

Phase Control Thyristors

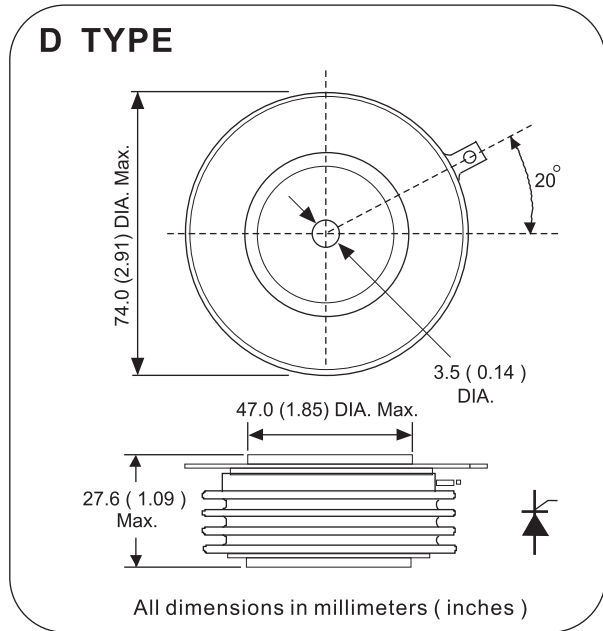
Features

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

Ordering code

1300	PT	xx	D	0
(1)	(2)	(3)	(4)	(5)

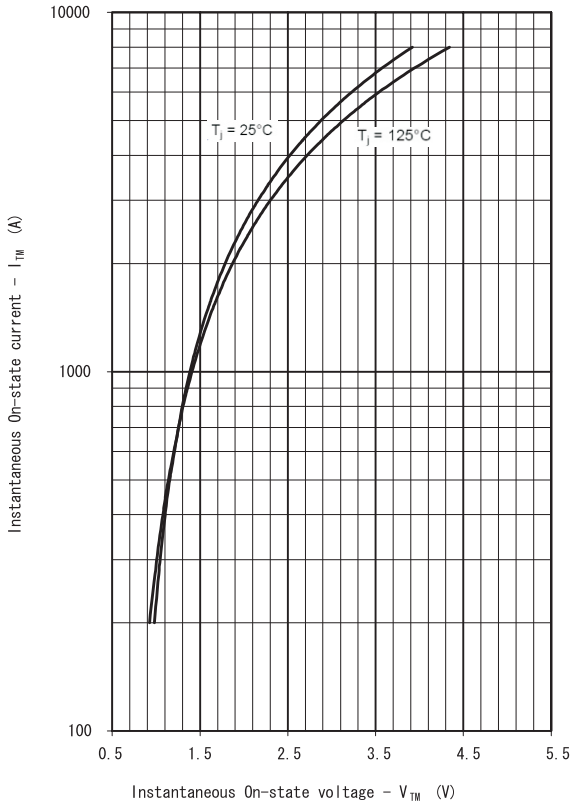
- (1) Maximum average on-state current , A
 (2) For Phase Control Thyristor
 (3) Voltage code , code x 100 = V_{RRM} / V_{DRM}
 (4) package style : A , B , C , D ,E for Disc Type
 (5) Terminal types
 0 - for eyelet



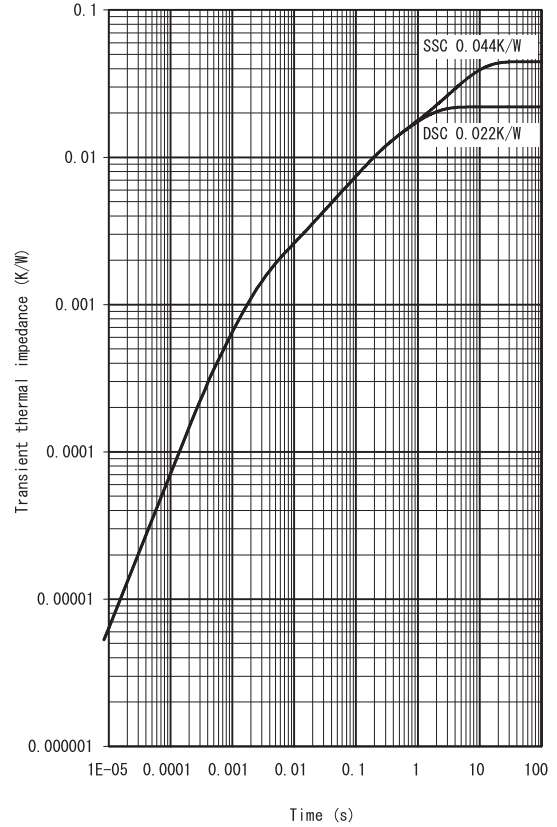
Electrical Characteristics

Symbol	Parameter	Condition	Value			Unit
			Min.	Type	Max.	
$I_{T(AV)}$	Mean on-state current	180° half sine wave , 50Hz Double side cooled , $T_c = 85^\circ C$			1300	A
$I_{T(RMS)}$	Max. RMS on-state current	Double side cooled , $T_{hs} = 25^\circ C$			2576	A
V_{RRM} V_{DRM}	Repetitive peak off-state voltage Repetitive peak reverse voltage	$V_{DRM} \ \& \ V_{RRM} \ t_p = 10ms$ $V_{Dsm} \ \& \ V_{Rsm} = V_{DRM} \ \& \ V_{RRM} + 100V$	3000		3600	V
I_{TSM}	Surge on-state current	10 ms half sine wave			16600	A
I_t^2	For fusing coordination	$V_R = 0.6V_{RRM}$			1.38×10^6	A^2s
$V_{T(TO)}$	Threshold voltage				1	V
r_t	On-state slope resistance				0.283	mΩ
V_{TM}	Max. Forward voltage drop	$I_{TM} = 4000A, F = 24.0KN$			2.11	V
I_H	Holding current	$V_A = 12V, I_A = 1A$			1000	mA
d_i/dt	Critical rate of rise of turned-on current	Gate drive 20V , 20 Ω , $t_r \leq 0.5 \mu s$			1000	A/μs
t_q	Typical turn-off time	$I_{TM} = 600A, d_v/dt = 30V/\mu s$ $d_i/dt = -10 A/\mu s$			300	μs
d_v/dt	Critical rate of rise of off-state voltage	$V_{DM} = 0.67 V_{DRM}$		1000		V/μs
P_G	Max. average gate power	Square wavepulse width 100 μs			4	W
P_{GM}	Max. peak gate power square				30	W
I_{GT}	Gate trigger current	$V_A = 12V, I_A = 1A$			300	mA
V_{GT}	Gate trigger voltage				3	V
T_j	Max. operating temperature range		-40		125	°C
T_{stg}	Storage temperature		-40		150	°C
$R_{th(j-h)}$	Thermal resistance(junction to heatsink)				0.020	°C/W
F_m	Mounting force		19		26	KN
W_t	Approximate weight				425	g

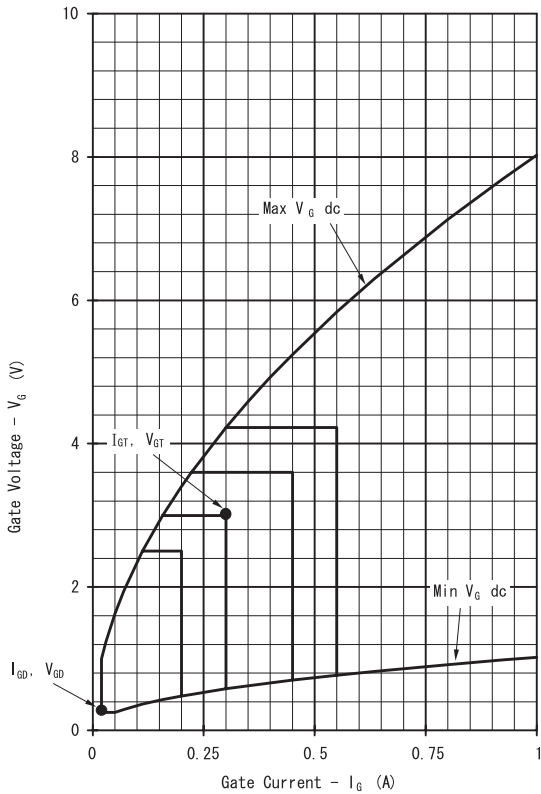
On-state characteristics of Limit device



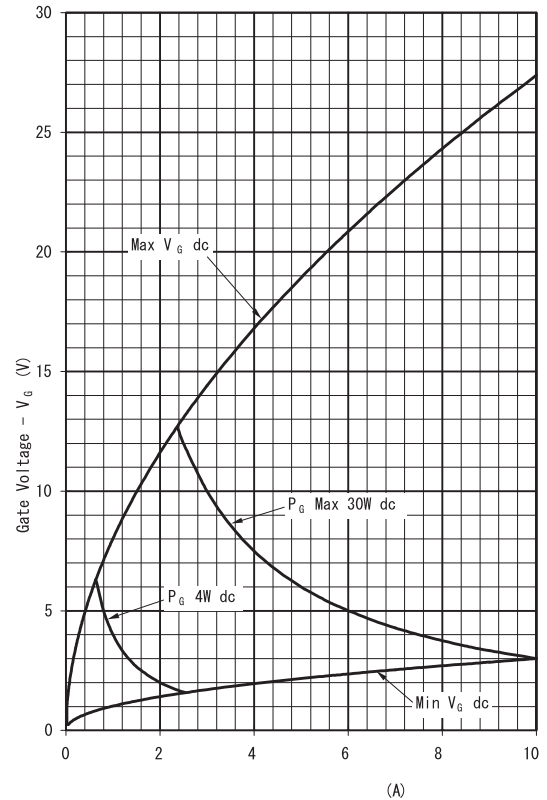
Transient Thermal Impedance



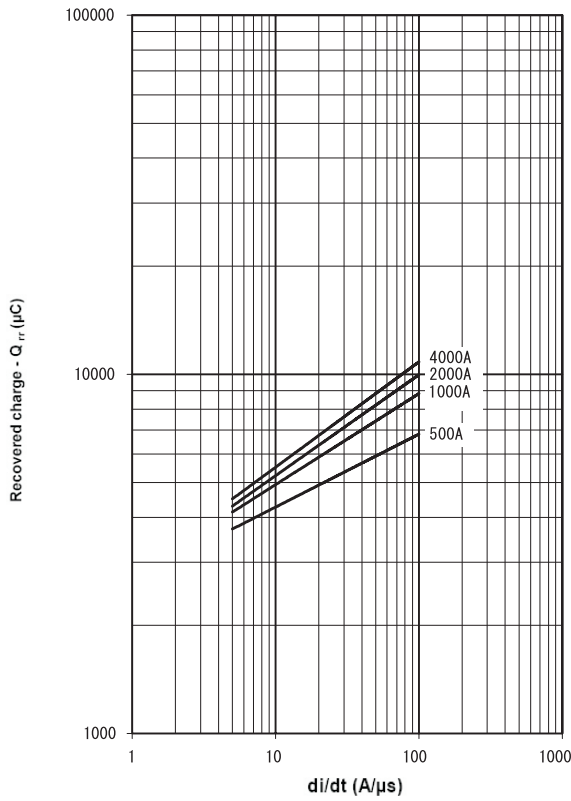
Gate Characteristics - Trigger Limits



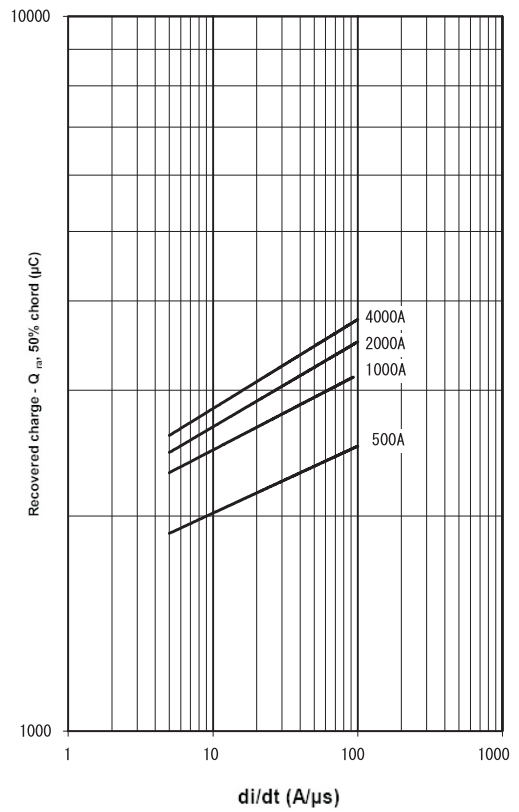
Gate Characteristics - Power Curves



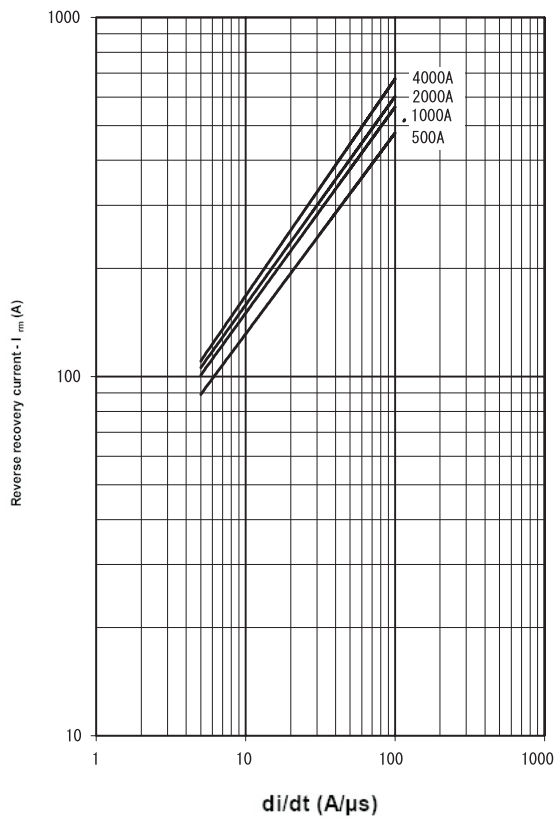
Recovered Charge, Q_{rr}



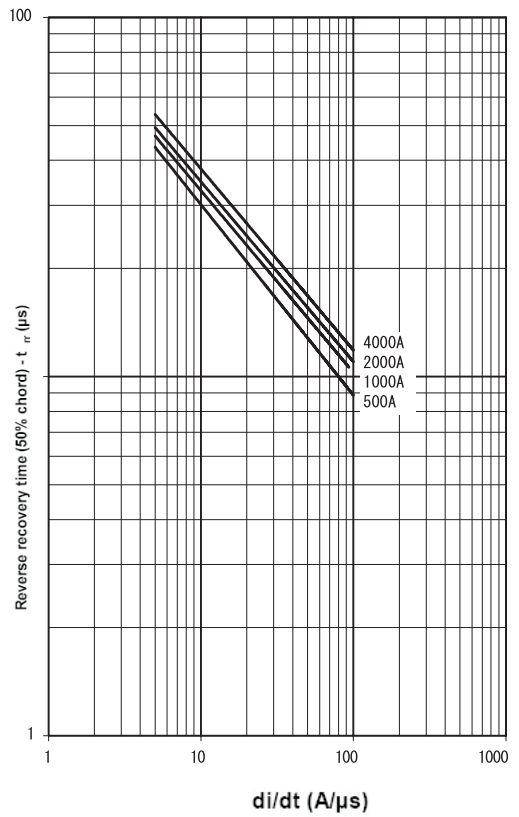
Recovered charge, Q_{ra} (50% chord)



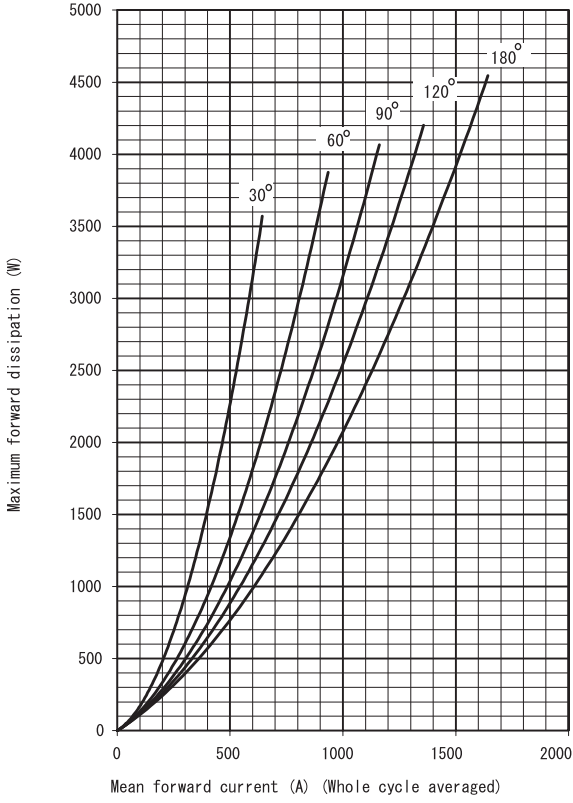
Reverse recovery current, I_{rm}



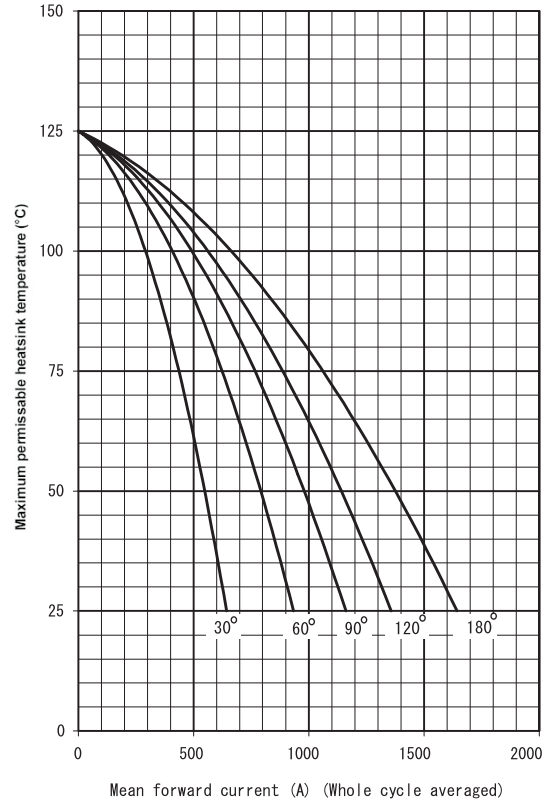
Reverse recovery time, t_{rr} (50% chord)



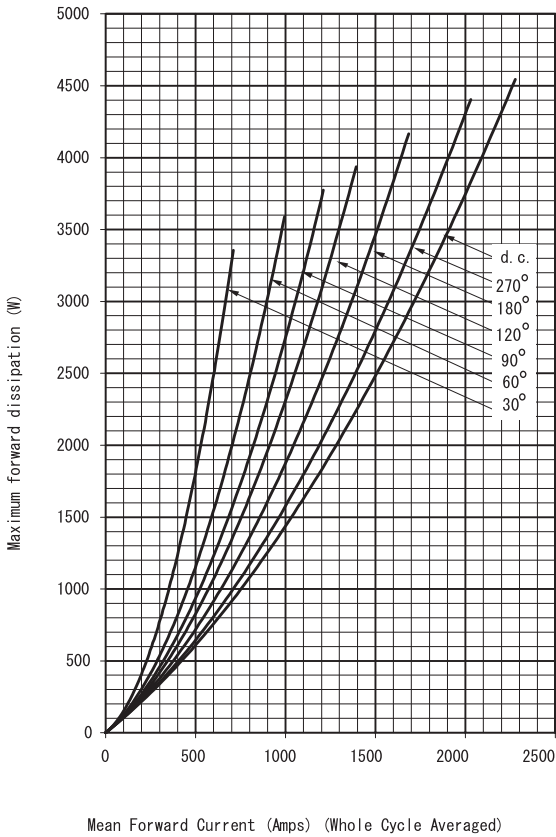
Double Side Cooled (Sine wave)



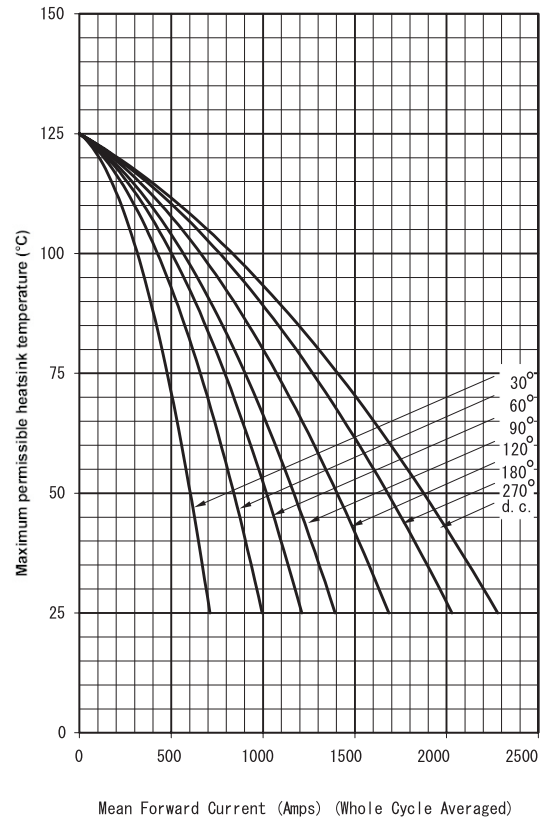
temperature - Double Side Cooled (Sine wave)



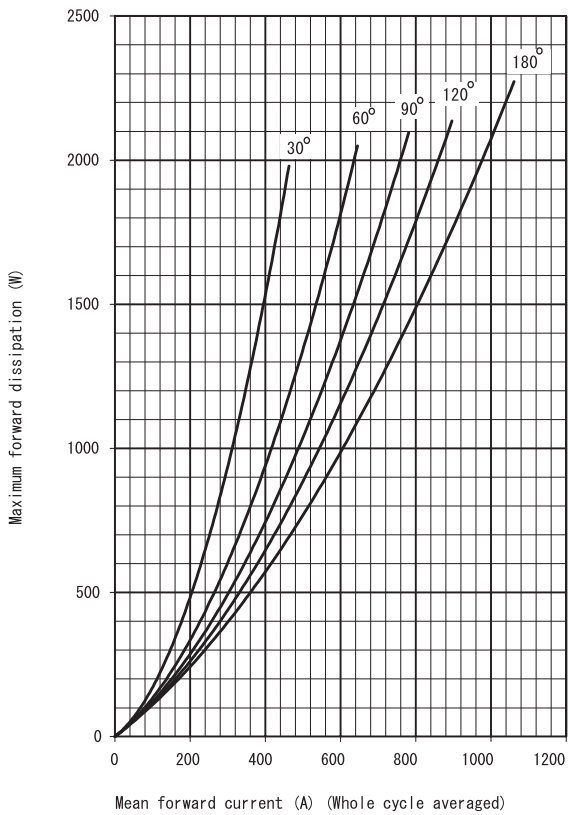
Double Side Cooled (Square wave)



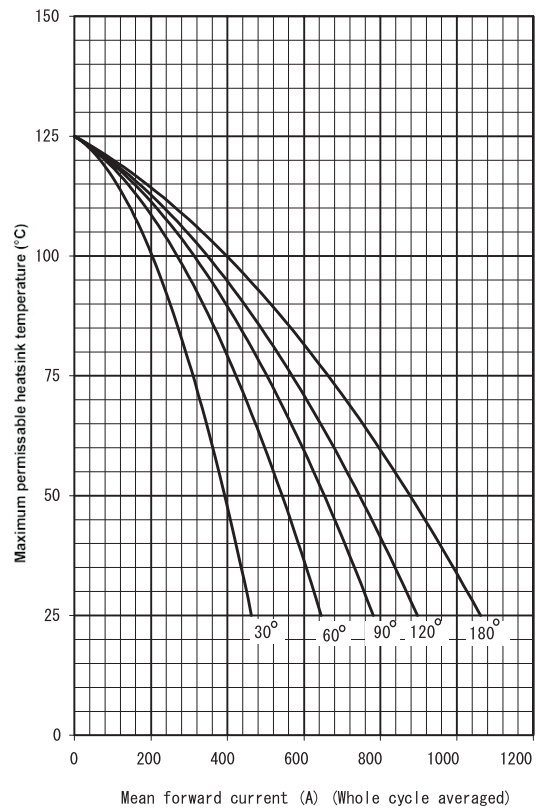
temperature - Double Side Cooled (Square wave)



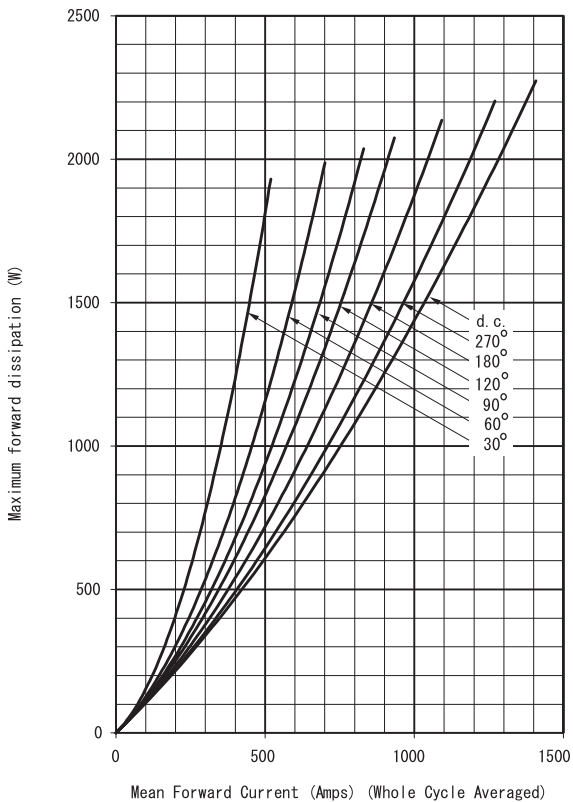
Single Side Cooled (Sine wave)



temperature – Single Side Cooled (Sine wave)



Single Side Cooled (Square wave)



temperature – Single Side Cooled (Square wave)

