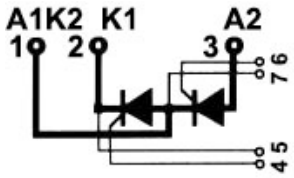
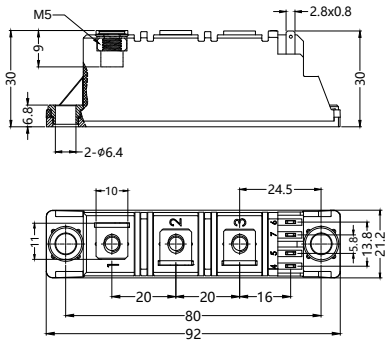
STT90GK20B

Thyristor-Thyristor Modules



Type	V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V
STT90GK08B	900	800
STT90GK12B	1300	1200
STT90GK14B	1500	1400
STT90GK16B	1700	1600
STT90GK18B	1900	1800
STT90GK20B	2100	2000

Dimensions in mm (1mm=0.0394")



Symbol	Test Conditions		Maximum Ratings	Unit
I_{TRMS}, I_{FRMS} I_{TAVM}, I_{FAVM}	$T_{VJ}=T_{VJM}$ $T_C=85^oC$; 180° sine		140 90	A
I_{TSM}, I_{FSM}	$T_{VJ}=45^oC$ $V_R=0$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	1700 1800	A
	$T_{VJ}=T_{VJM}$ $V_R=0$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	1540 1640	
∫i2dt	$T_{VJ}=45^oC$ $V_R=0$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	14450 13500	A^2s
	$T_{VJ}=T_{VJM}$ $V_R=0$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	11850 11300	
$(di/dt)_{cr}$	$T_{VJ}=T_{VJM}$ f=50Hz, t_p=200us $V_D=2/3V_{DRM}$ I_G=0.45A di_G/dt=0.45A/us	repetitive, I_T=250A 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...+125 125 -40...+125	°C
V_{ISOL}	50/60Hz, RMS $I_{ISOL}\leq$1mA	t=1min t=1s	3000 3600	V~
M_d	Mounting torque (M5) Terminal connection torque (M5)		2.5-4.0/22-35 2.5-4.0/22-35	Nm/lb.in.
Weight	Typical		110	g

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STT90GK20B

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Symbol	Test Conditions	Characteristic Values	Unit
I_{RRM}, I_{DRM}	$T_{VJ}=T_{VJM}$; $V_R=V_{RRM}$; $V_D=V_{DRM}$	5	mA
V_{TM}	I_{TM}=270A; T_{VJ}=25°C	1.74	V
V_{TO}	For power-loss calculations only (T_{VJ}=125°C)	0.85	V
r_T		3.2	mΩ
V_{GT}	V_D=6V T_{VJ}=25°C T_{VJ}=-40°C	1.5 1.6	V
I_{GT}	V_D=6V T_{VJ}=25°C T_{VJ}=-40°C	150 200	mA
V_{GD}	$T_{VJ}=T_{VJM}$ V_D=2/3V_{DRM}	0.2	V
I_{GD}		10	mA
I_L	T_{VJ}=25°C; t_p=10us; V_D=6V I_G=0.45A; di_G/dt=0.45A/us	450	mA
I_H	T_{VJ}=25°C; V_D=6V; R_{GK}=∞	200	mA
t_{gd}	T_{VJ}=25°C; V_D=1/2V_{DRM} I_G=0.45A; di_G/dt=0.45A/us	2	us
t_q	$T_{VJ}=T_{VJM}$; I_T=150A; t_p=200us; -di/dt=10A/us V_R=100V; dv/dt=20V/us; V_D=2/3V_{DRM} typ.	185	us
Q_S	$T_{VJ}=T_{VJM}$; I_T, I_F=50A; -di/dt=6A/us	170	uC
I_{RM}		45	A
R_{thJC}	per thyristor/diode; DC current per module	0.3 0.15	K/W
R_{thJK}	per thyristor/diode; DC current per module	0.5 0.25	K/W
d_S	Creeping distance on surface	12.7	mm
d_A	Strike distance through air	9.6	mm
a	Maximum allowable acceleration	50	m/s^2

FEATURES

* International standard package
* Copper base plate
* Glass passivated chips
* Isolation voltage 3600 V~
* UL file NO.E310749
* RoHS compliant

APPLICATIONS

* DC motor control
* Softstart AC motor controller
* Light, heat and temperature control

ADVANTAGES

* Space and weight savings
* Simple mounting with two screws
* Improved temperature and power cycling
* Reduced protection circuits

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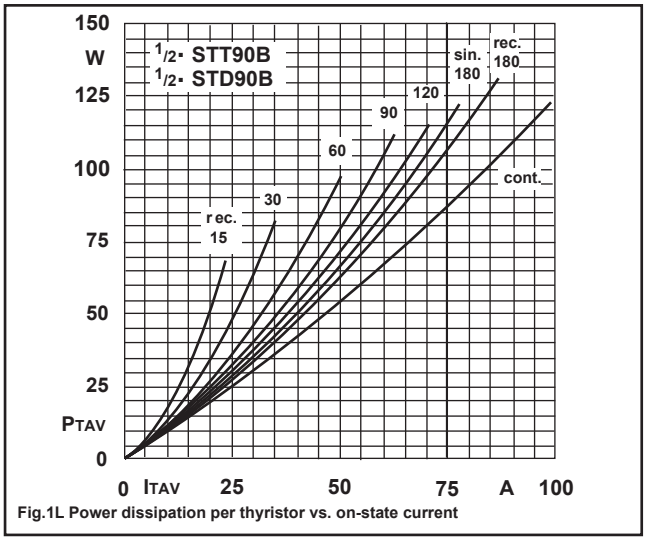

Fig.1L Power dissipation per thyristor vs. on-state current

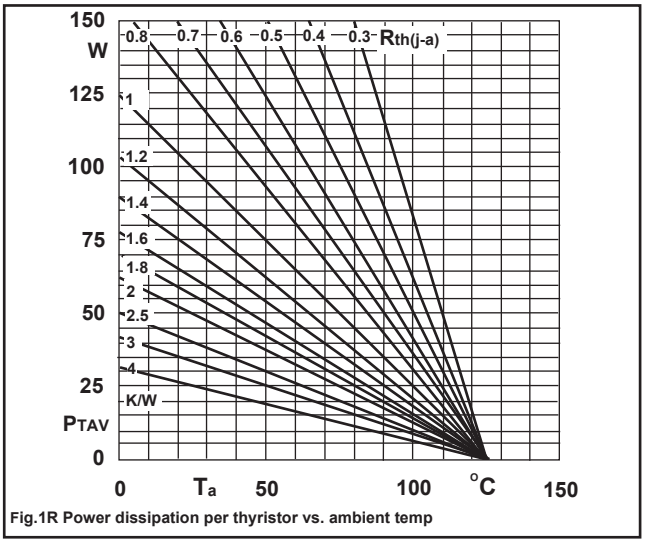

Fig.1R Power dissipation per thyristor vs. ambient temp

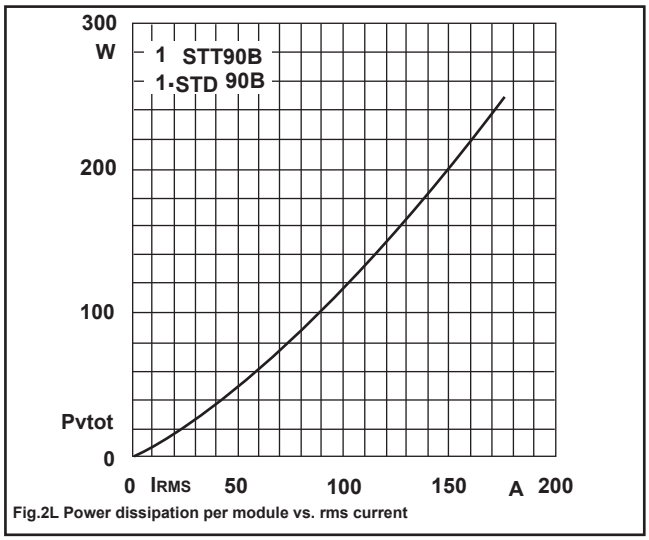

Fig.2L Power dissipation per module vs. rms current

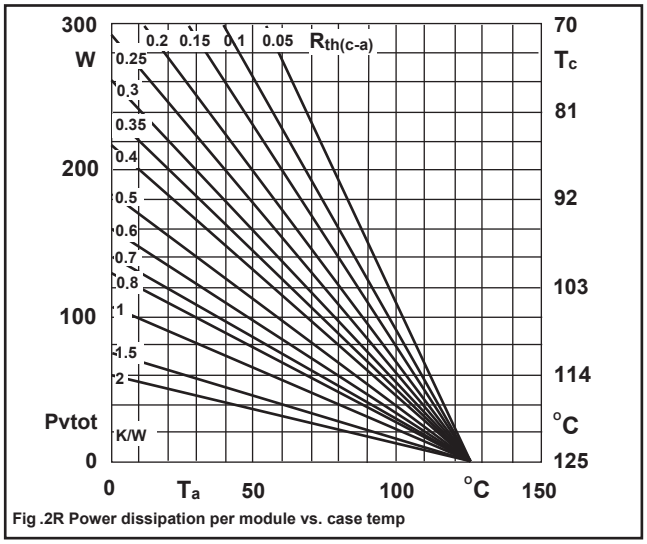

Fig .2R Power dissipation per module vs. case temp

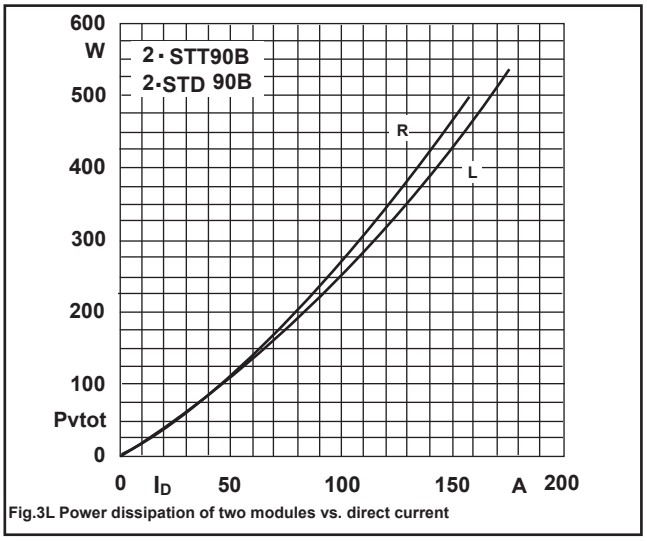

Fig.3L Power dissipation of two modules vs. direct current

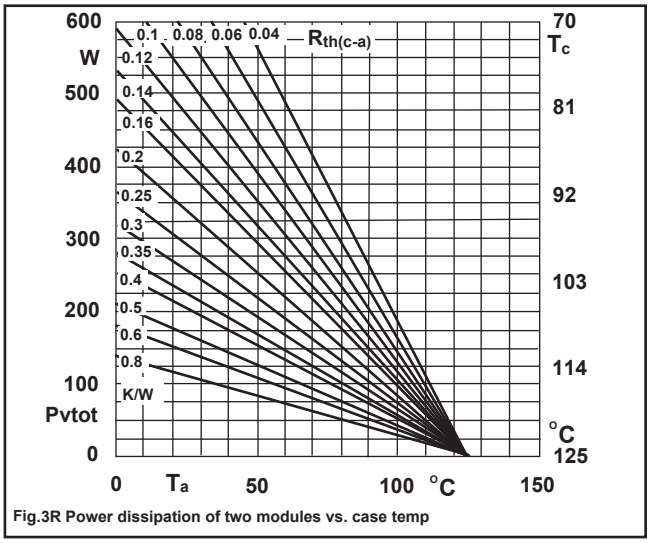

Fig.3R Power dissipation of two modules vs. case temp

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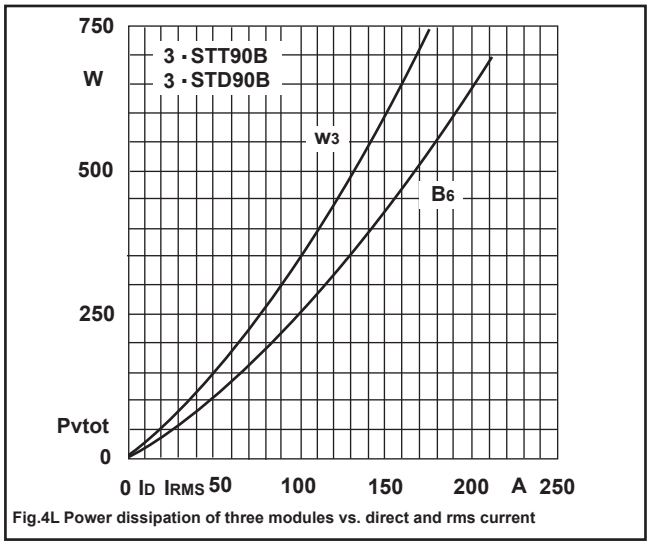

Fig.4L Power dissipation of three modules vs. direct and rms current

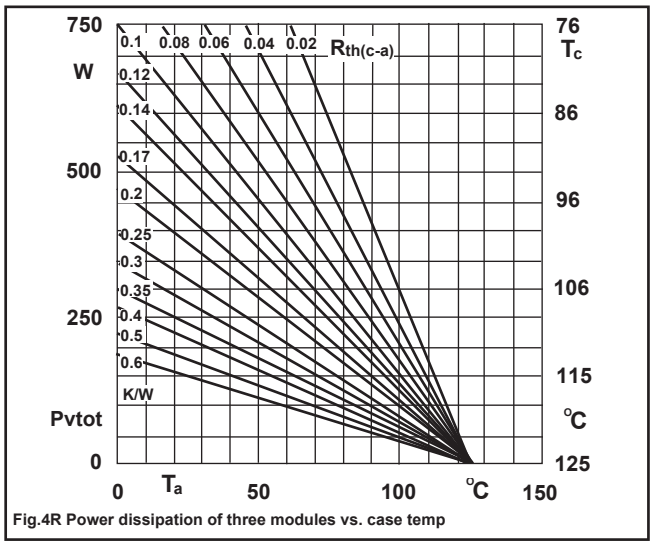

Fig.4R Power dissipation of three modules vs. case temp

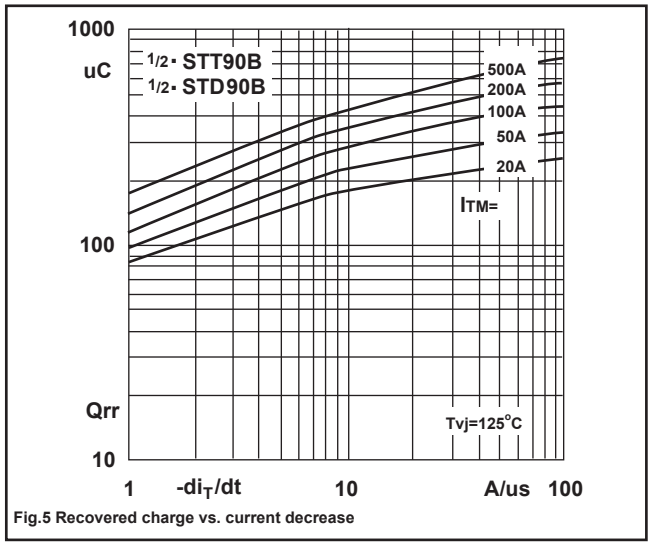

Fig.5 Recovered charge vs. current decrease

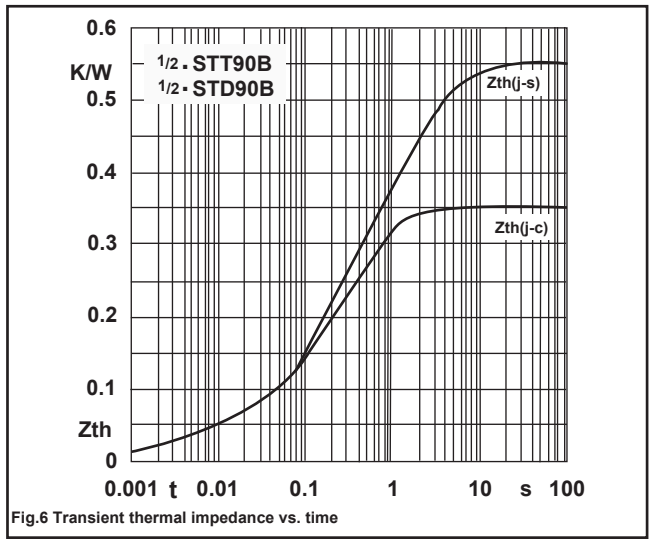

Fig.6 Transient thermal impedance vs. time

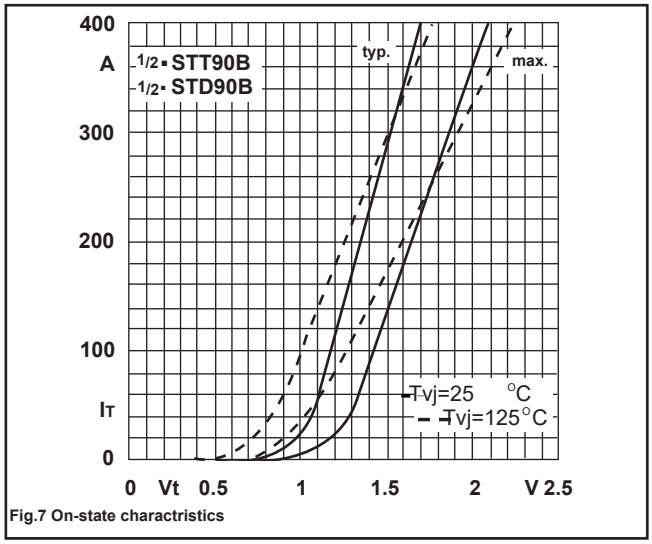

Fig.7 On-state charactristics

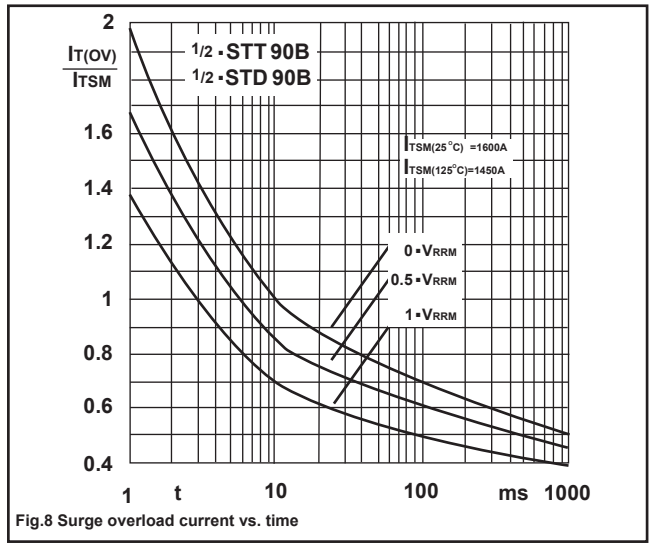

Fig.8 Surge overload current vs. time

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