

FEATURES

- * International standard package
- * Copper Base Plate with Inter-DCB
- * Planar passivated chips
- * Isolation voltage 2600 V~

APPLICATIONS

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

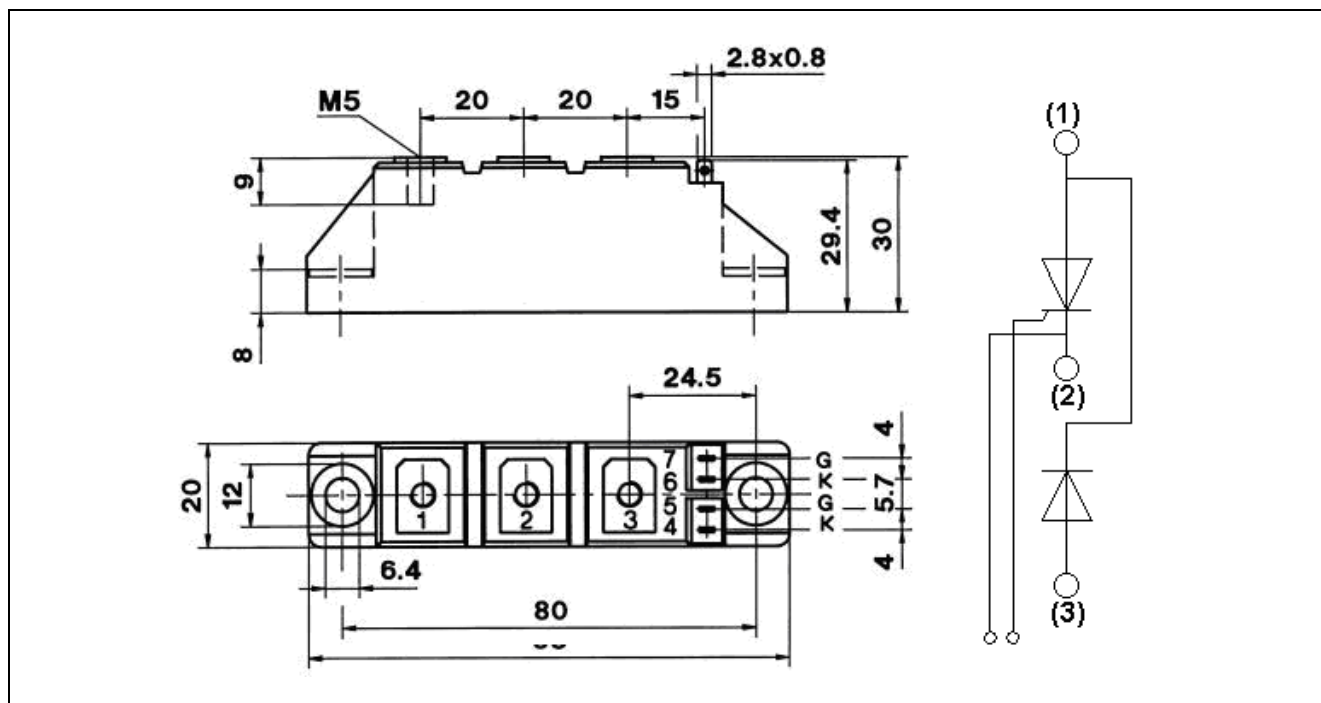
ADVANTAGES

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

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	100 63	A
I_{TSM} , I_{FSM}	$T_{VJ}=45^{\circ}C$ $t=10ms$ (50Hz), sine $V_R=0$ $t=8.3ms$ (60Hz), sine	1500 1600	A
	$T_{VJ}=T_{VJM}$ $t=10ms$ (50Hz), sine $V_R=0$ $t=8.3ms$ (60Hz), sine	1350 1450	
i_{2dt}	$T_{VJ}=45^{\circ}C$ $t=10ms$ (50Hz), sine $V_R=0$ $t=8.3ms$ (60Hz), sine	11200 10750	A _{2S}
	$T_{VJ}=T_{VJM}$ $t=10ms$ (50Hz), sine $V_R=0$ $t=8.3ms$ (60Hz), sine	9100 8830	
$(di/dt)_{cr}$	$T_{VJ}=T_{VJM}$ repetitive, $I_T=45A$ $f=50Hz$, $t_p=200\mu s$ $V_D=2/3V_{DRM}$ $I_G=0.45A$ non repetitive, $I_T=I_{TAVM}$ $di_G/dt=0.45A/\mu s$	150 500	A/ μs
$(dv/dt)_{cr}$	$T_{VJ}=T_{VJM}$; $V_{DR}=2/3V_{DRM}$ $R_{GK}=$; method 1 (linear voltage rise)	1000	V/ μs
P_{GM}	$T_{VJ}=T_{VJM}$ $t_p=30\mu s$ $I_T=I_{TAVM}$ $t_p=300\mu s$	10 5	W
P_{GAV}		0.5	W
V_{RGM}		10	V
T_{VJ} T_{VJM} T_{stg}		-40...+125 125 -40...+125	$^{\circ}C$
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	0.17	Kg

Symbol	Test Conditions	Maximum Ratings	Unit
IRRM, IDRM	TVJ=TVJM; VR=VRRM; VD=VDRM	5	mA
VT, VF	IT, IF=80A; TVJ=25oC	1.57	V
VTO	For power-loss calculations only (TVJ=125oC)	0.85	V
rT		3.7	mΩ
VGT	VD=6V; TVJ=25oC TVJ=-40oC	1.5 1.6	V
IGT	VD=6V; TVJ=25oC TVJ=-40oC	100 200	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	450	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 VR=100V; dv/dt=20V/us; VD=2/3VDRM	150	us
QS	TVJ=TVJM; IT, IF=25A; -di/dt=0.64A/us	100	uC
IRM		24	A
RthJC	per thyristor/diode; DC current per module	0.45 0.225	K/W
RthJK	per thyristor/diode; DC current per module	0.65 0.325	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



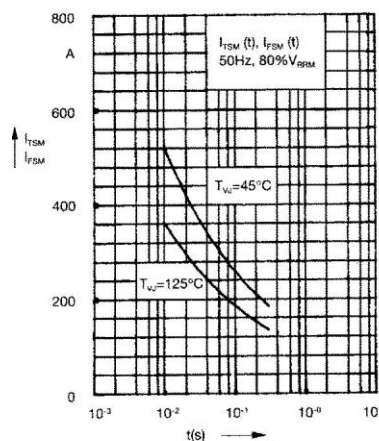


Fig. 1 Surge overload current
 I_{TSM} , I_{TSM} : Crest value, t : duration

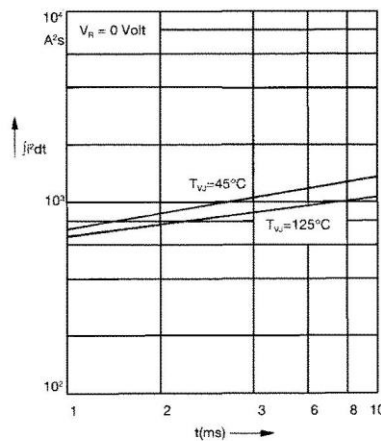


Fig. 2 $I_T dt$ versus time (1-10 ms)

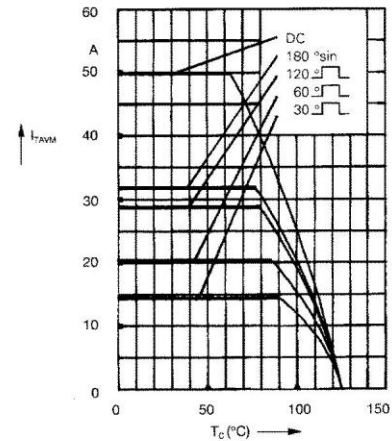


Fig. 2a Maximum forward current at case temperature

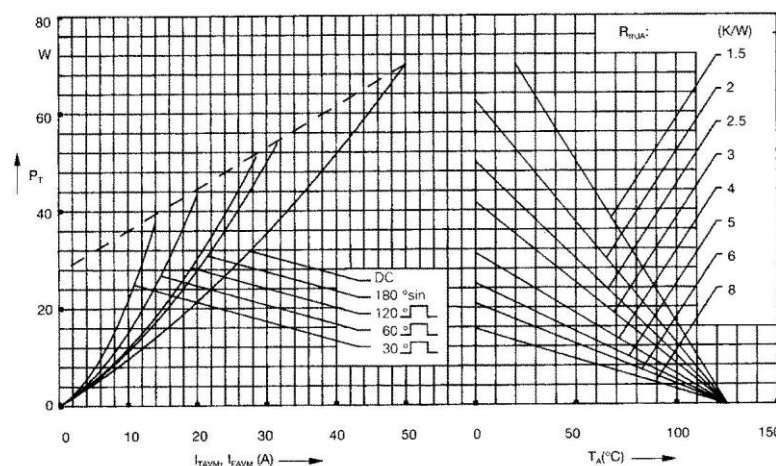


Fig. 3 Power dissipation versus on-state current and ambient temperature (per thyristor or diode)

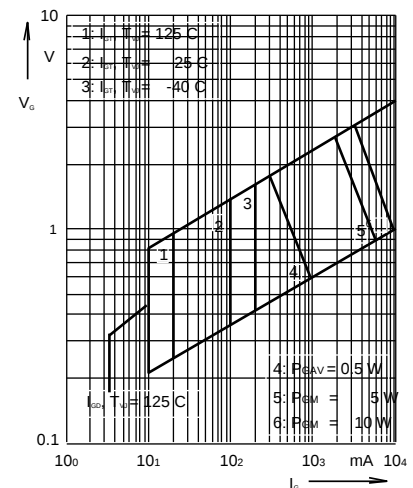


Fig. 4 Gate trigger characteristics

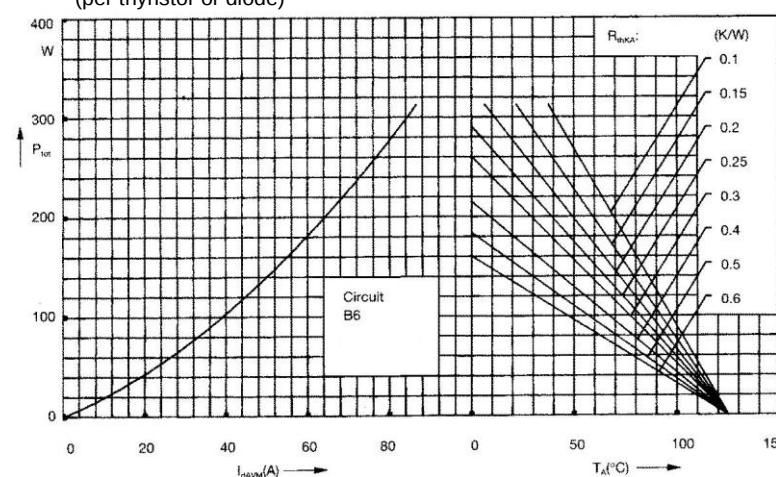


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

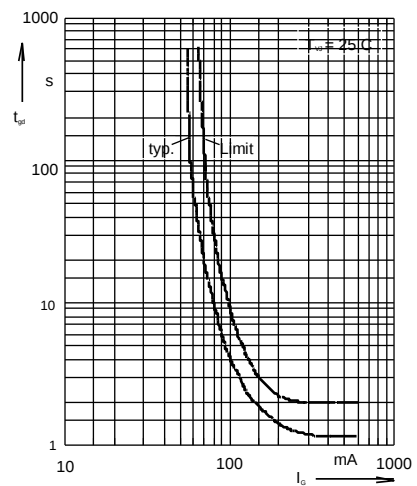


Fig. 6 Gate trigger delay time

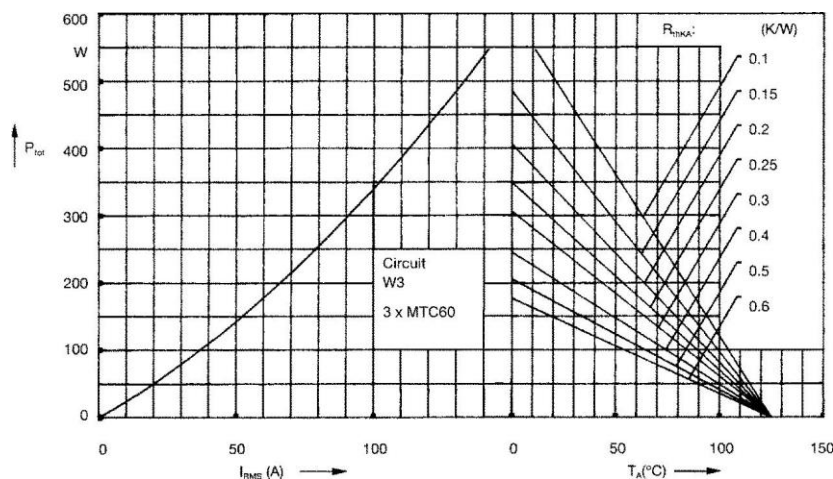


Fig. 7 Three phase AC-controller:
Power dissipation versus RMS
output current and ambient
temperature

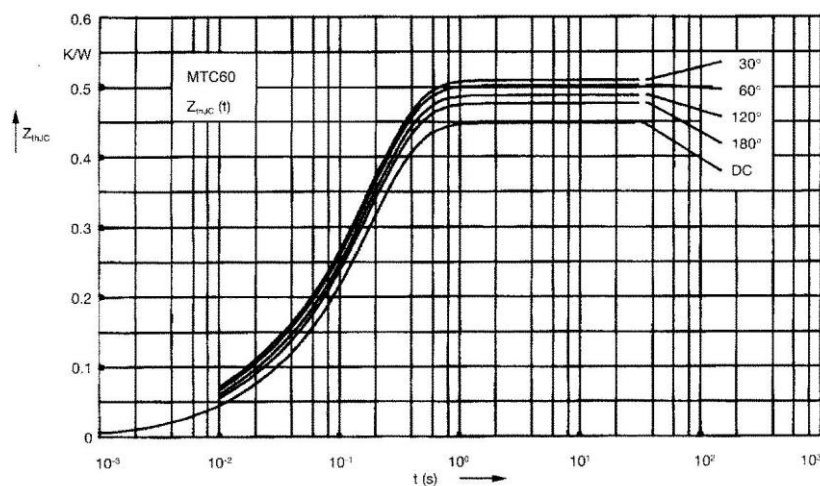


Fig. 8 Transient thermal impedance
junction to case (per thyristor or
diode)

R_{thJC} for various conduction angles d :

d	R_{thJC} (K/W)
DC	0.45
180°	0.47
120°	0.49
60°	0.505
30°	0.52

Constants for Z_{thJC} calculation:

i	R_{∞} (K/W)	t (s)
1	0.014	0.015
2	0.026	0.0095
3	0.41	0.175

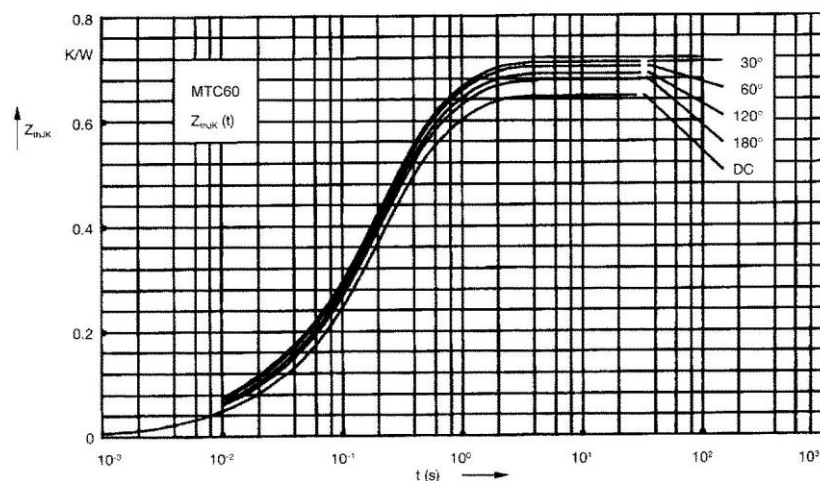


Fig. 9 Transient thermal impedance
junction to heatsink(per thyristor
or diode)

R_{thJK} for various conduction angles d :

d	R_{thJK} (K/W)
DC	0.65
180°	0.67
120°	0.69
60°	0.705
30°	0.72

Constants for Z_{thJK} calculation:

i	R_{∞} (K/W)	t (s)
1	0.014	0.015
2	0.026	0.0095
3	0.41	0.175
4	0.2	0.67