Phase Control Thyristors

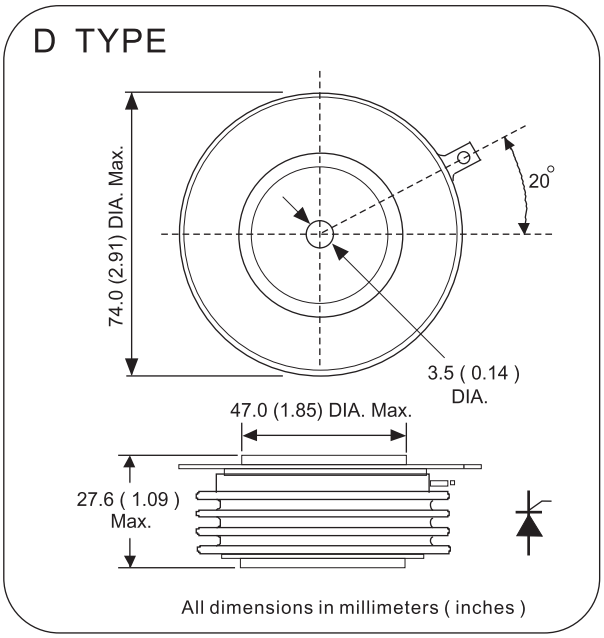
Features

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

Ordering code

1320	PT	xx	D	0
(1)	(2)	(3)	(4)	(5)

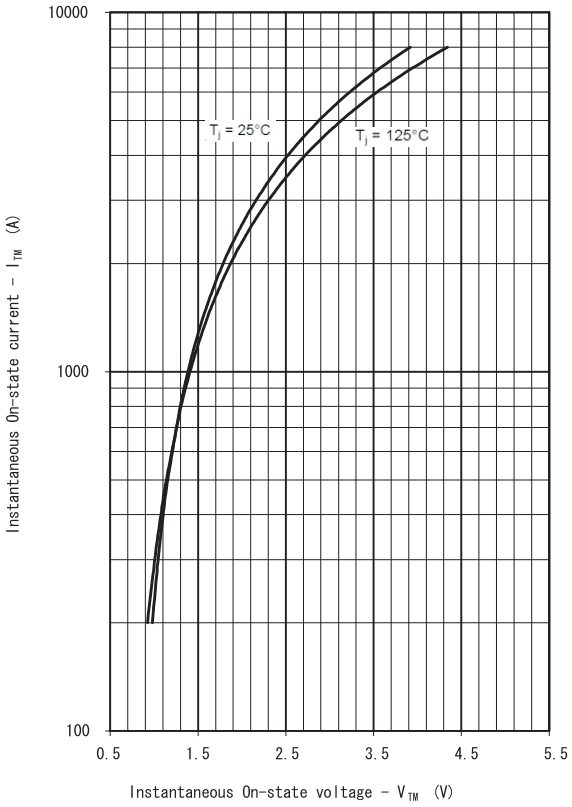
(1) Maximum average on-state current , A
(2) For Phase Control Thyristor
(3) Voltage code , code x 100 = VRRM / VDRM
(4) package style : A , B , C , D ,E for Disk Type
(5) Terminal types
0 - for eyelet



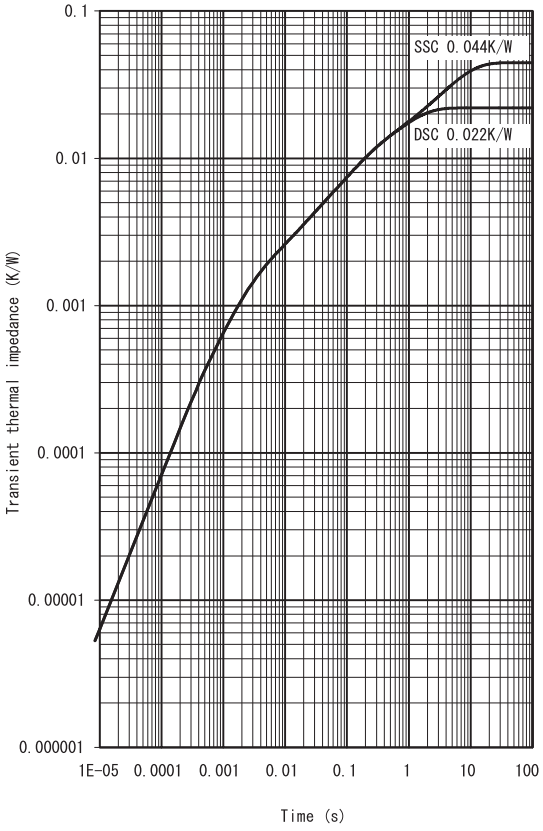
Electrical Characteristics

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°C			1320	A
$I_{T(RMS)}$	Max. RMS on-state current	Double side cooled , T_{hs}=25°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 V_R = 0.6V_{RRM}			16600	A
I^2t	For fusing coordination				$1.38x10^6$	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
$d_{i/dt}$	Cirtical rate of rise of turned-on current	Gate drive 20V , 20Ω , t_r ≤ 0.5 μs			1000	A/μs
t_q	Typical turn-off time	I_{TM}=600A , $d_{v/dt}$=30V/μs $d_{iRR/dt}$=-10 A/μs			300	μs
$d_{v/dt}$	Cirtical 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 temperaturerange		-40		125	°C
T_{stg}	Storage temperature		-40		150	°C
$R_{th(j-hs)}$	Thermal resistance(junction to heatsink)				0.020	°C/ W
F_m	Mounting force		19		26	KN
W_t	Approximate weight			425		g

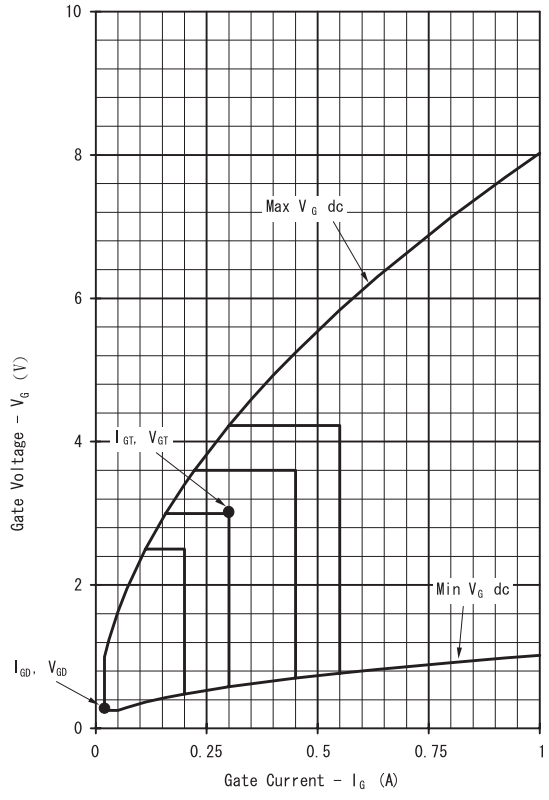
On-state characteristics of Limit device



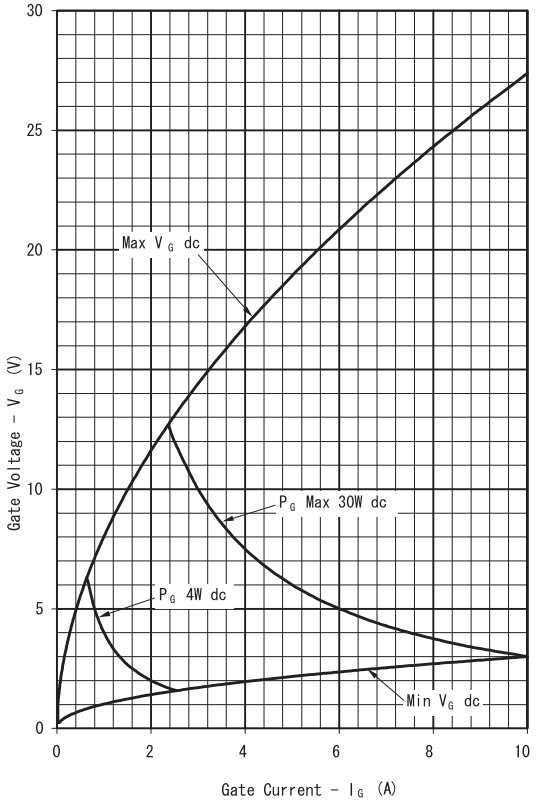
Transient Thermal Impedance



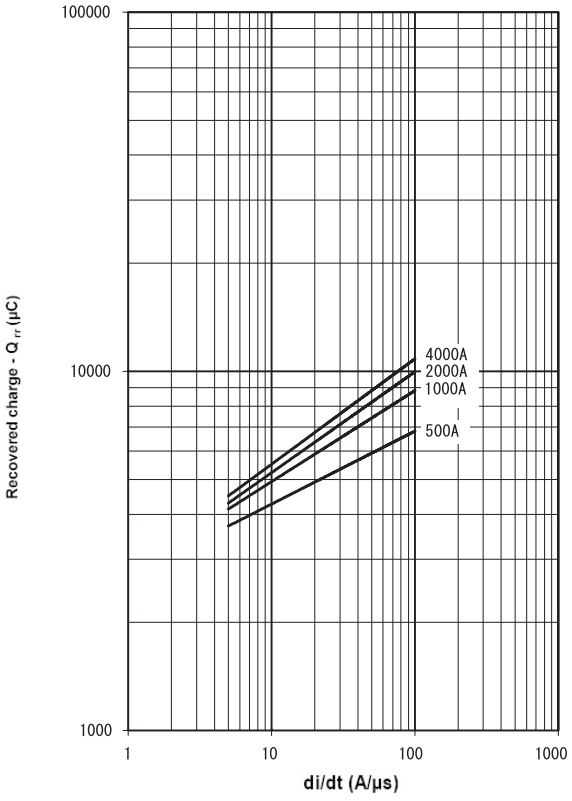
Gate Characteristics - Trigger Limits



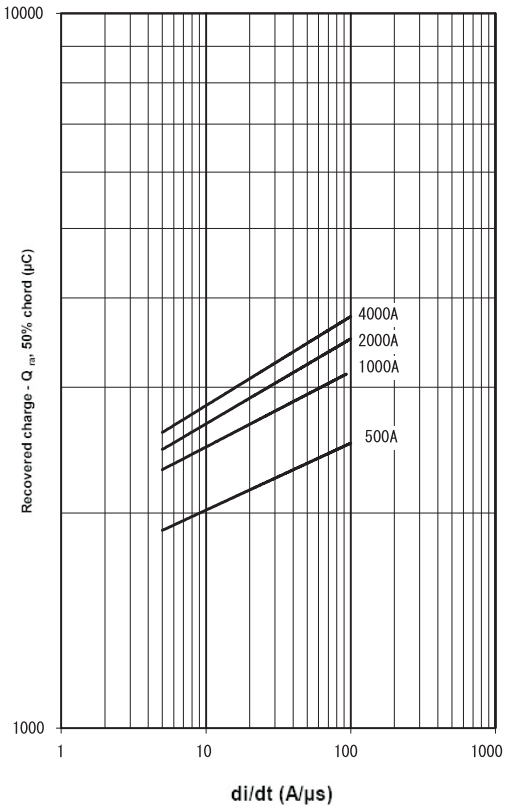
Gate Characteristics - Power Curves



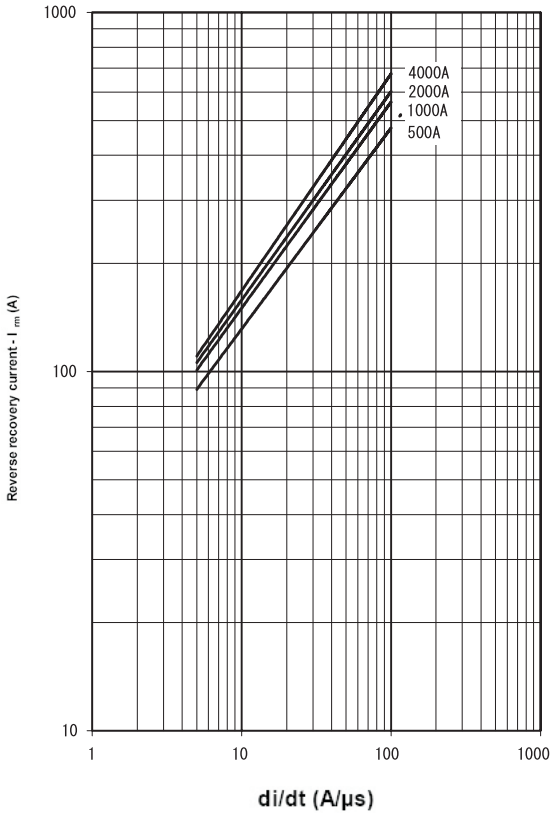
Recovered Charge, Q_{rr}



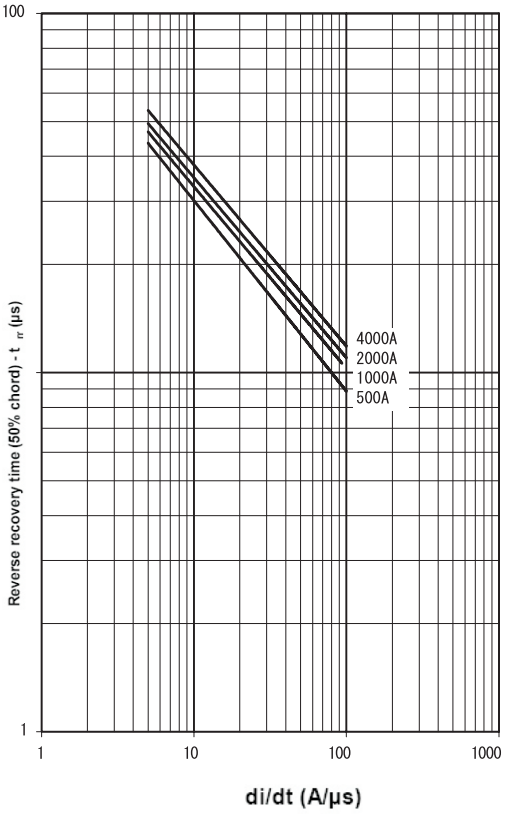
Recovered charge, Q_{ra} (50% chord)



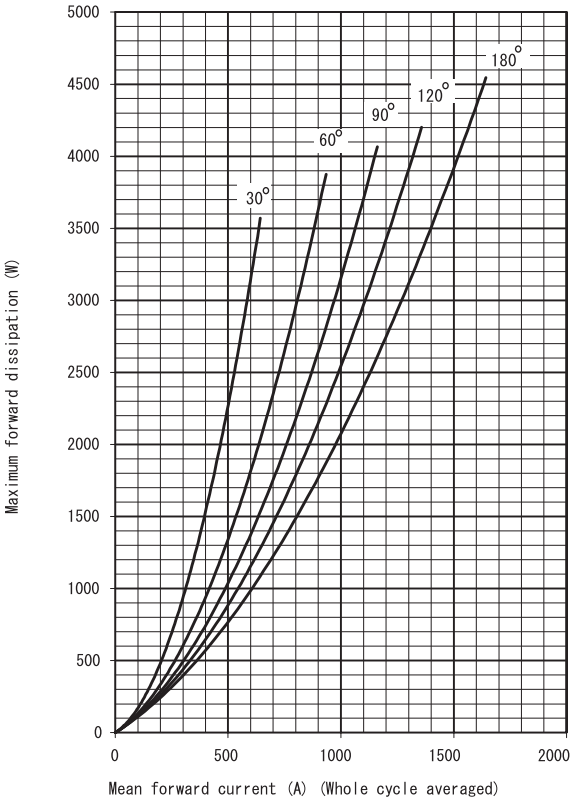
Reverse recovery current, I_{rm}



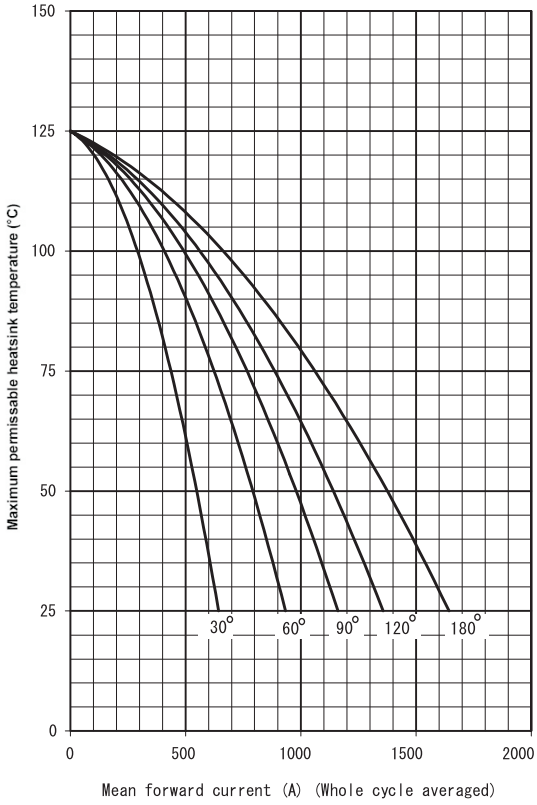
Reverse recovery time, t_{rr} (50% chord)



Double Side Cooled (Sine wave)



temperature - Double Side Cooled (Sine wave)



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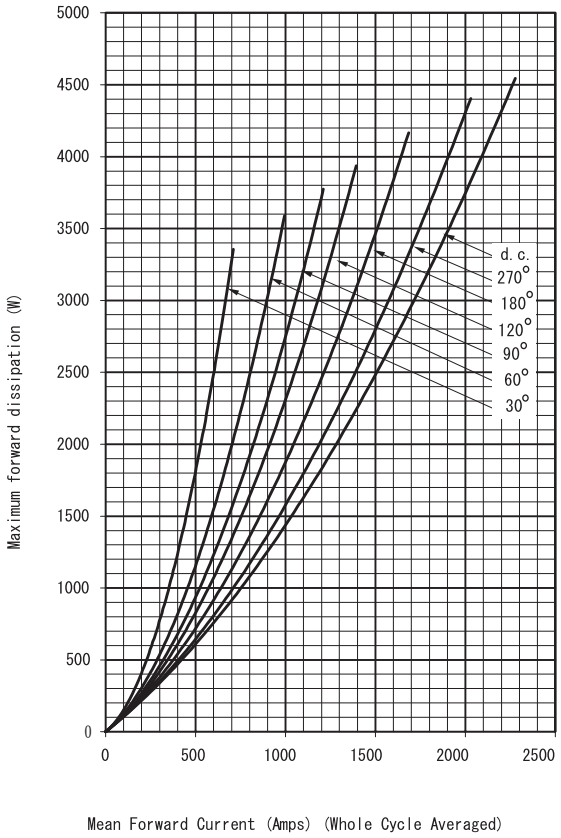

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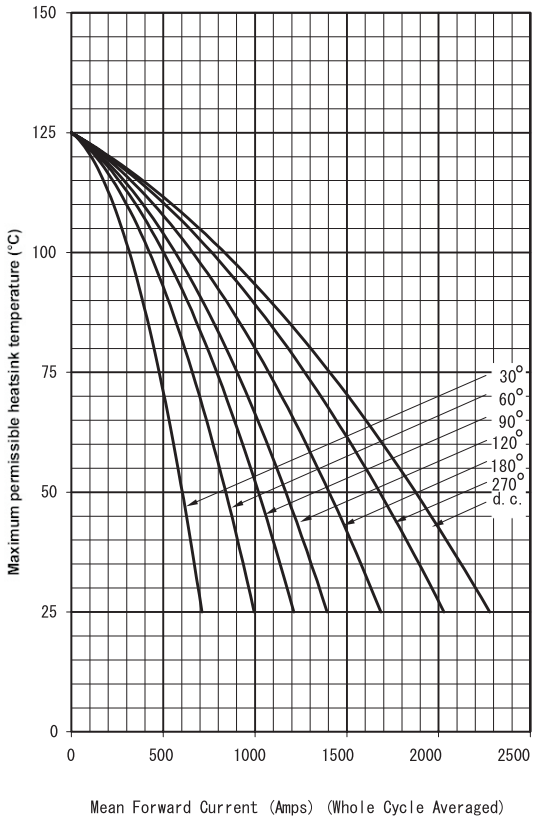

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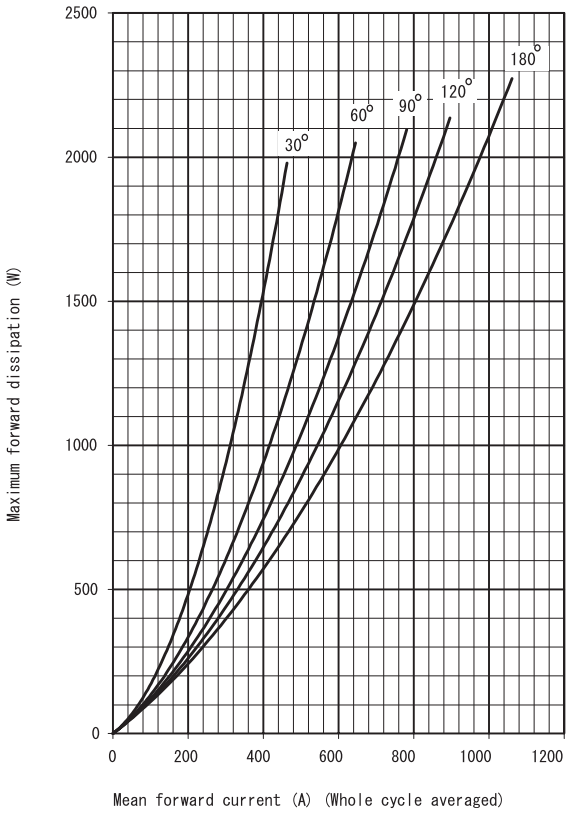

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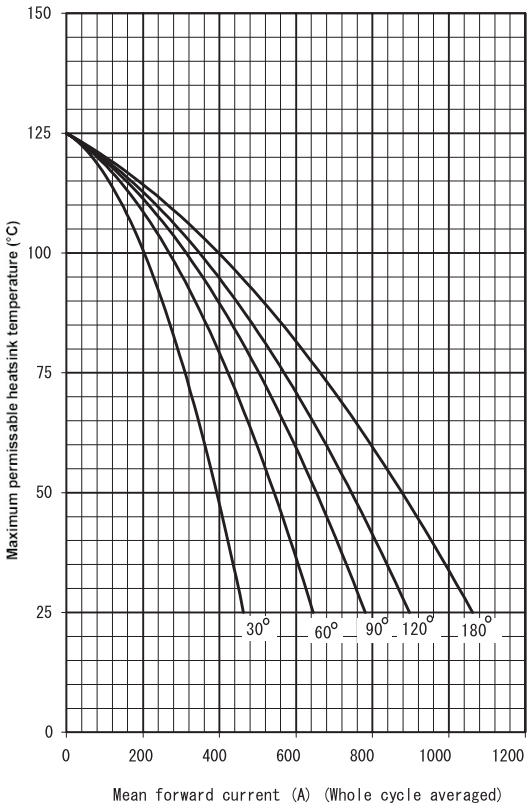

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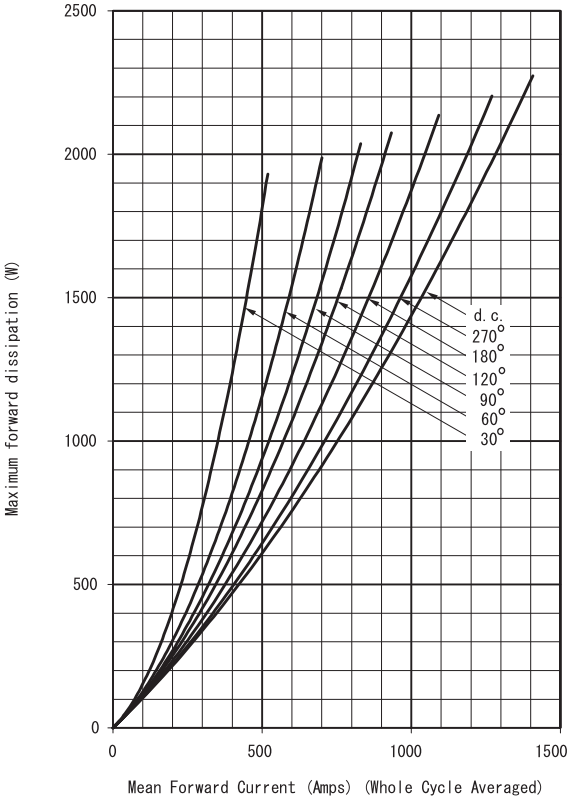
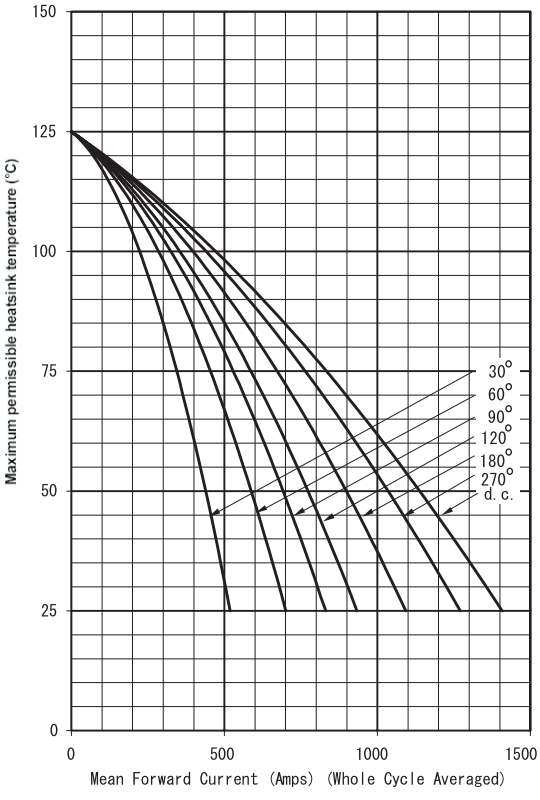
temperature - Single Side Cooled (Square wave)