

### 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.

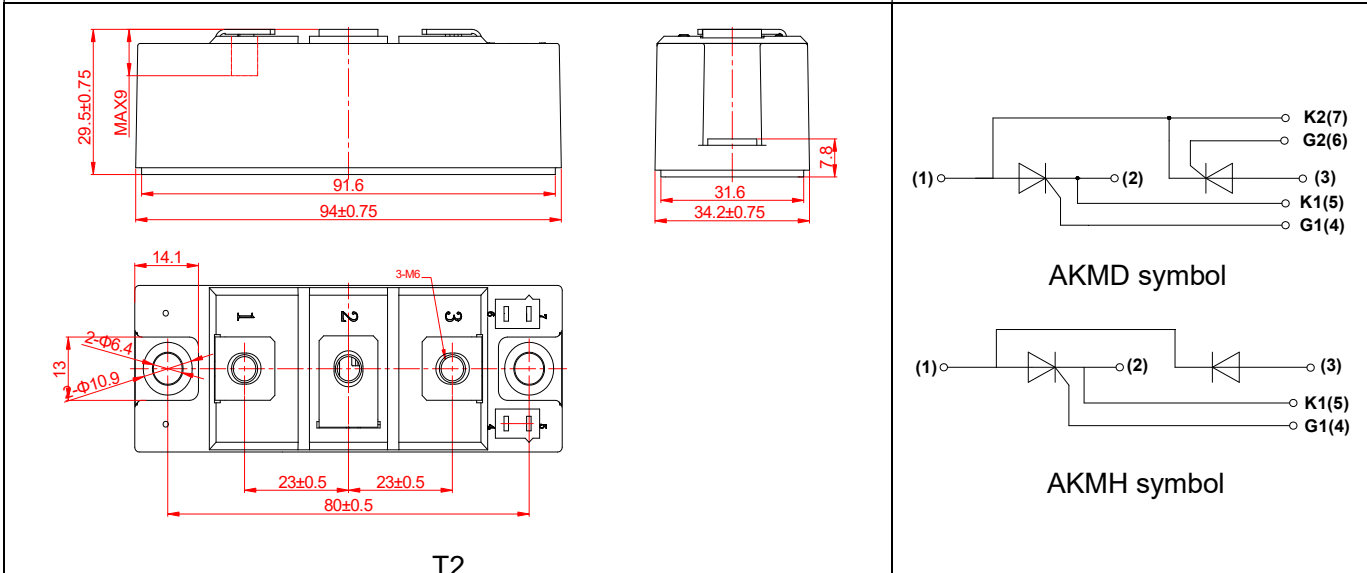
### Absolute Maximum Ratings (Packaged into modules, unless otherwise specified, $T_{CASE}=25^{\circ}C$ )

Parameter	Test Conditions	Symbol	Values		Unit
			20	22	
Operating junction temperature range		$T_j$	-40~125		$^{\circ}C$
Storage temperature range		$T_{stg}$	-40~125		$^{\circ}C$
Repetitive peak off-state voltage	$T_j=25^{\circ}C$	$V_{DRM}$	2000	2200	V
Repetitive peak reverse voltage	$T_j=25^{\circ}C$	$V_{RRM}$	2000	2200	V
Non-repetitive peak off-state voltage	$T_j=25^{\circ}C$	$V_{DSM}$	2100	2300	V
Non-repetitive peak reverse voltage	$T_j=25^{\circ}C$	$V_{RSM}$	2100	2300	V
Average on-state current	$T_C=85^{\circ}C$	$I_{T(AV)}/I_{F(AV)}$	160		A
Peak on-state surge current	$t_p=10ms$ $V_R=0.6V_{RRM}$	$I_{TSM}/I_{FSM}$	3200		A
$I^2t$ value for fusing	$t_p=10ms$ $V_R=0.6V_{RRM}$	$I^2t$	51200		$A^2s$
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,  $T_{CASE}=25^{\circ}C$ )

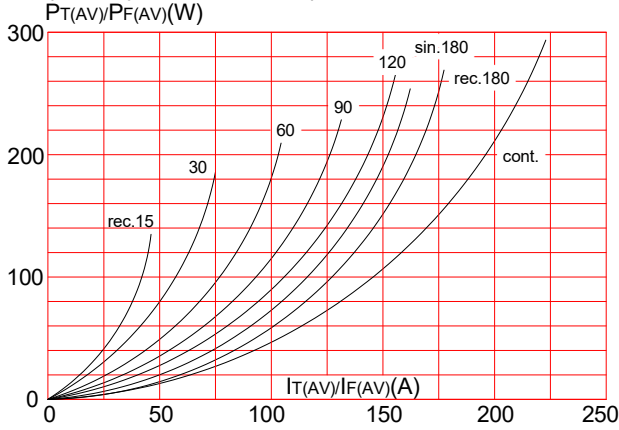
Parameter	Test Conditions	Symbol	Values	Unit
Peak on-state voltage	$I_T=480A$ $t_p=380\mu s$	$V_{TM}$	$\leq 1.8$	V
Threshold voltage	$T_j=125^{\circ}C$	$V_{TO}$	$\leq 0.9$	V
Dynamic resistance	$T_j=125^{\circ}C$	$R_d$	$\leq 1.85$	m $\Omega$
Repetitive peak off-state current	$V_D=V_{DRM}$ $T_C=25^{\circ}C$	$I_{DRM1}$	$\leq 100$	$\mu A$
	$T_C=125^{\circ}C$	$I_{DRM2}$	$\leq 50$	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	$R_{th(j-c)}$	0.16	$^{\circ}C/W$
	Case to heatsink	$R_{th(c-s)}$	0.09	

## Mechanical Characteristics

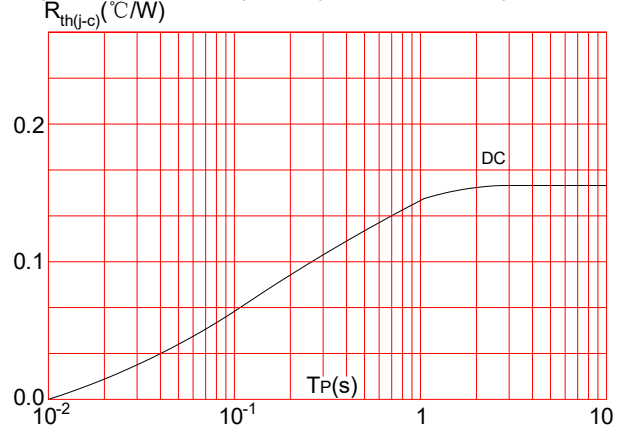
Module size	94mm×34.2mm
Module height	29.5mm
Terminal distance of (1)/(2)/(3)	23mm
Mounting torque(M5)	5±15%Nm
Terminal torque(M6)	5±15%Nm
 <p>The table contains two main sections. The left section shows mechanical drawings of the AKMD and AKMH modules. The top drawing is a perspective view of the AKMD module with dimensions: height 29.5±0.75mm (MAX), length 94±0.75mm, and width 34.2±0.75mm. The bottom drawing is a top view of the AKMH module with dimensions: total length 80±0.5mm, terminal spacing 23±0.5mm, and terminal diameter 10.9mm. The right section shows the electrical symbols for AKMD and AKMH. The AKMD symbol has four terminals: (1) input, (2) output, (3) K1(5), and (4) G1(4). The AKMH symbol has three terminals: (1) input, (2) output, and (3) K1(5). The label 'T2' is centered below the drawings.</p>	

**Performance Curves**

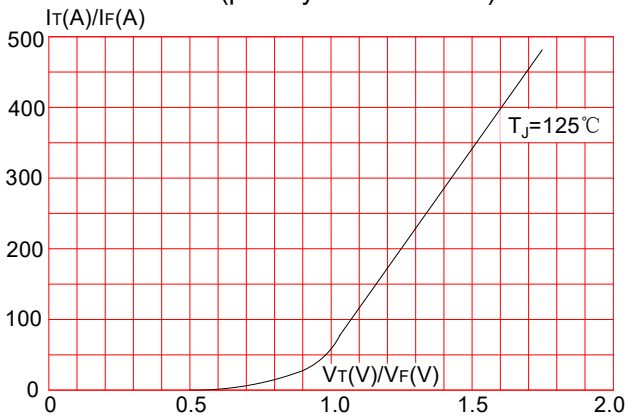
**FIG.1:**Power dissipation vs. on-state current (per thyristor or diode)



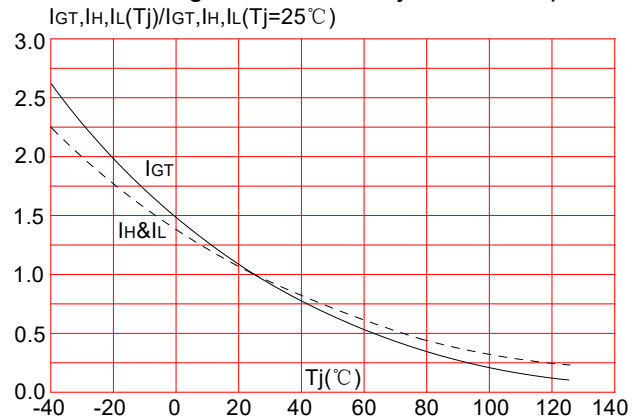
**FIG.2:** Maximum transient thermal impedance junction to case(per thyristor or diode)



**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**

<p style="text-align: center; font-size: 2em; margin: 0;"><b>AK</b></p> <p style="margin: 0;">Aiko Electronics Technology Co., LTD</p>	<p style="text-align: center; font-size: 2em; margin: 0;"><b>MD</b></p> <p style="margin: 0;">MD: Thyristor module MH: Thyristor and diode module</p>	<p style="text-align: center; font-size: 2em; margin: 0;"><b>162 / 22</b></p> <p style="margin: 0;"><math>I_{T(AV)}/I_{F(AV)}=162A</math></p>	<p style="margin: 0;">20: <math>V_{DRM}/V_{RRM} \geq 2000V</math> 22: <math>V_{DRM}/V_{RRM} \geq 2200V</math></p>
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