

## Phase Control Thyristors

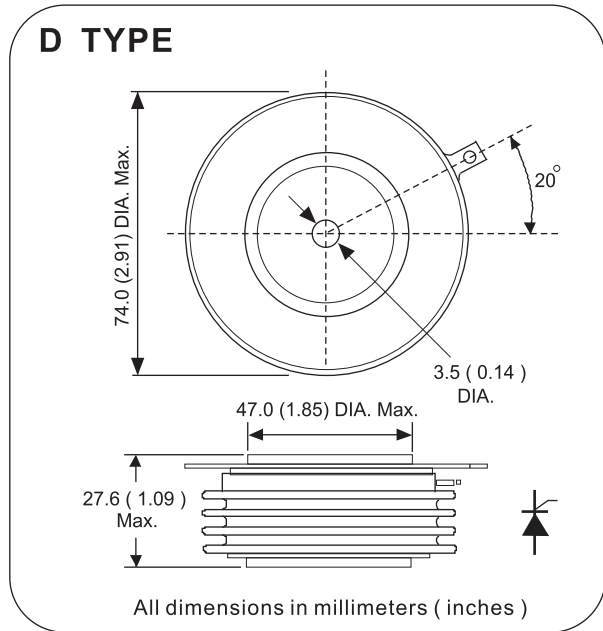
### Features

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

#### Ordering code

<b>1300</b>	<b>PT</b>	<b>xx</b>	<b>D</b>	<b>0</b>
(1)	(2)	(3)	(4)	(5)

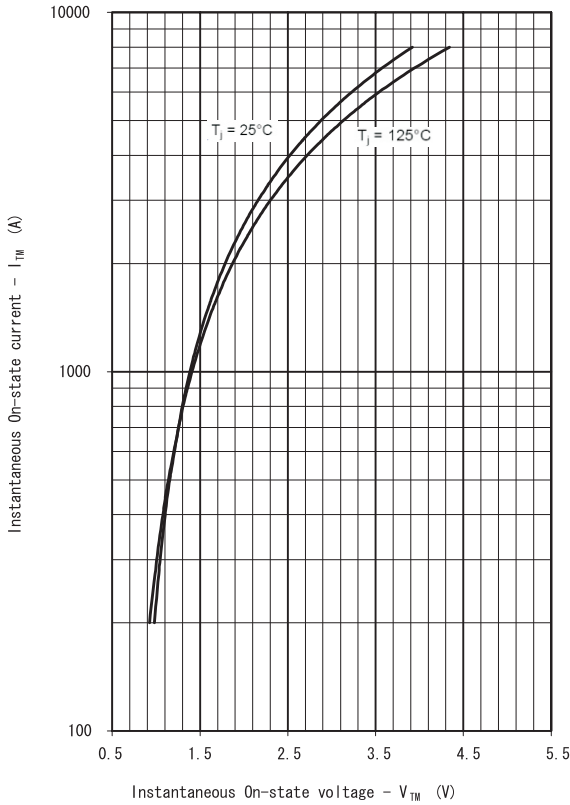
- (1) Maximum average on-state current , A  
 (2) For Phase Control Thyristor  
 (3) Voltage code , code x 100 =  $V_{RRM} / V_{DRM}$   
 (4) package style : A , B , C , D ,E for Disc Type  
 (5) Terminal types  
 0 - for eyelet



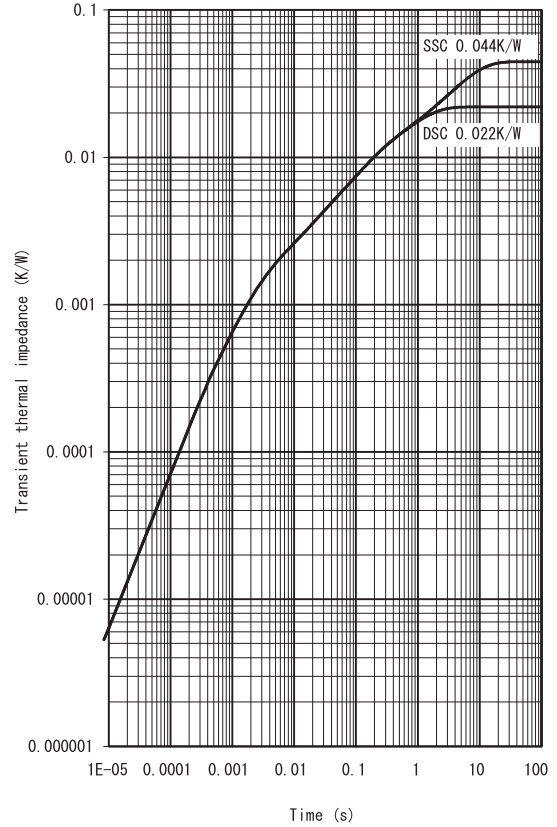
### Electrical Characteristics

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	$V_R = 0.6V_{RRM}$			$1.38 \times 10^6$	$A^2s$
$V_{T(TO)}$	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	$I_{TM} = 600A, d_v/dt = 30V/\mu s$ $d_{iRR}/dt = -10 A/\mu s$			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

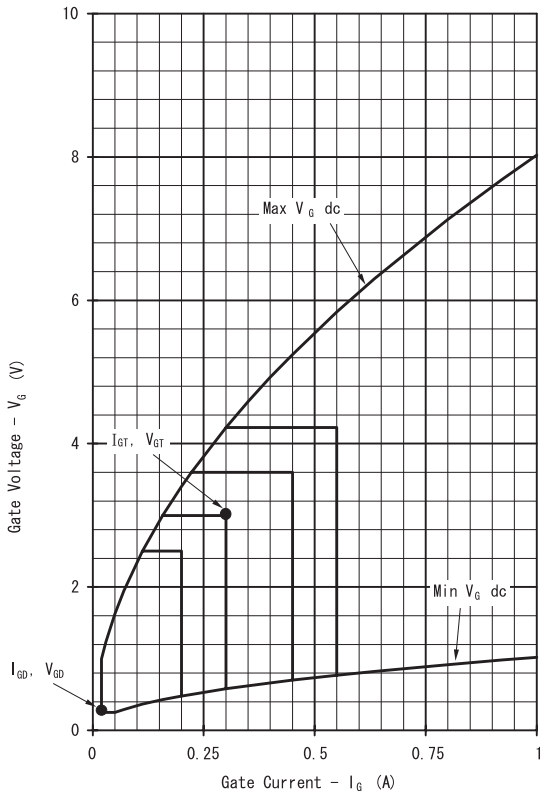
On-state characteristics of Limit device



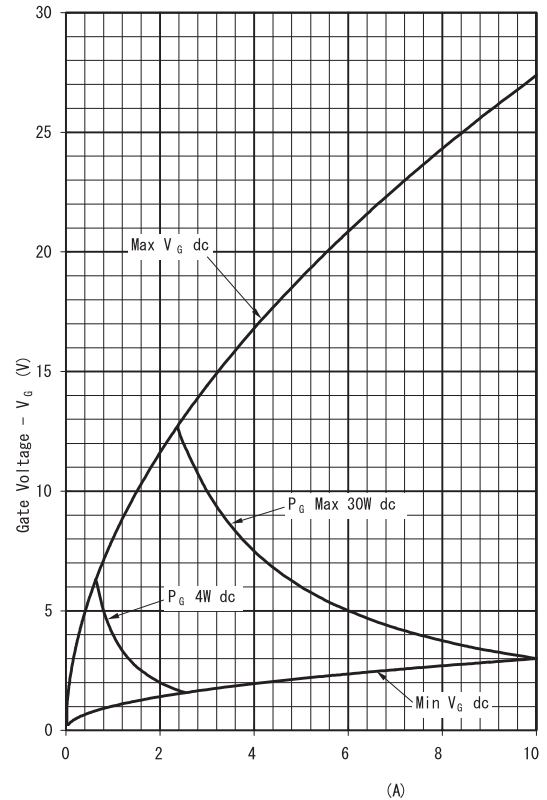
Transient Thermal Impedance



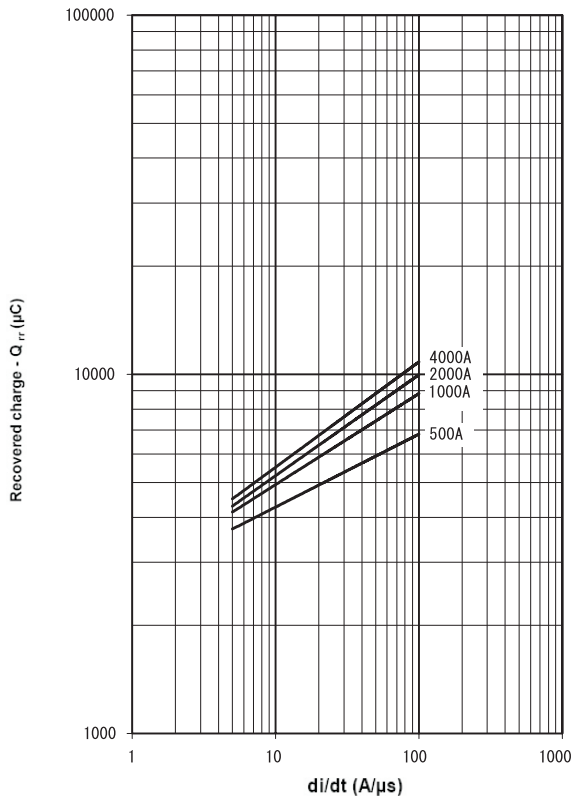
Gate Characteristics - Trigger Limits



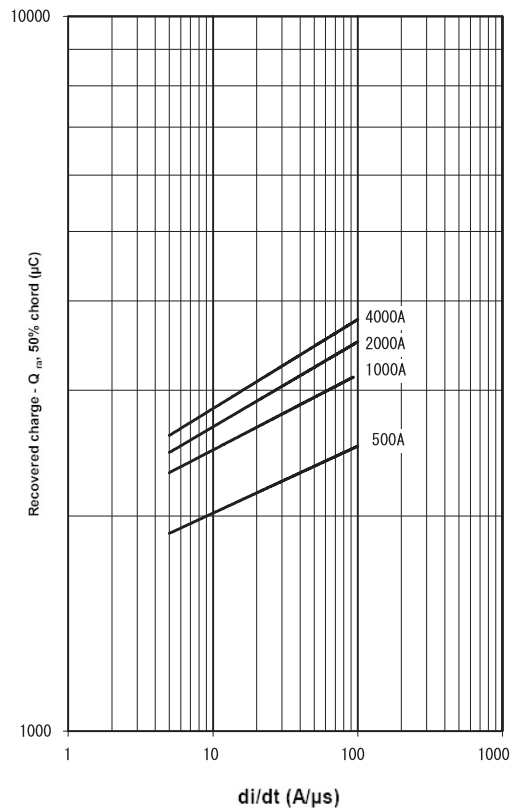
Gate Characteristics - Power Curves



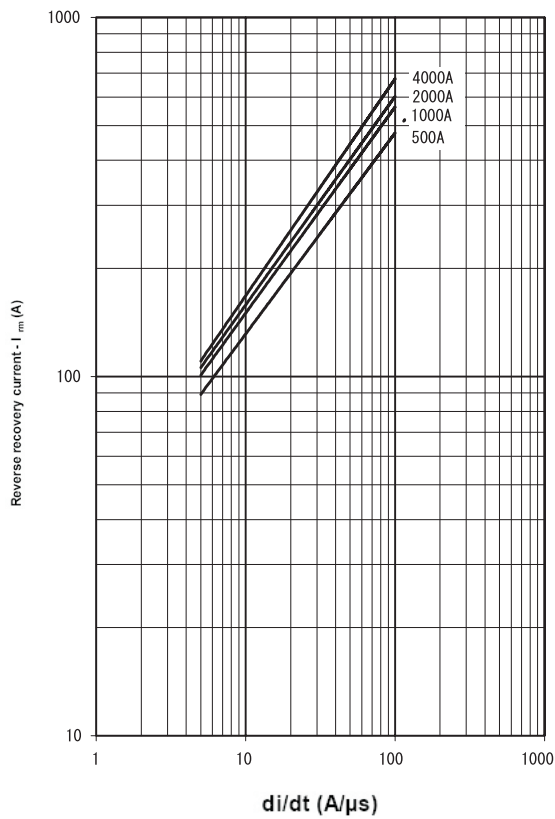
Recovered Charge,  $Q_{rr}$



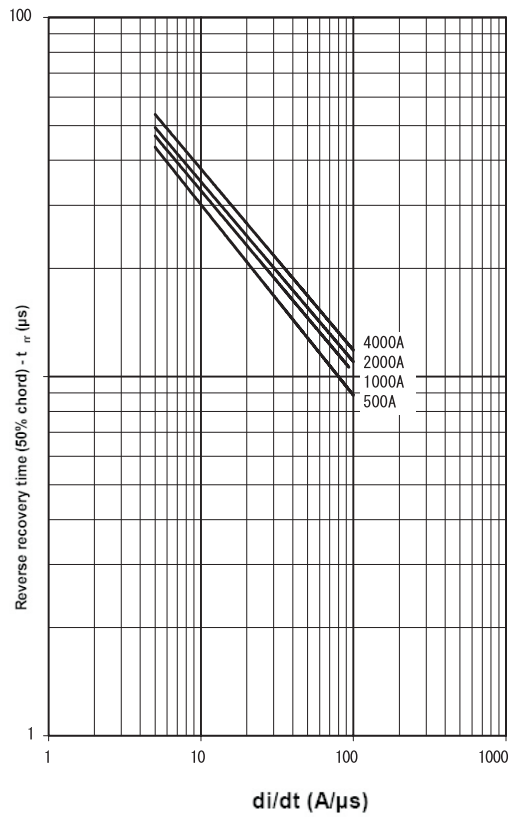
Recovered charge,  $Q_{ra}$  (50% chord)



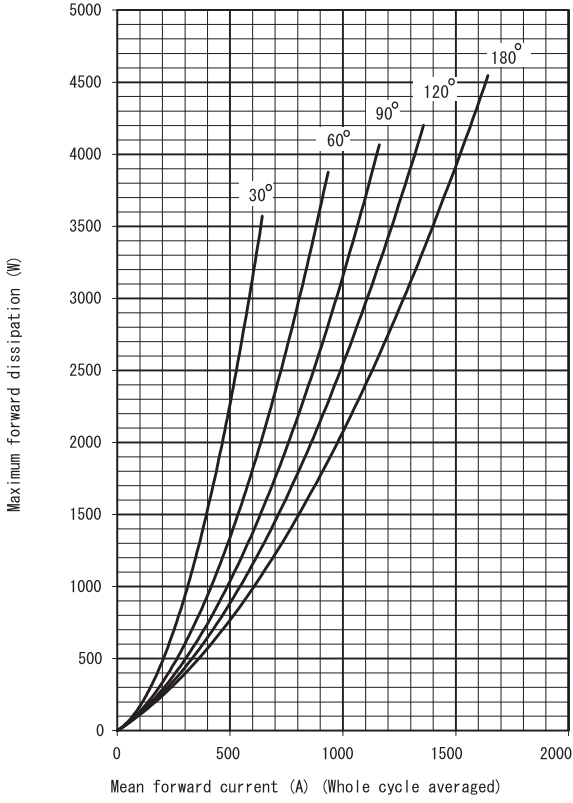
Reverse recovery current,  $I_{rm}$



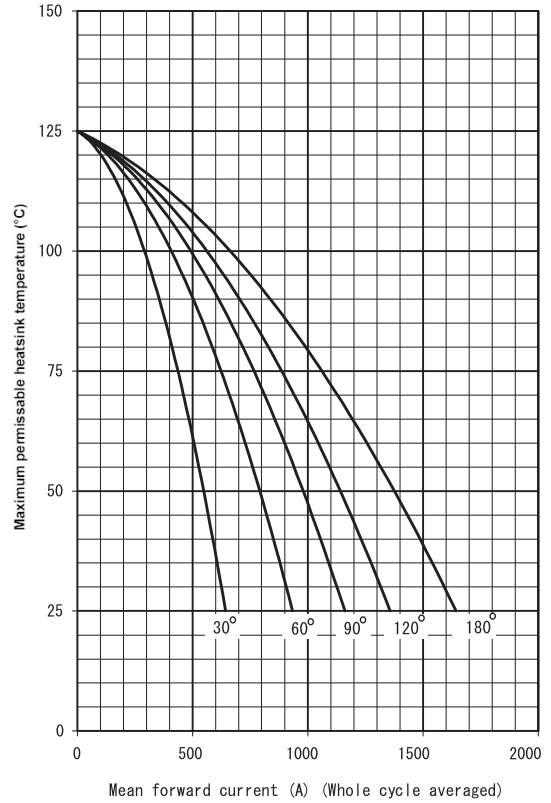
Reverse recovery time,  $t_{rr}$  (50% chord)



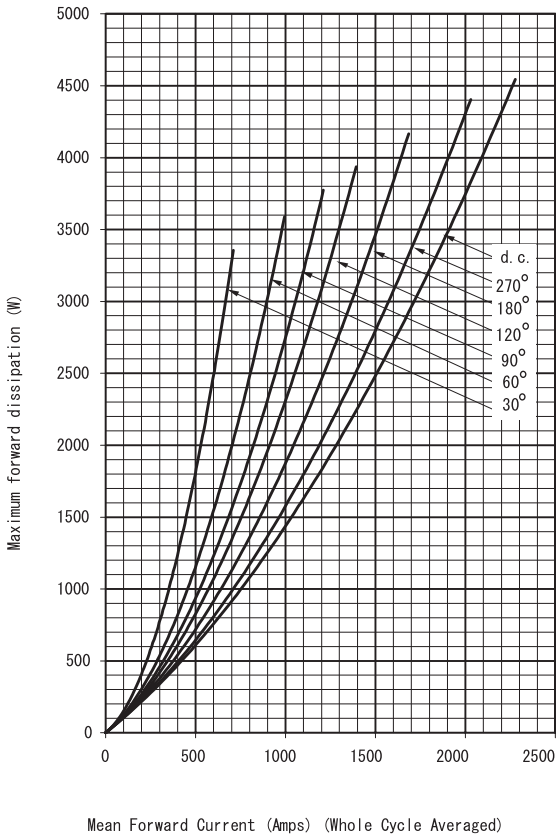
Double Side Cooled (Sine wave)



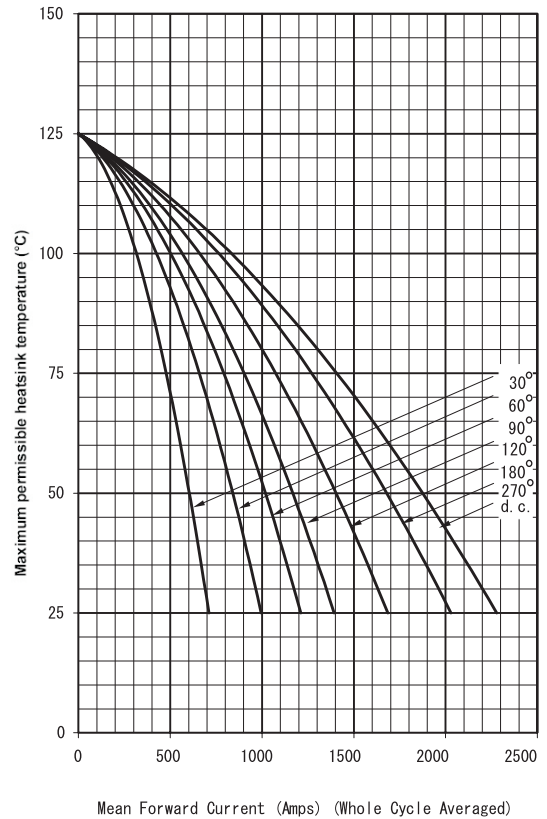
temperature - Double Side Cooled (Sine wave)



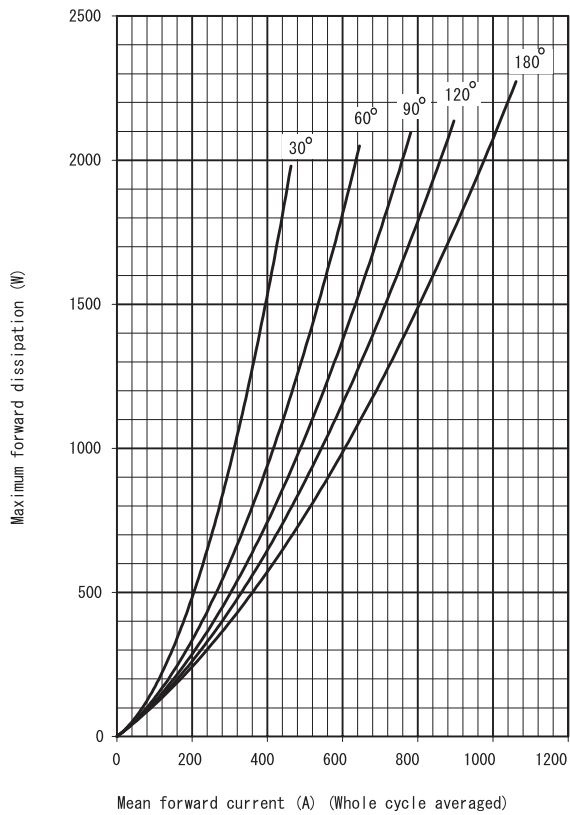
Double Side Cooled (Square wave)



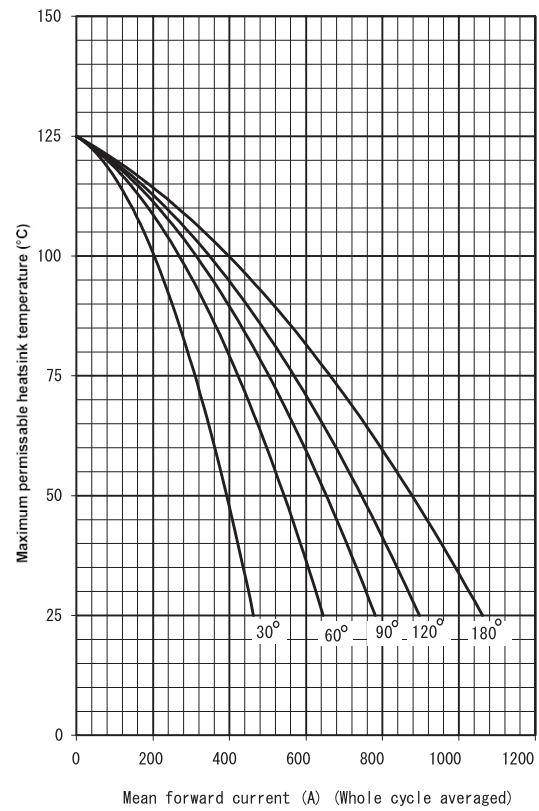
temperature - Double Side Cooled (Square wave)



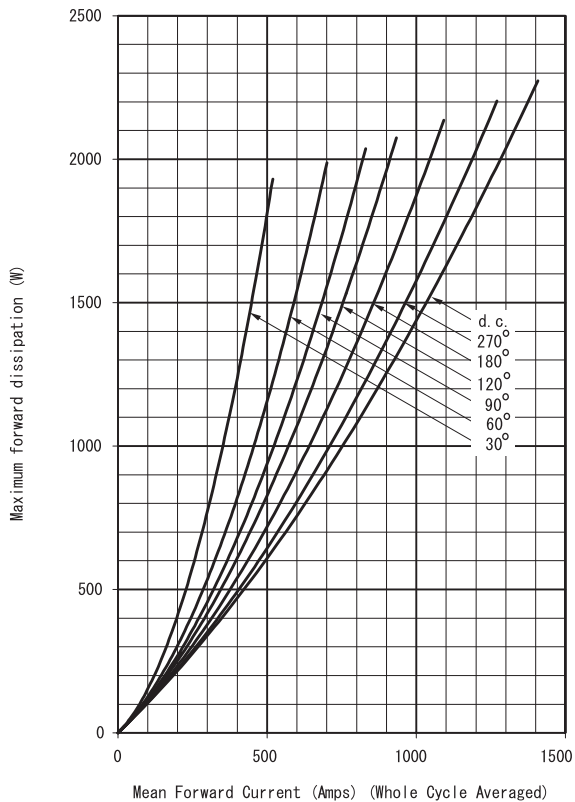
Single Side Cooled (Sine wave)



temperature – Single Side Cooled (Sine wave)



Single Side Cooled (Square wave)



temperature – Single Side Cooled (Square wave)

