STT116GKxx

Thyristor-Thyristor Modules

Dimensions in mm (1mm=0.0394")

Type	V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V
STT116GK08	900	800
STT116GK12	1300	1200
STT116GK14	1500	1400
STT116GK16	1700	1600
STT116GK18	1900	1800
STT116GK20	2100	2000
STT116GK22	2300	2200

Symbol	Test Conditions		Maximum Ratings	Unit
I_{TRMS}, I_{FRMS} I_{TAVM}, I_{FAVM}	$T_{VJ}=T_{VJM}$ $T_C=85^oC$; 180° sine		180 116	A
I_{TSM}, I_{FSM}	$T_{VJ}=45^oC$ $V_R=0$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	2250 2400	A
	$T_{VJ}=T_{VJM}$ $V_R=0$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	2000 2150	
$\int i^2 dt$	$T_{VJ}=45^oC$ $V_R=0$	t=10ms (50Hz), sine t=8.3ms (60Hz), sine	25300 23900	A^2s
	$T_{VJ}=T_{VJM}$ $V_R=0$	t=10ms(50Hz), sine t=8.3ms(60Hz), sine	20000 19100	
$(di/dt)_{cr}$	$T_{VJ}=T_{VJM}$ 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	^oC
V_{ISOL}	50/60Hz, RMS $I_{ISOL}\leq1mA$	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	Typ.		90	g

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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}	$I_{TM}=330A$; $T_{VJ}=25^oC$	1.50	V
V_{TO}	For power-loss calculations only ($T_{VJ}=125^oC$)	0.8	V
r_T		2.4	mΩ
V_{GT}	$V_D=6V$; $T_{VJ}=25^oC$ $T_{VJ}=-40^oC$	2.5 2.6	V
I_{GT}	$V_D=6V$; $T_{VJ}=25^oC$ $T_{VJ}=-40^oC$	150 200	mA
V_{GD}	$T_{VJ}=T_{VJM}$; $V_D=2/3V_{DRM}$	0.2	V
I_{GD}		10	mA
I_L	$T_{VJ}=25^oC$; $t_p=10us$; $V_D=6V$ $I_G=0.45A$; $di_G/dt=0.45A/us$	450	mA
I_H	$T_{VJ}=25^oC$; $V_D=6V$; $R_{GK}=\infty$	200	mA
t_{gd}	$T_{VJ}=25^oC$; $V_D=1/2V_{DRM}$ $I_G=0.45A$; $di_G/dt=0.45A/us$	2	us
t_q	$T_{VJ}=T_{VJM}$; $I_T=150A$; $t_p=200us$; $-di/dt=10A/us$ typ. $V_R=100V$; $dv/dt=20V/us$; $V_D=2/3V_{DRM}$	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	0.22 0.11	K/W
R_{thJK}	per thyristor/diode; DC current per module	0.42 0.21	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
* DBC baseplate
* Glass passivated chips
* Isolation voltage 3600 V
* UL file NO.310749
* 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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Thyristor-Thyristor Modules
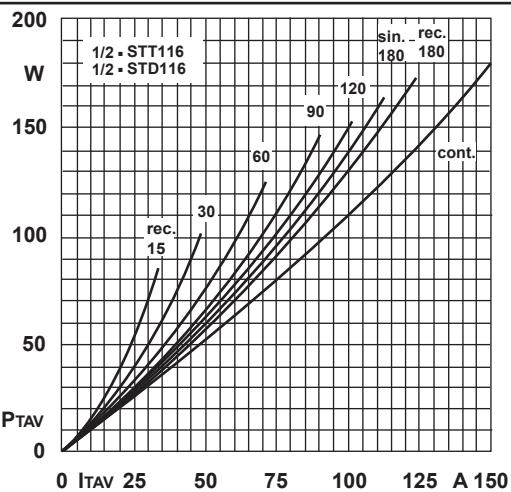
Fig.1L Power dissipation per thyristor vs. on-state current
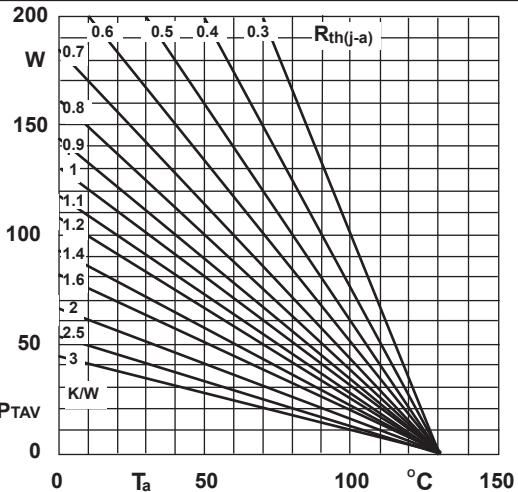

Fig.1R Power dissipation per thyristor vs. ambient temp
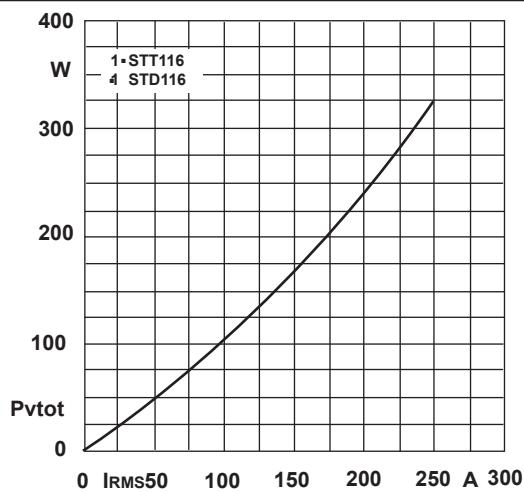

Fig.2L Power dissipation per module vs. rms current
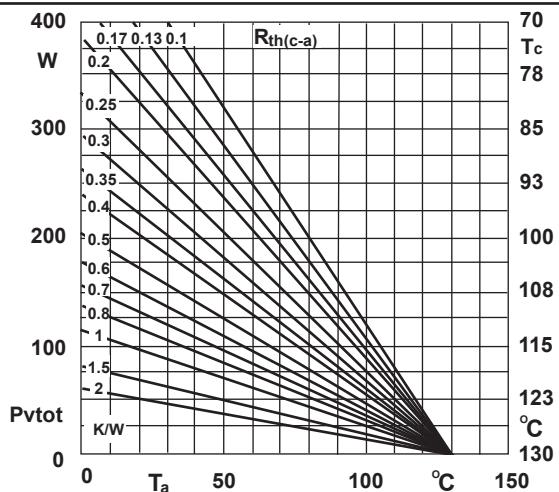

Fig.2R Power dissipation per module vs. case temp
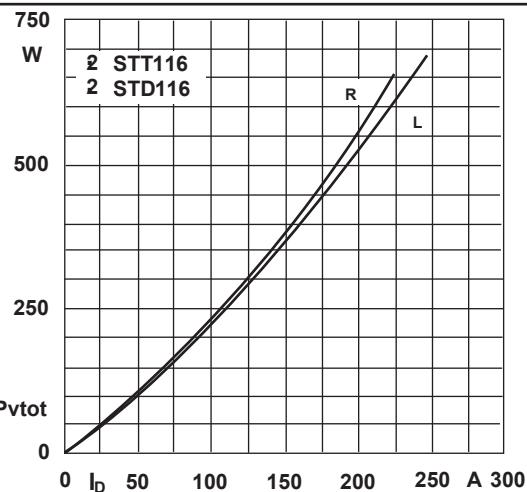
**Fig.3L** Power dissipation of two modules vs. direct current
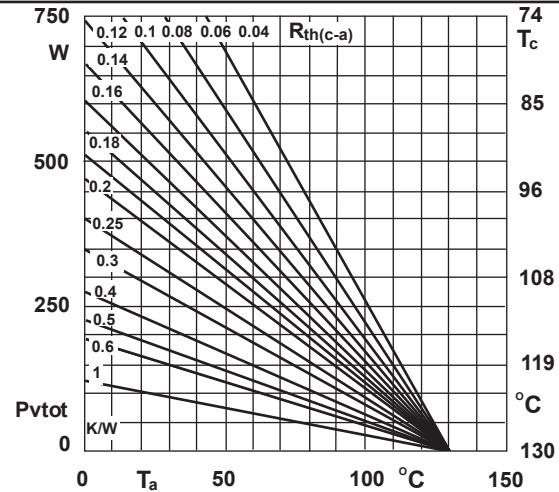
Fig.3 R Power dissipation of two modules vs. case temp

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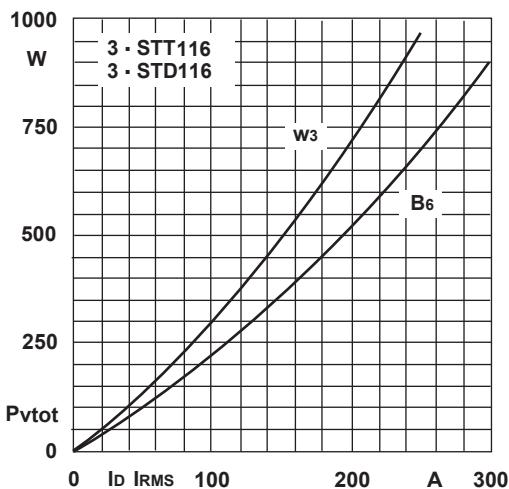
Fig.4L Power dissipation of three modules vs. direct and rms current
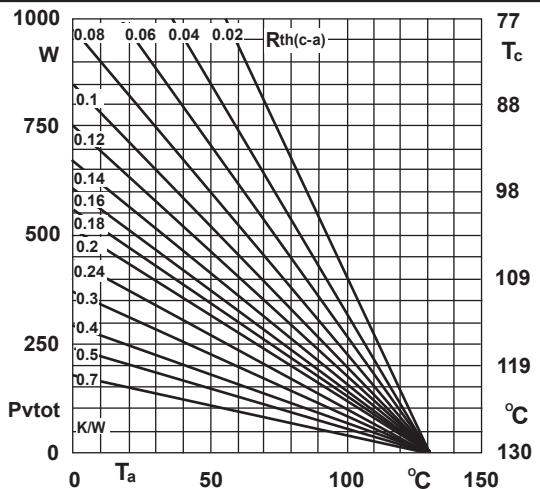
Fig.4R Power dissipation of three modules vs. case temp
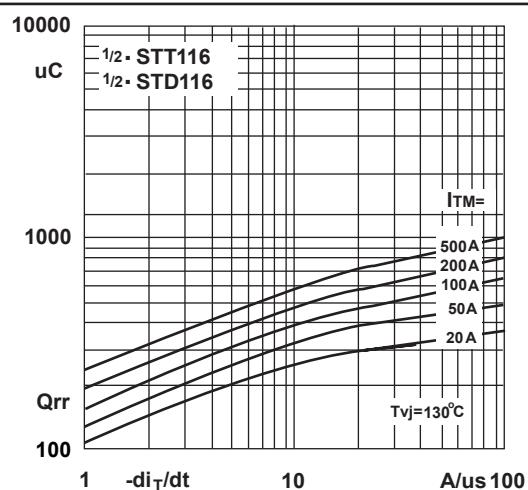
Fig.5 Recovered charge vs. current decrease
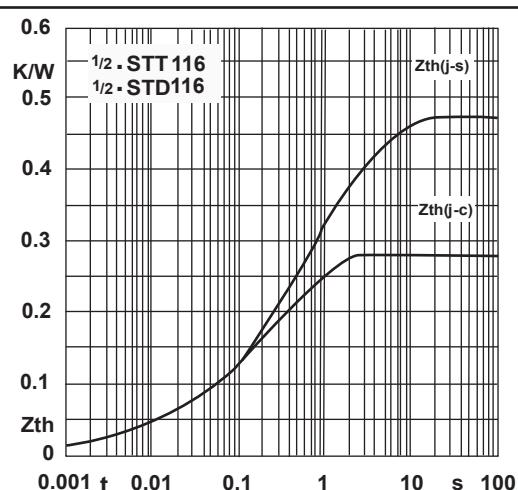
Fig.6 Transient thermal impedance vs. time
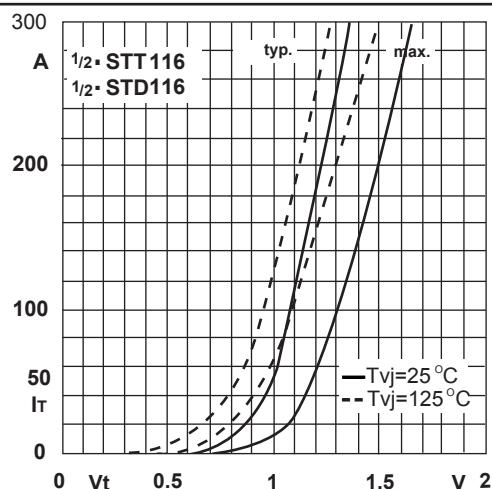
Fig.7 On-state charactristics
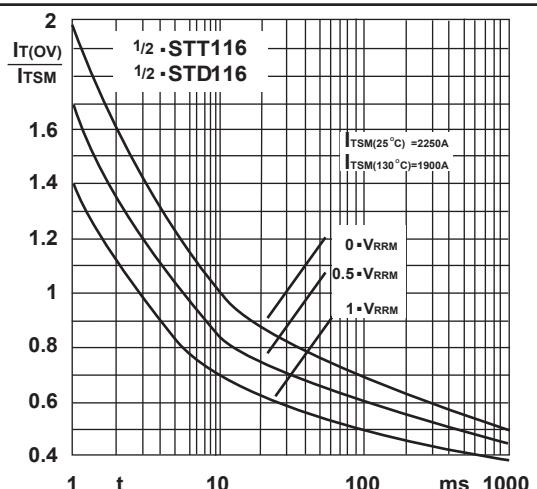
Fig.8 Surge overload current vs. time

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