

## 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, $T_{CASE}=25^{\circ}C$ )

Parameter	Test Conditions	Symbol	Values			Unit
			12	16	18	
Operating junction temperature range		$T_j$	-40~125			$^{\circ}C$
Storage temperature range		$T_{stg}$	-40~125			$^{\circ}C$
Repetitive peak off-state voltage	$T_j=25^{\circ}C$	$V_{DRM}$	1200	1600	1800	V
Repetitive peak reverse voltage	$T_j=25^{\circ}C$	$V_{RRM}$	1200	1600	1800	V
Non-repetitive peak off-state voltage	$T_j=25^{\circ}C$	$V_{DSM}$	1300	1700	1900	V
Non-repetitive peak reverse voltage	$T_j=25^{\circ}C$	$V_{RSM}$	1300	1700	1900	V
Average on-state current	$T_C=85^{\circ}C$	$I_{T(AV)}/I_{F(AV)}$	130			A
Peak on-state surge current	$t_P=10ms$ $V_R=0.6V_{RRM}$	$I_{TSM}/I_{FSM}$	2600			A
$I^2t$ value for fusing	$t_P=10ms$ $V_R=0.6V_{RRM}$	$I^2t$	33800			$A^2s$
Critical rate of rise of on-state current	$I_G=2 \times I_{GT}$	$di/dt$	150			$A/\mu s$
Insulation voltage	A.C 50Hz(1s/1min)	$V_{ISO}$	3600/3000			V

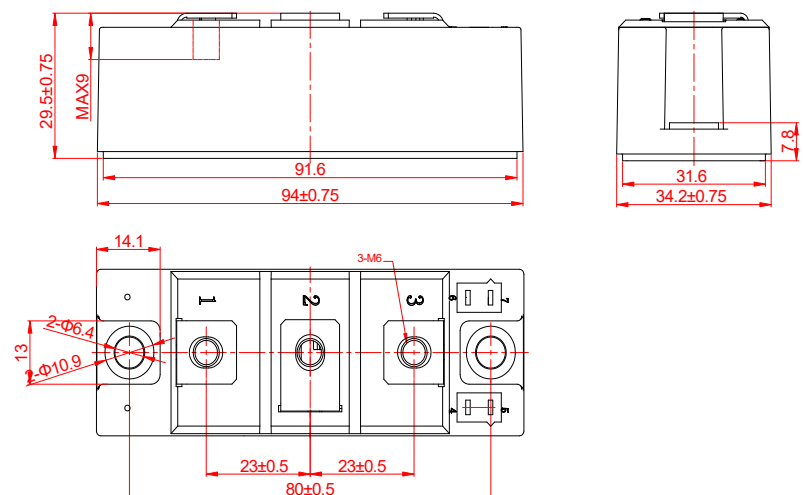
**Electrical Characteristics** (Packaged into modules, unless otherwise specified,  $T_{CASE}=25^{\circ}C$ )

Parameter	Test Conditions	Symbol	Values	Unit
Peak on-state voltage	$I_T=390A$ $t_p=380\mu s$	$V_{TM}$	$\leq 1.8$	V
Threshold voltage	$T_J=125^{\circ}C$	$V_{TO}$	$\leq 0.89$	V
Dynamic resistance	$T_J=125^{\circ}C$	$R_d$	$\leq 2.1$	m $\Omega$
Repetitive peak off-state current	$V_D=V_{DRM}$ $T_C=25^{\circ}C$	$I_{DRM1}$	$\leq 100$	$\mu A$
	$T_C=125^{\circ}C$	$I_{DRM2}$	$\leq 50$	mA
Repetitive peak reverse current	$V_R=V_{RRM}$ $T_C=25^{\circ}C$	$I_{RRM1}$	$\leq 100$	$\mu A$
	$T_C=125^{\circ}C$	$I_{RRM2}$	$\leq 50$	mA
Triggering gate current	$V_D=12V$ $R_L=30\Omega$	$I_{GT}$	20-120	mA
Holding current	$I_T=1A$	$I_H$	$\leq 250$	mA
Latching current	$I_G=1.2 I_{GT}$	$I_L$	$\leq 300$	mA
Triggering gate voltage	$V_D=12V$ $R_L=30\Omega$	$V_{GT}$	$\leq 1.8$	V
Non triggering gate voltage	$V_D=V_{DRM}$ $T_J=125^{\circ}C$	$V_{GD}$	$\geq 0.25$	V
Critical rate of rise of voltage	$V_D=2/3V_{DRM}$ $T_J=125^{\circ}C$ Gate Open	dv/dt	$\geq 1000$	V/ $\mu s$
Thermal resistance	Junction to case	$R_{th(j-c)}$	0.21	$^{\circ}C/W$
	Case to heatsink	$R_{th(c-s)}$	0.14	

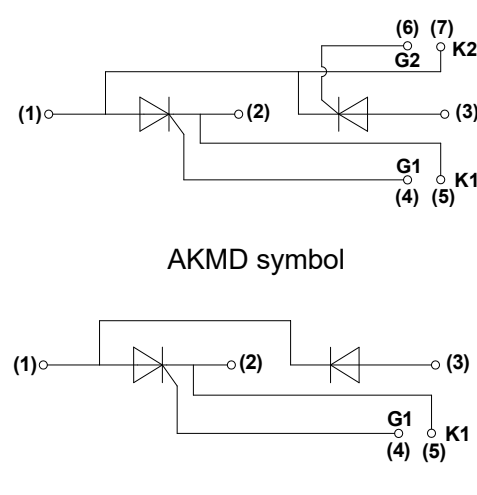
## Mechanical Characteristics

Module size	94mm×34.2mm
Module height	29.5mm
Terminal distance of (1)/(2)/(3)	23mm
Mounting torque(M5)	5±15%Nm
Terminal torque(M6)	5±15%Nm



T2

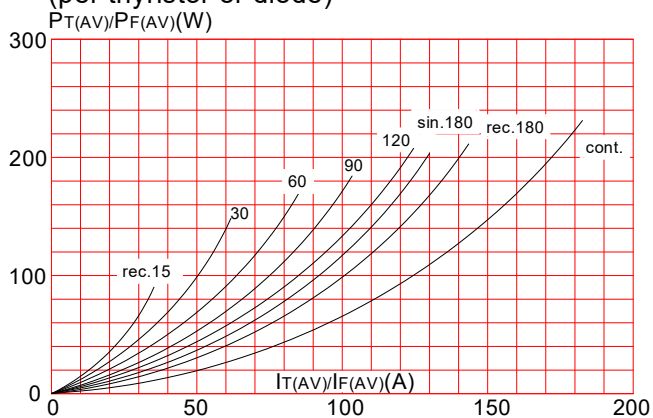


AKMD symbol

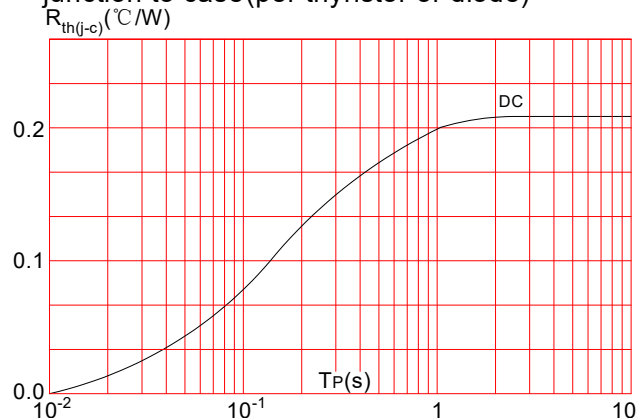
AKMH symbol

## Performance Curves

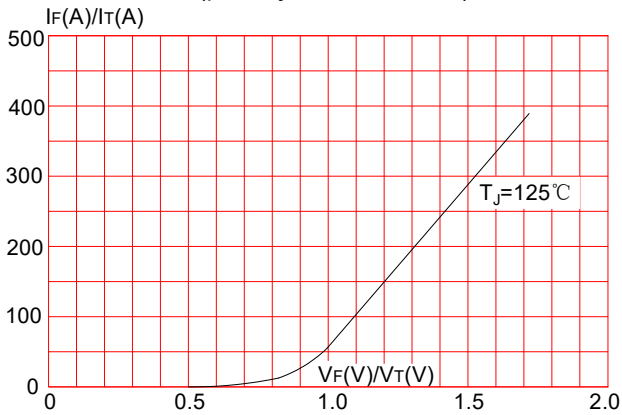
**FIG.1:**Power dissipation vs. on-state current (per thyristor or diode)



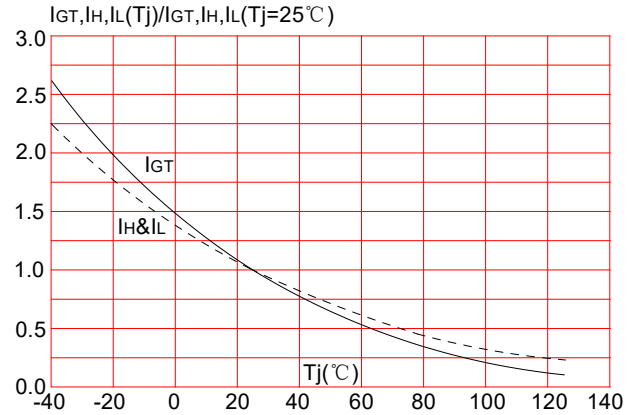
**FIG.2:** Maximum transient thermal impedance junction to case(per thyristor or diode)



**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**

Aiko Electronics Technology Co., LTD	<b>AK</b>	<b>MD</b>	<b>136</b> / <b>16</b>	12: $V_{DSM}/V_{RSM} \geq 1300\text{V}$ 16: $V_{DSM}/V_{RSM} \geq 1700\text{V}$ 18: $V_{DSM}/V_{RSM} \geq 1900\text{V}$
	MD: Thyristor module	MH: Thyristor and diode module	$I_{T(AV)}/I_{F(AV)} = 130\text{A}$	