FEATURES

* International standard package
* Planar passivated chips

APPLICATIONS

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

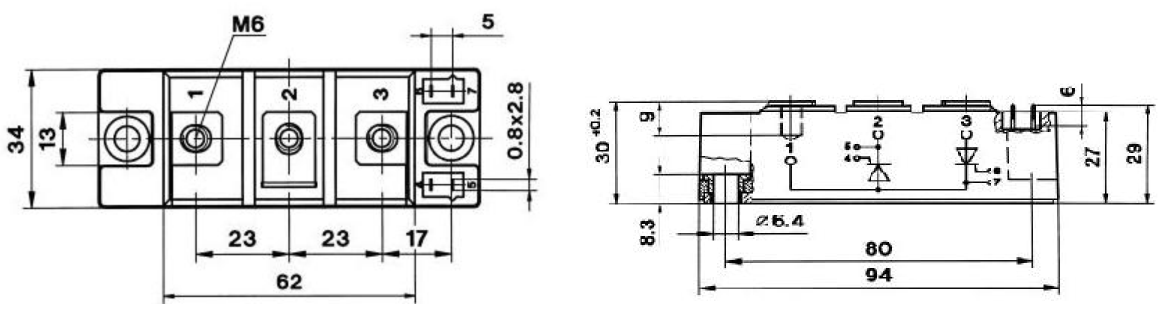
ADVANTAGES

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

Symbol	Test Conditions	Maximum Ratings	Unit
I_{TRMS}, I_{FRMS} I_{TAVM}, I_{FAVM}	T_{VJ}=T_{VJM} T_C=85°C; 180° sine	275 172	A
I_{TSM}, I_{FSM}	T_{VJ}=45°C t=10ms (50Hz), sine V_R=0 t=8.3ms (60Hz), sine	5500 5850	A
	T_{VJ}=T_{VJM} t=10ms(50Hz), sine V_R=0 t=8.3ms(60Hz), sine	4800 5100	
i^2dt	T_{VJ}=45°C t=10ms (50Hz), sine V_R=0 t=8.3ms (60Hz), sine	151000 142000	A^2s
	T_{VJ}=T_{VJM} t=10ms(50Hz), sine V_R=0 t=8.3ms(60Hz), sine	115000 108000	
$(di/dt)_{cr}$	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	150 500	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}		8	W
V_{RGM}		10	V
T_{VJ} T_{VJM} T_{stg}		-40...+125 125 -40...+125	°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	290	g

Symbol	Test Conditions	Maximum Ratings	Unit
IRRM, IDRM	TVJ=TVJM; VR=VRRM; VD=VDRM	10	mA
VT, VF	IT, IF=160A; TVJ=25oC	1.30	V
VTO	For power-loss calculations only (TVJ=125oC)	0.8	V
rT		1.5	mΩ
VGT	VD=6V; TVJ=25oC TVJ=-40oC	2.5 2.6	V
IGT	VD=6V; TVJ=25oC TVJ=-40oC	150 200	mA
VGD	TVJ=TVJM; VD=2/3VDRM	0.2	V
IGD		10	mA
IL	TVJ=25oC; tp=10us; VD=6V **IL** IG=0.45A; diG/dt=0.45A/us	300	mA
IH	TVJ=25oC; VD=6V; RGK=	200	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	150	us
QS	TVJ=TVJM; IT, IF=25A; -di/dt=0.64A/us	550	uC
IRM		235	A
RthJC	per thyristor/diode; DC current per module	0.23 0.115	K/W
RthJK	per thyristor/diode; DC current per module	0.33 0.165	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



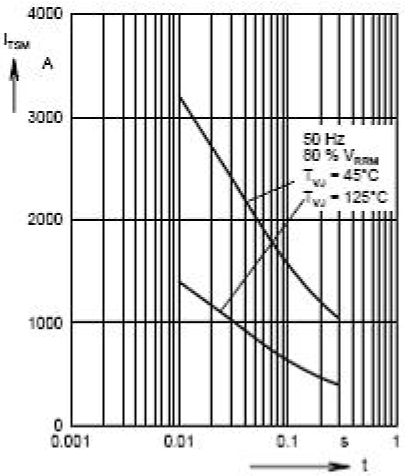


Fig. 1 Surge overload current
I_{TSM}, I_{FSM}: Crest value, t: duration

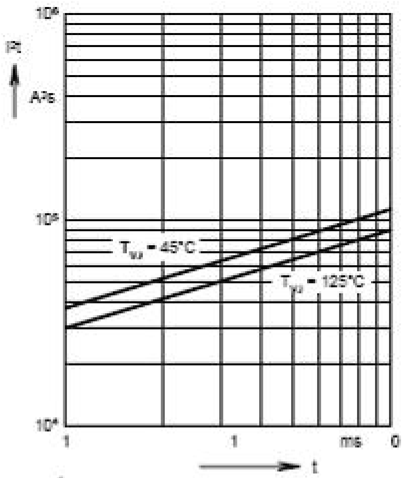


Fig. 2 ∫i²t versus time (1-10 ms)

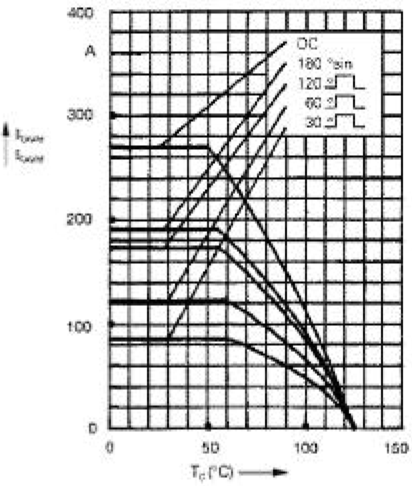


Fig. 2a Maximum forward current at case temperature

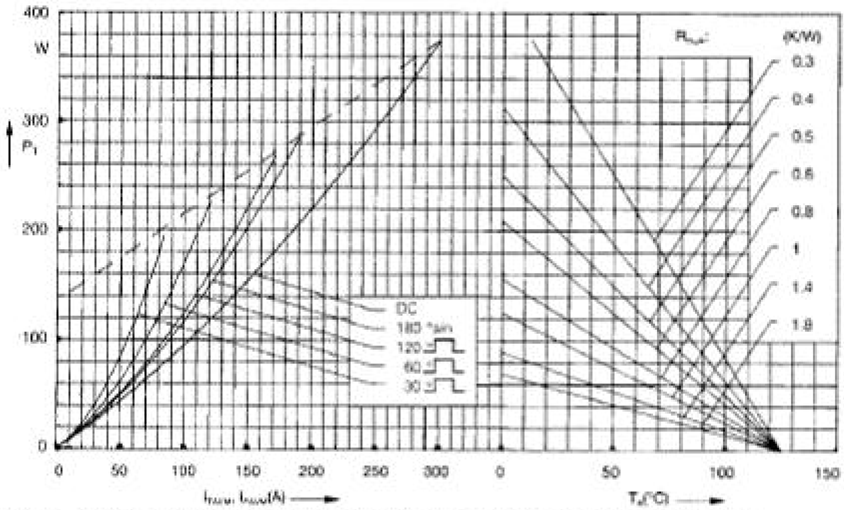


Fig. 3 Power dissipation versus on-state current and ambient temperature (per thyristor or diode)

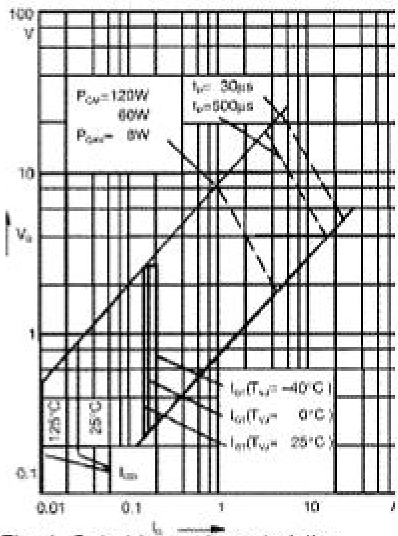


Fig. 4 Gate trigger characteristics

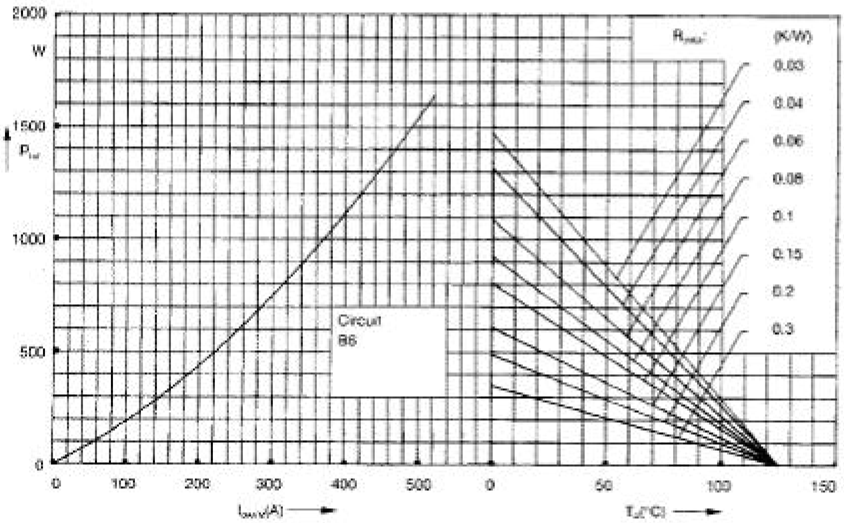


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

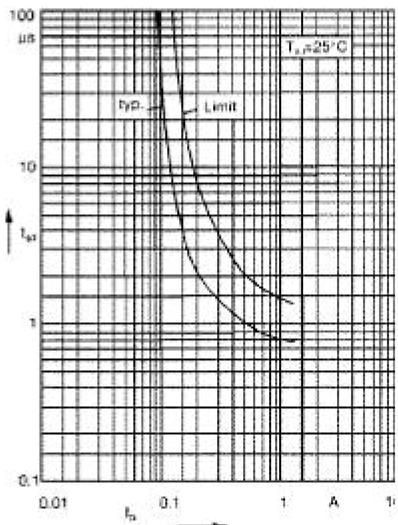


Fig. 6 Gate trigger delay time

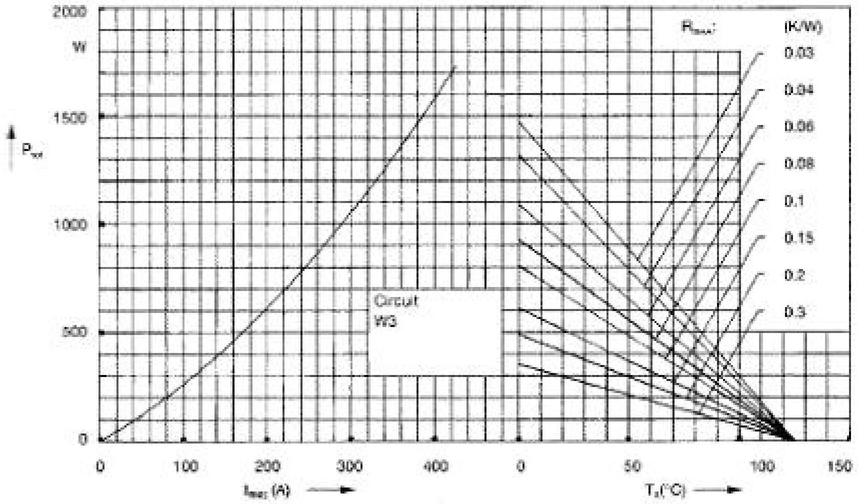


Fig. 7 Three phase AC-controller: Power dissipation versus RMS output current and ambient temperature

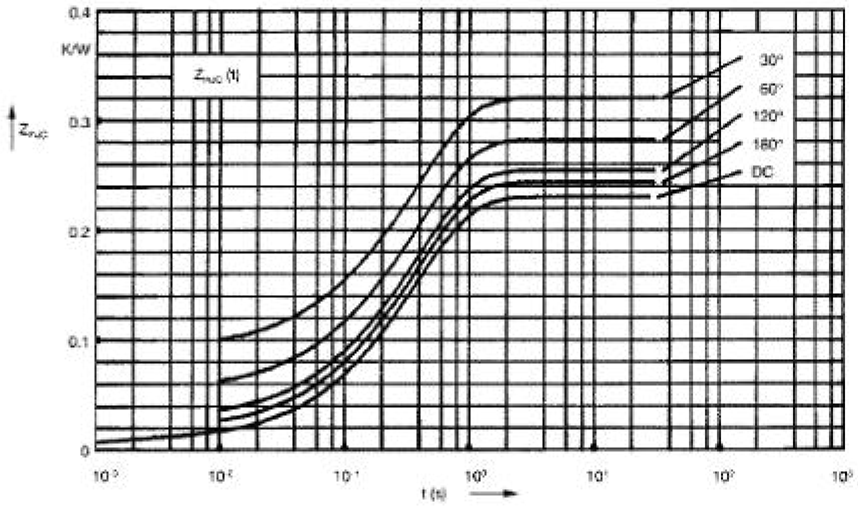


Fig. 8 Transient thermal impedance junction to case (per thyristor or diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.230
180°C	0.244
120°C	0.255
60°C	0.283
30°C	0.321

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0095	0.001
2	0.0175	0.065
3	0.203	0.4

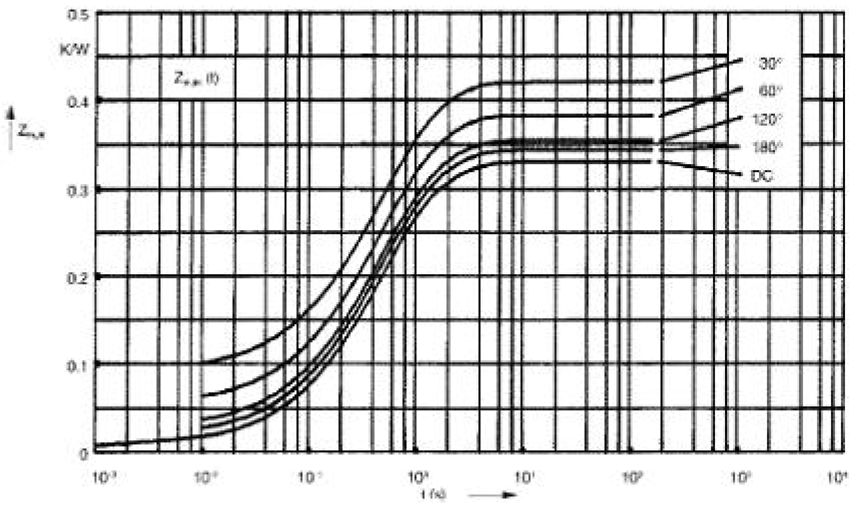


Fig. 9 Transient thermal impedance junction to heatsink (per thyristor or diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.330
180°C	0.344
120°C	0.355
60°C	0.383
30°C	0.421

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0095	0.001
2	0.0175	0.065
3	0.203	0.4
4	0.1	1.29