

## 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

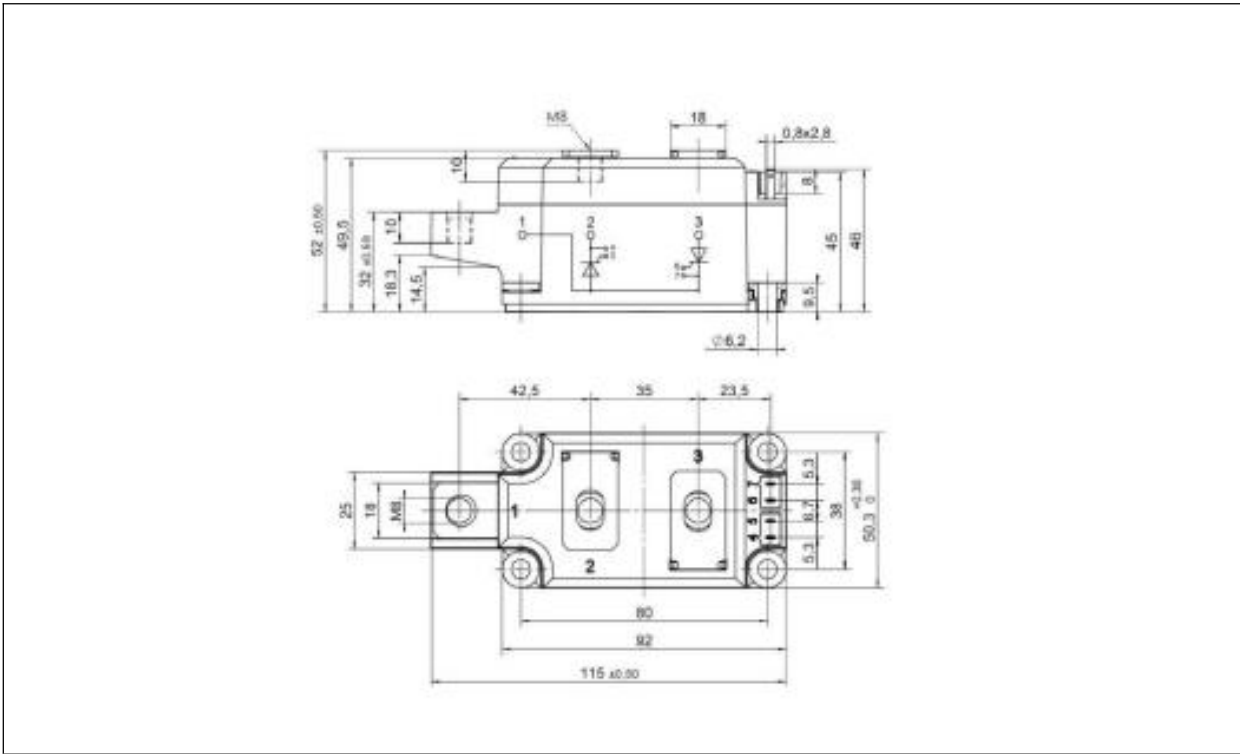
\* Reduced protection circuits

Symbol	Test Conditions	Maximum Ratings	Unit
$I_{TRMS}$ , $I_{FRMS}$ $I_{TAVM}$ , $I_{FAVM}$	$T_{VJ}=T_{VJM}$ $T_C=85^{\circ}C$ ; 180° sine	400 350	A
$I_{TSM}$ , $I_{FSM}$	$T_{VJ}=45^{\circ}C$ $t=10ms$ (50Hz), sine $V_R=0$ $t=8.3ms$ (60Hz), sine	9200 10100	A
	$T_{VJ}=T_{VJM}$ $t=10ms$ (50Hz), sine $V_R=0$ $t=8.3ms$ (60Hz), sine	8000 8800	
$i_{zdt}$	$T_{VJ}=45^{\circ}C$ $t=10ms$ (50Hz), sine $V_R=0$ $t=8.3ms$ (60Hz), sine	423000 423000	A <sub>2s</sub>
	$T_{VJ}=T_{VJM}$ $t=10ms$ (50Hz), sine $V_R=0$ $t=8.3ms$ (60Hz), sine	320000 321000	
$(di/dt)_{cr}$	$T_{VJ}=T_{VJM}$ repetitive, $I_T=45A$ $f=50Hz$ , $t_p=200\mu s$ $V_D=2/3V_{DRM}$ $I_G=0.45A$ non repetitive, $I_T=I_{TAVM}$ $di_G/dt=0.45A/\mu s$	100 500	A/ $\mu s$
$(dv/dt)_{cr}$	$T_{VJ}=T_{VJM}$ ; $V_{DR}=2/3V_{DRM}$ $R_{GK}=\ ;$ method 1 (linear voltage rise)	1000	V/ $\mu s$
$P_{GM}$	$T_{VJ}=T_{VJM}$ $t_p=30\mu s$	120	W
	$I_T=I_{TAVM}$ $t_p=300\mu s$	60	
$P_{GAV}$		20	W
$V_{RGM}$		10	V
$T_{VJ}$ $T_{VJM}$ $T_{stg}$		-40...+125 125 -40...+125	$^{\circ}C$
$V_{ISOL}$	50/60Hz, RMS $t=1min$	3000	V~
	$I_{ISOL}<1mA$ $t=1s$	3600	
$M_d$	Mounting torque (M5)	2.5-4.0/22-35	Nm/lb.in.
	Terminal connection torque (M5)	2.5-4.0/22-35	
Weight	Typical including screws	0.8	Kg

**HUAJING****MTC350A 1600V ...SERIES**

Symbol	Test Conditions	Maximum Ratings	Unit
<b>IRRM, IDRM</b>	TVJ=TVJM; VR=VRRM; VD=VDRM	70	mA
<b>VT, VF</b>	IT, IF=350A; TVJ=25oC	1.60	V
<b>VTO</b>	For power-loss calculations only (TVJ=125oC)	1.7	V
<b>rT</b>		0.85	mΩ
<b>VGT</b>	VD=6V; TVJ=25oC	2.5	V
	TVJ=-40oC	2.6	
<b>IGT</b>	VD=6V; TVJ=25oC	150	mA
	TVJ=-40oC	200	
<b>VGD</b>	TVJ=TVJM; VD=2/3VDRM	0.25	V
<b>IGD</b>		10	mA
<b>IL</b>	TVJ=25oC; tp=10us; VD=6V	300	mA
	<b>IL</b> IG=0.45A; diG/dt=0.45A/us		
<b>IH</b>	TVJ=25oC; VD=6V; RGK=	150	mA
<b>tg<sub>d</sub></b>	TVJ=25oC; VD=1/2VDRM IG=0.45A; diG/dt=0.45A/us	2	us
<b>tq</b>	TVJ=TVJM; IT=20A; tp=200us; -di/dt=10A/us VR=100V; dv/dt=20V/us; VD=2/3VDRM	200	us
<b>QS</b>	TVJ=TVJM; IT, IF=25A; -di/dt=0.64A/us	760	uC
<b>IRM</b>		275	A
<b>RthJC</b>	per thyristor/diode; DC current	0.129	K/W
	per module	0.0645	
<b>RthJK</b>	per thyristor/diode; DC current	0.169	K/W
	per module	0.0845	
<b>dS</b>	Creeping distance on surface	12.7	mm
<b>dA</b>	Strike distance through air	9.6	mm
<b>a</b>	Maximum allowable acceleration	50	m/s <sup>2</sup>

**Outline Table**



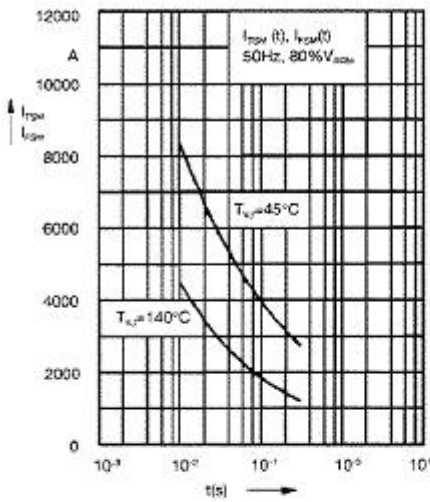


Fig. 1 Surge overload current  
 $I_{TSM}$ ,  $I_{FSM}$ : Crest value,  $t$ : duration

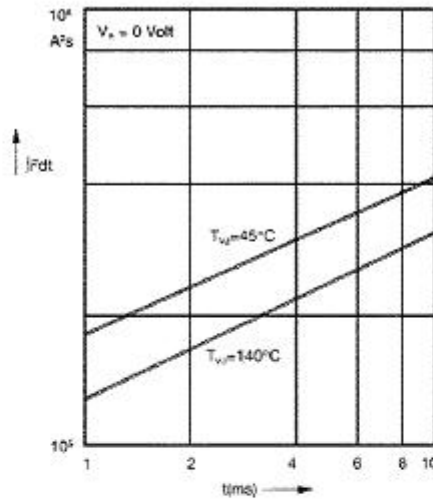


Fig. 2  $\int I^2 dt$  versus time (1-10 ms)

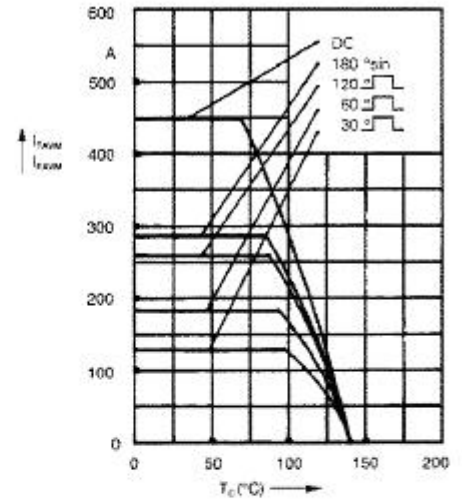


Fig. 2a Maximum forward current at case temperature

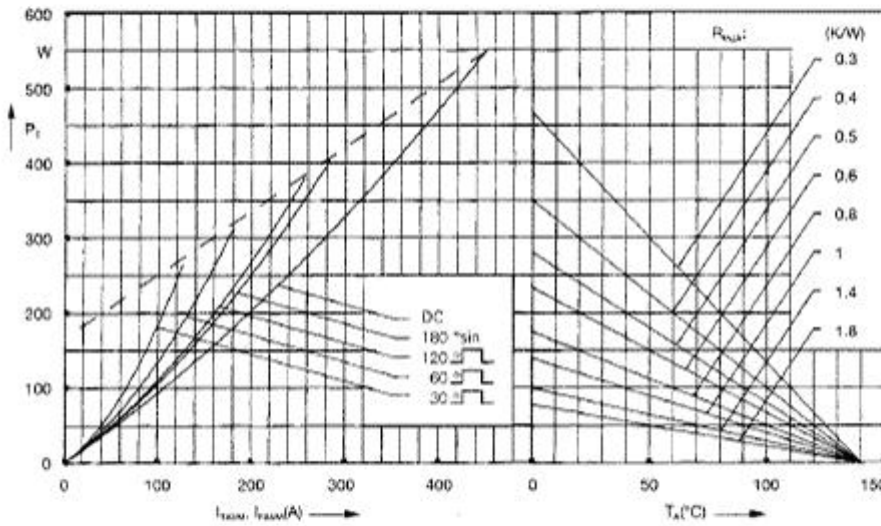


Fig. 3 Power dissipation versus on-state current and ambient temperature (per thyristor or diode)

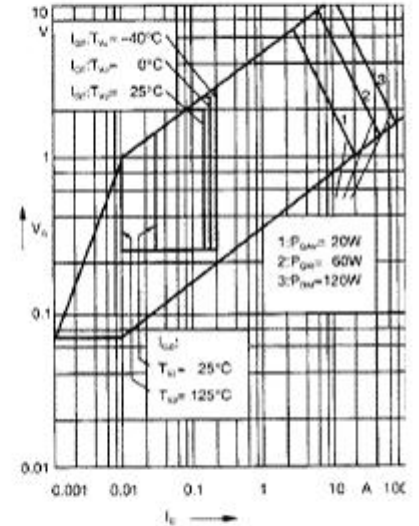


Fig. 4 Gate trigger characteristics

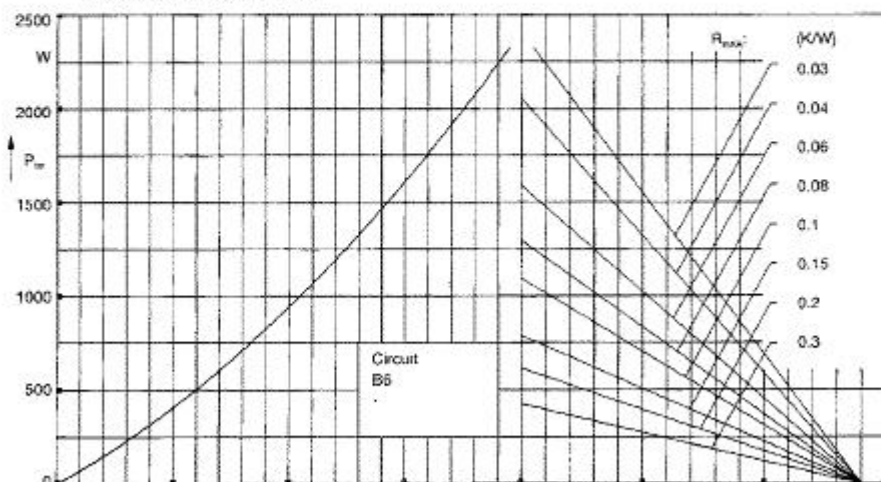


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

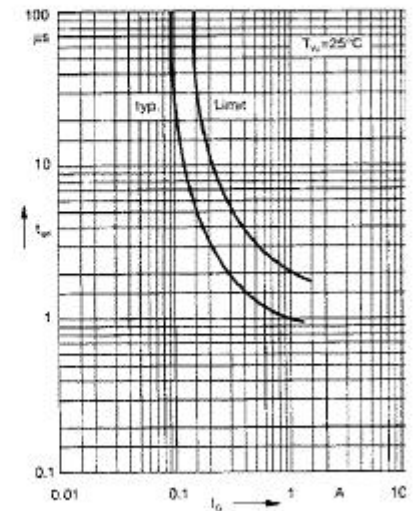


Fig. 6 Gate trigger delay time

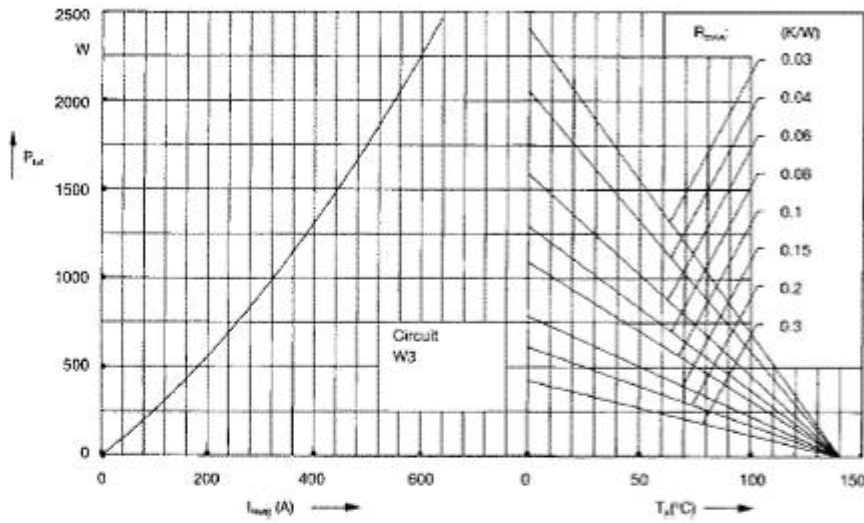


Fig. 7 Three phase AC-controller: Power dissipation versus RMS output current and ambient temperature

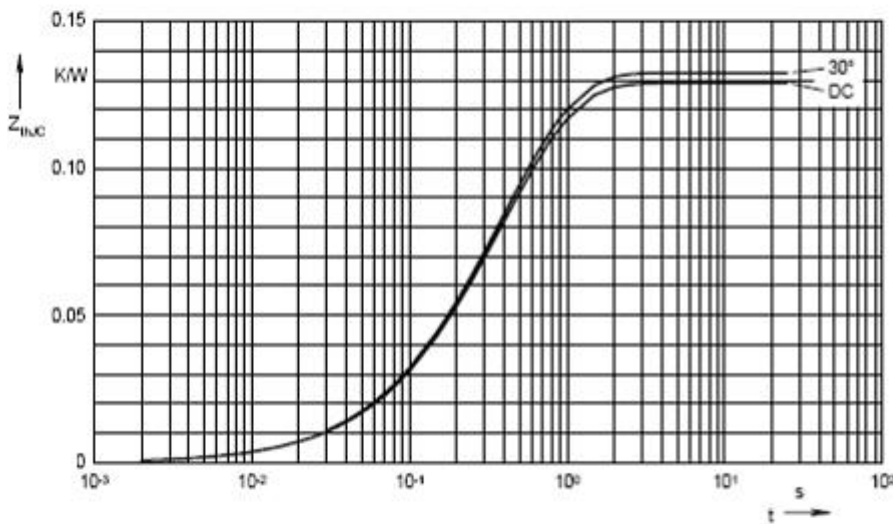


Fig. 8 Transient thermal impedance junction to case (per thyristor or diode)

$R_{thJC}$  for various conduction angles  $d$ :

$d$	$R_{thJC}$ (K/W)
DC	0.129
180°C	0.131
120°C	0.131
60°C	0.132
30°C	0.132

Constants for  $Z_{thJC}$  calculation:

$i$	$R_{thi}$ (K/W)	$t_i$ (s)
1	0.0035	0.099
2	0.0165	0.168
3	0.1091	0.456

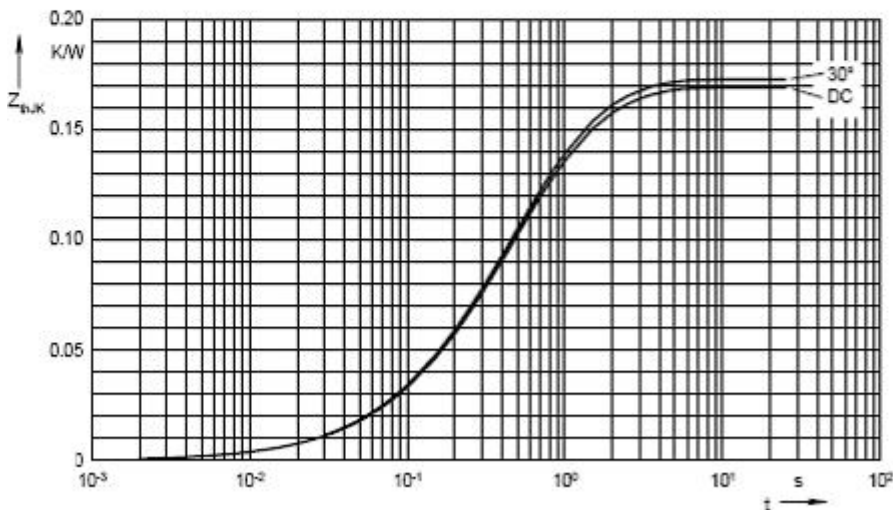


Fig. 9 Transient thermal impedance junction to heatsink (per thyristor or diode)

$R_{thJK}$  for various conduction angles  $d$ :

$d$	$R_{thJK}$ (K/W)
DC	0.169
180°C	0.171
120°C	0.172
60°C	0.172
30°C	0.173

Constants for  $Z_{thJK}$  calculation:

$i$	$R_{thi}$ (K/W)	$t_i$ (s)
1	0.0033	0.099
2	0.0159	0.168
3	0.1053	0.456
4	0.04	1.36