

## 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	$t_p=10ms$ $V_R=0.6V_{RRM}$	$I^2t$	344450			$A^2s$
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,  $T_{CASE}=25^{\circ}C$ )

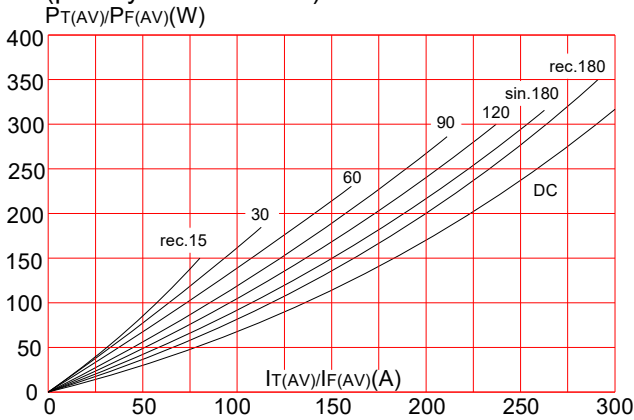
Parameter	Test Conditions	Symbol	Values	Unit
Peak on-state voltage	$I_T=750A$ $t_p=380\mu s$	$V_{TM}$	$\leq 1.8$	V
Threshold voltage	$T_j=125^{\circ}C$	$V_{TO}$	$\leq 0.85$	V
Dynamic resistance	$T_j=125^{\circ}C$	$R_d$	$\leq 0.75$	m $\Omega$
Repetitive peak off-state current	$V_D=V_{DRM}$ $T_C=25^{\circ}C$	$I_{DRM1}$	$\leq 100$	$\mu A$
	$T_C=125^{\circ}C$	$I_{DRM2}$	$\leq 100$	mA
Repetitive peak reverse current	$V_R=V_{RRM}$ $T_C=25^{\circ}C$	$I_{RRM1}$	$\leq 100$	$\mu A$
	$T_C=125^{\circ}C$	$I_{RRM2}$	$\leq 100$	mA
Triggering gate current	$V_D=12V$ $R_L=30\Omega$	$I_{GT}$	20-150	mA
Holding current	$I_T=1A$	$I_H$	$\leq 300$	mA
Latching current	$I_G=1.2I_{GT}$	$I_L$	$\leq 400$	mA
Triggering gate voltage	$V_D=12V$ $R_L=30\Omega$	$V_{GT}$	$\leq 1.8$	V
Non triggering gate voltage	$V_D=0.5V_{DRM}$ $T_j=125^{\circ}C$	$V_{GD}$	$\leq 0.25$	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	$R_{th(c-s)}$	0.05	

**Mechanical Characteristics**

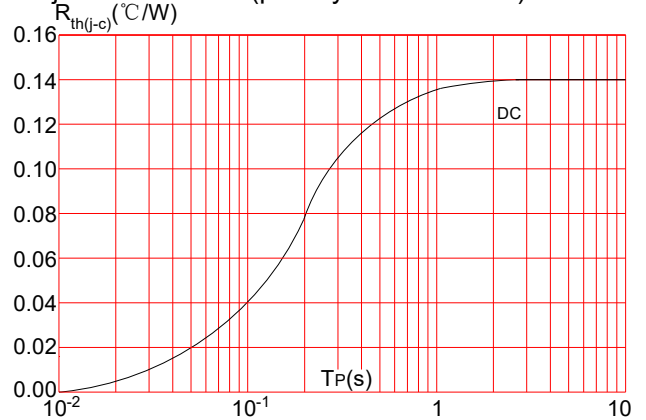
Module size	115mm×50mm
Module height	53mm
Terminal distance of (1) /(2) /(3)	42.5mm/35mm/23.5mm
Mounting torque(M5)	5±15%Nm
Terminal torque(M8)	9±15%Nm
<p>The table contains three main parts: mechanical drawings and circuit symbols. On the left, there are three views of the module: a top view showing dimensions (115±0.75mm total length, 50mm height, 19.6mm mounting hole offset, 42.5mm terminal spacing, 35mm terminal spacing, 23.5mm terminal spacing, 5.3mm terminal width, 17.3mm terminal offset, 6mm terminal offset, 38±0.2mm mounting hole diameter, and M8 mounting holes), a side view showing dimensions (115±0.75mm length, 53mm height, 4.5mm terminal height, 4.6mm terminal height, 6mm terminal offset, 12±0.6mm terminal offset, MAX. 14.5mm terminal height, and M8 mounting holes), and a front view showing a height of 31.7±0.3mm. On the right, there are two circuit symbols: the 'AKMD symbol' and the 'AKMH symbol'. Both symbols show a bridge rectifier circuit with terminals (1), (2), (3), (4), (5), (6), and (7). The AKMD symbol has terminals (1), (2), (3), (4), (5), and (6) labeled, while the AKMH symbol has terminals (1), (2), (3), (4), (5), and (6) labeled. The AKMD symbol also has terminals (7) and (8) labeled as K2(7) and G2(6) respectively. The AKMH symbol has terminals (7) and (8) labeled as G1(5) and K1(4) respectively.</p>	

**Performance Curves**

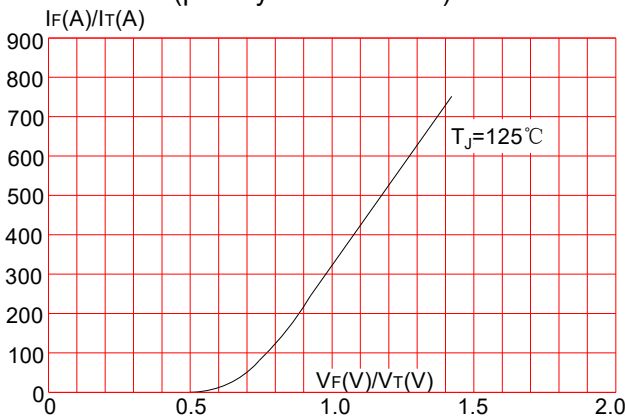
**FIG.1:** Power dissipation vs. on-state current (per thyristor or diode)



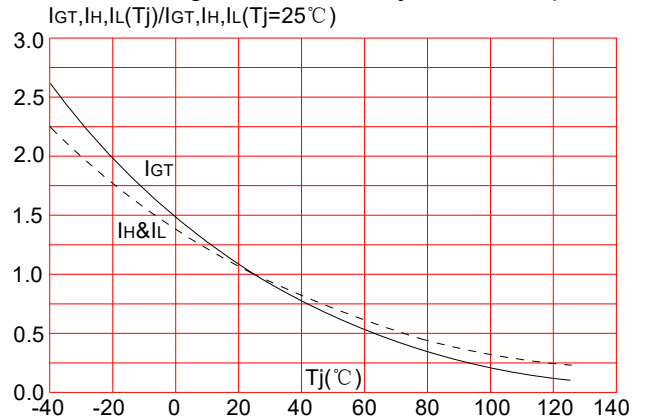
**FIG.2:** Maximum transient thermal impedance junction to case (per thyristor or diode)



**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><b>AK</b></p> <p>Aiko Electronics Technology Co., LTD</p> <p>MD: Thyristor module MH: Thyristor and diode module</p>	<p><b>MD</b></p>	<p><b>251</b></p> <p><math>I_T(AV)/I_F(AV)=250A</math></p>	<p><b>/</b></p>	<p><b>16</b></p> <p>12: <math>V_{DSM}/V_{RSM} \geq 1300V</math> 16: <math>V_{DSM}/V_{RSM} \geq 1700V</math> 18: <math>V_{DSM}/V_{RSM} \geq 1900V</math></p>
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