	DATA SHEETS FOR	No. :
	<h1>TR 955-250</h1>	TS – T/035/83
		UPDATED 05/2004
		Page 1 of 16

Fast thyristor

Features:

- Optimized on-state parameters
- Amplifying gate
- Designed for power switching applications
- High operation reliability

Marking:

TR 955-250-XX ABC, where:

XX is code for voltage class – see below

A is code for $(dv_D/dt)_{crit}$ of thyristor: **N** = 1000 V/ μ s

B is code for $(di_T/dt)_{crit}$ of thyristor: **K** = 200 A/ μ s

C is code for turn-off time of thyristor: **F** = 20 μ s, **G** = 25 μ s, **H** = 32 μ s, **I** = 40 μ s,
L = 50 μ s

Standard type:

TR 955-250-08 NKF, TR 955-250-08 NKG,
TR 955-250-10 NKF, TR 955-250-10 NKG,
TR 955-250-12 NKH, TR 955-250-12 NKI, TR 955-250-12 NKL,
TR 955-250-14 NKH, TR 955-250-14 NKI, TR 955-250-14 NKL

Maximum ratings

symbol	parameter		value	unit
V_{RRM} V_{DRM}	Repetitive peak reverse blocking voltage Repetitive peak forward off-state voltage $T_j = -40 \div 125$ °C, half sine wave, $t_p = 10$ ms, $f = 50$ Hz	XX = 08 XX = 10 XX = 12 XX = 14	1 200 1 000 1 200 1 400	V V V V
V_{RSM} V_{DRM}	Non-repetitive peak reverse blocking voltage Non-repetitive peak forward off-state voltage $T_j = -40 \div 125$ °C, half sine wave, $t_p = 10$ ms, single pulse		= V_{RRM} = V_{DRM}	
V_R V_D	DC reverse voltage DC forward off-state voltage $T_c = 120$ °C		= V_{RRM} = V_{DRM}	
I_{TAV}	Average on-state current Half sine wave, 180° el., $f = 50$ Hz	$T_c = 70$ °C $T_c = 80$ °C	288 250	A A
I_{TRMS}	Maximum forward current RMS value $f = 50$ Hz	$T_c = 80$ °C	393	A

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DATA SHEETS FOR

TR 955-250

No. :

TS – T/035/83

UPDATED
05/2004

Page 2 of 16

I_{TSM}	Maximum rated surge current half sine wave, $t_p = 10$ ms, single pulse, $V_R = 0$ V	$T_j = 25$ °C $T_j = 125$ °C	6 000 5 500	A A
I^2t	Maximum surge current integral $t_p = 10$ ms, $V_R = 0$ V	$T_j = 25$ °C $T_j = 125$ °C	180 000 151 250	A²s A²s
$(di_T/dt)_{crit}$	Critical rate of rise of on-state current $T_j = 125$ °C, $f = 50$ Hz, $V_D = 0,67 V_{DRM}$, $I_{TM} = 785$ A, Gate pulse source: $V_o = 20$ V, $R = 10$ Ω, $t_r \leq 0,5$ μs, $t_p \geq 50$ μs		200	A/μs
V_{GRM}	Repetitive peak reverse gate voltage $T_j = -40 \div 125$ °C		3	V
P_{GAV}	Gate power dissipation (average value) $T_j = 125$ °C		5	W
$T_{jmin} - T_{jmax}$	Operating temperature range		-40 ÷ 125	°C
T_{stg}	Storage temperature range		-40 ÷ 125	°C
F_1	Tensile force at main cathode outlet		100	N
F_2	Tensile force at gate and additional cathode outlet		5	N
M	Tightening moment		50 ± 5	Nm


Characteristics

symbol	parameter	typ.	max.	unit
V_{TO}	Threshold voltage $T_j = 125$ °C, approximation for: $I_{T1} = 390$ A, $I_{T2} = 1 180$ A		0,99	V
r_T	Slope resistance $T_j = 125$ °C, approximation for: $I_{T1} = 390$ A, $I_{T2} = 1 180$ A		1,10	mΩ
V_{TM}	Maximum peak on-state voltage $T_j = 125$ °C, $I_{TM} = 785$ A		1,85	V
I_{RRM} I_{DRM}	Repetitive peak reverse current Repetitive peak off-state current $T_j = 125$ °C, $V_R = V_{RRM}$, $V_D = V_{DRM}$		40	mA
I_L	Latching current $T_j = 25$ °C, $V_D = 12$ V DC, Gate pulse source: $V_o = 20$ V, $R = 10$ Ω, $t_r \leq 0,5$ μs, $t_p \geq 50$ μs		500	mA
I_H	Holding current $T_j = 25$ °C, $V_D = 12$ V DC		150	mA
V_{GT}	Gate trigger voltage $V_D = 12$ V DC, $R_A = 12$ Ω, DC gate current	$T_j = -40$ °C $T_j = 25$ °C $T_j = 125$ °C	5,0 3,0 2,5	V V V
V_{GD}	Gate non-trigger voltage $T_j = 125$ °C, $V_D = 0,67 V_{DRM}$, DC gate voltage		0,25	V

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	DATA SHEETS FOR	No. :
	TR 955-250	TS – T/035/83
		UPDATED 05/2004
		Page 3 of 16

I_{GT}	Gate trigger current V _D = 12 V DC, R _A = 12 Ω, DC gate current	T _j = - 40 °C T _j = 25 °C T _j = 125 °C	700 400 300	mA mA mA
I_{GD}	Gate non-trigger current T _j = 125 °C, V _D = 0,67 V _{DRM} , DC gate voltage		10	mA
t_{gd}	Delay time T _j = 25 °C, V _D = 100 V, I _{TM} = 250 A, Gate pulse source: V _o = 20 V, R = 10 Ω, t _r ≤ 0,5 μs, t _p ≥ 50 μs		1,5	μs
t_q	Turn-off time T _j = 125 °C, I _{TM} = 250 A, trapezoidal wave , di _T /dt = -12,5 A/μs, V _R = 100 V, V _D = 0,67 V _{DRM} , dv _D /dt = 50 V/μs		50	μs
I_{rrM}	Reverse recovery current T _j = 125 °C, I _{TM} = 250 A, trapezoidal wave di _T /dt = -50 A/μs, V _R = 100 V		170	A
Q_{rr}	Reverse recovery charge T _j = 125 °C, I _{TM} = 250 A, trapezoidal wave di _T /dt = -50 A/μs, V _R = 100 V		450	μC
(dv_D/dt)_{crit}	Critical rate of rise of off-state voltage T _j = 125 °C, V _D = 0,67 V _{DRM} open gate circuit, zero starting voltage		1000	V/μs
m	Weight		0,46	kg
R_{thjc}	Thermal resistance junction to case		0,1	K/W

Constants R_i, T_i for analytical expression : $Z_{thjc} = \sum_{i=1}^5 R_i (1 - \exp(-t/T_i))$	i:	1	2	3	4	5
	R_i [K/W]	0,0452	0,0178	0,0211	0,0141	0,00178
	T_i [s]	2,65	0,644	0,106	0,00895	0,000806

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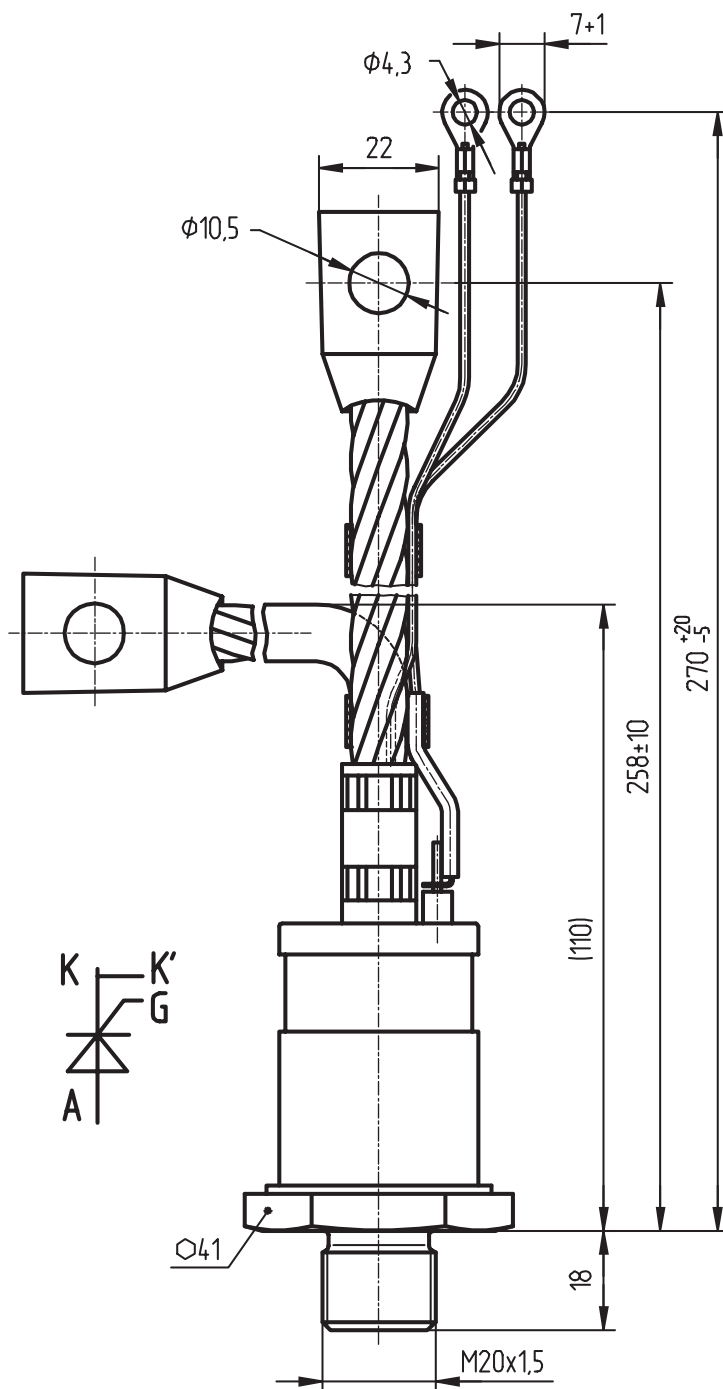
TR 955-250

No. :

TS – T/035/83

UPDATED
05/2004

Page 4 of 16

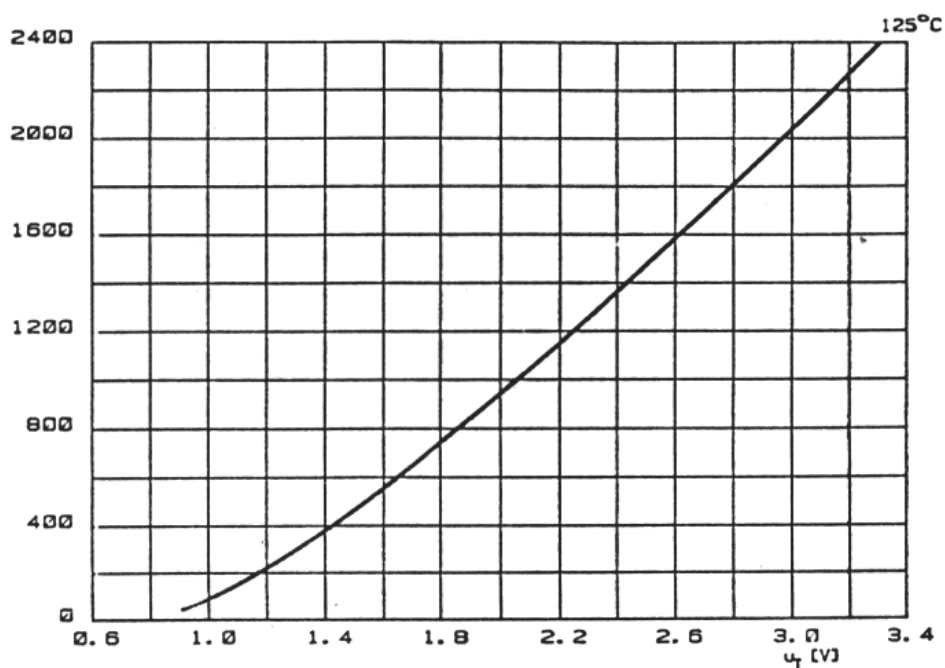


Main dimensions of the case

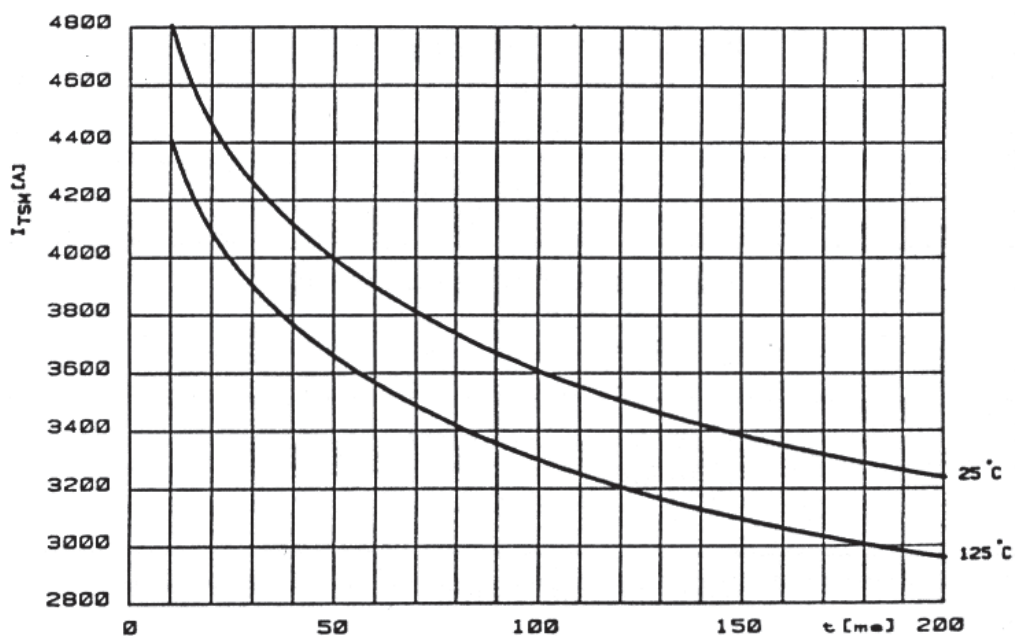
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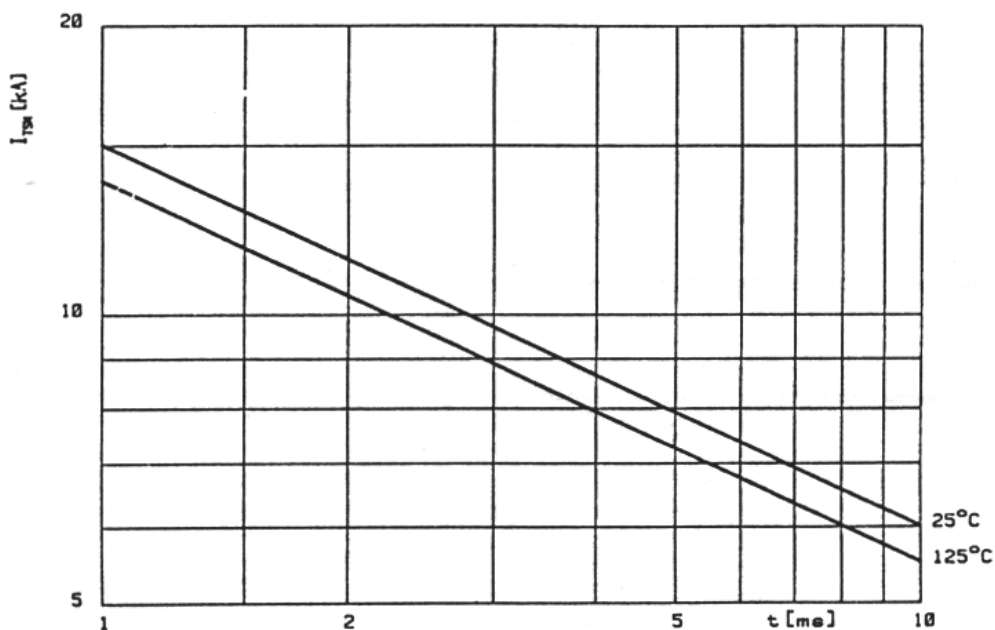
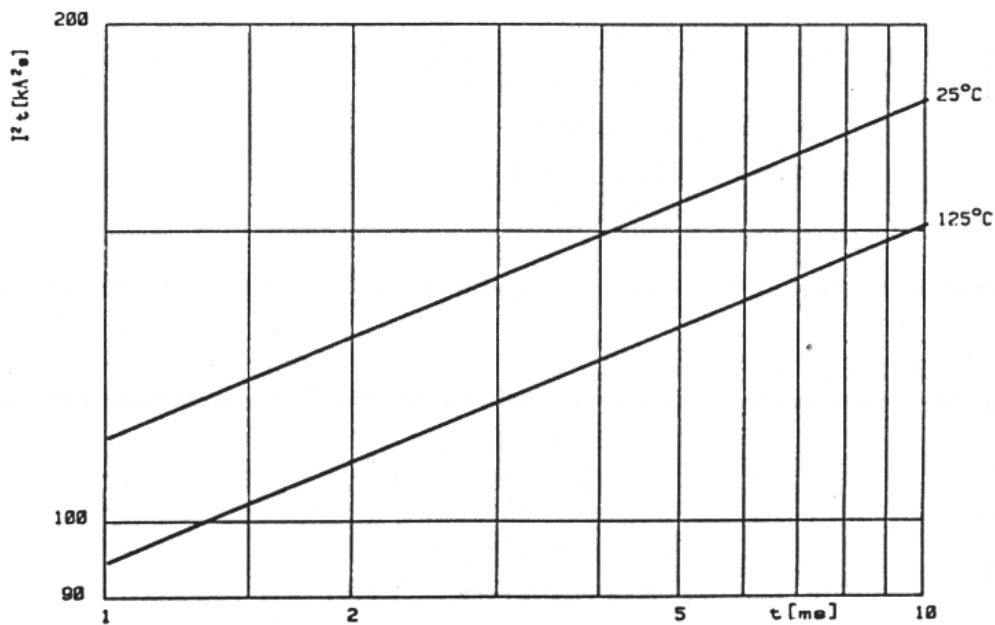
Forward characteristics (max. values)

Surge forward current vs. time (max. values), half sine wave current, $f = 50$ Hz, $V_R = 0.8 V_{RRM}$

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Surge forward current vs. pulse width (max. values), single pulse, $V_R = 0$ V $I^2 t$ integral vs. pulse width (max. values), single pulse, $V_R = 0$ V**Polovodice, a.s., Novodvorska 1768/138a, 142 21 Prague 4, Czech Republic**phone: +420 261 306 265, fax: +420 261 306 307, <http://www.polovodice.cz>, e-mail: info@polovodice.cz

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