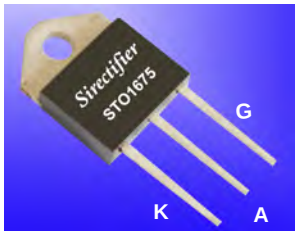
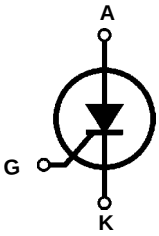
STO875 thru STO1875

Discrete Thyristors (Isolated)

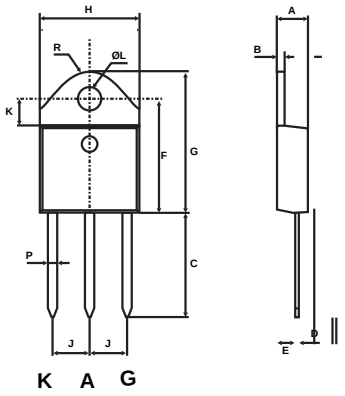




K=Cathode, A=Anode, G=Gate

	V_{RRM} V	V_{RSM} V
STO875	800	900
STO1275	1200	1300
STO1675	1600	1700
STO1875	1800	1900

Dimensions TO-218



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		0.181
B	1.45		1.55	0.057		0.061
C	14.35		15.60	0.565		0.614
D	0.5		0.7	0.020		0.028
E	2.7		2.9	0.106		0.114
F	15.8		16.5	0.622		0.650
G	20.2		21.1	0.795		0.831
H	15.1		15.5	0.594		0.610
J	5.2		5.65	0.204		0.222
K	3.4		3.65	0.134		0.144
ØL	4.08		4.17	0.161		0.164
P	1.20		1.40	0.047		0.055
R		4.60			0.181	

Symbol	Test Conditions		Maximum Ratings	Unit
I_{TRMS} I_{TAVM}	$T_{VJ}=T_{VJM}$ $T_C=75^oC$; 180° sine		75 48	A
I_{TSM}	$T_{VJ}=45^oC$ $V_R=0$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	540 580	A
	$T_{VJ}=T_{VJM}$ $V_R=0$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	480 500	
i^2t	$T_{VJ}=45^oC$ $V_R=0$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	1350 1300	A^2s
	$T_{VJ}=T_{VJM}$ $V_R=0$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	1050 1030	
$(di/dt)_{cr}$	$T_{VJ}=T_{VJM}$ f=50Hz, t_p=200us $V_D=2/3V_{DRM}$ I_G=0.3A di_G/dt=0.3A/us	repetitive, I_T=40A non repetitive, $I_T=I_{TAVM}$	150 500	A/us
$(dv/dt)_{cr}$	$T_{VJ}=T_{VJM}$; $R_{GK}=\infty$; method 1 (linear voltage rise)	$V_{DR}=2/3V_{DRM}$	1000	V/us
P_{GM}	$T_{VJ}=T_{VJM}$ $I_T=I_{TAVM}$	t_p=30us t_p=300us	10 5	W
P_{GAV}			0.5	W
V_{RGM}			10	V
T_{VJ} T_{VJM} T_{stg}			-40...+140 140 -40...+125	°C
V_{ISOL}	50/60Hz, RMS	t=1minute, leads-to-tab	2500	V~
M_d F_c	Mounting torque (M3) Mounting force with clip		0.8...1.2 20...120	Nm N
Weight			6	g

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STO875 thru STO1875

Discrete Thyristors (Isolated)

Symbol	Test Conditions	Characteristic Values	Unit
I_R, I_D	$T_{VJ}=T_{VJM}$; $V_R=V_{RRM}$; $V_D=V_{DRM}$	5	mA
V_T	I_T=75A; $T_{VJ}=25^oC$	1.60	V
V_{TO}	For power-loss calculations only ($T_{VJ}=125^oC$)	0.85	V
r_T		11	mΩ
V_{GT}	V_D=6V; $T_{VJ}=25^oC$ $T_{VJ}=-40^oC$	1.5 1.6	V
I_{GT}	V_D=6V; $T_{VJ}=25^oC$ $T_{VJ}=-40^oC$	100 200	mA
V_{GD}	$T_{VJ}=T_{VJM}$; $V_D=2/3V_{DRM}$	0.2	V
I_{GD}		10	mA
I_L	$T_{VJ}=25^oC$; t_p=10us; I_G=0.3A; di_G/dt=0.3A/us	150	mA
I_H	$T_{VJ}=25^oC$; V_D=6V; $R_{GK}=\infty$	100	mA
t_{gd}	$T_{VJ}=25^oC$; $V_D=1/2V_{DRM}$ I_G=0.3A; di_G/dt=0.3A/us	2	us
R_{thJC}	DC current	0.62	K/W
R_{thJH}	DC current	0.82	K/W
a	Max. acceleration, 50 Hz	50	m/s^2

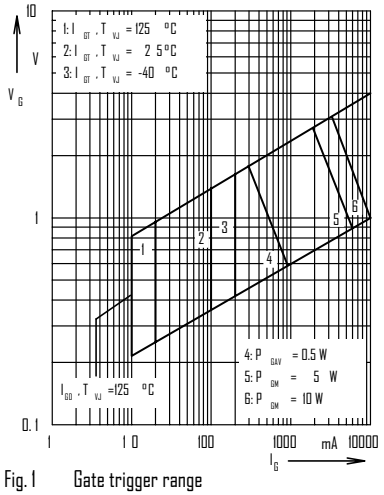

Fig. 1 Gate trigger range

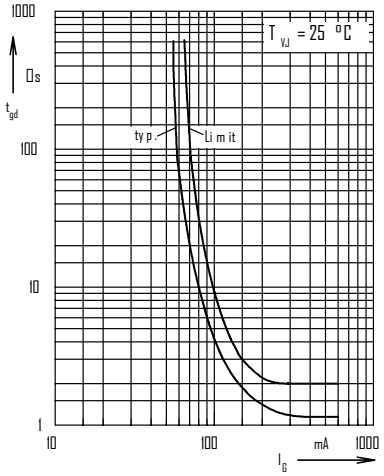

Fig. 2 Gate controlled delay time t_{gd}

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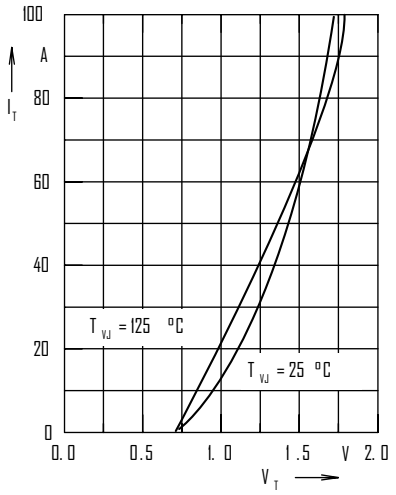

Fig. 3 Forward characteristics

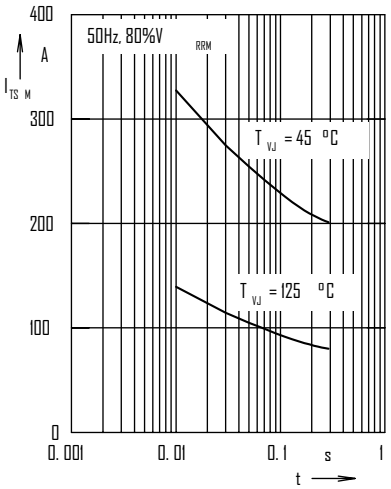

Fig. 4 Surge overload current
I_{TSM} : crest value, t: duration

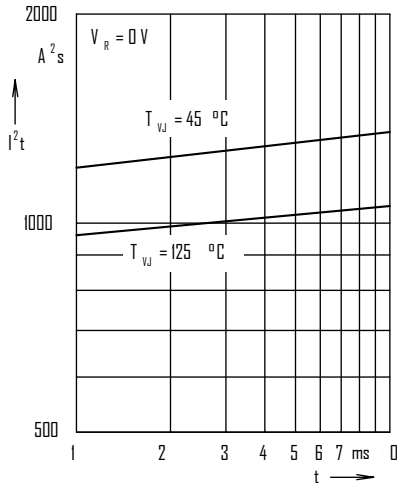

Fig. 5 I^2t versus time (1-10 ms)

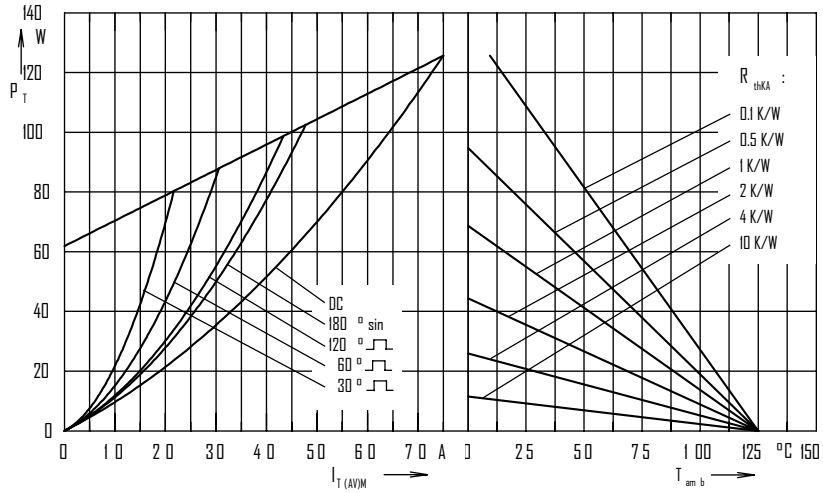

Fig. 6 Power dissipation versus forward current and ambient temperature

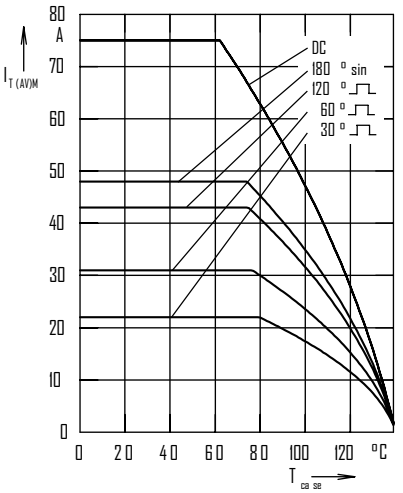

Fig. 7 Max. forward current at case temperature

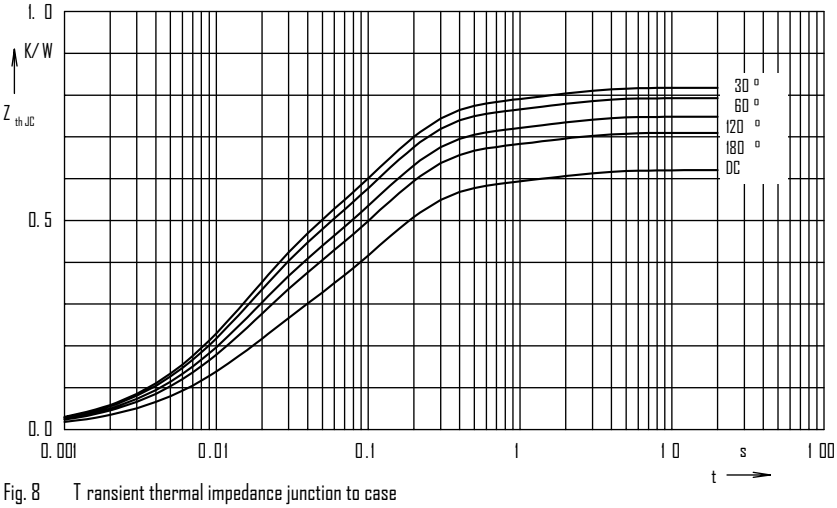

Fig. 8 T ransient thermal impedance junction to case

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.62
180 °	0.71
120 °	0.748
60 °	0.793
30 °	0.817

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.206	0.013
2	0.362	0.118
3	0.052	1.488

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