Figure 1 - On-state characteristics of Limit device

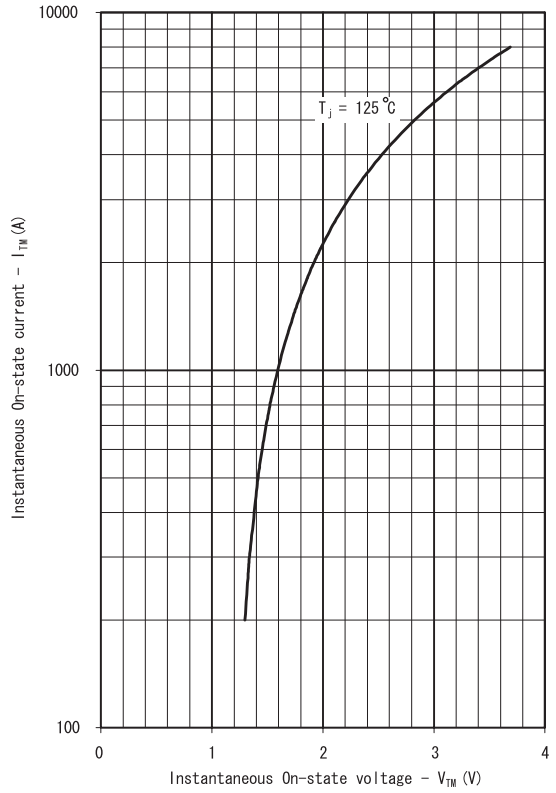


Figure 2 - Transient Thermal Impedance

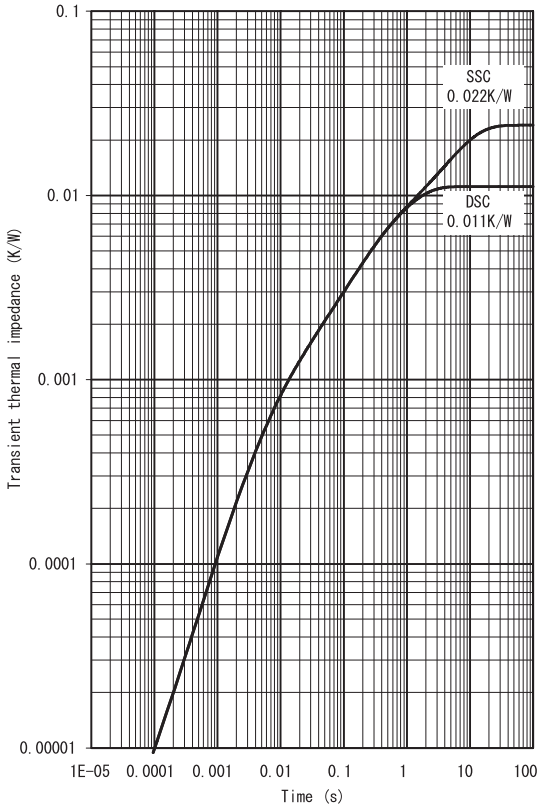


Figure 3 - Gate Characteristics - Trigger Limits

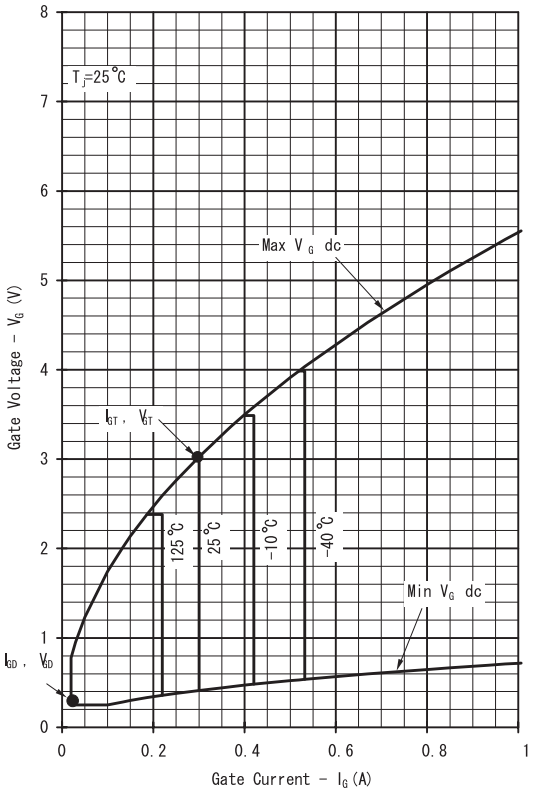


Figure 4 - Gate Characteristics - Power Curves

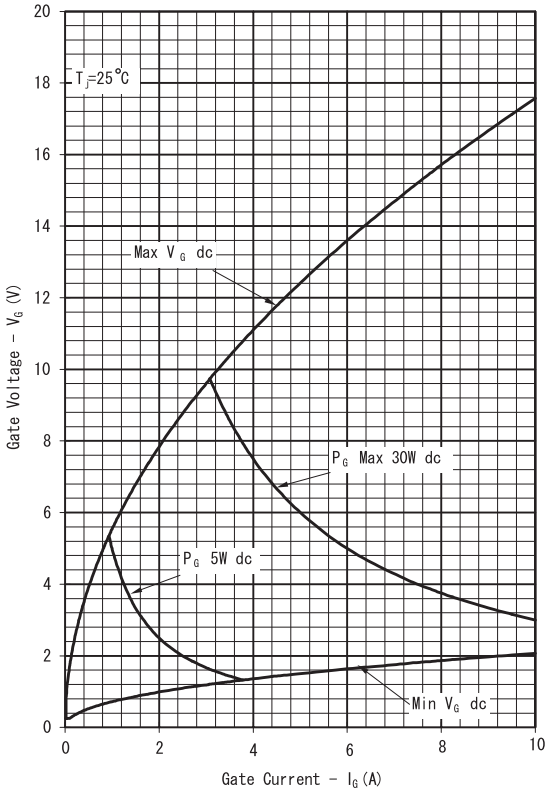


Figure 5 -Recovered Charge, Q_{rr}

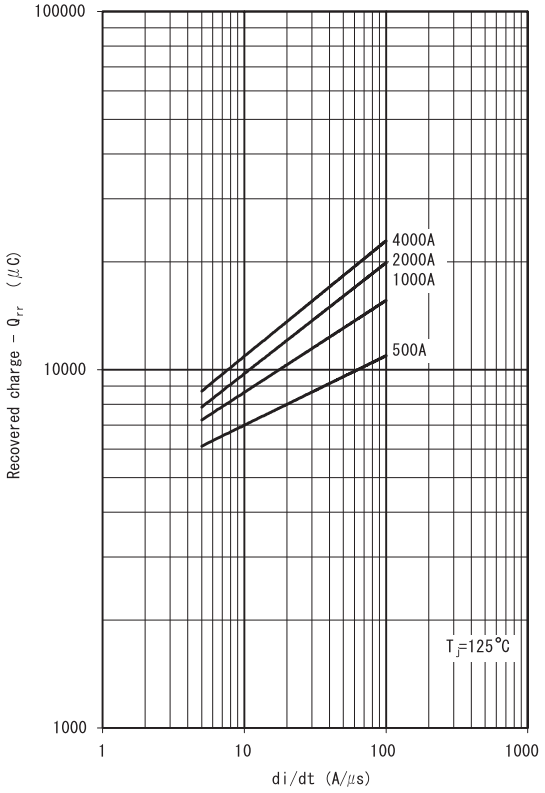


Figure 6 -Recovered charge, Q_{ra} (50% chord)

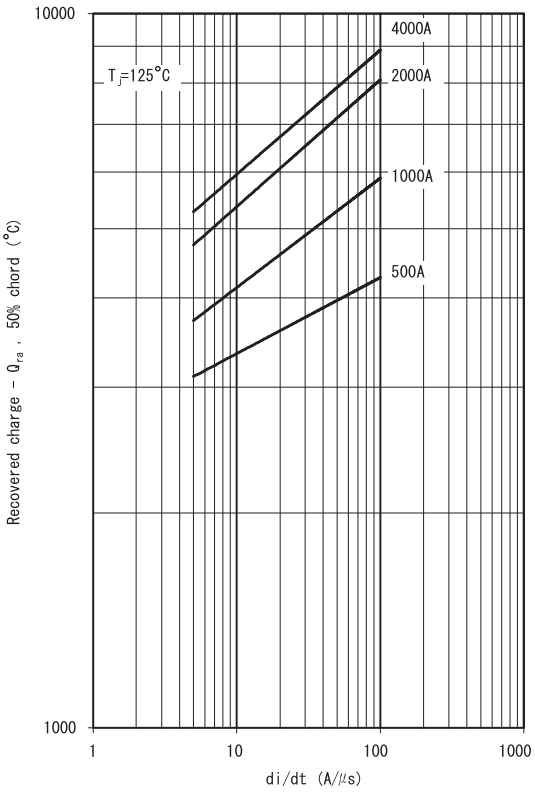


Figure 7 -Reverse recovery current, I_{rm}

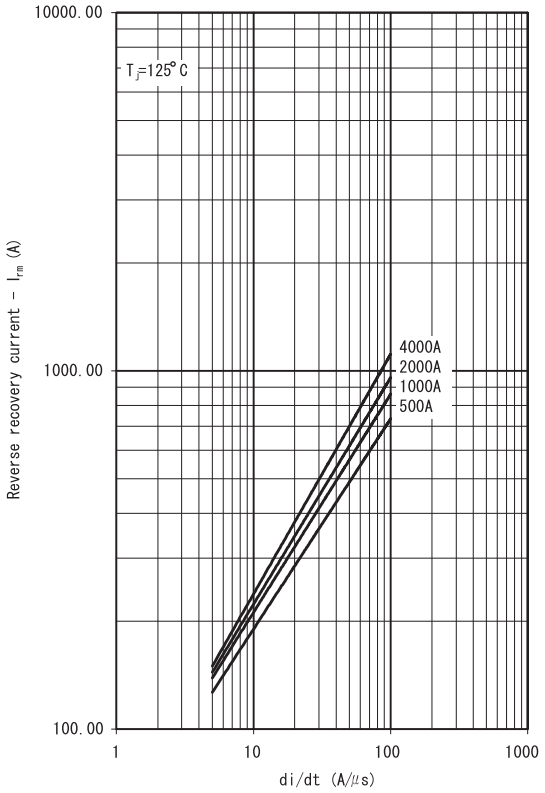


Figure 8 -Reverse recovery time, t_{rr} (50% chord)

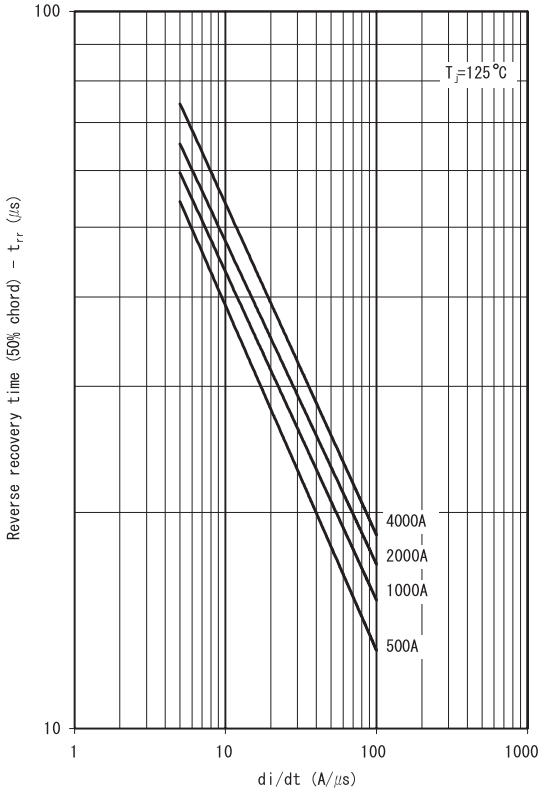


Figure 9 -On-state current vs. Power dissipation Double Side Cooled (Sine wave)

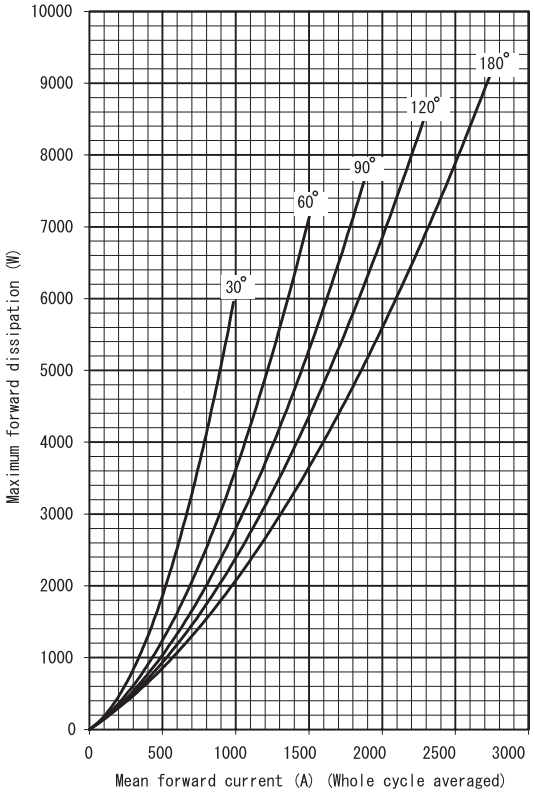


Figure 10 -On-state current vs. Heatsink temperature - Double Side Cooled (Sine wave)

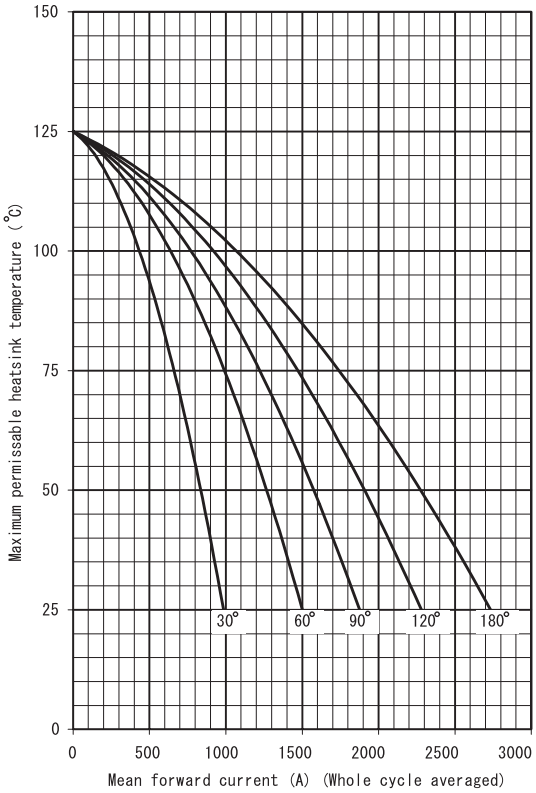


Figure 11 -On-state current vs. Power dissipation Double Side Cooled (Square wave)

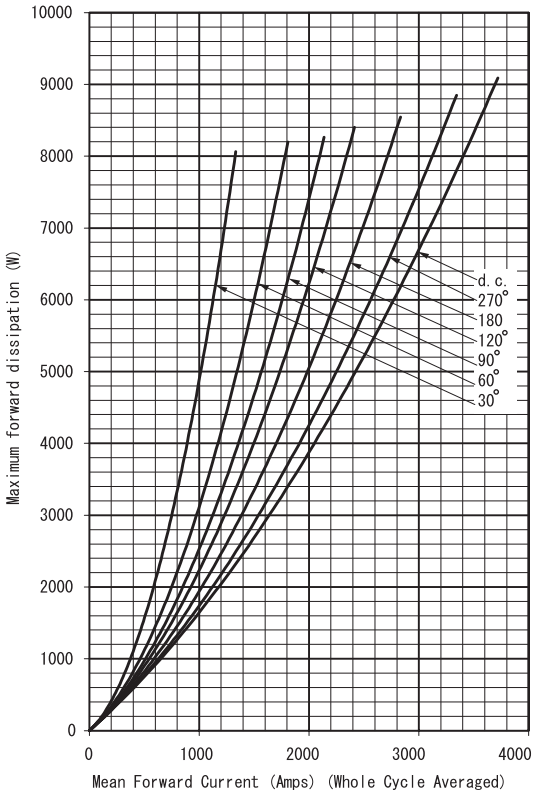


Figure 12 -On-state current vs. Heatsink temperature - Double Side Cooled (Square wave)

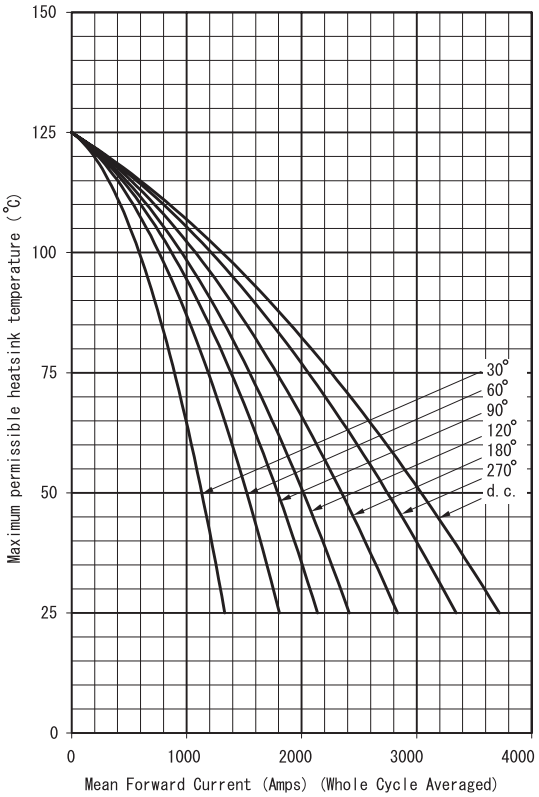


Figure 13 -On-state current vs. Power dissipation Single Side Cooled (Sine wave)

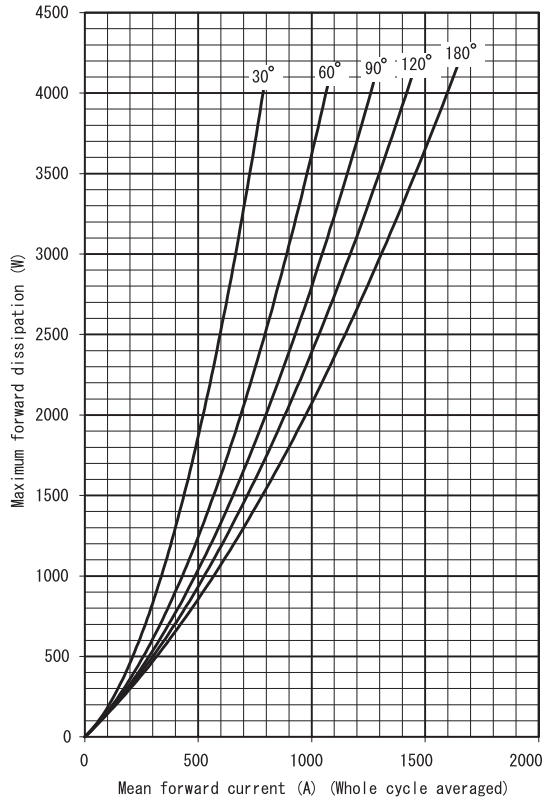


Figure 14 -On-state current vs. Heatsink temperature - Single Side Cooled (Sine wave)

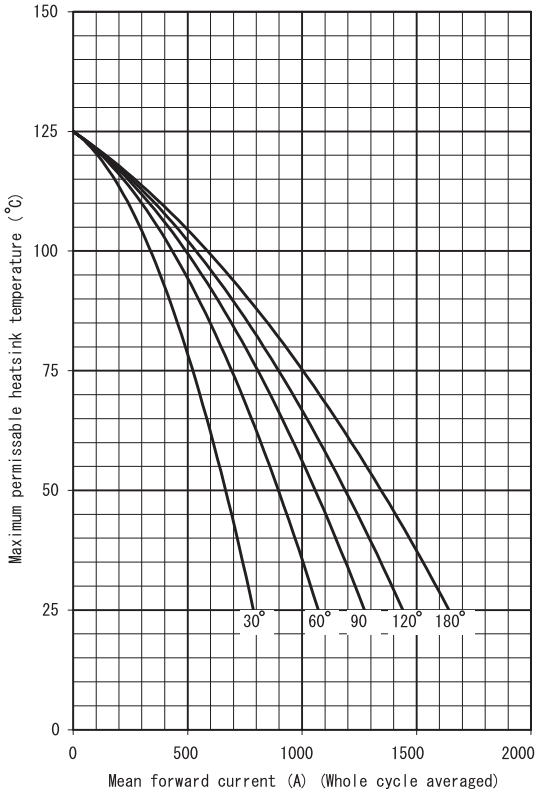


Figure 15 -On-state current vs. Power dissipation Single Side Cooled (Square wave)

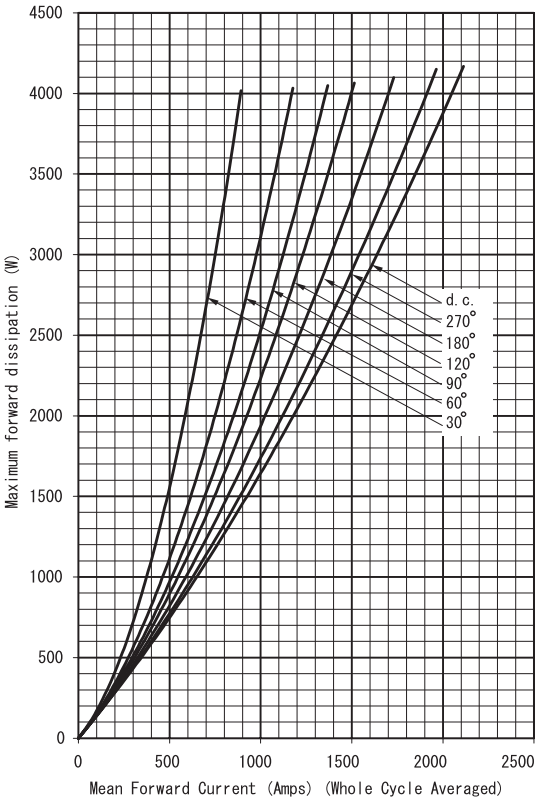


Figure 16 -On-state current vs. Heatsink temperature - Single Side Cooled (Square wave)

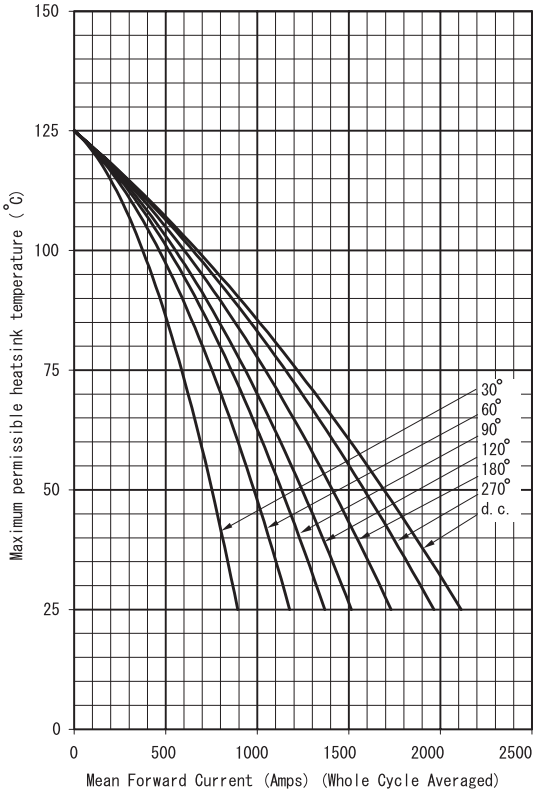


Figure 17 -Maximum surge and I^2t Ratings

