

HKKT800A 1800V...SERIES

FEATURES

- * International standard package

- * Planar passivated chips

- * Isolation voltage 3600 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

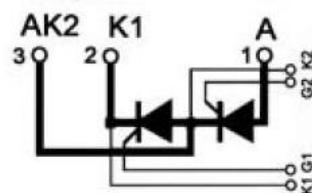
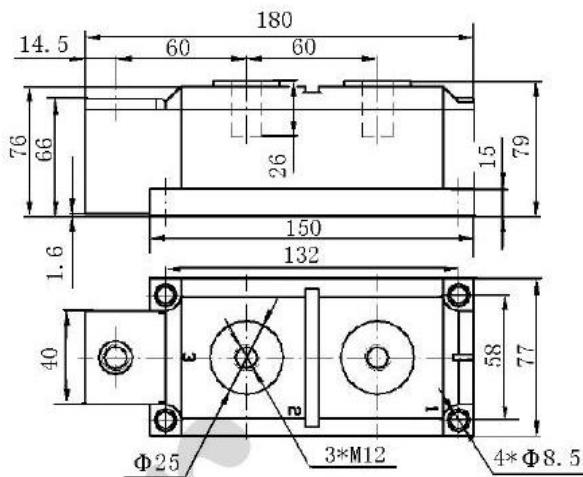
Symbol	Test Conditions	Maximum Ratings	Unit
I_{TRMS} , I_{FRMS}	$T_{VJ}=T_{VJM}$	1280	A
I_{TAVM} , I_{FAVM}	$T_c=85^\circ C$; 180° sine	800	
I_{TSM}, I_{2t}	$T_{VJ}=45^\circ C$ $t=10ms$ (50Hz), sine	30.0	A
	$V_R=0$ $t=8.3ms$ (60Hz), sine	35.0	
V_{DRM}	$T_{VJ}=T_{VJM}$ $t=10ms$ (50Hz), sine	4500	A _{2s}
	$V_R=0$ $t=8.3ms$ (60Hz), sine	6125	
V_{RRM}	$T_{VJ}=T_{VJM}$ 180oc half sine wave,50HZ;Gate open	1000/1800	A _{2s}
V_{DSM}	$T_{VJ}=T_{VJM}$	1100/1900	
V_{RSM}	180oc half sine wave,50HZ;single pulse, Gate open		
$(di/dt)_{cr}$	$T_{VJ}=T_{VJM}$ repetitive, $I_T=45A$ $f=50Hz$, $t_p=200\mu s$	100	A/us
	$V_D=2/3V_{DRM}$ $I_G=0.45A$ non repetitive, $I_T=I_{TAVM}$ $di/dt=0.45A/\mu s$	200	
$(dv/dt)_{cr}$	$T_{VJ}=T_{VJM}$; $V_{DR}=2/3V_{DRM}$ $R_{GK} = ;$ method 1 (linear voltage rise)	1000	V/us
P_{GM}	$T_{VJ}=T_{VJM}$	40	W
P_{GAV}	$T_{VJ}=T_{VJM}$	6	W
V_{RGM}	$T_{VJ}=T_{VJM}$	5	V
T_{VJ}		-40...+125	$^\circ C$
T_{VJM}		125	
T_{stg}		-40...+125	
V_{ISOL}	50/60Hz, RMS $t=1min$ $I_{ISOL}<1mA$ $t=1s$	3000 3600	V~
M_d	Mounting torque (M5) Terminal connection torque (M5)	4.5-7.0/40-60 11-13/97-115	Nm/lb.in.
Weight	Typical including screws	3250	g

HKKT800A 1800V...SERIES

Symbol	Test Conditions	Maximum Ratings	Unit
IRRM, IDRM	TVJ=TVJM; VR=VRRM; VD=VDRM	70	mA
VT, VF	IT, IF=800A; TVJ=25oC	1.40	V
VTO	For power-loss calculations only (TVJ=125oC)	0.9	V
rT		0.21	mΩ
VGT	VD=6V; TVJ=25oC TVJ=-40oC	2.5 3.5	V
IGT	VD=6V; TVJ=25oC TVJ=-40oC	300 400	mA
VGD	TVJ=TVJM; VD=2/3VDRM	0.5	V
IGD		10	mA
IL	TVJ=25oC; tp=10us; VD=6V IL IG=0.45A; diG/dt=0.45A/us	1000	mA
IH	TVJ=25oC; VD=6V; RGK=	500	mA
tgd	TVJ=25oC; VD=1/2VDRM IG=0.45A; diG/dt=0.45A/us	10	us
tq	TVJ=TVJM; IT=20A; tp=200us; -di/dt=10A/us typ. VR=100V; dv/dt=20V/us; VD=2/3VDRM	200	us
RthJC	DC current	0.0405	K/W
RthJK	DC current	0.01	K/W
dS	Creeping distance on surface	12.7	mm
dA	Strike distance through air	9.6	mm
a	Maximum allowable acceleration	59.81	m/s ²

Outline Table

Colerance: $\pm 0.5\text{mm}$
Dimensions in mm (1mm=0.0394")



HKKT800A 1800V...SERIES

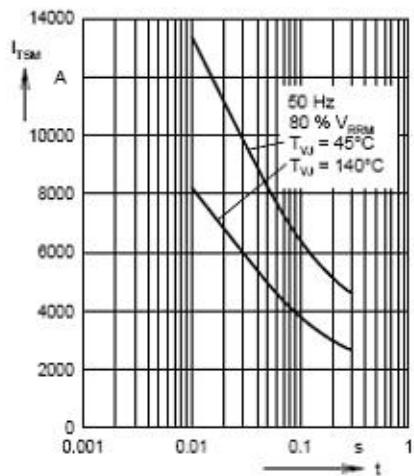


Fig. 1 Surge overload current
 I_{TSM}, I_{FSM} : Crest value, t: duration

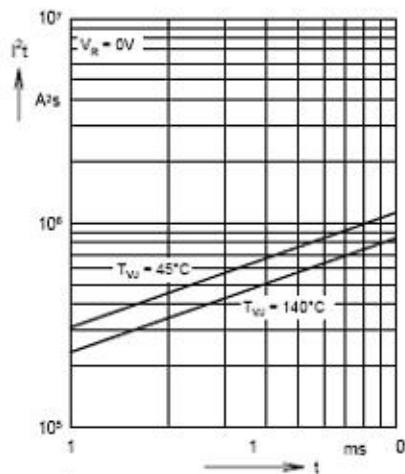


Fig. 2 $\int i \cdot dt$ versus time (1-10 ms)

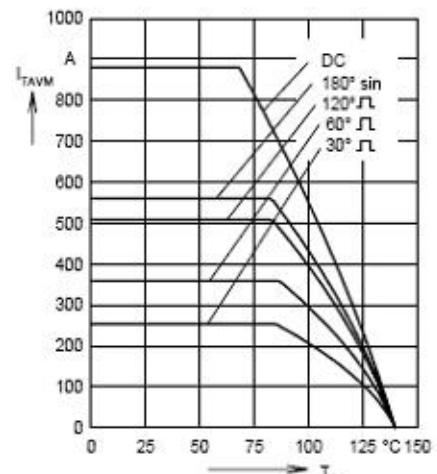


Fig. 3 Maximum forward current
at case temperature

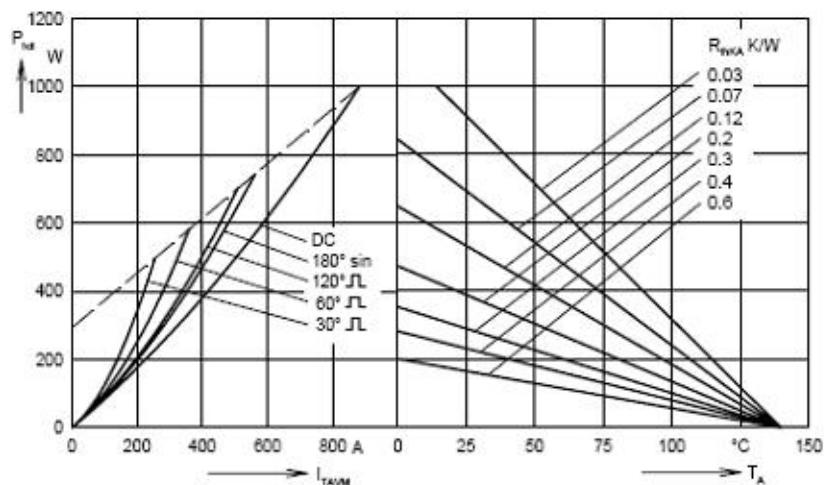


Fig. 4 Power dissipation versus on-state current and ambient temperature

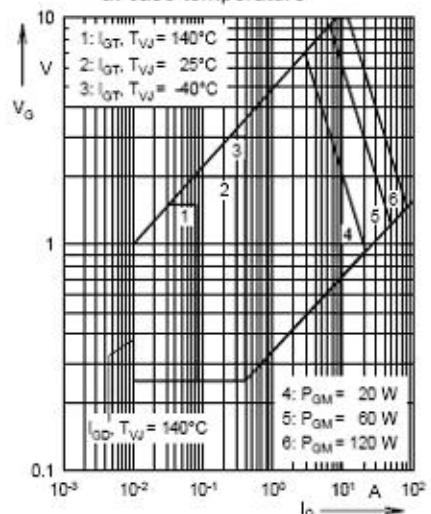


Fig. 5 Gate trigger characteristics

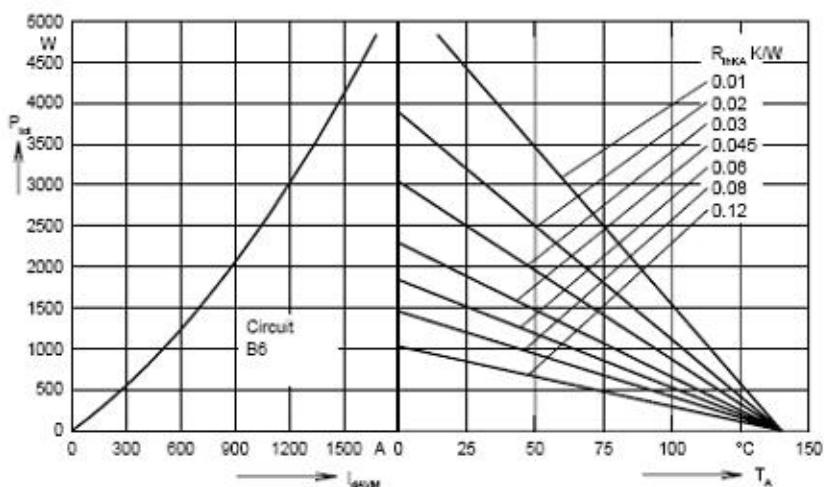


Fig. 6 Three phase rectifier bridge: Power dissipation versus direct output current
and ambient temperature

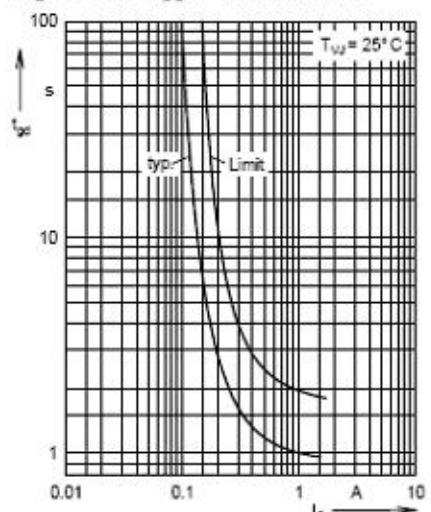


Fig. 7 Gate trigger delay time

HKKT800A 1800V...SERIES

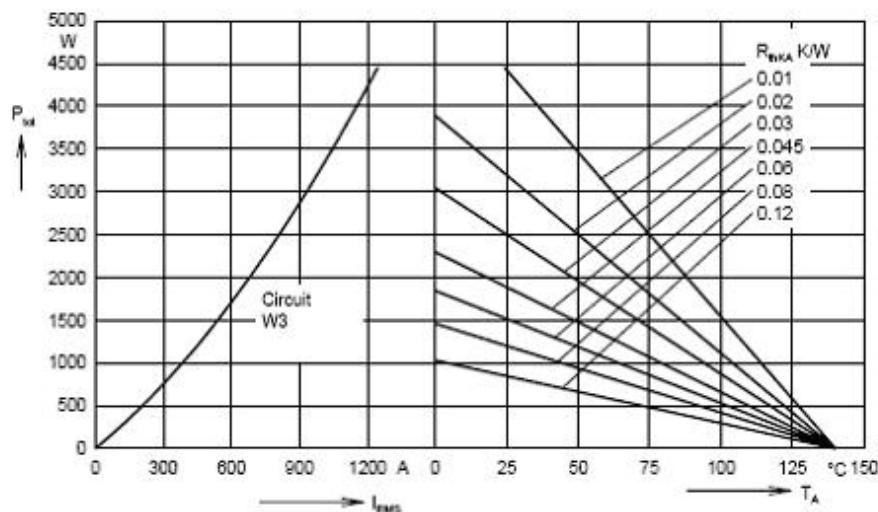


Fig. 8 Three phase AC-controller:
Power dissipation versus RMS
output current and ambient
temperature

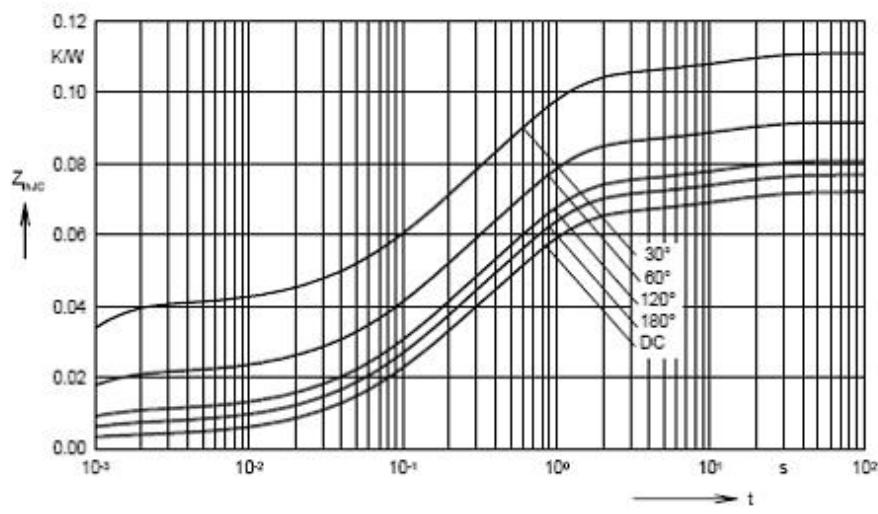


Fig. 9 Transient thermal impedance
junction to case (per thyristor)

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_{th} (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_{th} (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

