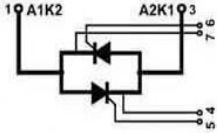
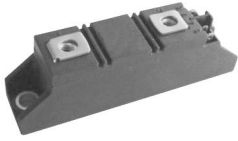


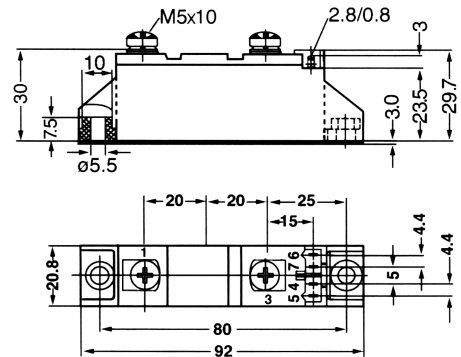
SSAC18

Solid State AC Controller(Anti-Parallel Thyristor-Thyristor Modules)



Type	V _{RSM} V _{DSM} V	V _{RRM} V _{DRM} V
SSAC18GK08	900	800
SSAC18GK12	1300	1200
SSAC18GK14	1500	1400
SSAC18GK16	1700	1600
SSAC18GK18	1900	1800

Dimensions in mm (1mm=0.0394")



Symbol	Test Conditions	Maximum Ratings	Unit
I_{TRMS}, I_{FRMS} I_{TAVM}, I_{FAVM}	$T_{VJ}=T_{VJM}$ $T_C=85^{\circ}C$; 180° sine	40 18	A
I_{TSM}, I_{FSM}	$T_{VJ}=45^{\circ}C$ $V_R=0$ t=10ms (50Hz), sine t=8.3ms (60Hz), sine	400 420	A
	$T_{VJ}=T_{VJM}$ $V_R=0$ t=10ms(50Hz), sine t=8.3ms(60Hz), sine	350 370	
$\int i^2 dt$	$T_{VJ}=45^{\circ}C$ $V_R=0$ t=10ms (50Hz), sine t=8.3ms (60Hz), sine	800 730	A ² s
	$T_{VJ}=T_{VJM}$ $V_R=0$ t=10ms(50Hz), sine t=8.3ms(60Hz), sine	600 570	
$(di/dt)_{cr}$	$T_{VJ}=T_{VJM}$ f=50Hz, $t_p=200\mu s$ $V_D=2/3V_{DRM}$ $I_G=0.45A$ $di/dt=0.45A/\mu s$ repetitive, $I_T=45A$	150	A/ μs
	non repetitive, $I_T=I_{TAVM}$	500	
$(dv/dt)_{cr}$	$T_{VJ}=T_{VJM}$; $R_{GK}=\infty$; method 1 (linear voltage rise) $V_{DR}=2/3V_{DRM}$	1000	V/ μs
P_{GM}	$T_{VJ}=T_{VJM}$ $I_T=I_{TAVM}$ $t_p=30\mu s$ $t_p=300\mu s$	10	W
		5	
P_{GAV}		0.5	W
V_{RGM}		10	V
T_{VJ} T_{VJM} T_{stg}		-40...+125	°C
		125	
		-40...+125	
V_{ISOL}	50/60Hz, RMS $I_{ISOL} \leq 1mA$ t=1min t=1s	3000	V~
		3600	
M_d	Mounting torque (M5) Terminal connection torque (M5)	2.5-4.0/22-35	Nm/lb.in.
		2.5-4.0/22-35	
Weight	Typical including screws	90	g

SSAC18

Solid State AC Controller(Anti-Parallel Thyristor-Thyristor Modules)

Symbol	Test Conditions	Characteristic Values	Unit
I_{RRM}, I_{DRM}	$T_{VJ}=T_{VJM}; V_R=V_{RRM}; V_D=V_{DRM}$	3	mA
V_T, V_F	$I_T, I_F=80A; T_{VJ}=25^{\circ}C$	2.05	V
V_{TO}	For power-loss calculations only ($T_{VJ}=125^{\circ}C$)	0.85	V
r_T		18	$m\Omega$
V_{GT}	$V_D=6V;$ $T_{VJ}=25^{\circ}C$ $T_{VJ}=-40^{\circ}C$	1.5 1.6	V
I_{GT}	$V_D=6V;$ $T_{VJ}=25^{\circ}C$ $T_{VJ}=-40^{\circ}C$	100 200	mA
V_{GD}	$T_{VJ}=T_{VJM};$ $V_D=2/3V_{DRM}$	0.2	V
I_{GD}		10	mA
I_L	$T_{VJ}=25^{\circ}C; t_p=10\mu s; V_D=6V$ $I_G=0.45A; di_G/dt=0.45A/\mu s$	450	mA
I_H	$T_{VJ}=25^{\circ}C; V_D=6V; R_{GK}=\infty$	200	mA
t_{gd}	$T_{VJ}=25^{\circ}C; V_D=1/2V_{DRM}$ $I_G=0.45A; di_G/dt=0.45A/\mu s$	2	μs
t_q	$T_{VJ}=T_{VJM}; I_T=20A; t_p=200\mu s; -di/dt=10A/\mu s$ $V_R=100V; dv/dt=20V/\mu s; V_D=2/3V_{DRM}$	typ. 150	μs
Q_S	$T_{VJ}=T_{VJM}; I_T, I_F=25A; -di/dt=0.64A/\mu s$	50	μC
I_{RM}		6	A
R_{thJC}	per thyristor/diode; DC current per module	1.3 0.65	K/W
R_{thJK}	per thyristor/diode; DC current per module	1.5 0.75	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 with Inter-DCB
- * Planar passivated chips
- * Isolation voltage 3600 V~

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

SSAC18

Solid State AC Controller(Anti-Parallel Thyristor-Thyristor Modules)

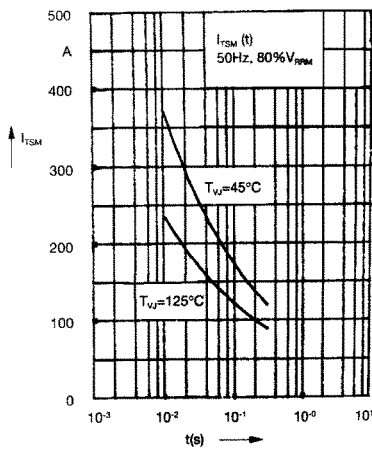


Fig. 1 Surge overload current
 I_{TSM} : Crest value, t : duration

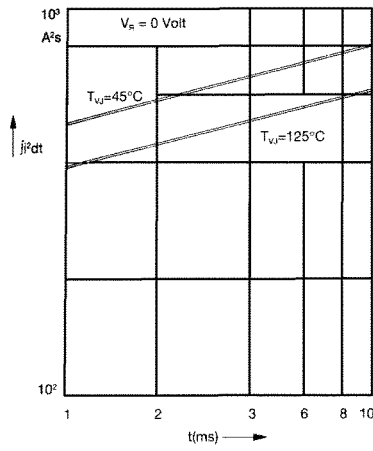


Fig. 2 $\int i^2 dt$ versus time (1-10 ms)

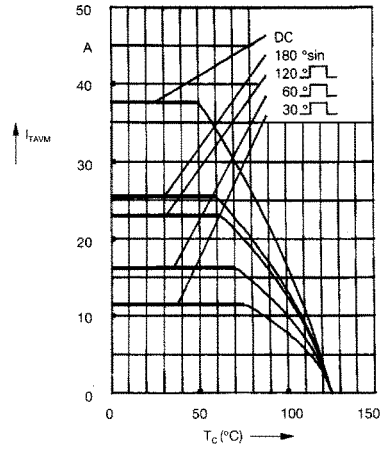


Fig. 2a Maximum forward current at case temperature

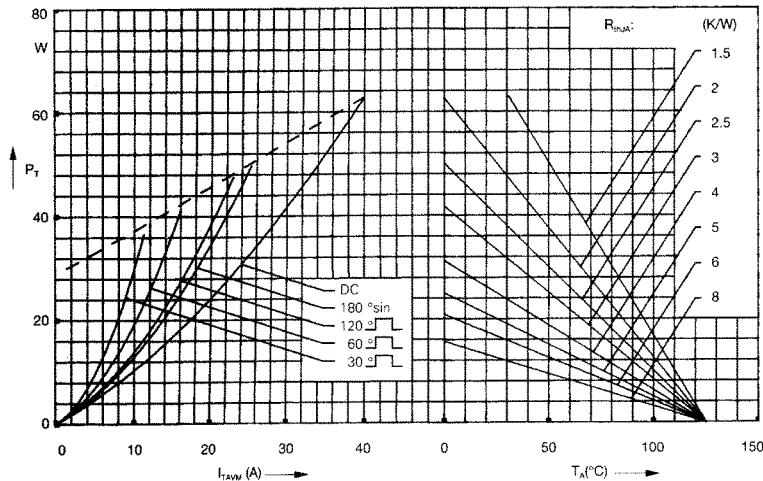


Fig. 3 Power dissipation versus on-state current and ambient temperature (per thyristor)

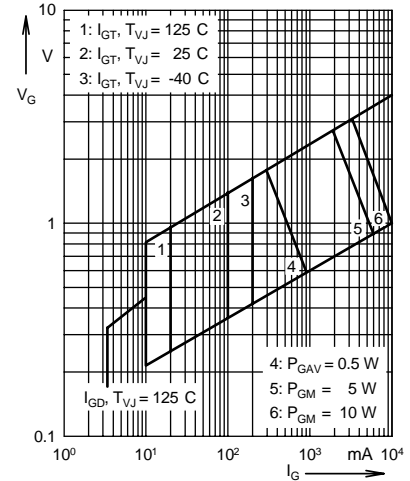


Fig. 4 Gate trigger characteristics

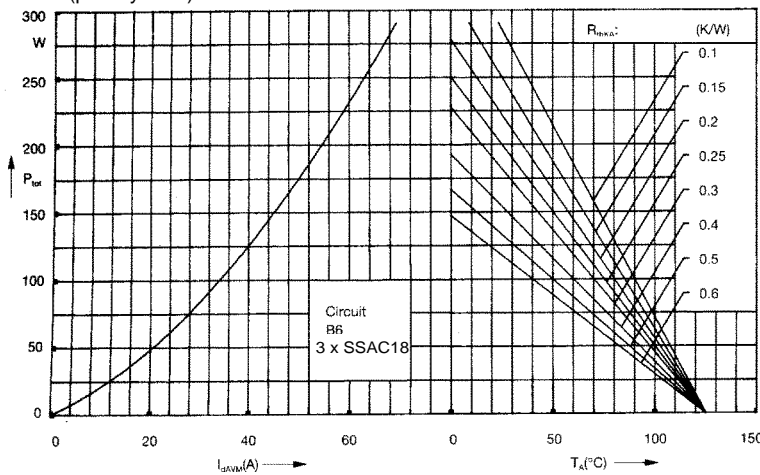


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

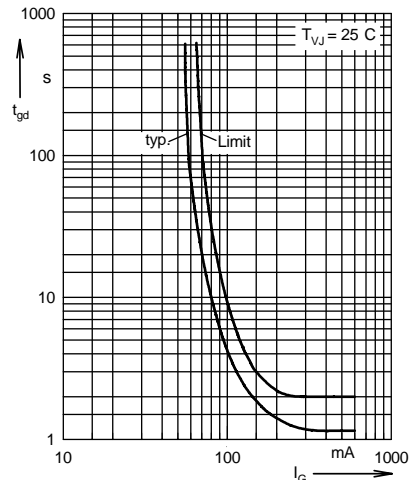


Fig. 6 Gate trigger delay time

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Solid State AC Controller(Anti-Parallel Thyristor-Thyristor Modules)

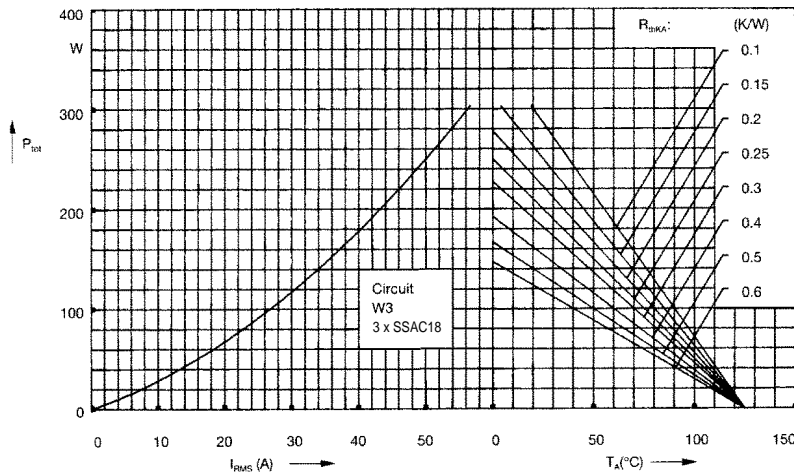


Fig. 7 Three phase AC-controller: Power dissipation versus RMS output current and ambient temperature

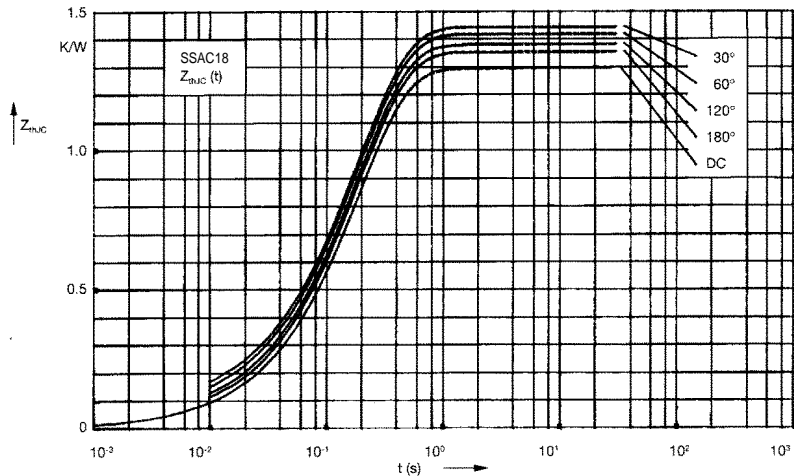


Fig. 8 Transient thermal impedance junction to case (per thyristor)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	1.3
180°C	1.35
120°C	1.39
60°C	1.42
30°C	1.45

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.018	0.0033
2	0.041	0.0216
3	1.241	0.191

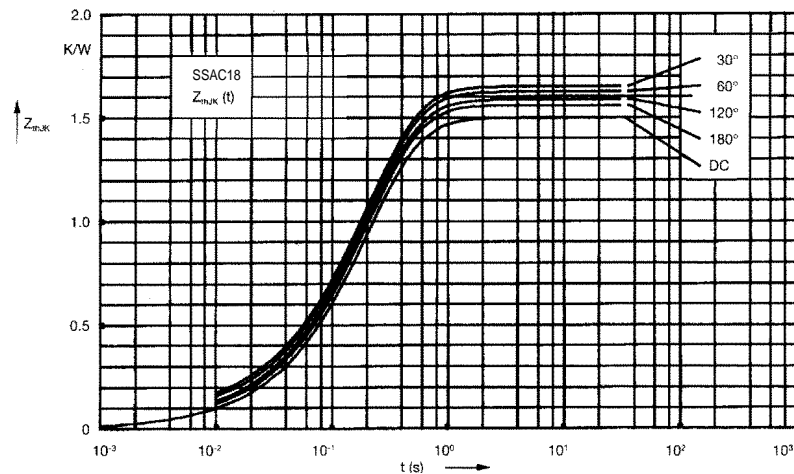


Fig. 9 Transient thermal impedance junction to heatsink (per thyristor)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	1.5
180°C	1.55
120°C	1.59
60°C	1.62
30°C	1.65

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.018	0.0033
2	0.041	0.0216
3	1.241	0.191
4	0.2	0.46