

## Phase Control Thyristors

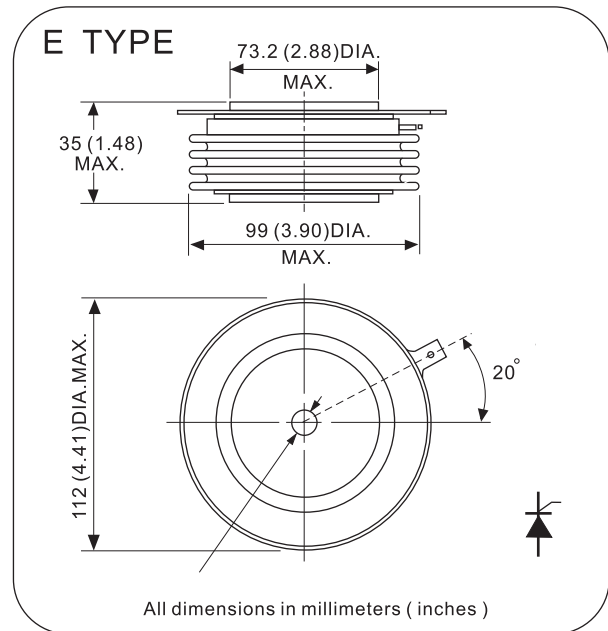
### Features

1. 2550 PT series Thyristors are designed for various power controls
2. Voltage rating up to 3600 V.
3. Typical application
  - DC motor control
  - Controlled DC power supplies
  - AC controllers

### Ordering code

<b>2550</b>	<b>PT</b>	<b>xx</b>	<b>E</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, $T_C = 55^\circ C$			2550	A
$I_T(RMS)$	Max. RMS on-state current	Double side cooled, $T_{hs} = 25^\circ C$			4922	A
$V_{RRM}$ $V_{DRM}$	Repetitive peak off-state voltage Repetitive peak reverse voltage	$V_{DRM}$ & $V_{RRM}$ $t_p = 10ms$ $V_{DsM}$ & $V_{RsM} = V_{DRM}$ & $V_{RRM} + 100V$	2400		3600	V
$I_{TSM}$	Surge on-state current	$T_p = 10ms$ half sine wave			32	KA
$I_t^2$	For fusing coordination	$V_{RM} = 0.6V_{RRM}$			$5.12 \times 10^6$	$A^2s$
$V_T(TO)$	Threshold voltage				0.78	V
$r_t$	On-state slope resistance				0.274	mΩ
$V_{TM}$	Max. Forward voltage drop	$I_{TM} = 3000A$ , $F = 35KN$			1.6	V
$I_H$	Holding current	$T_j = 25^\circ C$ , $V_D = 10V$ , $I_T = 3A$			1000	mA
$d_i/dt$	Critical rate of rise of turned-on current				250	A/μs
$t_q$	Typical turn-off time				400	μs
$I_{RRM}$ $I_{DRM}$	Repetitive peak reverse current	$V_R = V_{RRM}$ $V_D = V_{DRM}$			200	mA
$d_v/dt$	Critical rate of rise of off-state voltage	$V_D = 80\% V_{DRM}$	1000			V/μs
$P_G$	Max. average gate power	Square wave pulse width 100μs			5	W
$P_{GM}$	Max. peak gate power square				30	W
$I_{GT}$	Gate trigger current	$T_j = 25^\circ C$ , $V_D = 10V$ , $I_T = 3A$			300	mA
$V_{GT}$	Gate trigger voltage				3.0	V
$V_{GD}$	DC voltage not to trigger	At 67% $V_{DRM}$ , $T_j = T_j \text{ max.}$			0.25	V
$I_{FGM}$	Max. peak positive gate current				5	mA
$T_j$	Operating temperature range				125	°C
$T_{stg}$	Storage temperature		- 40		125	°C
$R_{th}(j-h)$	Thermal resistance(junction to heatsink)	Double side cooled, clamping force			0.011	°C/W
$F_m$	Mounting force		35		47	KN
$W_t$	Approximate weight				1600	g

Figure 1 – On-state characteristics of Limit device

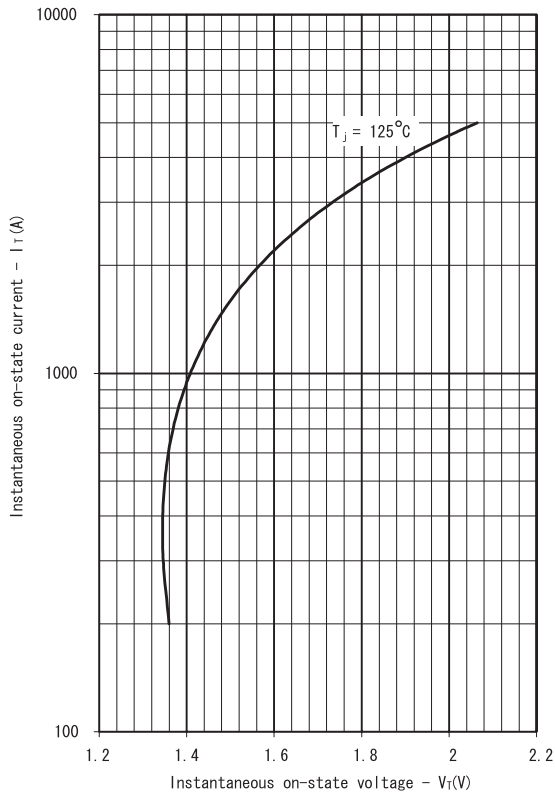


Figure 2 – Transient thermal impedance

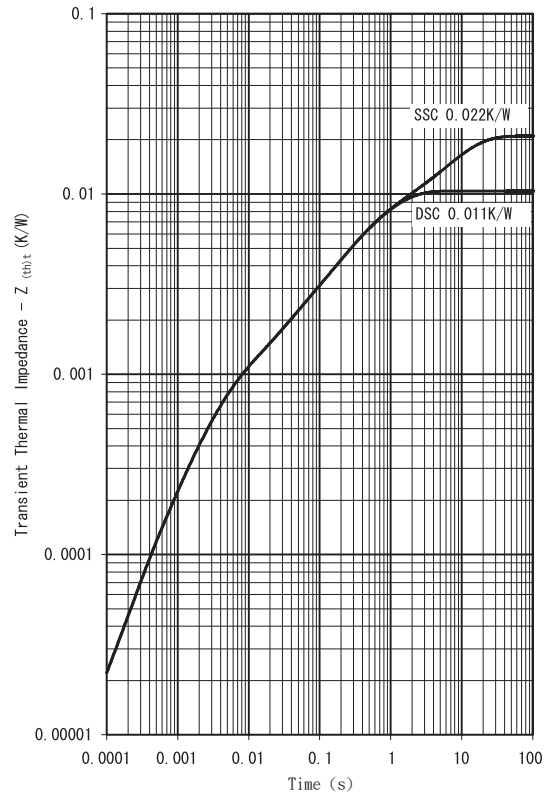


Figure 3 – Gate characteristics – Trigger limits

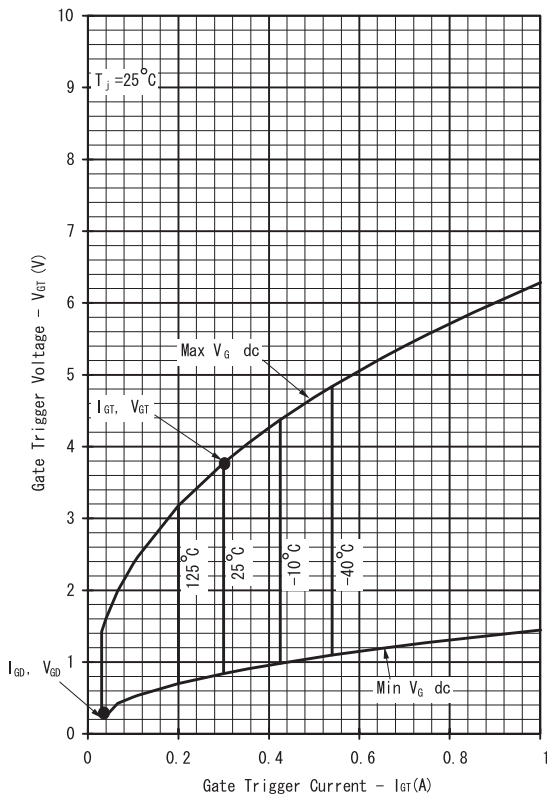


Figure 4 – Gate characteristics – Power curves

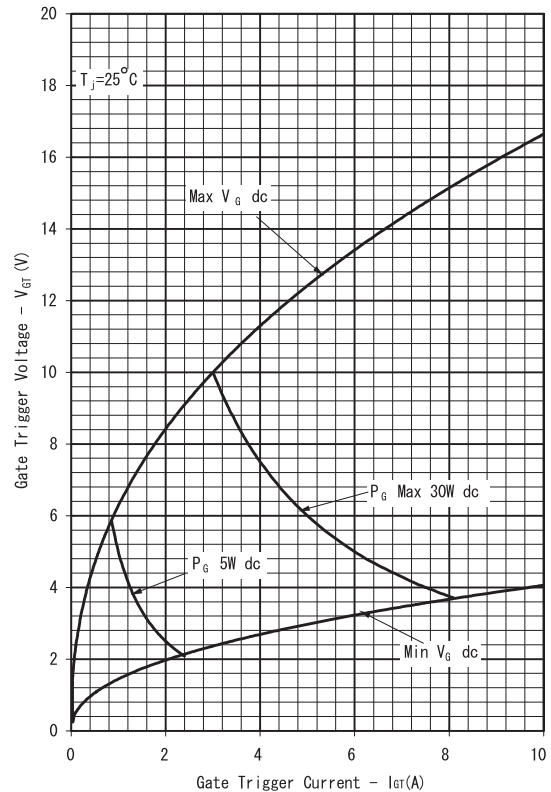


Figure 5 – Total recovered charge,  $Q_{rr}$

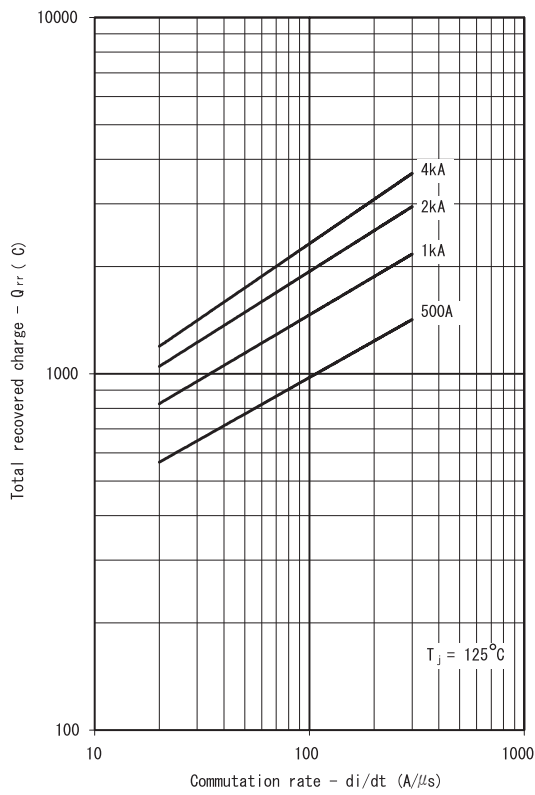


Figure 6 – Recovered charge,  $Q_{ra}$  (50% chord)

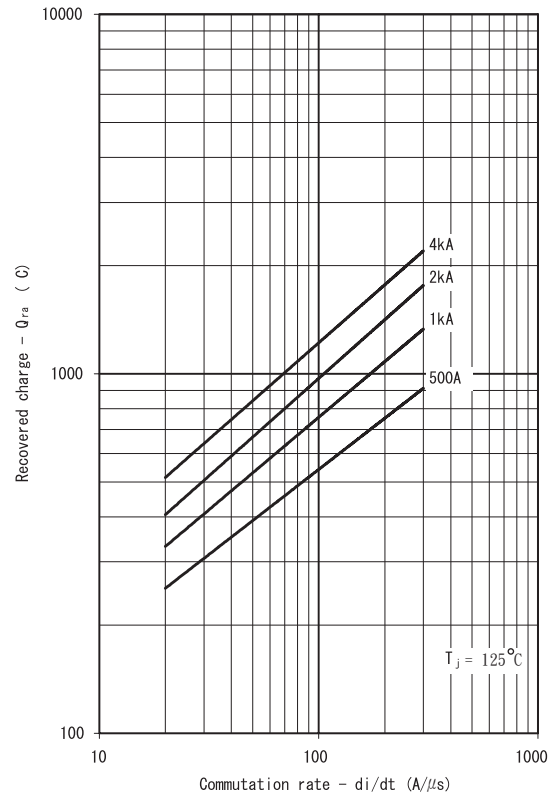


Figure 7 – Peak reverse recovery current,  $I_{rm}$

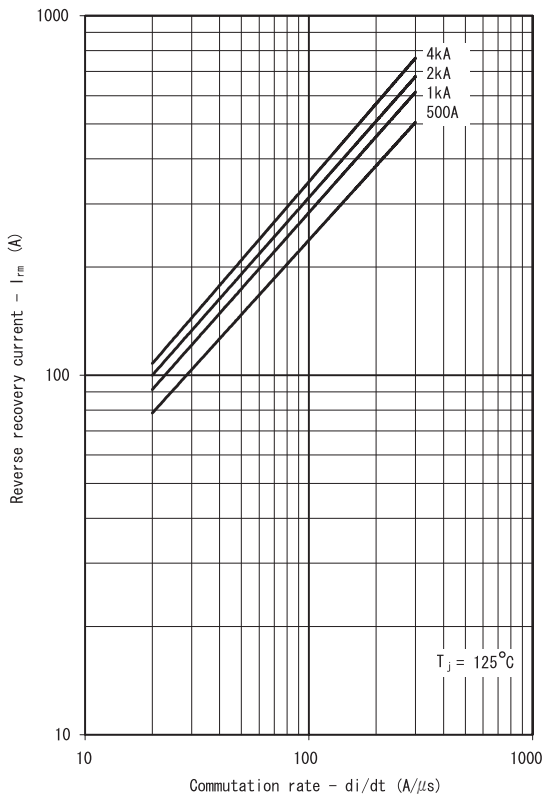


Figure 8 – Maximum recovery time,  $t_{rr}$  (50% chord)

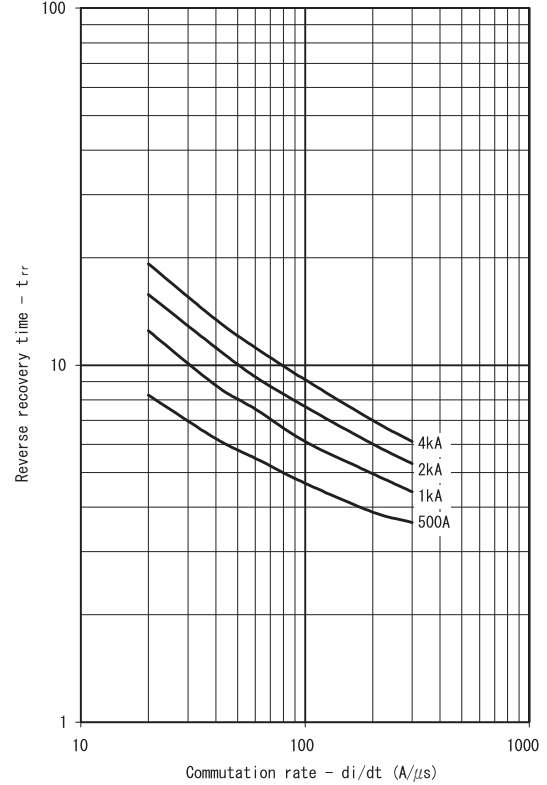


Figure 9 – Reverse recovery energy per pulse

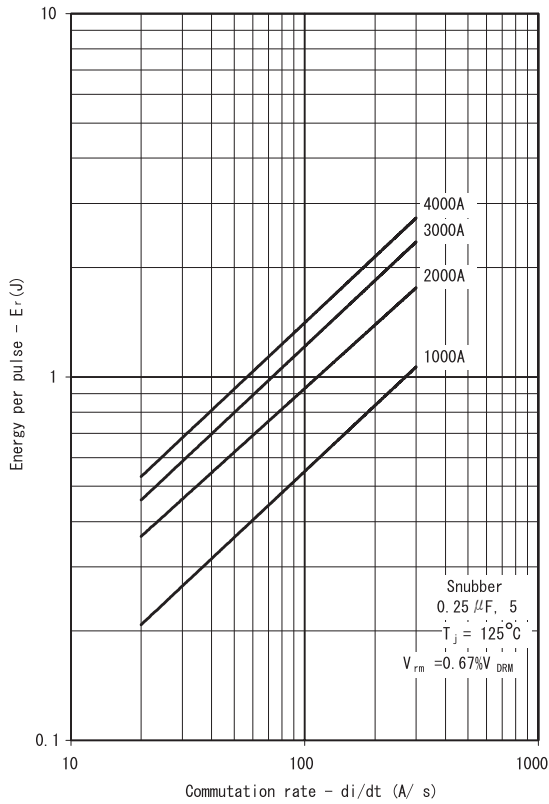


Figure 10 – Sine wave energy per pulse

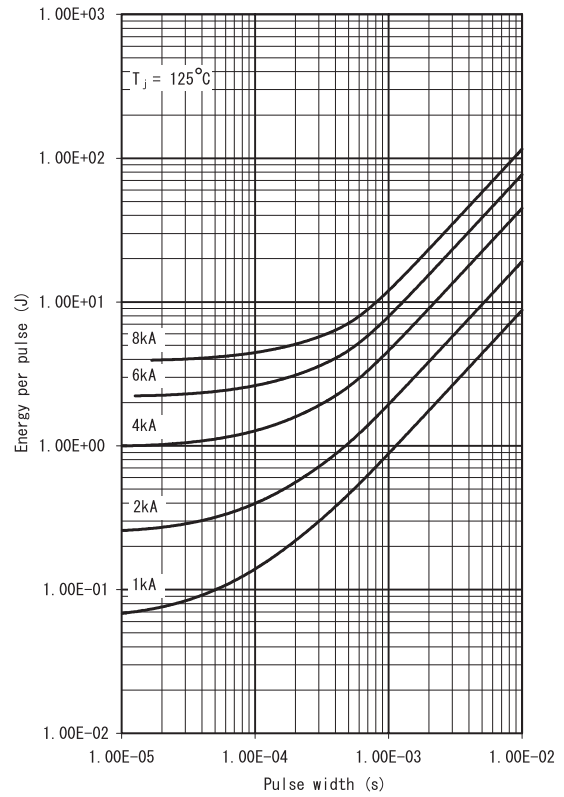


Figure 11 – Sine wave frequency ratings

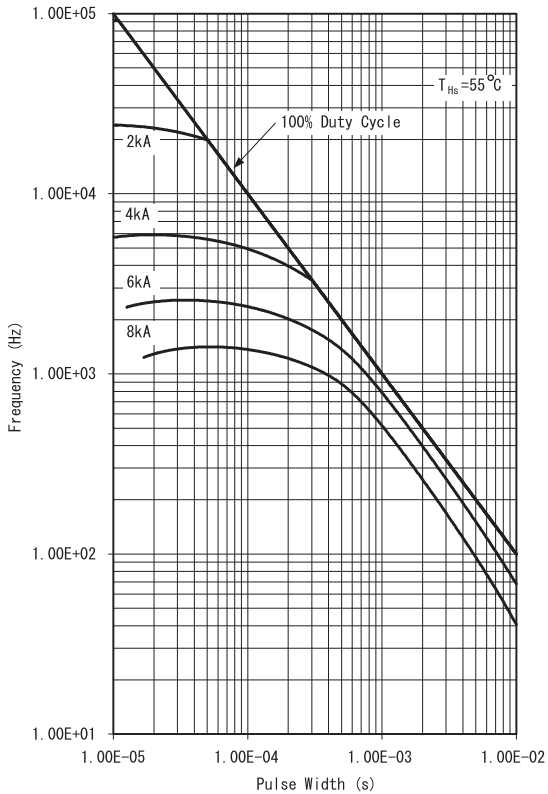


Figure 12 – Sine wave frequency ratings

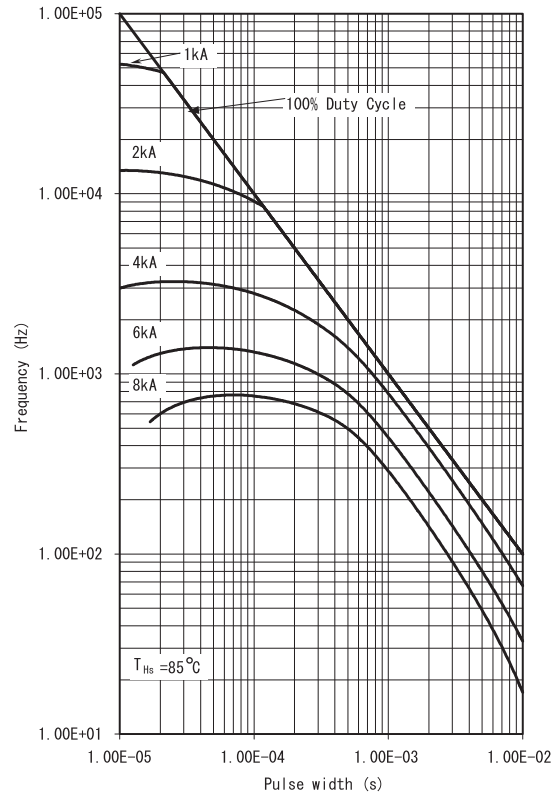


Figure 13 – Square wave frequency ratings

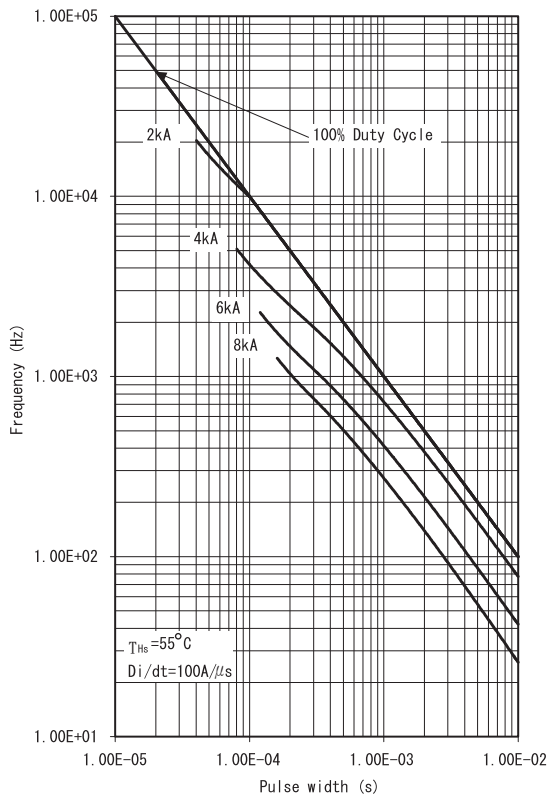


Figure 14 – Square wave frequency ratings

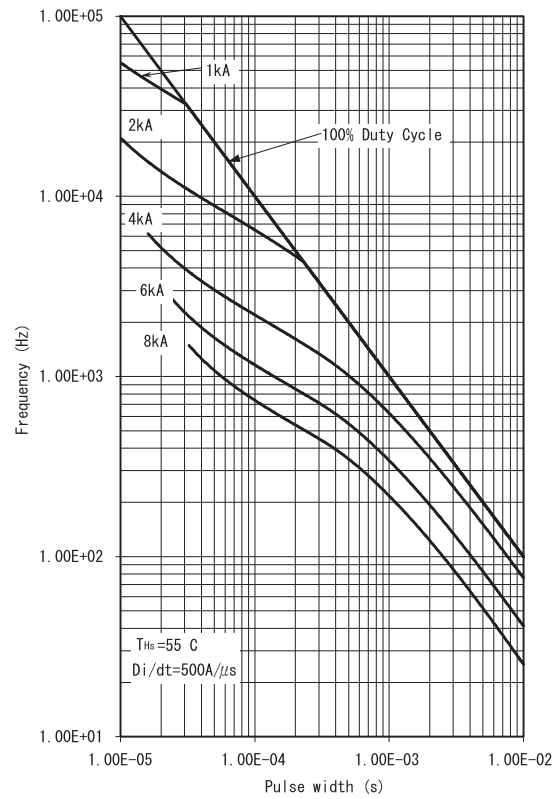


Figure 15 – Square wave frequency ratings

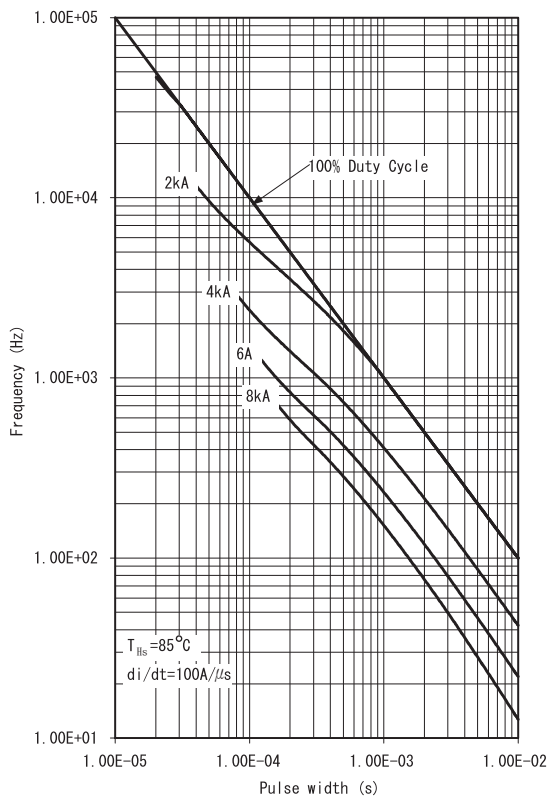


Figure 16 – Square wave frequency ratings

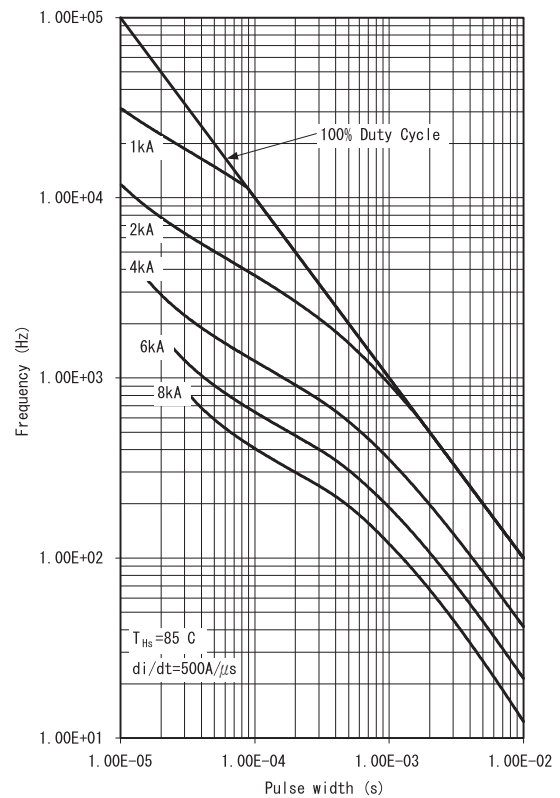


Figure 17 – Square wave energy per pulse

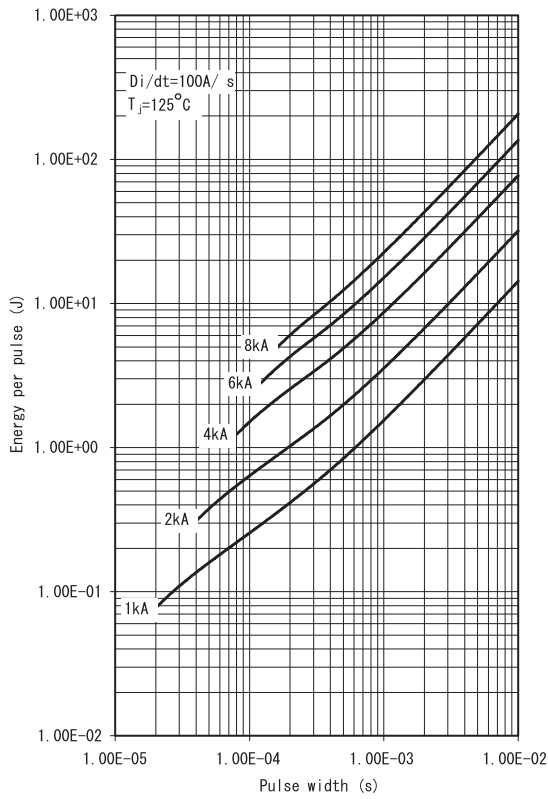


Figure 18 – Square wave energy per pulse

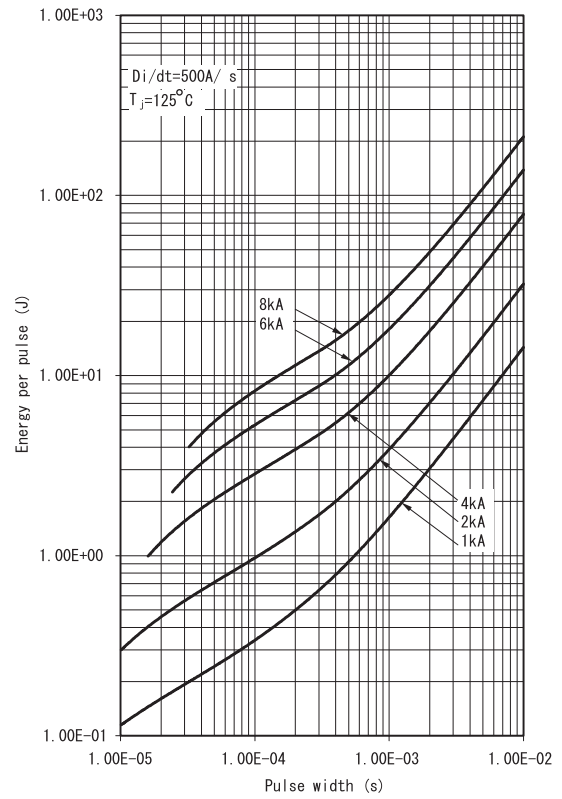


Figure 19 – Maximum surge and  $I^2t$  Ratings

