

## 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	$T_C=85^{\circ}C$	$I_{T(AV)}/I_{F(AV)}$	250			A
Peak on-state surge current	$t_p=10ms$ $V_R=0.6V_{RRM}$	$I_{TSM}/I_{FSM}$	8300			A
$I^2t$ value for fusing	$t_p=10ms$ $V_R=0.6V_{RRM}$	$I^2t$	344400			$A^2s$
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,  $T_{CASE}=25^{\circ}C$ )

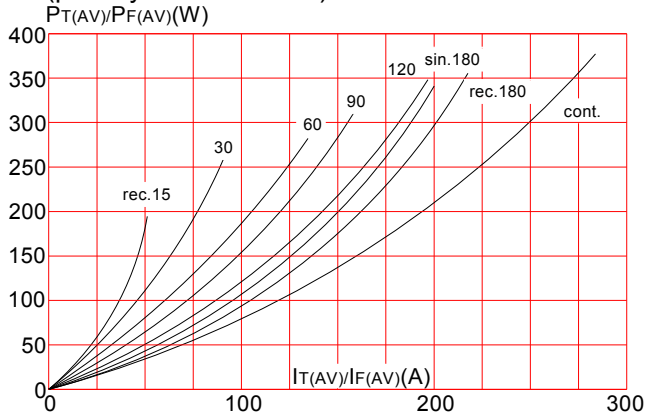
Parameter	Test Conditions	Symbol	Values	Unit
Peak on-state voltage	$I_T=750A$ $t_P=380\mu s$	$V_{TM}$	$\leq 1.8$	V
Threshold voltage	$T_j=125^{\circ}C$	$V_{TO}$	$\leq 0.85$	V
Dynamic resistance	$T_j=125^{\circ}C$	$R_d$	$\leq 1.5$	m $\Omega$
Repetitive peak off-state current	$V_D=V_{DRM}$ $T_C=25^{\circ}C$	$I_{DRM1}$	$\leq 100$	$\mu A$
	$T_C=125^{\circ}C$	$I_{DRM2}$	$\leq 60$	mA
Repetitive peak reverse current	$V_R=V_{RRM}$ $T_C=25^{\circ}C$	$I_{RRM1}$	$\leq 100$	$\mu A$
	$T_C=125^{\circ}C$	$I_{RRM2}$	$\leq 60$	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	$R_{th(j-c)}$	0.14	$^{\circ}C/W$
	Case to heatsink	$R_{th(c-s)}$	0.11	

**Mechanical Characteristics**

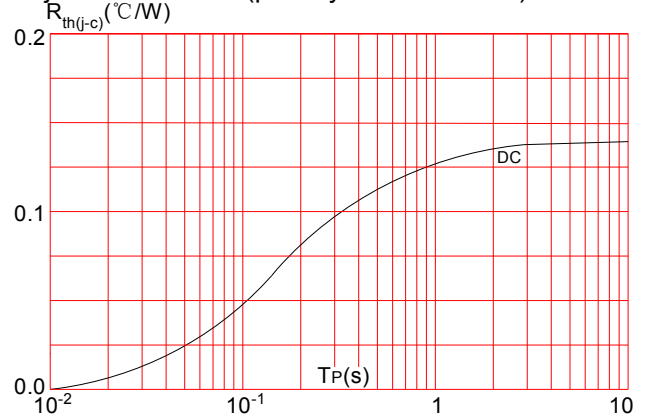
Module size	94mm×34.2mm
Module height	29.5mm
Terminal distance of (1)/(2)/(3)	23mm
Mounting torque(M5)	5±15%Nm
Terminal torque(M6)	5±15%Nm
<p>The table contains three main visual elements:         <ul style="list-style-type: none"> <li><b>Top Left:</b> A perspective view of the module with dimensions: height 29.5±0.75 (MAX), length 94±0.75, and a base width of 34.2±0.75. A smaller base width of 31.6 is also indicated.</li> <li><b>Top Right:</b> A side view of the module showing a height of 7.8 and a base width of 34.2±0.75.</li> <li><b>Bottom Left:</b> A top-down view of the terminal block with dimensions: 14.1 between terminals, 23±0.5 between terminal pairs, and 80±0.5 for the total width. It also shows 2-φ6.4 holes, 3-M6 mounting holes, and a 13mm offset.</li> <li><b>Right Column:</b> Two circuit symbols. The top one is labeled 'AKMD symbol' and shows a bridge-like circuit with terminals (1), (2), (3), (4), (5), (6), (7), G1, G2, K1, and K2. The bottom one is labeled 'AKMH symbol' and shows a similar circuit with terminals (1), (2), (3), (4), (5) and G1, K1.</li> </ul> </p>	

**Performance Curves**

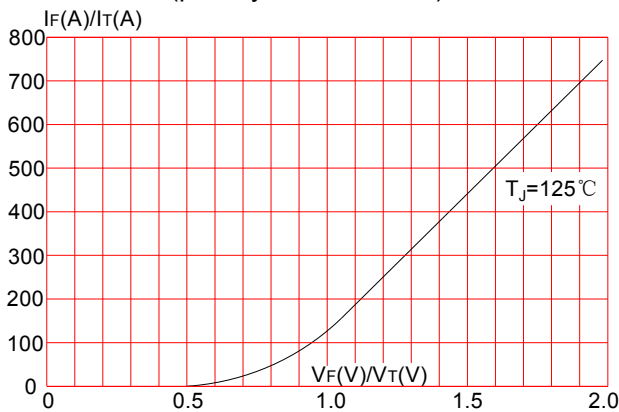
**FIG.1:** Power dissipation vs. on-state current (per thyristor or diode)



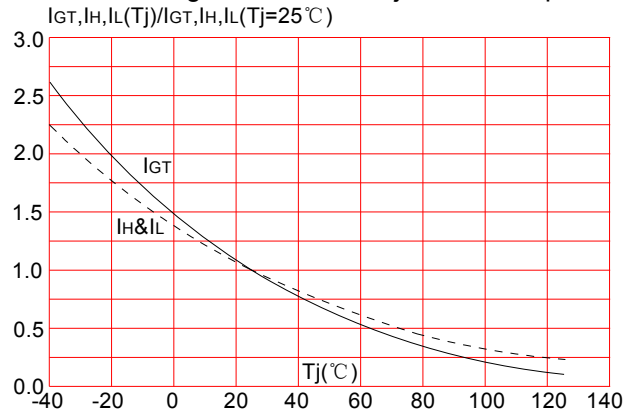
**FIG.2:** Maximum transient thermal impedance junction to case (per thyristor or diode)



**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="text-align: center; border: 1px solid black; padding: 2px; margin: 5px 0;">Aiko Electronics Technology Co., LTD</p> <p style="text-align: center; margin: 5px 0;">MD: Thyristor module MH: Thyristor and diode module</p>	<p style="font-size: 2em; margin: 0;"><b>MD</b></p>	<p style="font-size: 2em; margin: 0;"><b>250</b></p>	<p style="font-size: 2em; margin: 0;">/</p>	<p style="font-size: 2em; margin: 0;"><b>16</b></p>	<p style="font-size: 0.8em; margin: 0;">12: <math>V_{DRM}/V_{RRM} \geq 1200V</math> 16: <math>V_{DRM}/V_{RRM} \geq 1600V</math> 18: <math>V_{DRM}/V_{RRM} \geq 1800V</math></p>
<p style="margin: 0;"><math>I_{T(AV)}/I_{F(AV)}=250A</math></p>					