



Low switching losses  
Low reverse recovery charge  
Distributed amplified gate for high  $di_T/dt$

Mean on-state current	$I_{TAV}$	800 A	
Repetitive peak off-state voltage	$V_{DRM}$	3000...3400 V	
Repetitive peak reverse voltage	$V_{RRM}$		
Turn-off time	$t_q$	63.0 $\mu s$	
$V_{DRM}, V_{RRM}, V$	3000	3200	3400
Voltage code	30	32	34
$T_j, ^\circ C$	-60...+125		

**MAXIMUM ALLOWABLE RATINGS**

Symbols and parameters		Units	Values	Test conditions
<b>ON-STATE</b>				
$I_{TAV}$	Mean on-state current	A	744 800 1099	$T_c=85^\circ C$ ; Double side cooled; $T_c=80^\circ C$ ; Double side cooled; $T_c=55^\circ C$ ; Double side cooled; 180° half-sine wave; 50 Hz
$I_{TRMS}$	RMS on-state current	A	1256	$T_c=80^\circ C$ ; Double side cooled; 180° half-sine wave; 50 Hz
$I_{TSM}$	Surge on-state current	kA	20.0 23.0	$T_j=T_{jmax}$ $T_j=25^\circ C$ 180° half-sine wave; $t_p=10$ ms; single pulse; $V_D=V_R=0$ V; Gate pulse: $I_G=I_{FGM}$ ; $V_G=20$ V; $t_{GP}=50$ $\mu s$ ; $di_G/dt=1$ A/ $\mu s$
			21.0 24.0	$T_j=T_{jmax}$ $T_j=25^\circ C$ 180° half-sine wave; $t_p=8.3$ ms; single pulse; $V_D=V_R=0$ V; Gate pulse: $I_G=I_{FGM}$ ; $V_G=20$ V; $t_{GP}=50$ $\mu s$ ; $di_G/dt=1$ A/ $\mu s$
$I^2t$	Safety factor	$A^2s \cdot 10^3$	2000 2600	$T_j=T_{jmax}$ $T_j=25^\circ C$ 180° half-sine wave; $t_p=10$ ms; single pulse; $V_D=V_R=0$ V; Gate pulse: $I_G=I_{FGM}$ ; $V_G=20$ V; $t_{GP}=50$ $\mu s$ ; $di_G/dt=1$ A/ $\mu s$
			1800 2300	$T_j=T_{jmax}$ $T_j=25^\circ C$ 180° half-sine wave; $t_p=8.3$ ms; single pulse; $V_D=V_R=0$ V; Gate pulse: $I_G=I_{FGM}$ ; $V_G=20$ V; $t_{GP}=50$ $\mu s$ ; $di_G/dt=1$ A/ $\mu s$
<b>BLOCKING</b>				
$V_{DRM}, V_{RRM}$	Repetitive peak off-state and Repetitive peak reverse voltages	V	3000...3400	$T_{jmin} < T_j < T_{jmax}$ ; 180° half-sine wave; 50 Hz; Gate open
$V_{DSM}, V_{RSM}$	Non-repetitive peak off-state and Non-repetitive peak reverse voltages	V	3100...3500	$T_{jmin} < T_j < T_{jmax}$ ; 180° half-sine wave; single pulse; Gate open
$V_D, V_R$	Direct off-state and Direct reverse voltages	V	$0.6 \cdot V_{DRM}$ $0.6 \cdot V_{RRM}$	$T_j=T_{jmax}$ ; Gate open

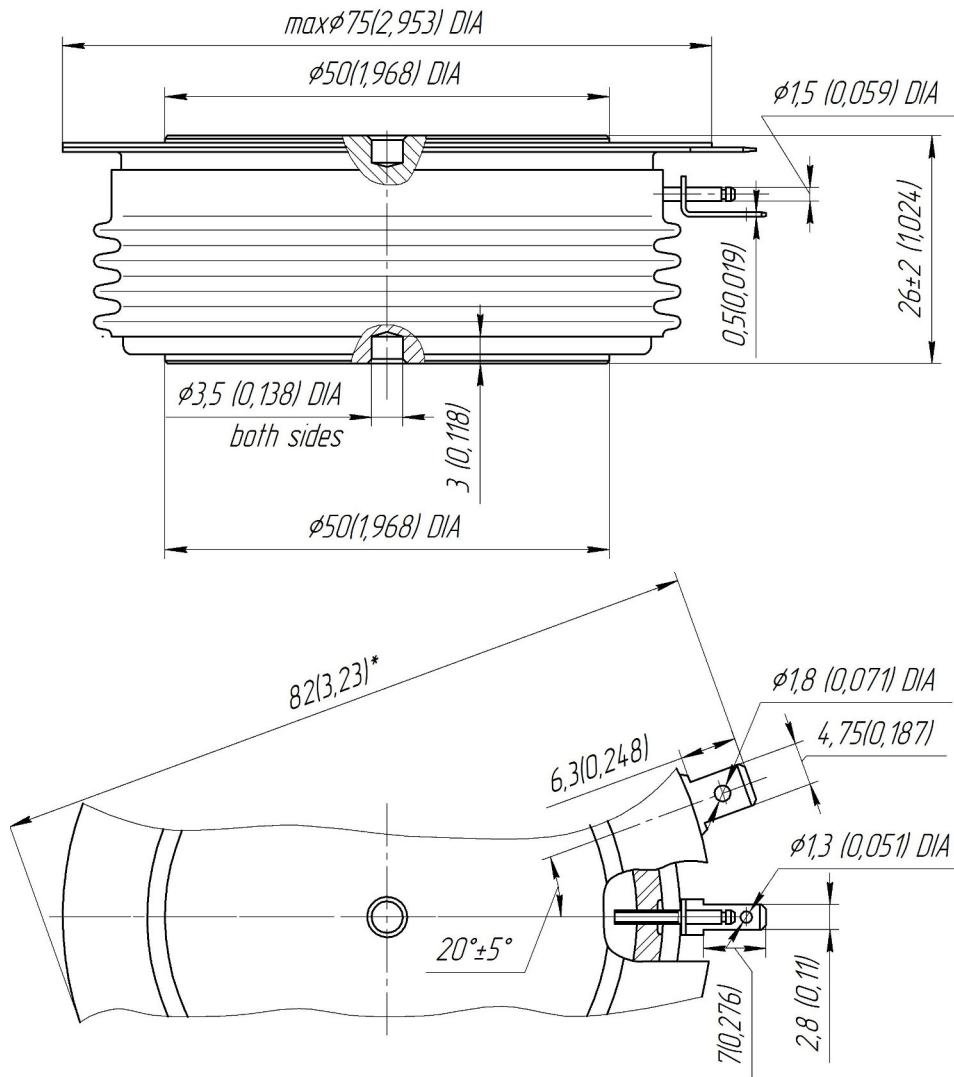
TRIGGERING				
$I_{FGM}$	Peak forward gate current	A	8	$T_j = T_{j\max}$
$V_{RGM}$	Peak reverse gate voltage	V	5	
$P_G$	Gate power dissipation	W	8	$T_j = T_{j\max}$ for DC gate current
SWITCHING				
$(di_T/dt)_{crit}$	Critical rate of rise of on-state current non-repetitive ( $f=1$ Hz)	A/ $\mu$ s	2000	$T_j = T_{j\max}$ ; $V_D = 0.67 \cdot V_{DRM}$ ; $I_{TM} = 4000$ A; Gate pulse: $I_G = 2$ A; $V_G = 20$ V; $t_{GP} = 50$ $\mu$ s; $di_G/dt = 2$ A/ $\mu$ s
THERMAL				
$T_{stg}$	Storage temperature	$^{\circ}$ C	-60...+50	
$T_j$	Operating junction temperature	$^{\circ}$ C	-60...+125	
MECHANICAL				
F	Mounting force	kN	24.0...28.0	
a	Acceleration	m/s <sup>2</sup>	50	Device clamped

## CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
ON-STATE					
$V_{TM}$	Peak on-state voltage, max	V	2.70	$T_j = 25$ $^{\circ}$ C; $I_{TM} = 2512$ A	
$V_{T(TO)}$	On-state threshold voltage, max	V	1.563	$T_j = T_{j\max}$ ;	
$r_T$	On-state slope resistance, max	m $\Omega$	0.545	$0.5 \pi I_{TAV} < I_T < 1.5 \pi I_{TAV}$	
$I_H$	Holding current, max	mA	500	$T_j = 25$ $^{\circ}$ C; $V_D = 12$ V; Gate open	
BLOCKING					
$I_{DRM}, I_{RRM}$	Repetitive peak off-state and Repetitive peak reverse currents, max	mA	150	$T_j = T_{j\max}$ ; $V_D = V_{DRM}$ ; $V_R = V_{RRM}$	
$(dv_D/dt)_{crit}$	Critical rate of rise of off-state voltage <sup>1)</sup> , min	V/ $\mu$ s	200, 320, 500, 1000, 1600, 2000, 2500	$T_j = T_{j\max}$ ; $V_D = 0.67 \cdot V_{DRM}$ ; Gate open	
TRIGGERING					
$V_{GT}$	Gate trigger direct voltage, max	V	3.00 2.50 1.50	$T_j = T_{j\min}$ $T_j = 25$ $^{\circ}$ C $T_j = T_{j\max}$	$V_D = 12$ V; $I_D = 3$ A; Direct gate current
$I_{GT}$	Gate trigger direct current, max	mA	500 300 150	$T_j = T_{j\min}$ $T_j = 25$ $^{\circ}$ C $T_j = T_{j\max}$	
$V_{GD}$	Gate non-trigger direct voltage, min	V	0.35	$T_j = T_{j\max}$ ; $V_D = 0.67 \cdot V_{DRM}$ ;	
$I_{GD}$	Gate non-trigger direct current, min	mA	60.00	Direct gate current	
SWITCHING					
$t_{gd}$	Delay time, max	$\mu$ s	0.95	$T_j = 25$ $^{\circ}$ C; $V_D = 1500$ V; $I_{TM} = I_{TAV}$ ; $di/dt = 200$ A/ $\mu$ s;	
$t_{gt}$	Turn-on time <sup>2)</sup> , max	$\mu$ s	2.00, 2.50, 3.20, 4.00	Gate pulse: $I_G = 2$ A; $V_G = 20$ V; $t_{GP} = 50$ $\mu$ s; $di_G/dt = 2$ A/ $\mu$ s	
$t_q$	Turn-off time <sup>3)</sup> , max	$\mu$ s	63.0	$dv_D/dt = 50$ V/ $\mu$ s;	$T_j = T_{j\max}$ ; $I_{TM} = I_{TAV}$ ; $di_R/dt = -10$ A/ $\mu$ s; $V_R = 100$ V; $V_D = 0.67 V_{DRM}$
			80.0	$dv_D/dt = 200$ V/ $\mu$ s;	
$Q_{rr}$	Total recovered charge, max	$\mu$ C	1000	$T_j = T_{j\max}$ ; $I_{TM} = I_{TAV}$ ;	
$t_{rr}$	Reverse recovery time, typ	$\mu$ s	8.0	$di_R/dt = -50$ A/ $\mu$ s;	
$I_{rrM}$	Peak reverse recovery current, max	A	260	$V_R = 100$ V	

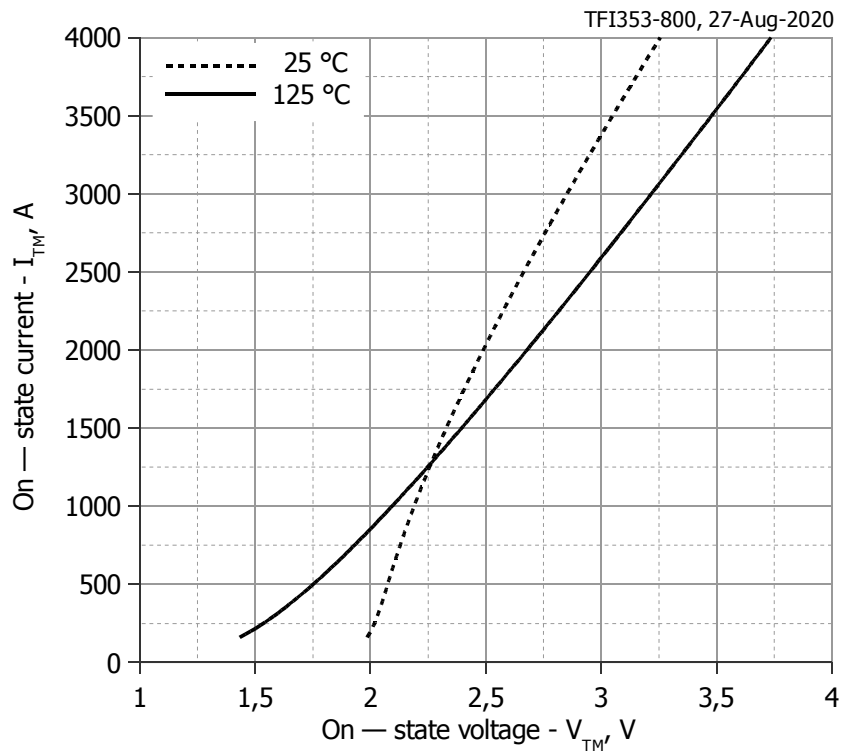
THERMAL					
$R_{thjc}$	Thermal resistance, junction to case, max	°C/W	0.0210	Direct current	Double side cooled
$R_{thjc-A}$			0.0462		Anode side cooled
$R_{thjc-K}$			0.0378		Cathode side cooled
$R_{thck}$	Thermal resistance, case to heatsink, max	°C/W	0.0040	Direct current	
MECHANICAL					
w	Weight, max	g	510		
$D_s$	Surface creepage distance	mm (inch)	30.38 (1.196)		
$D_a$	Air strike distance	mm (inch)	18.05 (0.710)		

PART NUMBERING GUIDE								NOTES									
TFI	353	800	34	A2	C3	H4	N	1) Critical rate of rise of off-state voltage									
1	2	3	4	5	6	7	8	Symbol of Group	P2	K2	E2	A2	T1	P1	M1		
1. TFI — fast inverter thyristor								$(dv_D/dt)_{crit}$ , V/ $\mu$ s	200	320	500	1000	1600	2000	2500		
2. Design version								2) Turn-on time									
3. Mean on-state current, A								Symbol of group	P4	M4	K4	H4					
4. Voltage code								$t_{gt}$ , $\mu$ s	2.00	2.50	3.20	4.00					
5. Critical rate of rise of off-state voltage								3) Turn-off time ( $dv_D/dt=50$ V/ $\mu$ s)									
6. Group of turn-off time ( $dv_D/dt=50$ V/ $\mu$ s)								Symbol of group	C3								
7. Group of turn-on time								$t_{of}$ , $\mu$ s	63.0								
8. Ambient conditions: N – normal; T – tropical																	



All dimensions in millimeters (inches)

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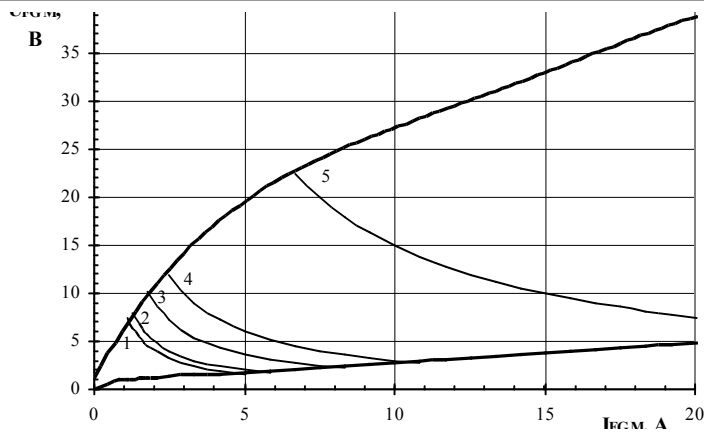


Analytical function for On-state characteristic:

$$V_T = A + B \cdot i_T + C \cdot \ln(i_T + 1) + D \cdot \sqrt{i_T}$$

	Coefficients for max curves	
	$T_j = 25^\circ\text{C}$	$T_j = T_{j\text{max}}$
<b>A</b>	1.19677796	0.78075192
<b>B</b>	0.00070481	0.00044454
<b>C</b>	0.24174501	0.10128480
<b>D</b>	-0.04371044	0.00534467

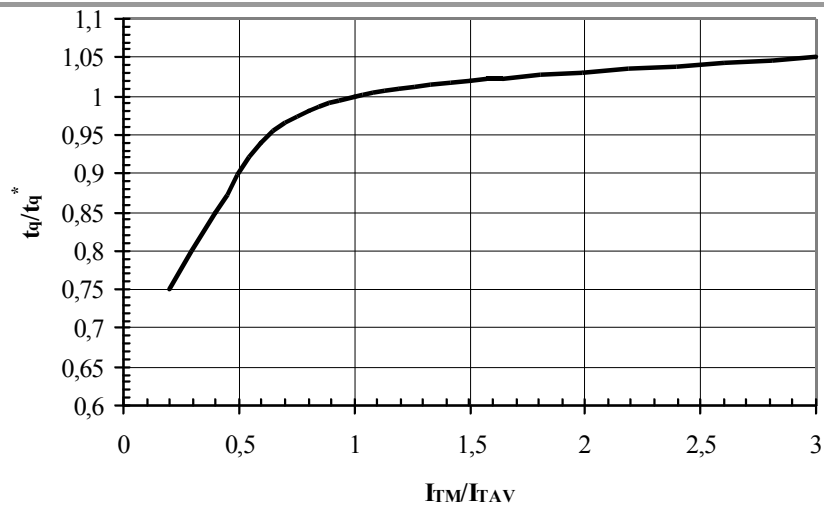
**Fig. 1** On-state characteristics of Limit device



Maximum peak gate power loss

Position	On-Off time ratio	Gate pulse length, ms	Gate Pulse Power, W
1	1	DC	8
2	2	10	10
3	20	1	18
4	40	0.5	30
5	200	0.1	150

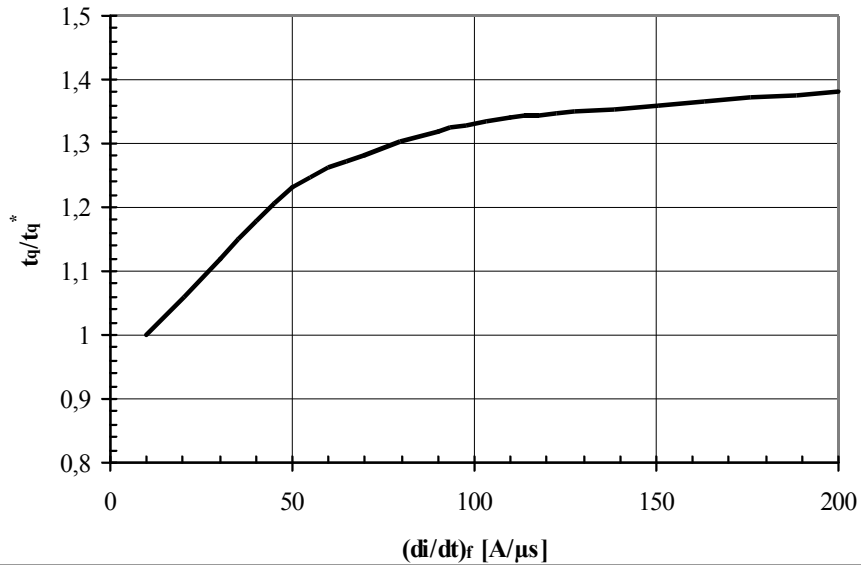
**Fig. 2** Gate characteristics



**Fig. 3** Turn-off time  $t_q$  vs. On-state peak current  $I_{TM}$

Conditions:  $T_j=T_{j\max}$ ;  $di_R/dt=10\text{ A}/\mu\text{s}$ ;  $V_R=100\text{ V}$ ;  $dv_D/dt=50\text{ V}/\mu\text{s}$ ;  $V_D=0.67\cdot V_{DRM}$

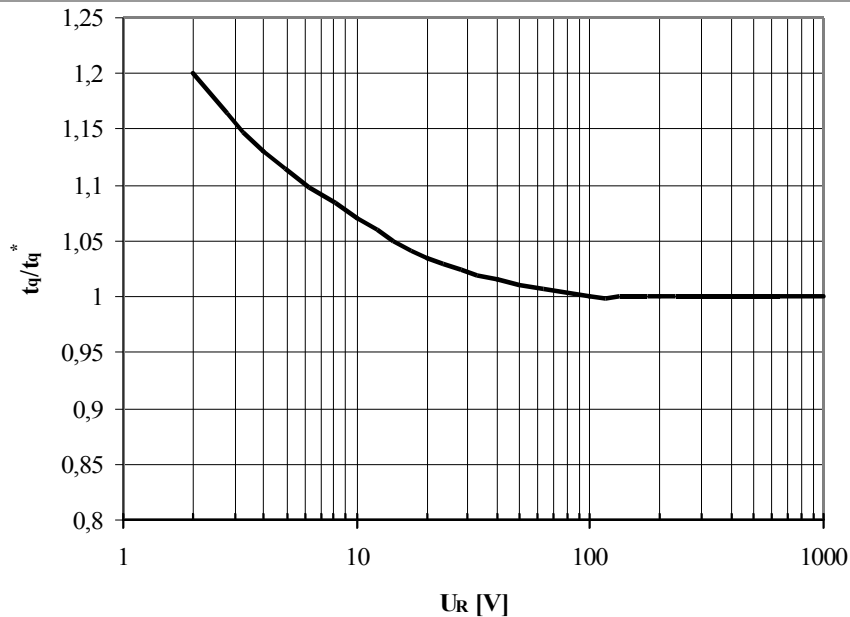
Typical changes of  $t_q$  are normalized to the  $t_q^*$  ( $t_q^*$  – see data sheet,  $dv_D/dt=50\text{ V}/\mu\text{s}$ )



**Fig. 4** Turn-off time  $t_q$  vs. Rate of fall of on-state current  $di_R/dt$

Conditions:  $T_j=T_{j\max}$ ;  $I_{TM}=I_{TAV}$ ;  $V_R=100\text{ V}$ ;  $dv_D/dt=50\text{ V}/\mu\text{s}$ ;  $V_D=0.67\cdot V_{DRM}$

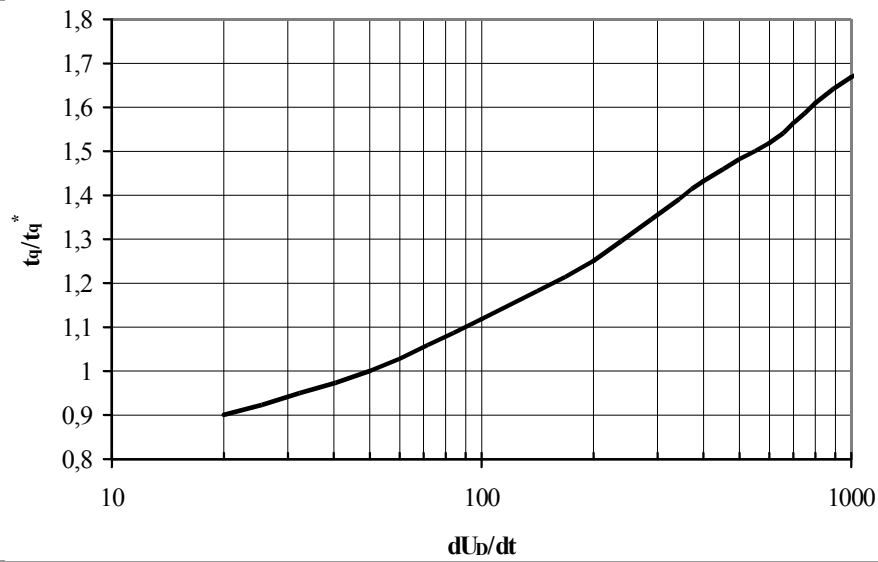
Typical changes of  $t_q$  are normalized to the  $t_q^*$  ( $t_q^*$  – see data sheet,  $dv_D/dt=50\text{ V}/\mu\text{s}$ )



**Fig. 5** Turn-off time  $t_q$  vs. Reverse voltage  $V_R$

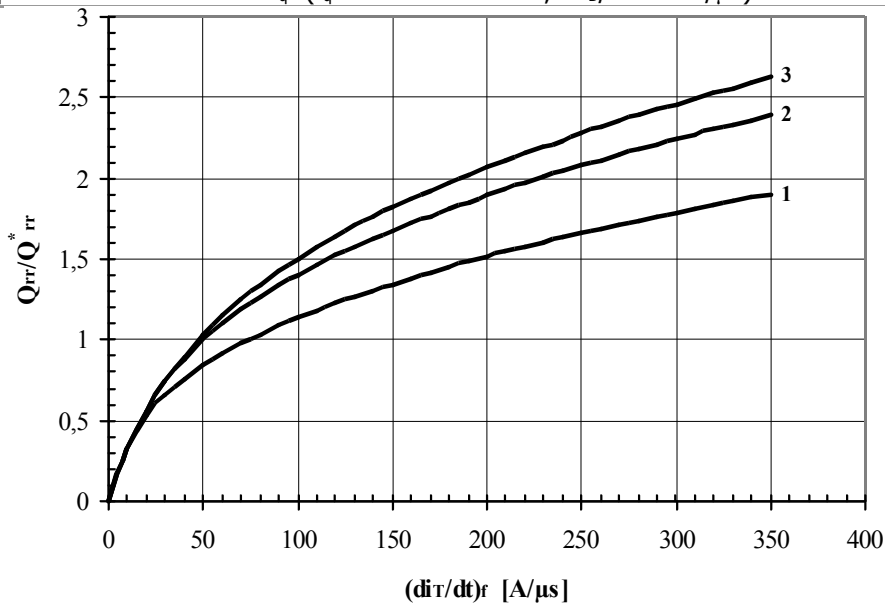
Conditions:  $T_j=T_{j\max}$ ;  $I_{TM}=I_{TAV}$ ;  $di_R/dt=10\text{ A}/\mu\text{s}$ ;  $dv_D/dt=50\text{ V}/\mu\text{s}$ ;  $V_D=0.67\cdot V_{DRM}$

Typical changes of  $t_q$  are normalized to the  $t_q^*$  ( $t_q^*$  – see data sheet,  $dv_D/dt=50\text{ V}/\mu\text{s}$ )



**Fig. 6** Turn-off time  $t_q$  vs. Rate of rise of commutating voltage  $dv_D/dt$

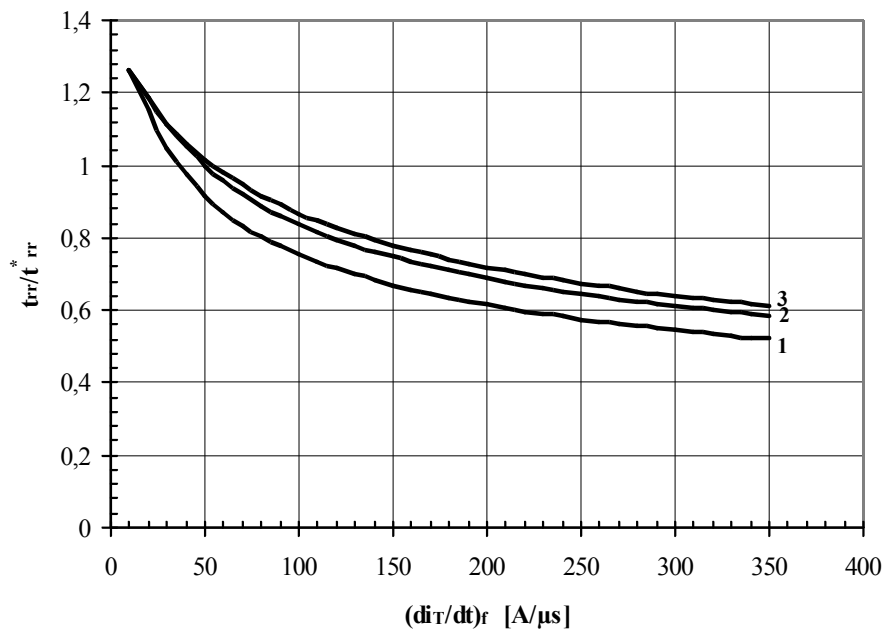
Conditions:  $T_j = T_{j\max}$ ;  $I_{TM} = I_{TAV}$ ;  $di_R/dt = 10 \text{ A}/\mu\text{s}$ ;  $V_R = 100 \text{ V}$ ;  $V_D = 0.67 \cdot V_{DRM}$   
 Typical changes of  $t_q$  are normalized to the  $t_q^*$  ( $t_q^*$  – see data sheet,  $dv_D/dt = 50 \text{ V}/\mu\text{s}$ )



**Fig. 7** Reverse recovery charge  $Q_{rr}$  vs. Rate of fall of on-state current  $di_R/dt$

- 1 –  $I_{TM} = 0.5 \cdot I_{TAV}$
- 2 –  $I_{TM} = I_{TAV}$
- 3 –  $I_{TM} = 1.5 \cdot I_{TAV}$

Conditions:  $T_j = T_{j\max}$ ;  $V_R = 100 \text{ V}$   
 Typical changes of  $Q_{rr}$  are normalized to the  $Q_{rr}^*$  ( $Q_{rr}^*$  – see data sheet)



**Fig. 8** Reverse recovery time  $t_{rr}$  vs. Rate of fall of on-state current  $di_R/dt$

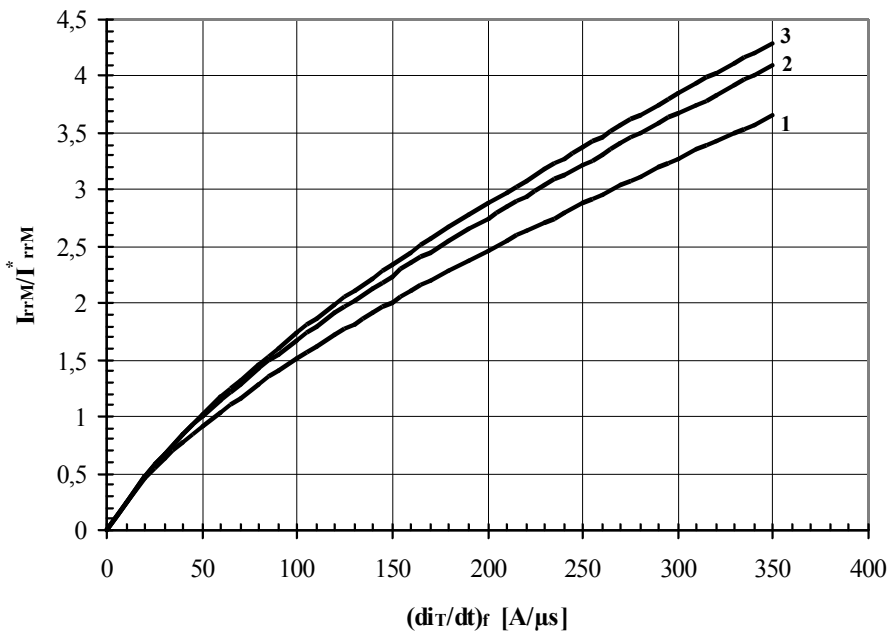
1 -  $I_{TM} = 0.5 \cdot I_{TAV}$

2 -  $I_{TM} = I_{TAV}$

3 -  $I_{TM} = 1.5 \cdot I_{TAV}$

Conditions:  $T_j = T_{j \max}$ ;  $V_R = 100$  V

Typical changes of  $t_{rr}$  are normalized to the  $t_{rr}^*$  ( $t_{rr}^*$  – see data sheet)



**Fig. 9** Peak reverse recovery current  $I_{rrM}$  vs. Rate of fall of on-state current  $di_R/dt$

1 -  $I_{TM} = 0.5 \cdot I_{TAV}$

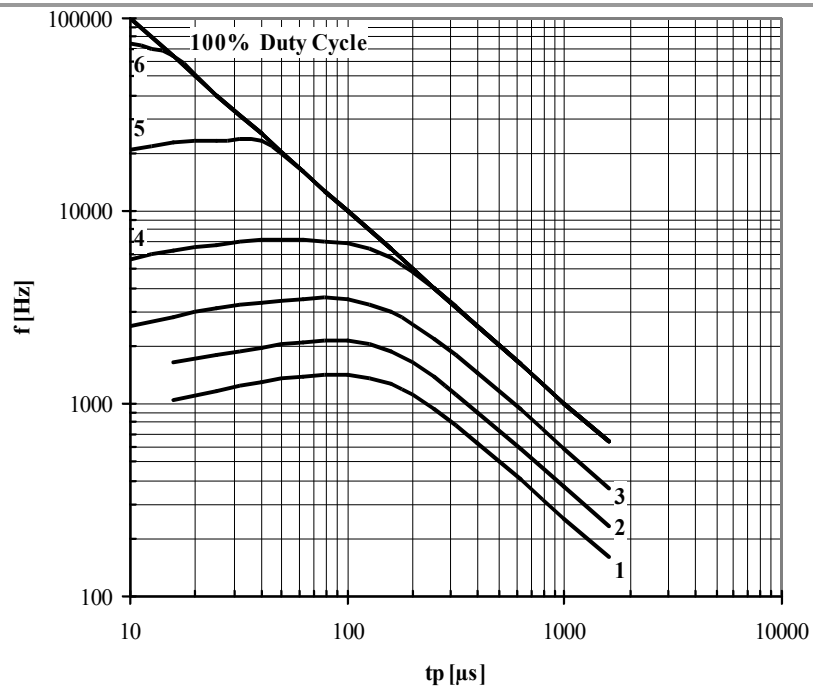
2 -  $I_{TM} = I_{TAV}$

3 -  $I_{TM} = 1.5 \cdot I_{TAV}$

Conditions:  $T_j = T_{j \max}$ ;  $V_R = 100$  V

Typical changes of  $I_{rrM}$  are normalized to the  $I_{rrM}^*$  ( $I_{rrM}^*$  – see data sheet)

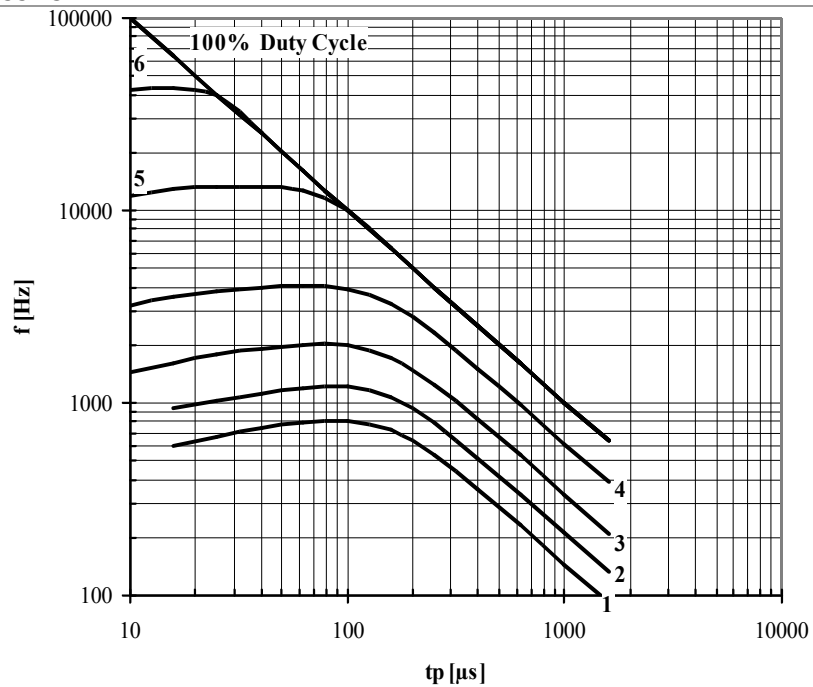




**Fig. 10** Sine wave frequency ratings

- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A
- 6 -  $I_{TM} = 500$  A

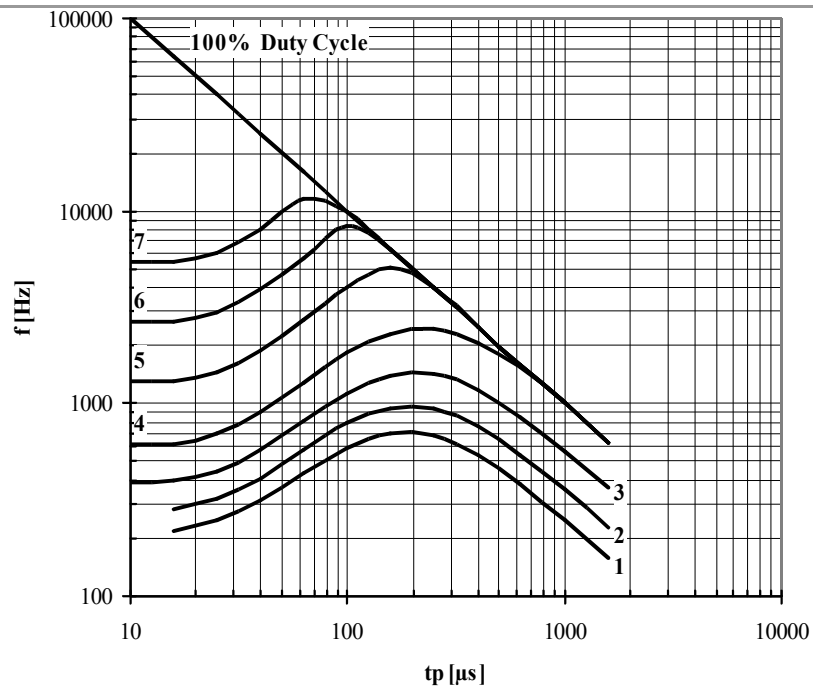
Conditions:  $V_R \leq 3$  V;  $T_C = 55$  °C



**Fig. 11** Sine wave frequency ratings

- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A
- 6 -  $I_{TM} = 500$  A

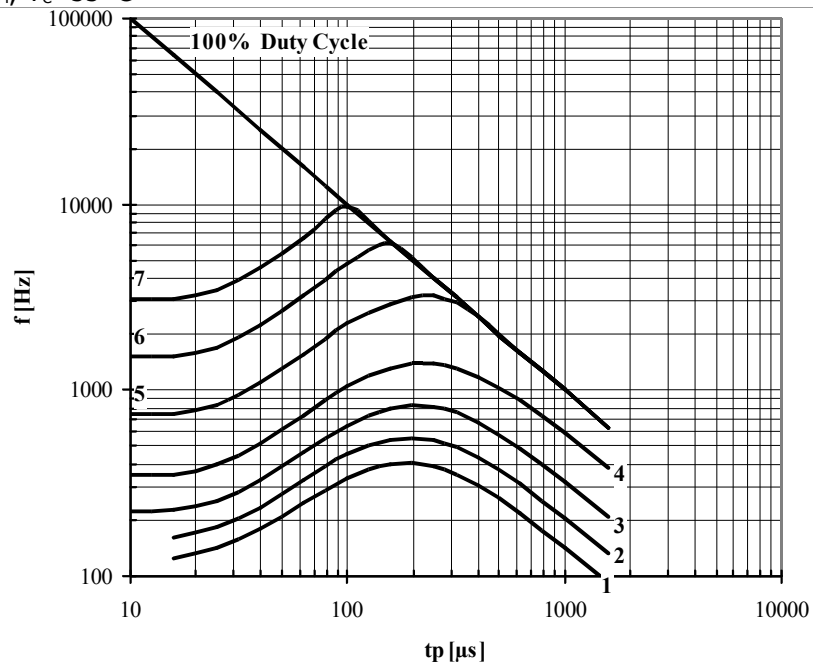
Conditions:  $V_R \leq 3$  V;  $T_C = 80$  °C



**Fig. 12** Sine wave frequency ratings

- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A
- 6 -  $I_{TM} = 500$  A
- 7 -  $I_{TM} = 250$  A

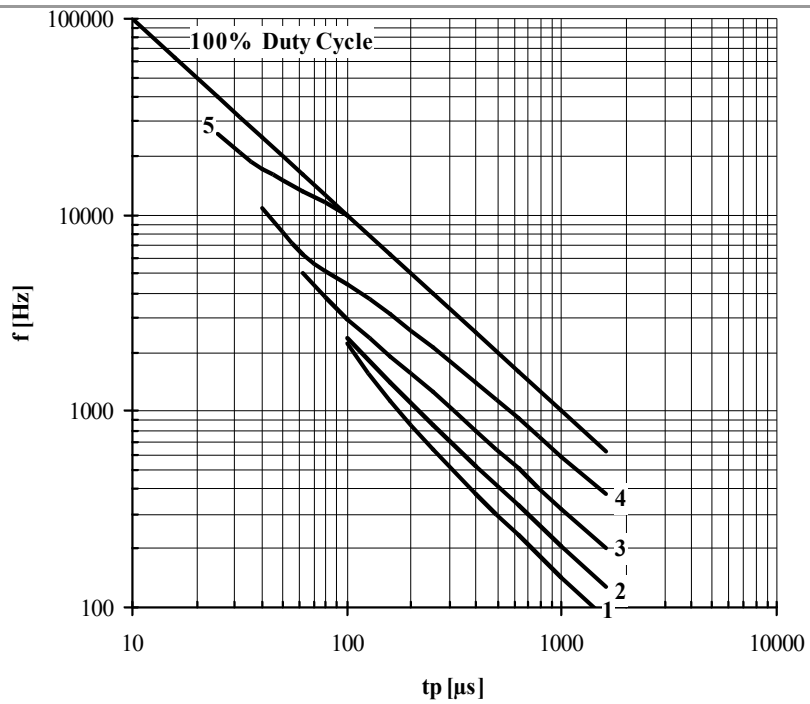
Conditions:  $V_R = 0.67 \cdot V_{RRM}$ ;  $T_C = 55$  °C



**Fig. 13** Sine wave frequency ratings

- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A
- 6 -  $I_{TM} = 500$  A
- 7 -  $I_{TM} = 250$  A

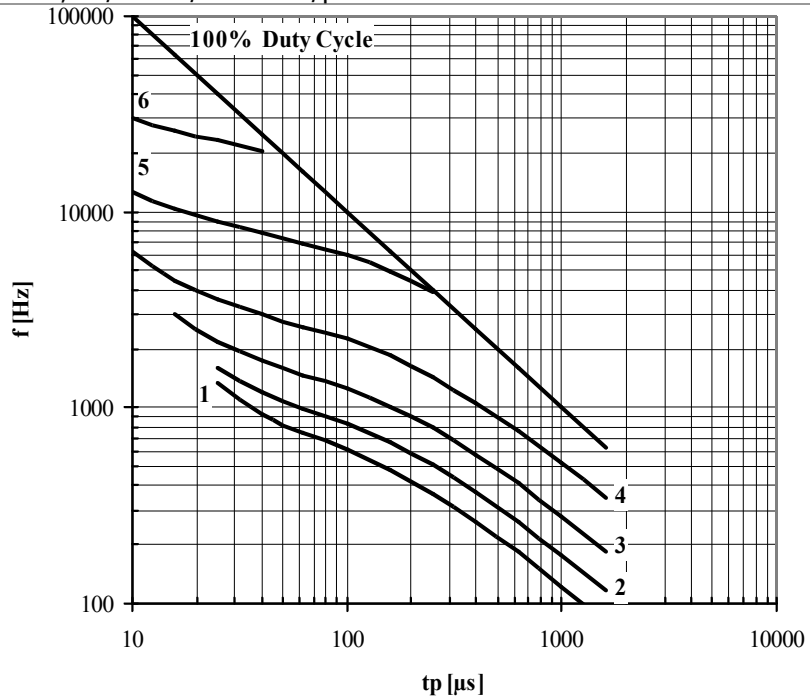
Conditions:  $V_R = 0.67 \cdot V_{RRM}$ ;  $T_C = 80$  °C



**Fig. 14** Square wave frequency ratings

- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A

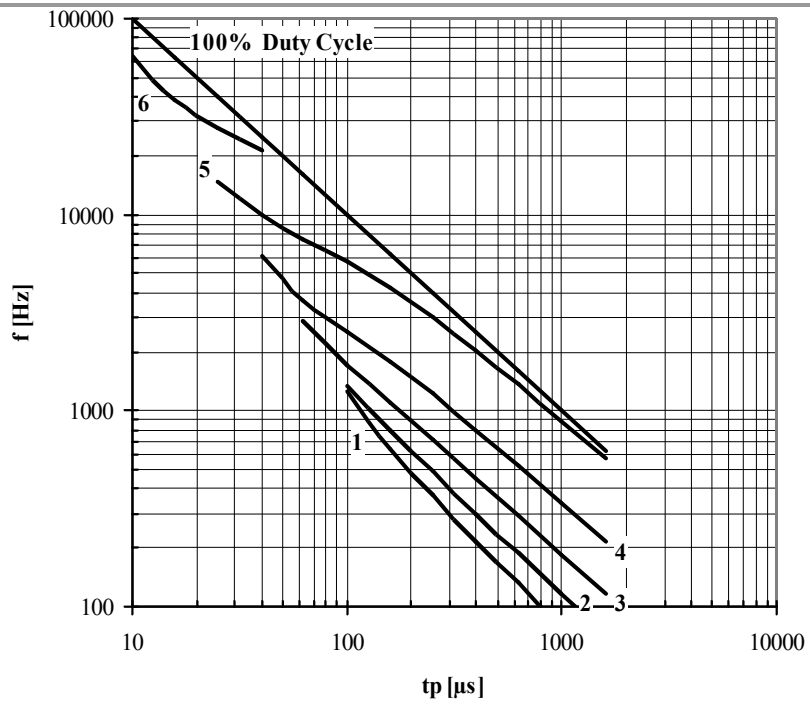
Conditions:  $V_R \leq 3$  V;  $T_C = 55$  °C;  $di_F/dt = di_R/dt = 100$  A/ $\mu$ s



**Fig. 15** Square wave frequency ratings

- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A
- 6 -  $I_{TM} = 500$  A

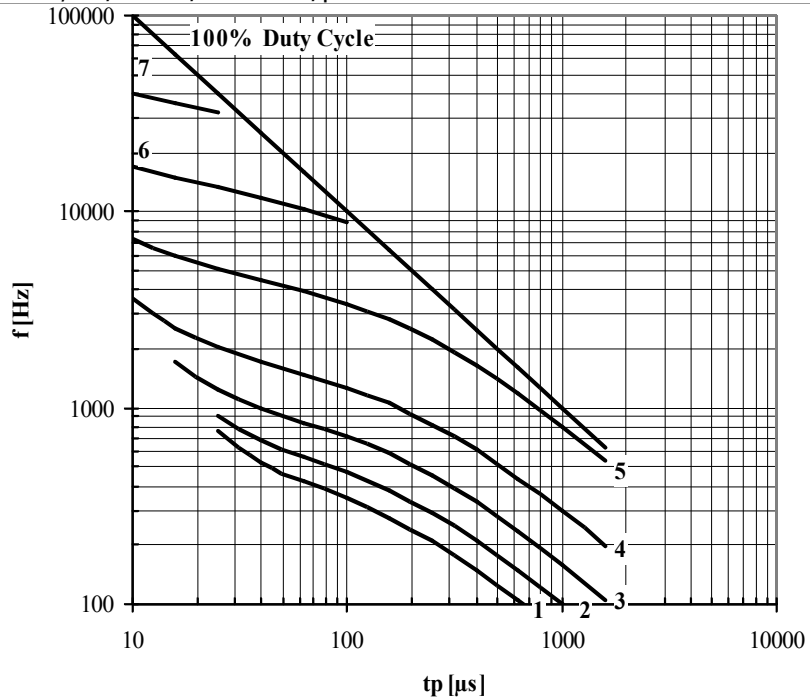
Conditions:  $V_R \leq 3$  V;  $T_C = 55$  °C;  $di_F/dt = di_R/dt = 500$  A/ $\mu$ s



**Fig. 16** Square wave frequency ratings

- 1 -  $I_{TM} = 5000 \text{ A}$
- 2 -  $I_{TM} = 4000 \text{ A}$
- 3 -  $I_{TM} = 3000 \text{ A}$
- 4 -  $I_{TM} = 2000 \text{ A}$
- 5 -  $I_{TM} = 1000 \text{ A}$
- 6 -  $I_{TM} = 500 \text{ A}$

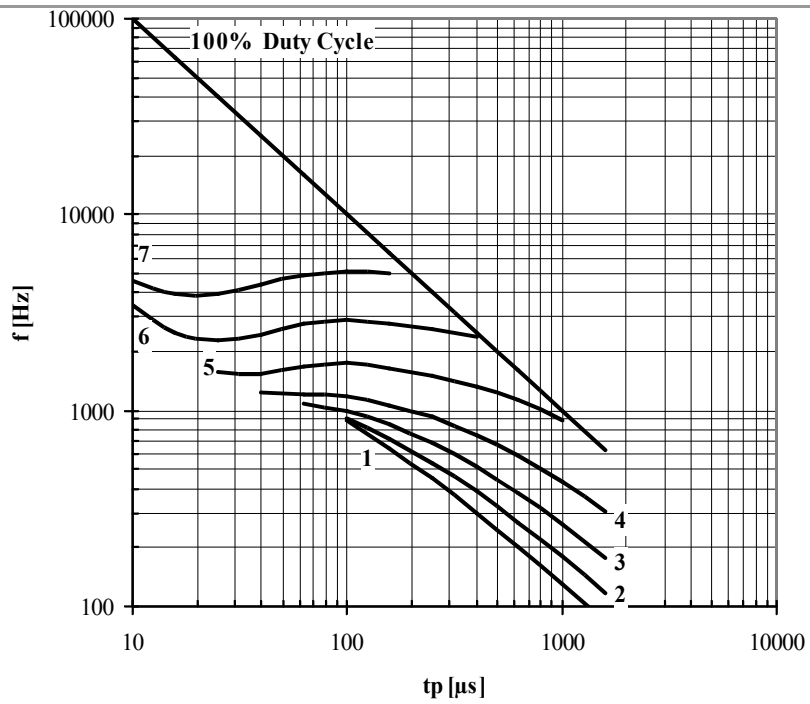
Conditions:  $V_R \leq 3 \text{ V}$ ;  $T_C = 80 \text{ }^\circ\text{C}$ ;  $di_F/dt = di_R/dt = 100 \text{ A}/\mu\text{s}$



**Fig. 17** Square wave frequency ratings

- 1 -  $I_{TM} = 5000 \text{ A}$
- 2 -  $I_{TM} = 4000 \text{ A}$
- 3 -  $I_{TM} = 3000 \text{ A}$
- 4 -  $I_{TM} = 2000 \text{ A}$
- 5 -  $I_{TM} = 1000 \text{ A}$
- 6 -  $I_{TM} = 500 \text{ A}$
- 7 -  $I_{TM} = 250 \text{ A}$

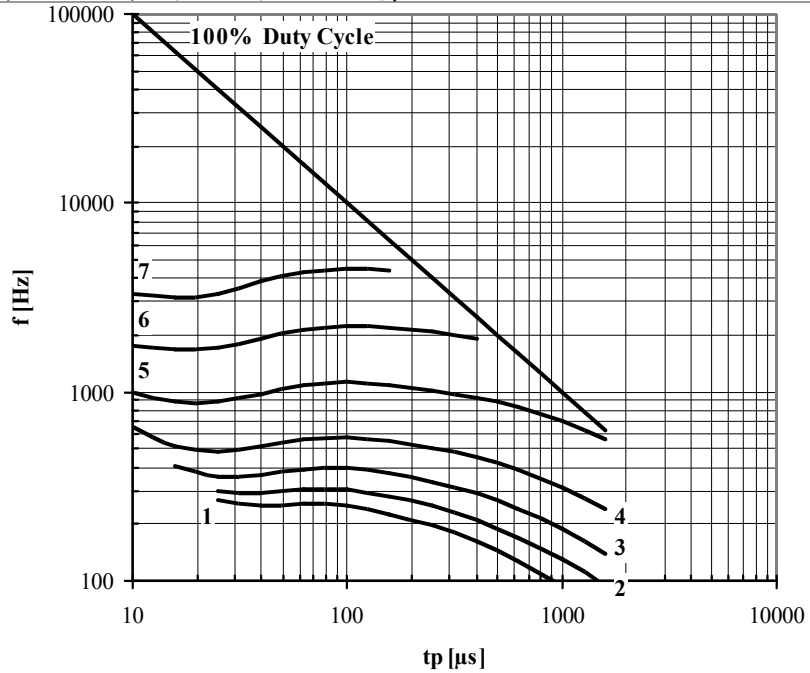
Conditions:  $V_R \leq 3 \text{ V}$ ;  $T_C = 80 \text{ }^\circ\text{C}$ ;  $di_F/dt = di_R/dt = 500 \text{ A}/\mu\text{s}$



**Fig. 18** Square wave frequency ratings

- 1 -  $I_{TM} = 5000 \text{ A}$
- 2 -  $I_{TM} = 4000 \text{ A}$
- 3 -  $I_{TM} = 3000 \text{ A}$
- 4 -  $I_{TM} = 2000 \text{ A}$
- 5 -  $I_{TM} = 1000 \text{ A}$
- 6 -  $I_{TM} = 500 \text{ A}$
- 7 -  $I_{TM} = 250 \text{ A}$

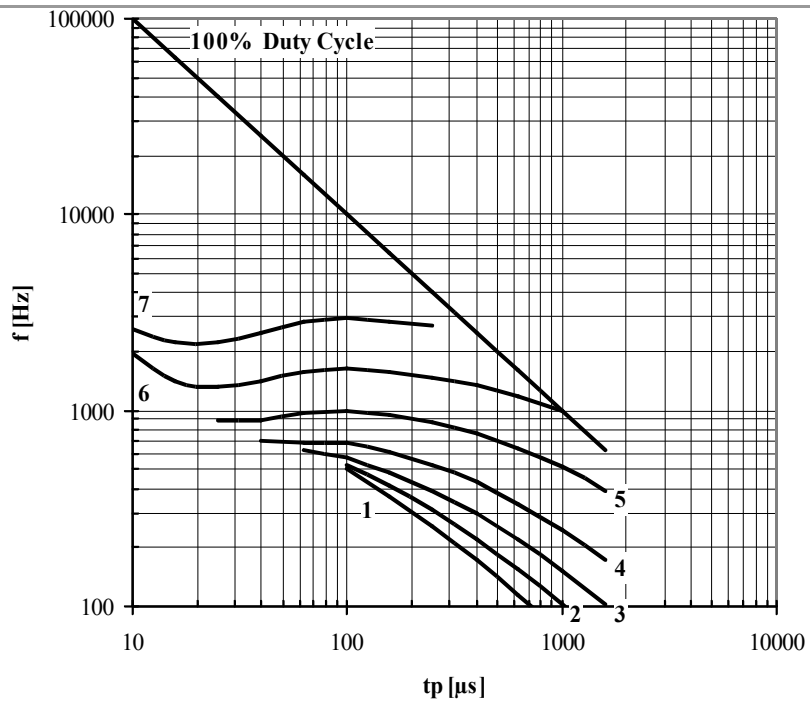
Conditions:  $V_R = 0.67 \cdot V_{RRM}$ ;  $T_C = 55 \text{ }^\circ\text{C}$ ;  $di_F/dt = di_R/dt = 100 \text{ A}/\mu\text{s}$



**Fig. 19** Square wave frequency ratings

- 1 -  $I_{TM} = 5000 \text{ A}$
- 2 -  $I_{TM} = 4000 \text{ A}$
- 3 -  $I_{TM} = 3000 \text{ A}$
- 4 -  $I_{TM} = 2000 \text{ A}$
- 5 -  $I_{TM} = 1000 \text{ A}$
- 6 -  $I_{TM} = 500 \text{ A}$
- 7 -  $I_{TM} = 250 \text{ A}$

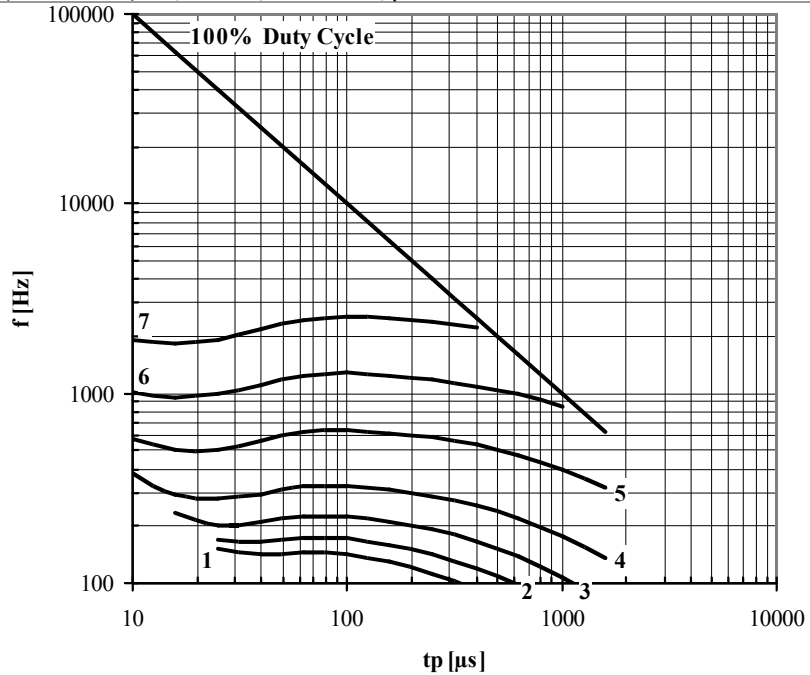
Conditions:  $V_R = 0.67 \cdot V_{RRM}$ ;  $T_C = 55 \text{ }^\circ\text{C}$ ;  $di_F/dt = di_R/dt = 500 \text{ A}/\mu\text{s}$



**Fig. 20** Square wave frequency ratings

- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A
- 6 -  $I_{TM} = 500$  A
- 7 -  $I_{TM} = 250$  A

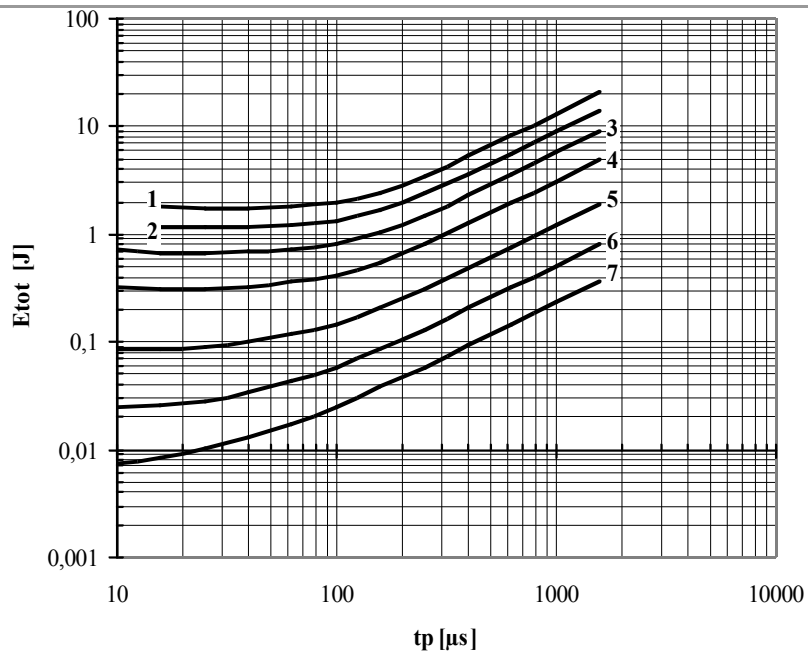
Conditions:  $V_R = 0.67 \cdot V_{RRM}$ ;  $T_C = 80$  °C;  $di_F/dt = di_R/dt = 100$  A/ $\mu$ s



**Fig. 21** Square wave frequency ratings

- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A
- 6 -  $I_{TM} = 500$  A
- 7 -  $I_{TM} = 250$  A

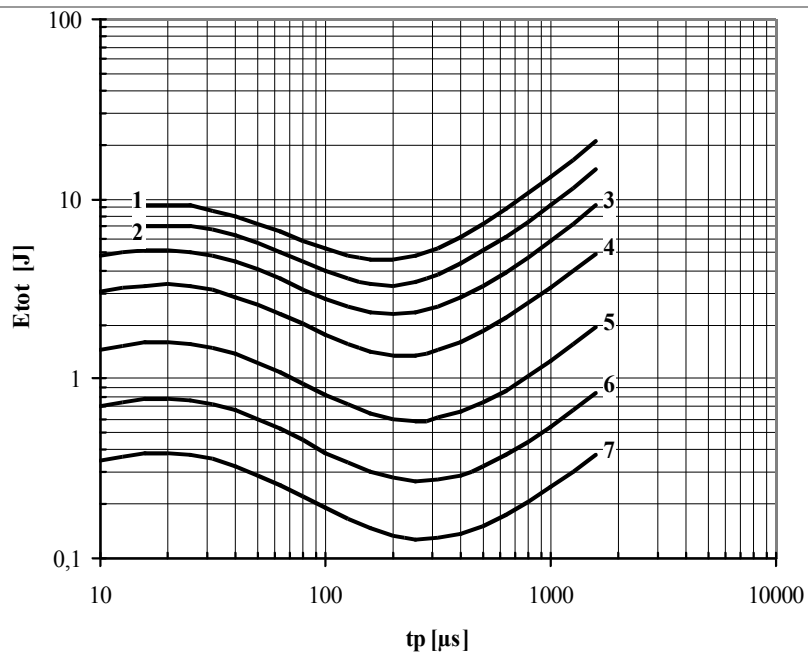
Conditions:  $V_R = 0.67 \cdot V_{RRM}$ ;  $T_C = 80$  °C;  $di_F/dt = di_R/dt = 500$  A/ $\mu$ s



**Fig. 22** Sine wave loss energy per pulse

- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A
- 6 -  $I_{TM} = 500$  A
- 7 -  $I_{TM} = 250$  A

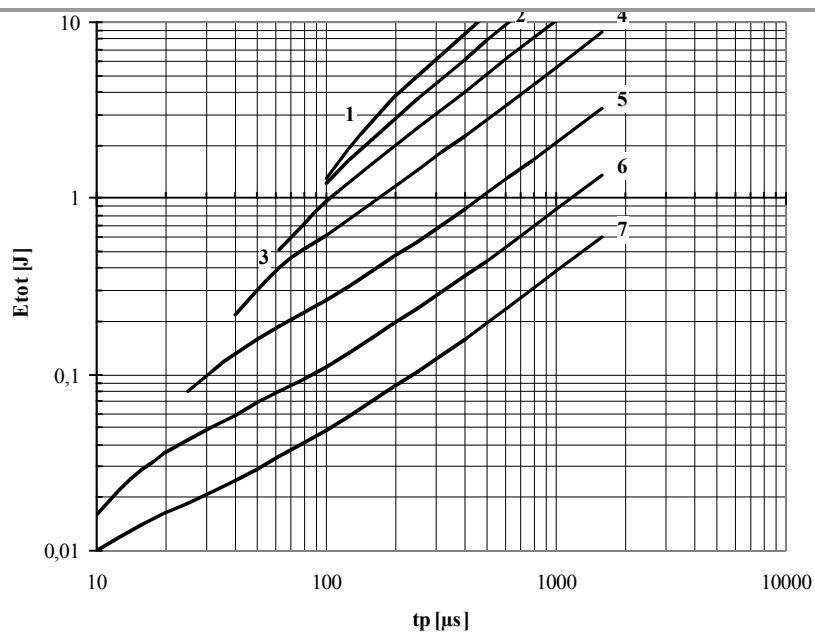
Conditions:  $V_R \leq 3$  V



**Fig. 23** Sine wave loss energy per pulse

- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A
- 6 -  $I_{TM} = 500$  A
- 7 -  $I_{TM} = 250$  A

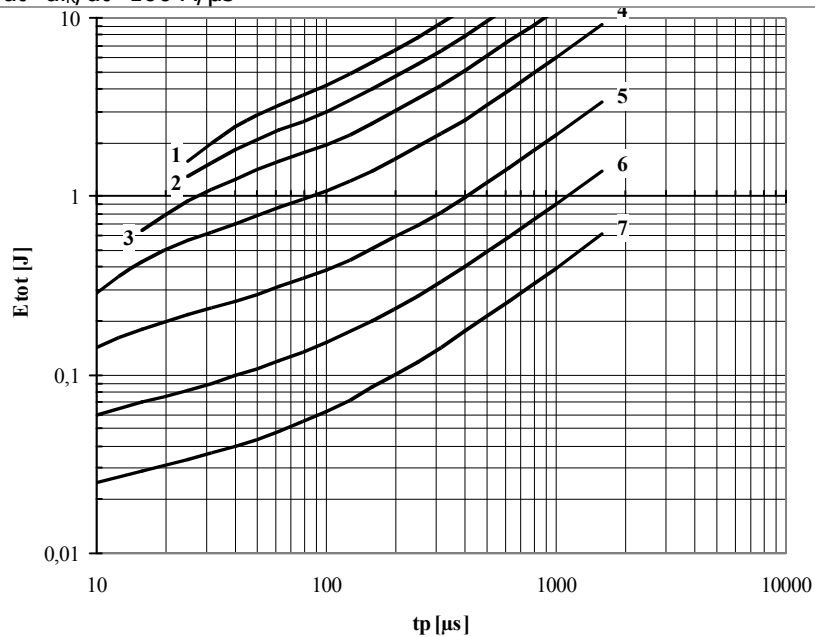
Conditions:  $V_R = 0.67 \cdot V_{RRM}$



**Fig. 24** Square wave loss energy per pulse

- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A
- 6 -  $I_{TM} = 500$  A
- 7 -  $I_{TM} = 250$  A

Conditions:  $V_R \leq 3$  V;  $di_F/dt = di_R/dt = 100$  A/ $\mu$ s

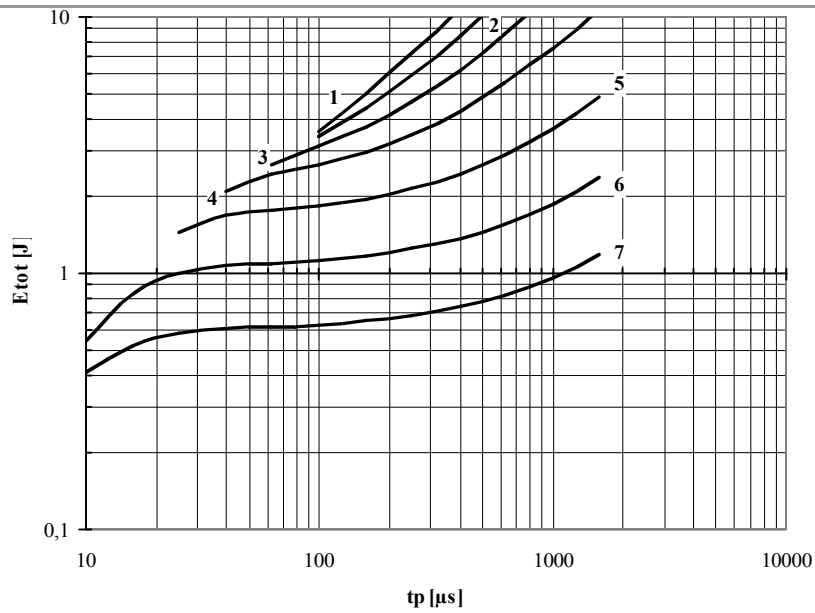


**Fig. 25** Square wave loss energy per pulse

- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A
- 6 -  $I_{TM} = 500$  A
- 7 -  $I_{TM} = 250$  A

Conditions:  $V_R \leq 3$  V;  $di_F/dt = di_R/dt = 500$  A/ $\mu$ s

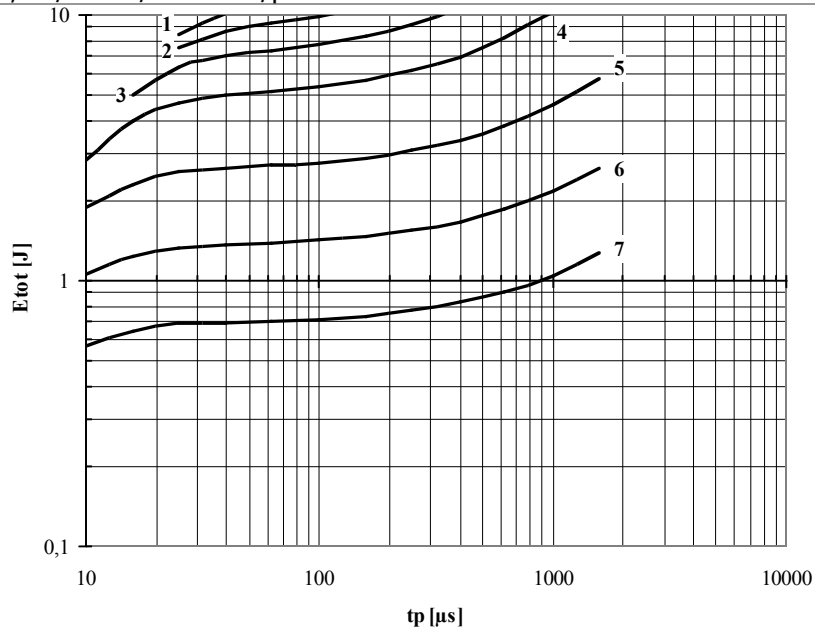




**Fig. 26** Square wave loss energy per pulse

- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A
- 6 -  $I_{TM} = 500$  A
- 7 -  $I_{TM} = 250$  A

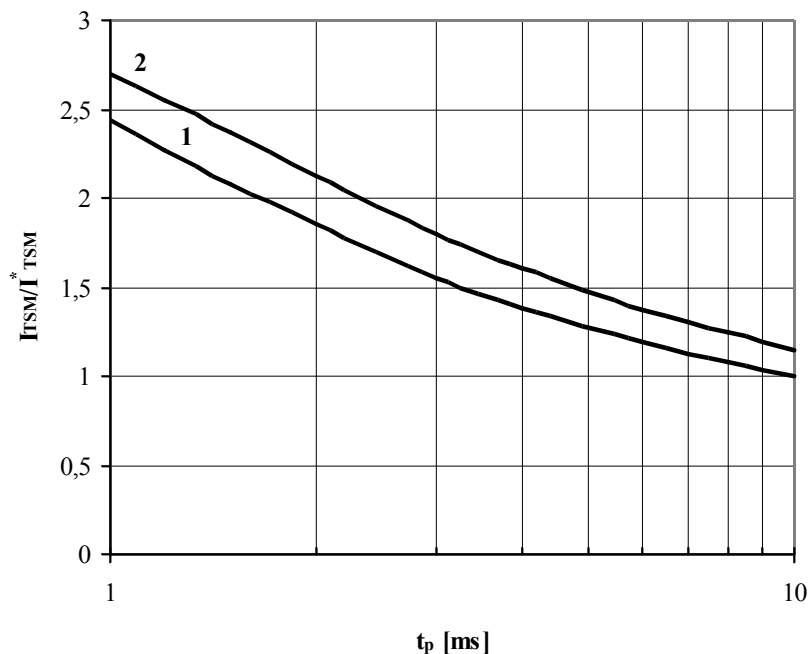
Conditions:  $V_R=0.67 \cdot V_{RRM}$ ;  $di_F/dt=di_R/dt=100$  A/ $\mu$ s



**Fig. 27** Square wave loss energy per pulse

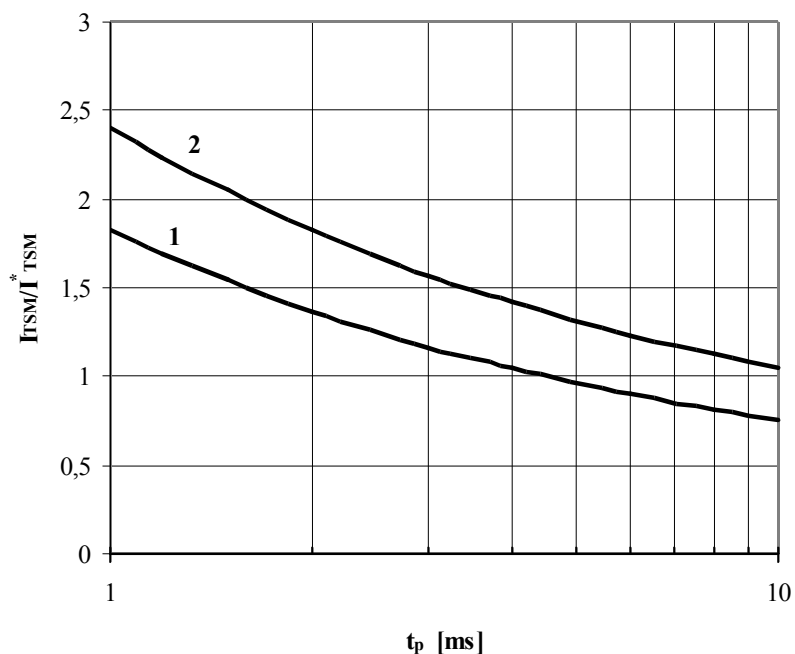
- 1 -  $I_{TM} = 5000$  A
- 2 -  $I_{TM} = 4000$  A
- 3 -  $I_{TM} = 3000$  A
- 4 -  $I_{TM} = 2000$  A
- 5 -  $I_{TM} = 1000$  A
- 6 -  $I_{TM} = 500$  A
- 7 -  $I_{TM} = 250$  A

Conditions:  $V_R=0.67 \cdot V_{RRM}$ ;  $di_F/dt=di_R/dt=500$  A/ $\mu$ s



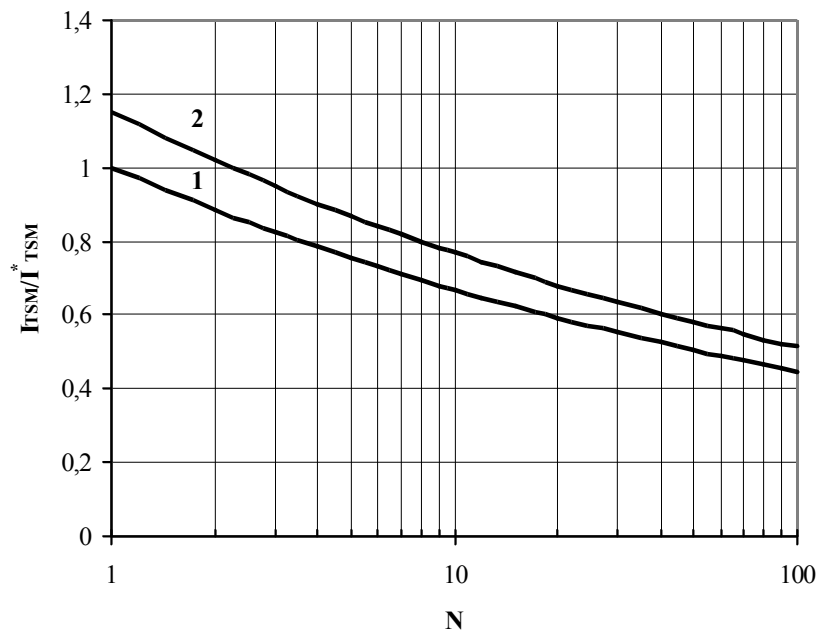
**Fig. 28** The surge current  $I_{TSM}$  vs. Duration of surge  $t_p$  for a half-sine wave  
 1 –  $T_j=125\text{ °C}$   
 2 –  $T_j=25\text{ °C}$

Conditions:  $V_R=0\text{ V}$  – the peak value of reverse voltage which is applied immediately after the surge current  
 Typical changes of  $I_{TSM}$  are normalized to the  $I_{TSM}^*$  ( $I_{TSM}^*$  – see data sheet,  $T_j=T_{j\text{ max}}$ )



**Fig. 29** The surge current  $I_{TSM}$  vs. Duration of surge  $t_p$  for a half-sine wave  
 1 –  $T_j=125\text{ °C}$   
 2 –  $T_j=25\text{ °C}$

Conditions:  $V_R=0.8V_{RRM}$  – the peak value of reverse voltage which is applied immediately after the surge current  
 Typical changes of  $I_{TSM}$  are normalized to the  $I_{TSM}^*$  ( $I_{TSM}^*$  – see data sheet,  $T_j=T_{j\text{ max}}$ )

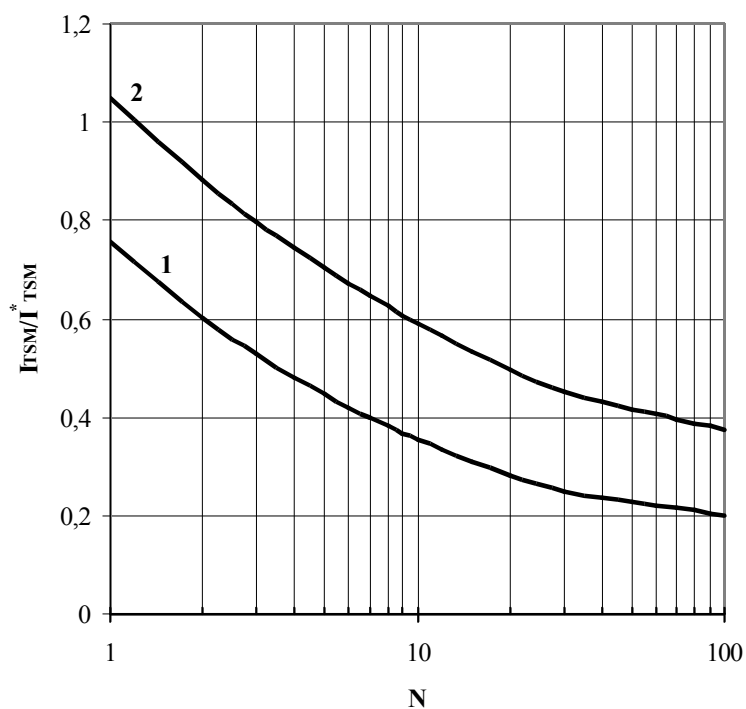


**Fig. 30** The surge current  $I_{TSM}$  vs. Number of half-sine waves at 50 Hz

1 -  $T_j = 125^\circ\text{C}$

2 -  $T_j = 25^\circ\text{C}$

Conditions:  $V_R = 0\text{ V}$  – the peak value of reverse voltage which is applied immediately after the surge current  
 Typical changes of  $I_{TSM}$  are normalized to the  $I_{TSM}^*$  ( $I_{TSM}^*$  – see data sheet,  $T_j = T_{j\text{max}}$ )



**Fig. 31** The surge current  $I_{TSM}$  vs. Number of half-sine waves at 50 Hz

1 -  $T_j = 125^\circ\text{C}$

2 -  $T_j = 25^\circ\text{C}$

Conditions:  $V_R = 0.8 \cdot V_{RRM}$  – the peak value of reverse voltage which is applied immediately after the surge current  
 Typical changes of  $I_{TSM}$  are normalized to the  $I_{TSM}^*$  ( $I_{TSM}^*$  – see data sheet,  $T_j = T_{j\text{max}}$ )