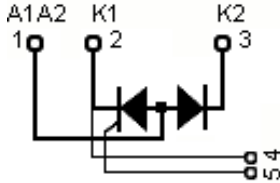


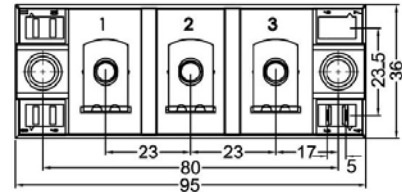
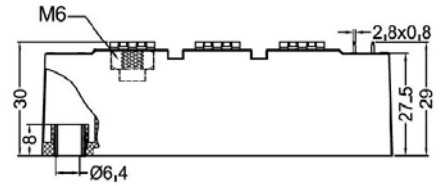
STD5 165GKXX

.....Thyristor-Diode 7 ca a cb'5 bcXY Modules



Type	V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V
STD5 165GK08	900	800
STD5 165GK12	1300	1200
STD5 165GK14	1500	1400
STD5 165GK16	1700	1600
STD5 165GK18	1900	1800
STD5 165GK20	2100	2000
STD5 165GK22	2300	2200

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	300 165	A
I_{TSM} , I_{FSM}	$T_{VJ}=45^{\circ}C$ $V_R=0$ t=10ms (50Hz), sine t=8.3ms (60Hz), sine	6000 6400	A
	$T_{VJ}=T_{VJM}$ $V_R=0$ t=10ms(50Hz), sine t=8.3ms(60Hz), sine	5250 5600	
$\int i^2 dt$	$T_{VJ}=45^{\circ}C$ $V_R=0$ t=10ms (50Hz), sine t=8.3ms (60Hz), sine	180000 170000	A ² s
	$T_{VJ}=T_{VJM}$ $V_R=0$ t=10ms(50Hz), sine t=8.3ms(60Hz), sine	137000 128000	
$(di/dt)_{cr}$	$T_{VJ}=T_{VJM}$ f=50Hz, $t_p=200\mu s$ $V_D=2/3V_{DRM}$ $I_G=0.5A$ $di_G/dt=0.5A/\mu s$ repetitive, $I_T=500A$	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}	$T_{VJ}=T_{VJM}$ $I_T=I_{TAVM}$ $t_p=30\mu s$ $t_p=500\mu s$	120	W
		60	
P_{GAV}		8	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 (M6) Terminal connection torque (M6)	2.25-2.75/20-25	Nm/lb.in.
		4.5-5.5/40-48	
Weight	Typical	122	g

Sirectifier®

STD5 165GKXX

Ha nf]ghcf!8]cXY'7 ca a cb'5 bcXY'AcXi `Yg

Symbol	Test Conditions	Characteristic Values	Unit
I_{RRM}, I_{DRM}	$T_{VJ}=T_{VJM}; V_R=V_{RRM}; V_D=V_{DRM}$	40	mA
V_T, V_F	$I_T, I_F=300A; T_{VJ}=25^{\circ}C$	1.36	V
V_{TO}	For power-loss calculations only ($T_{VJ}=T_{VJM}$)	0.8	V
r_T		1.6	m Ω
V_{GT}	$V_D=6V; T_{VJ}=25^{\circ}C$ $T_{VJ}=-40^{\circ}C$	2 2.6	V
I_{GT}	$V_D=6V; T_{VJ}=25^{\circ}C$ $T_{VJ}=-40^{\circ}C$	150 200	mA
V_{GD}	$T_{VJ}=T_{VJM}; V_D=2/3V_{DRM}$	0.25	V
I_{GD}	$T_{VJ}=T_{VJM}; V_D=2/3V_{DRM}$	10	mA
I_L	$T_{VJ}=25^{\circ}C; t_p=30\mu s; V_D=6V$ $I_G=0.45A; di_G/dt=0.45A/\mu s$	200	mA
I_H	$T_{VJ}=25^{\circ}C; V_D=6V; R_{GK}=\infty$	150	mA
t_{gd}	$T_{VJ}=25^{\circ}C; V_D=1/2V_{DRM}$ $I_G=0.5A; di_G/dt=0.5A/\mu s$	2	us
t_q	$T_{VJ}=T_{VJM}; I_T=160A; t_p=200\mu s; -di/dt=10A/\mu s$ $V_R=100V; dv/dt=20V/\mu s; V_D=2/3V_{DRM}$	150	us
Q_s	$T_{VJ}=T_{VJM}; I_T, I_F=300A; -di/dt=50A/\mu s$	550	uC
I_{RM}		235	A
R_{thJC}	per thyristor/diode; DC current per module	0.155 0.0775	K/W
R_{thJK}	per thyristor/diode; DC current per module	0.225 0.1125	K/W
d_s	Creeping distance on surface	12.7	mm
d_A	Creepage distance in air	9.6	mm
a	Maximum allowable acceleration	50	m/s ²

FEATURES

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

APPLICATIONS

- * Motor control
- * Power converter
- * Heat and temperature control for industrial furnaces and chemical processes
- * Lighting control
- * Contactless switches

ADVANTAGES

- * Space and weight savings
- * Simple mounting
- * Improved temperature and power cycling
- * Reduced protection circuits



STD5 165GKXX

Thyristor-Diode Common Anode Modules

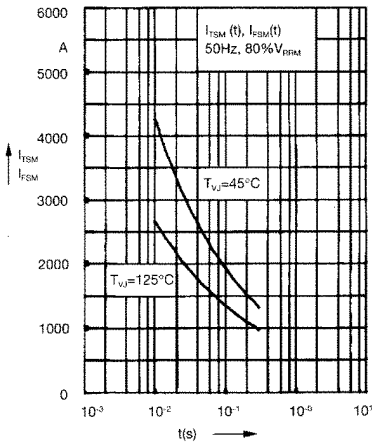


Fig. 1 Surge overload current
 I_{TSM} , I_{FSM} : Crest value, t : duration

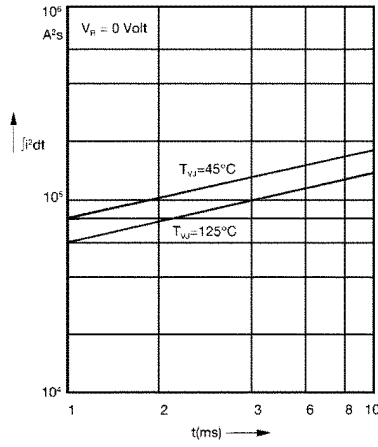


Fig. 2 I^2t versus time (1-10 ms)

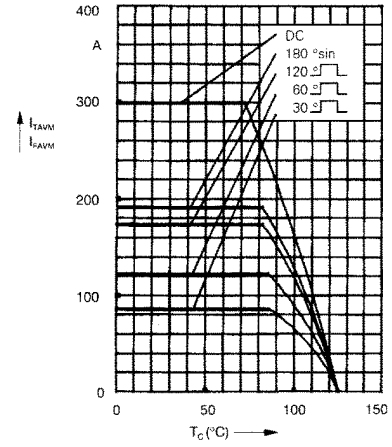


Fig. 2a Maximum forward current at case temperature

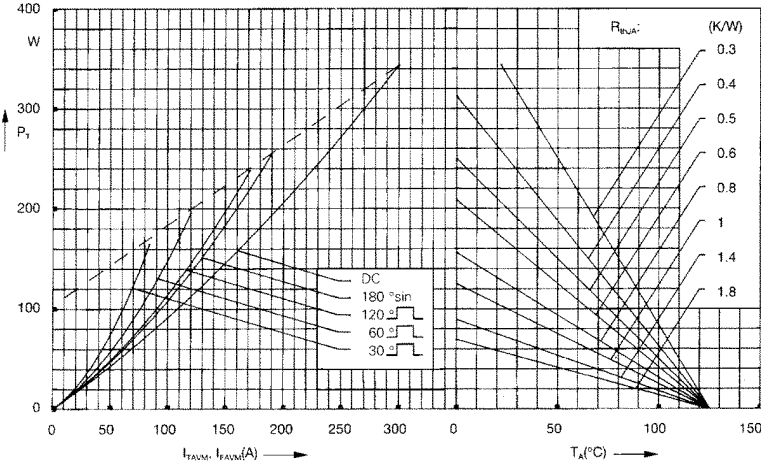


Fig. 3 Power dissipation versus on-state current and ambient temperature (per thyristor or diode)

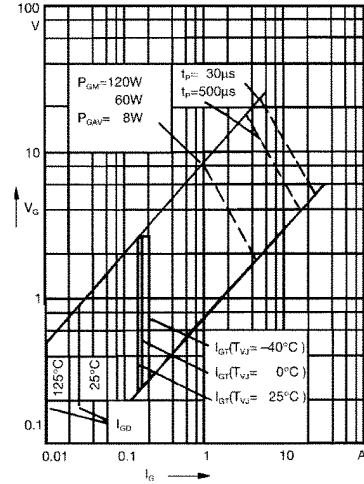


Fig. 4 Gate trigger characteristics

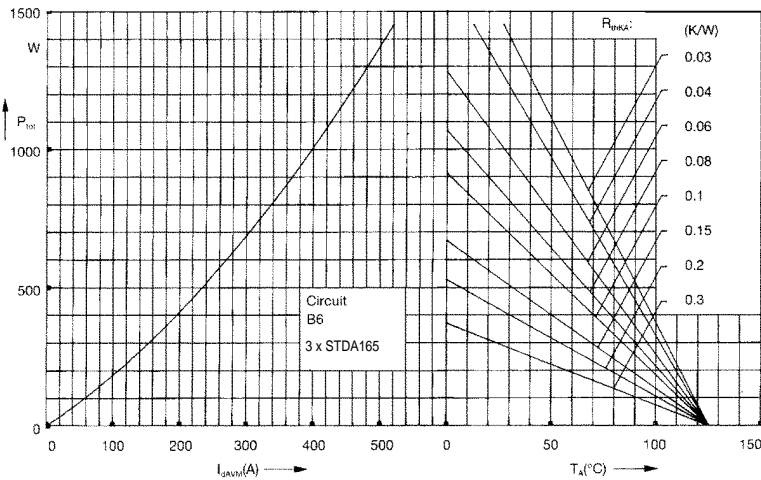


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

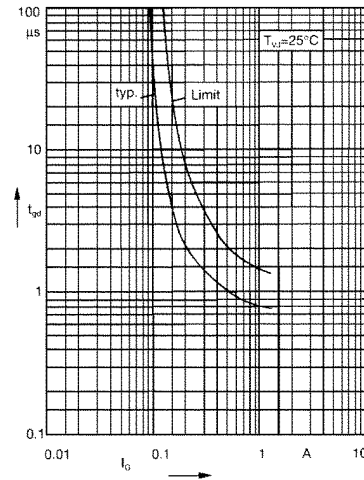


Fig. 6 Gate trigger delay time



STD5 165GKXX

Thyristor-Diode Common Anode Modules

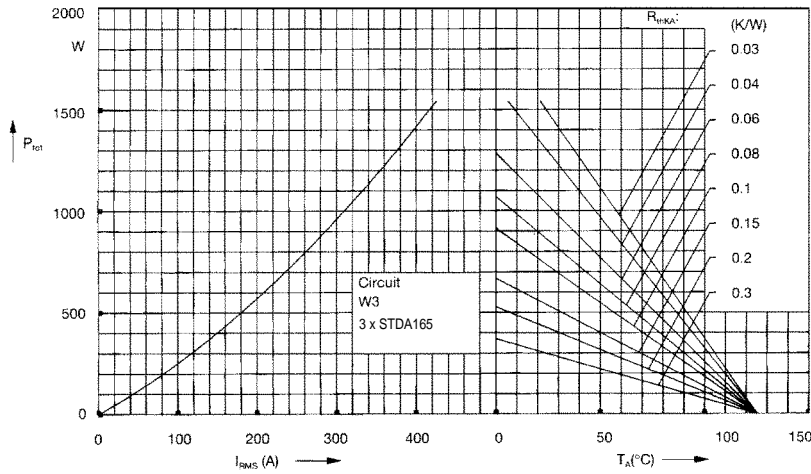


Fig. 7 Three phase AC-controller: Power dissipation versus RMS output current and ambient temperature

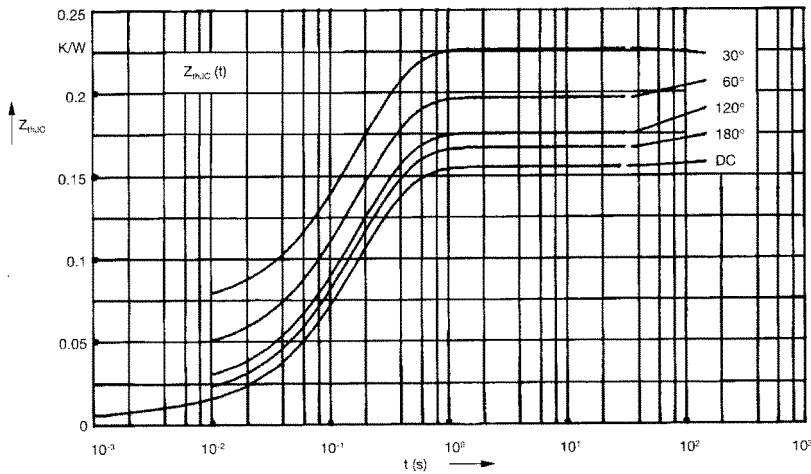


Fig. 8 Transient thermal impedance junction to case (per thyristor or diode)

R_{thJC} for various conduction angles d :

d	R_{thJC} (K/W)
DC	0.155
180°C	0.167
120°C	0.175
60°C	0.197
30°C	0.226

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0072	0.001
2	0.0188	0.08
3	0.129	0.2

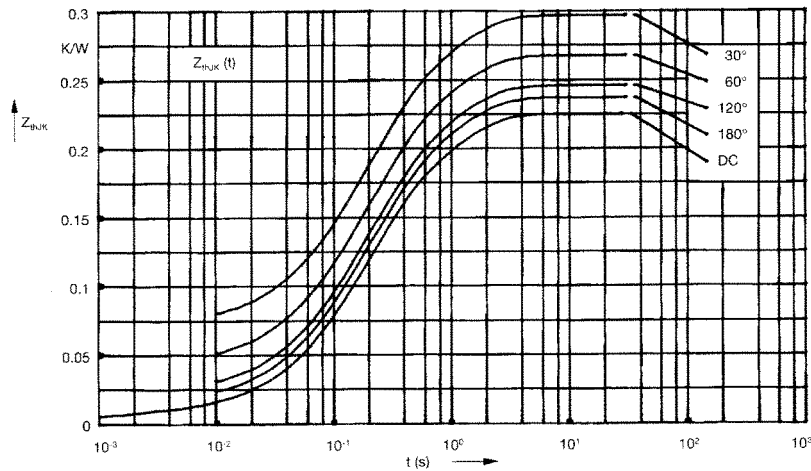


Fig. 9 Transient thermal impedance junction to heatsink (per thyristor or diode)

R_{thJK} for various conduction angles d :

d	R_{thJK} (K/W)
DC	0.225
180°C	0.237
120°C	0.245
60°C	0.262
30°C	0.296

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0072	0.001
2	0.0188	0.08
3	0.129	0.2
4	0.07	1.0

