

## Description

- 1) A package of series of two chips.
- 2) With high thermal conductivity DBC as the insulation.
- 3) Welding by vacuum welding technology, which provide high reliability.



## Typical Application

DC motor control, temperature control and light control system.

### Absolute Maximum Ratings (Packaged into modules, unless otherwise specified, $T_{CASE}=25^{\circ}\text{C}$ )

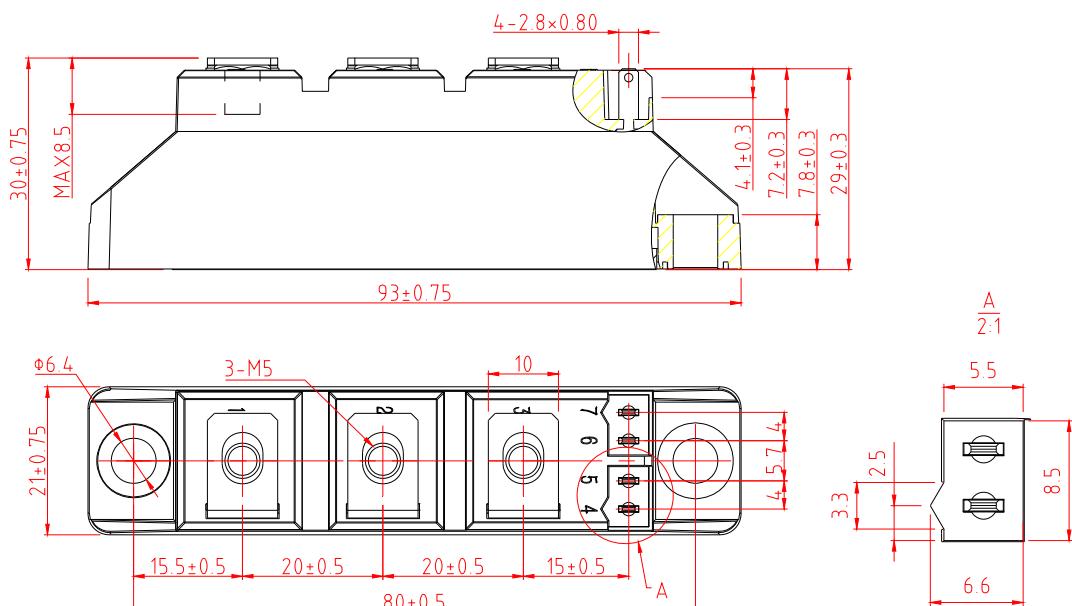
Parameter	Test Conditions	Symbol	Values			Unit
			12	16	18	
Operating junction temperature range		$T_j$	-40-125			°C
Storage temperature range		$T_{stg}$	-40-125			°C
Repetitive peak off-state voltage	$T_j=25^{\circ}\text{C}$	$V_{DRM}$	1200	1600	1800	V
Repetitive peak reverse voltage	$T_j=25^{\circ}\text{C}$	$V_{RRM}$	1200	1600	1800	V
Non-repetitive peak off-state voltage	$T_j=25^{\circ}\text{C}$	$V_{DSM}$	1300	1700	1900	V
Non-repetitive peak reverse voltage	$T_j=25^{\circ}\text{C}$	$V_{RSM}$	1300	1700	1900	V
Average on-state current	$T_c=85^{\circ}\text{C}$	$I_{T(AV)}/I_{F(AV)}$	120			A
Peak on-state surge current	$t_p=10\text{ms } V_R=0.6V_{RRM}$	$I_{TSM}/I_{FSM}$	2500			A
$I^2t$ value for fusing	$t_p=10\text{ms } V_R=0.6V_{RRM}$	$I^2t$	31250			$\text{A}^2\text{s}$
Critical rate of rise of on-state current	$I_G=2 \times I_{GT}$	$di/dt$	150			$\text{A}/\mu\text{s}$
Isolation voltage	A.C 50Hz(1s/1min)	$V_{iso}$	3600/3000			V

**Electrical Characteristics** (Packaged into modules, unless otherwise specified,  $T_{CASE}=25^\circ\text{C}$ )

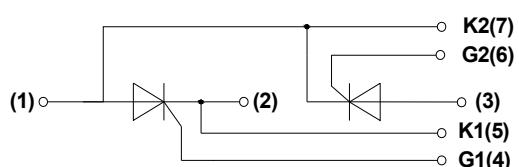
Parameter	Test Conditions	Symbol	Values	Unit
Peak on-state voltage	$I_T=360\text{A}$ $t_P=380\mu\text{s}$	$V_{TM}$	$\leq 1.8$	V
Threshold voltage	$T_j=125^\circ\text{C}$	$V_{TO}$	$\leq 0.95$	V
Dynamic resistance	$T_j=125^\circ\text{C}$	$R_d$	$\leq 2.1$	$\text{m}\Omega$
Repetitive peak off-state current	$V_D=V_{DRM}$ $T_c=25^\circ\text{C}$ $T_c=125^\circ\text{C}$	$I_{DRM1}$ $I_{DRM2}$	$\leq 100$ $\leq 40$	$\mu\text{A}$ $\text{mA}$
Repetitive peak reverse current	$V_R=V_{RRM}$ $T_c=25^\circ\text{C}$ $T_c=125^\circ\text{C}$	$I_{RRM1}$ $I_{RRM2}$	$\leq 100$ $\leq 40$	$\mu\text{A}$ $\text{mA}$
Triggering gate current	$V_D=12\text{V}$ $R_L=30\Omega$	$I_{GT}$	20-120	mA
Holding current	$I_T=1\text{A}$	$I_H$	$\leq 250$	mA
Latching current	$I_G=1.2 I_{GT}$	$I_L$	$\leq 300$	mA
Triggering gate voltage	$V_D=12\text{V}$ $R_L=30\Omega$	$V_{GT}$	$\leq 1.8$	V
Non triggering gate voltage	$V_D=V_{DRM}$ $T_j=125^\circ\text{C}$	$V_{GD}$	$\geq 0.25$	V
Critical rate of rise of voltage	$V_D=2/3V_{DRM}$ $T_j=125^\circ\text{C}$ Gate Open	$dv/dt$	$\geq 1000$	$\text{V}/\mu\text{s}$
Thermal resistance	Junction to case Case to heatsink	$R_{th(j-c)}$ $R_{th(c-s)}$	0.29 0.21	$^\circ\text{C}/\text{W}$

### Mechanical Characteristics

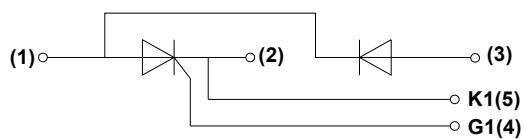
Module size	93mm×21mm
Module height	30mm
Terminal distance of (1) /(2) /(3)	20mm
Mounting torque(M5)	5±15%Nm
Terminal torque(M5)	3±15%Nm



T1



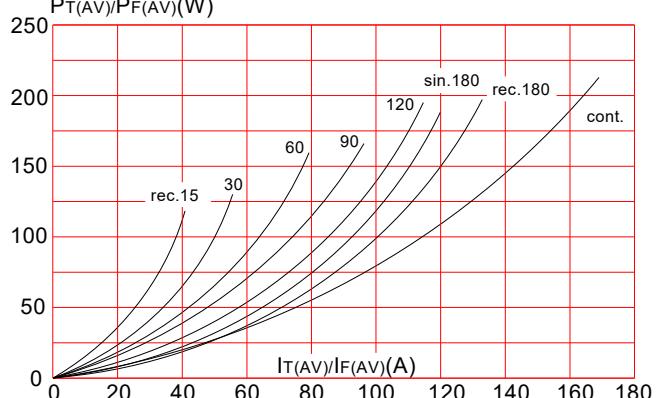
AKMD symbol



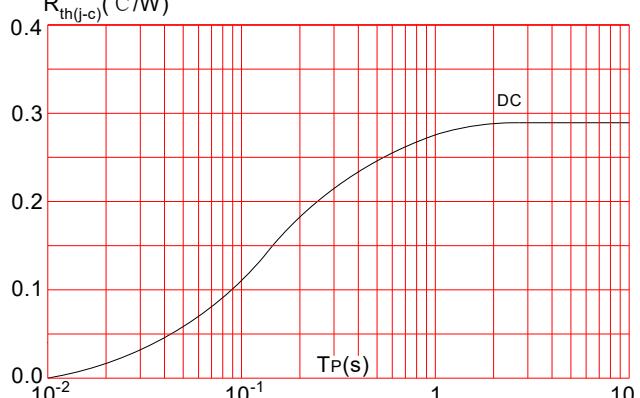
AKMH symbol

## Performance Curves

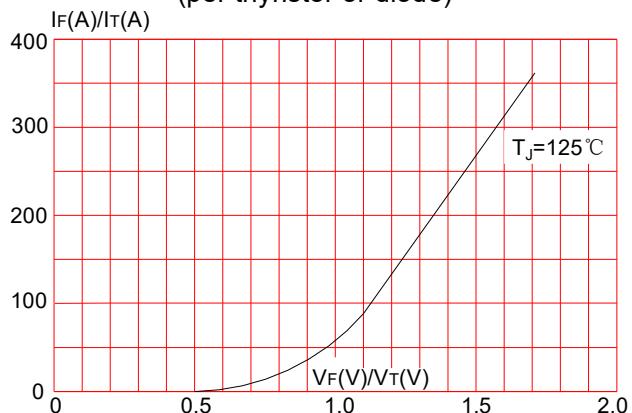
**FIG.1:** Power dissipation vs. on-state current (per thyristor or diode)  
 $P_T(AV)/P_F(AV)$ (W)



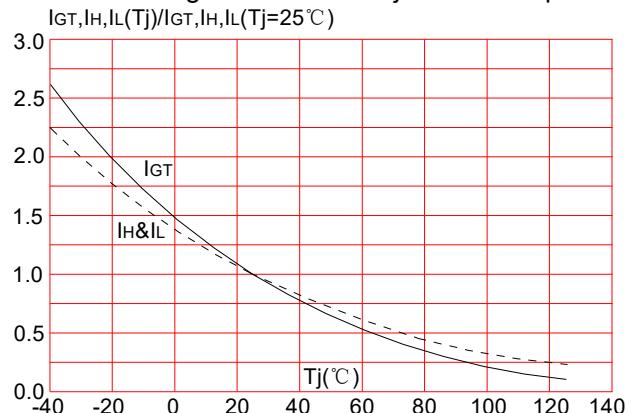
**FIG.2:** Maximum transient thermal impedance junction to case(per thyristor or diode)  
 $R_{th(j-c)}$ (°C/W)



**FIG.3:** Forward characteristics (per thyristor or diode)



**FIG.4:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



## Ordering Information

**AK**

**MD**

**125**

**/**

Aiko Electronics Technology Co., LTD

MD: Thyristor module

MH: Thyristor and diode module

$I_T(AV)/I_F(AV)=120A$

12: $V_{DSM}/V_{RSM} \geq 1300V$

16: $V_{DSM}/V_{RSM} \geq 1700V$

18: $V_{DSM}/V_{RSM} \geq 1900V$