FEATURES

* International standard package

APPLICATIONS

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

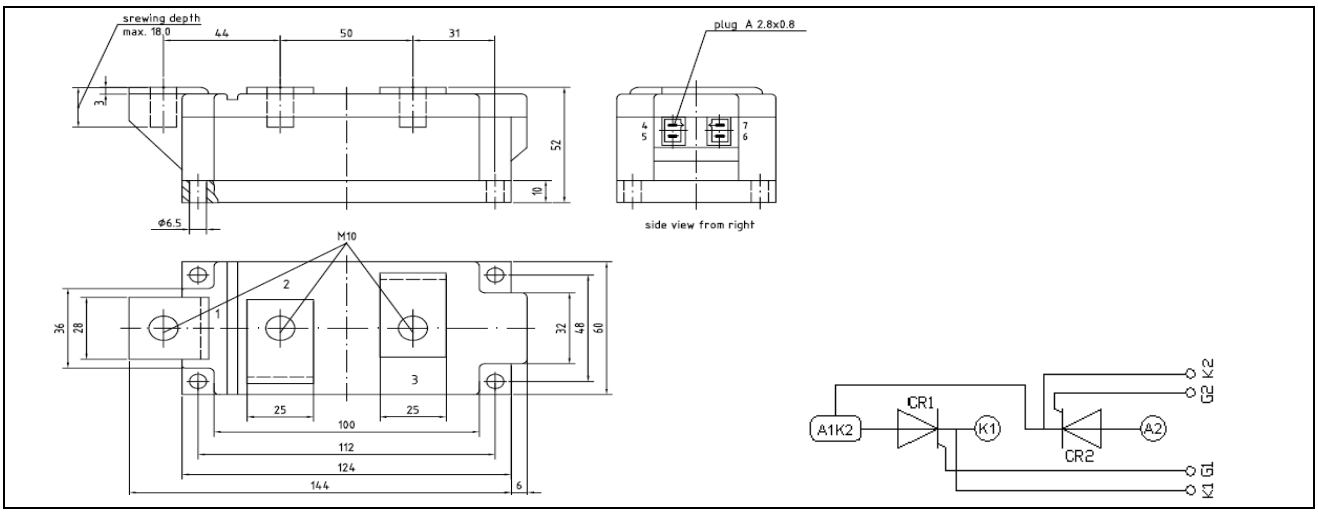
ADVANTAGES

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

Symbol	Test Conditions	Maximum Ratings	Unit
I_{TRMS}, I_{FRMS} I_{TAVM}, I_{FAVM}	$T_{VJ}=T_{VJM}$ $T_C=85^oC$; 180^o sine	960 600	A
I_{TSM}, I_{FSM}	$T_{VJ}=45^oC$ t=10ms (50Hz), sine V_R=0 t=8.3ms (60Hz), sine	15000 16000	A
	$T_{VJ}=T_{VJM}$ t=10ms(50Hz), sine V_R=0 t=8.3ms(60Hz), sine	13000 14400	
i^2dt	$T_{VJ}=45^oC$ t=10ms (50Hz), sine V_R=0 t=8.3ms (60Hz), sine	1125000 1062600	A^2s
	$T_{VJ}=T_{VJM}$ t=10ms(50Hz), sine V_R=0 t=8.3ms(60Hz), sine	845000 813000	
$(di/dt)_{cr}$	$T_{VJ}=T_{VJM}$ repetitive, I_T=45A f=50Hz, t_p=200us $V_D=2/3V_{DRM}$ I_G=0.45A non repetitive, $I_T=I_{TAVM}$ di_G/dt=0.45A/us	100 500	A/us
$(dv/dt)_{cr}$	$T_{VJ}=T_{VJM}$; $V_{DR}=2/3V_{DRM}$ R_{GK}= ; method 1 (linear voltage rise)	1000	V/us
P_{GM}	$T_{VJ}=T_{VJM}$ t_p=30us $I_T=I_{TAVM}$ t_p=300us	120 60	W
P_{GAV}		20	W
V_{RGM}		10	V
T_{VJ} T_{VJM} T_{stg}		-40...+125 125 -40...+125	^{o}C
V_{ISOL}	50/60Hz, RMS t=1min I_{ISOL}<1mA 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 including screws	1.6	kg

Symbol	Test Conditions	Maximum Ratings	Unit
IRRM, IDRM	TVJ=TVJM; VR=VRRM; VD=VDRM	40	mA
VT, VF	IT, IF=600A; TVJ=25oC	1.55	V
VTO	For power-loss calculations only (TVJ=125oC)	0.8	V
rT		0.38	mΩ
VGT	VD=6V; TVJ=25oC TVJ=-40oC	2 3	V
IGT	VD=6V; TVJ=25oC TVJ=-40oC	300 400	mA
VGD	TVJ=TVJM; VD=2/3VDRM	0.25	V
IGD		10	mA
IL	TVJ=25oC; tp=10us; VD=6V **IL** IG=0.45A; diG/dt=0.45A/us	400	mA
IH	TVJ=25oC; VD=6V; RGK=	300	mA
tgd	TVJ=25oC; VD=1/2VDRM IG=0.45A; diG/dt=0.45A/us	2	us
tq	TVJ=TVJM; IT=20A; tp=200us; -di/dt=10A/us typ. VR=100V; dv/dt=20V/us; VD=2/3VDRM	350	us
QS	TVJ=TVJM; IT, IF=25A; -di/dt=0.64A/us	760	uC
IRM		275	A
RthJC	per thyristor/diode; DC current per module	0.129 0.0645	K/W
RthJK	per thyristor/diode; DC current per module	0.169 0.0845	K/W
dS	Creeping distance on surface	12.7	mm
dA	Strike distance through air	9.6	mm
a	Maximum allowable acceleration	50	m/s2

Outline Table



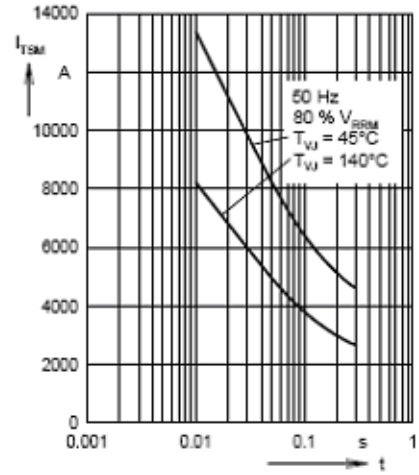


Fig. 1 Surge overload current
I_{TSM}, I_{FSM}: Crest value, t: duration

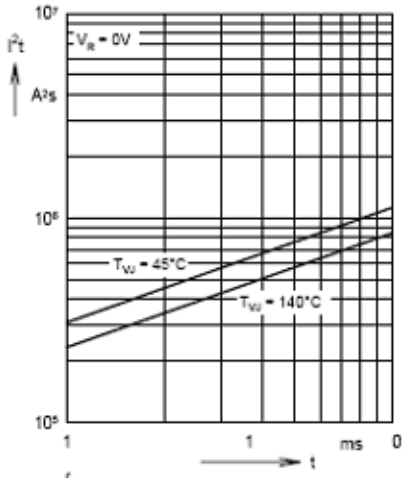


Fig. 2 $\int i^2dt$ versus time (1-10 ms)

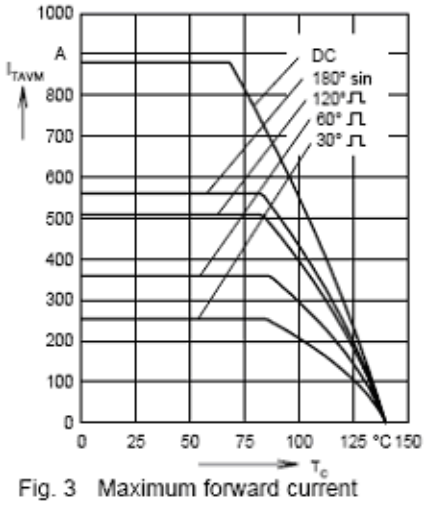


Fig. 3 Maximum forward current at case temperature

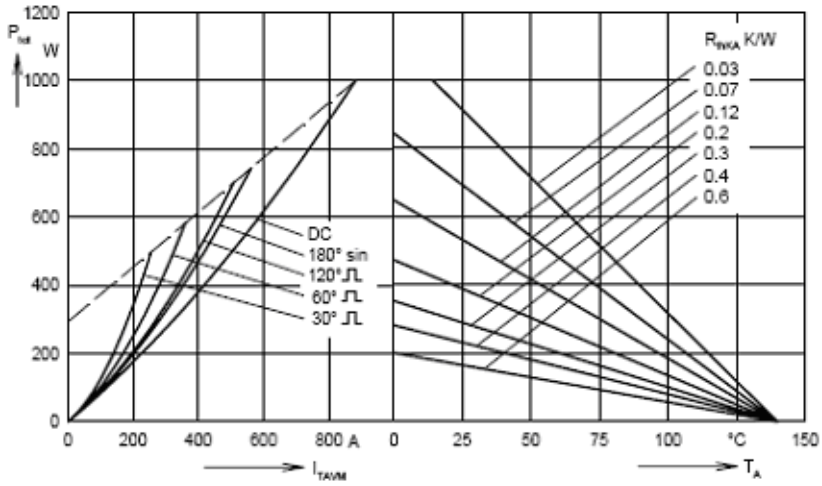


Fig. 4 Power dissipation versus on-state current and ambient temperature

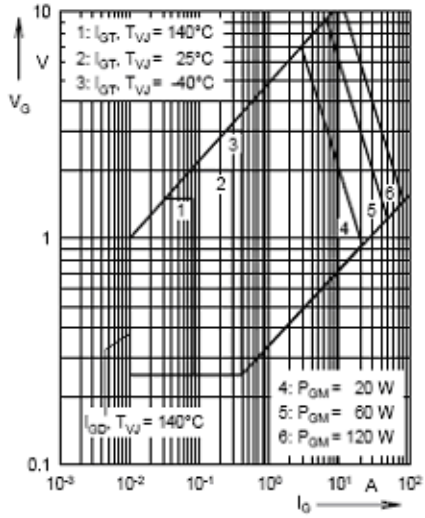


Fig. 5 Gate trigger characteristics

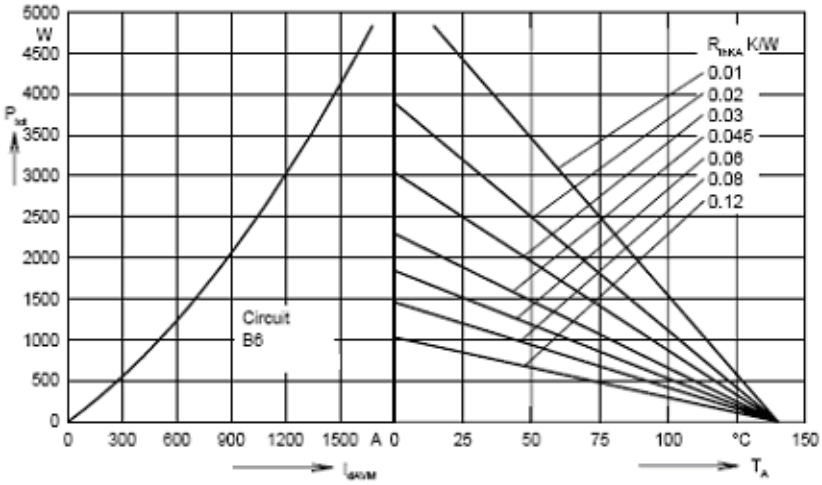


Fig. 6 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

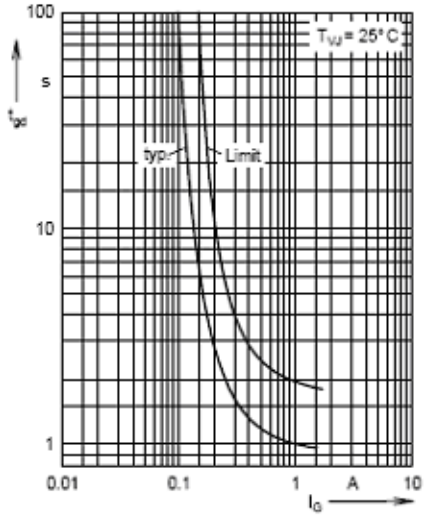


Fig. 7 Gate trigger delay time

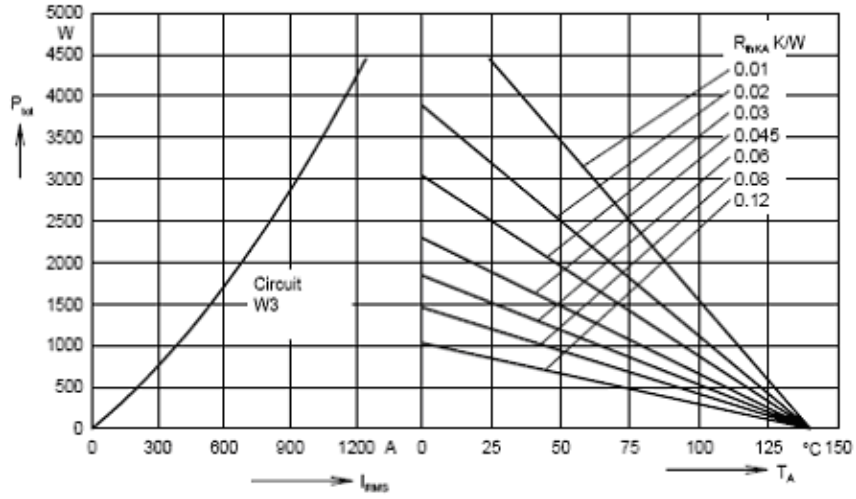


Fig. 8 Three phase AC-controller: Power dissipation versus RMS output current and ambient temperature

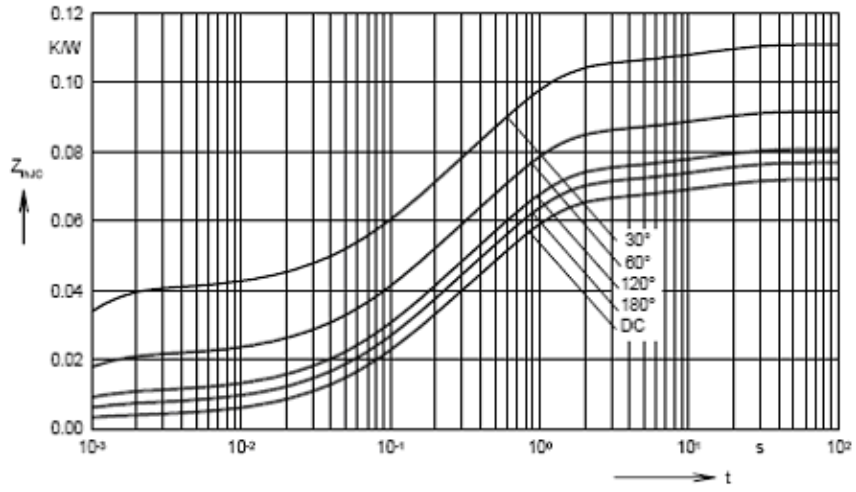


Fig. 9 Transient thermal impedance junction to case (per thyristor)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.072
180°C	0.0768
120°C	0.081
60°C	0.092
30°C	0.111

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0054
2	0.0186	0.098
3	0.0432	0.54
4	0.0067	12

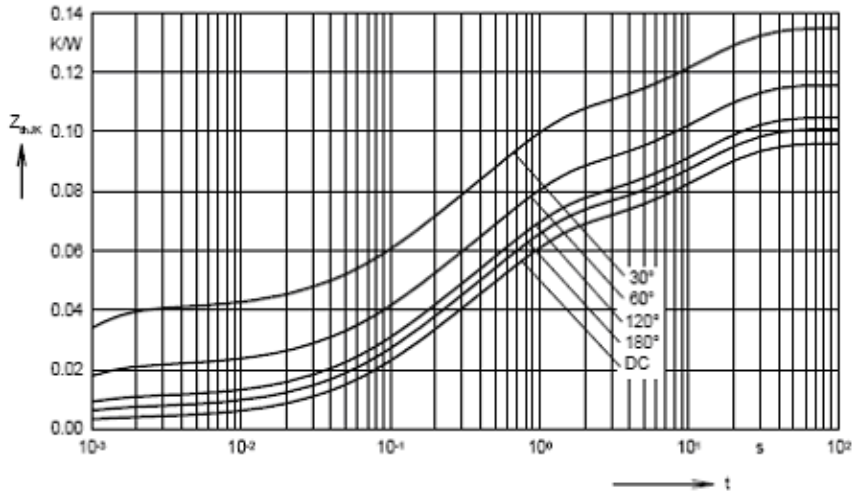


Fig.10 Transient thermal impedance junction to heatsink (per thyristor)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.096
180°C	0.1
120°C	0.105
60°C	0.116
30°C	0.135

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0054
2	0.0186	0.098
3	0.0432	0.54
4	0.0067	12
5	0.024	12