

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 provides 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	$T_C=85^{\circ}C$	$I_{T(AV)}/I_{F(AV)}$	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}	≤ 1.8	V
Threshold voltage	$T_j=125^{\circ}C$	V_{TO}	≤ 0.95	V
Dynamic resistance	$T_j=125^{\circ}C$	R_d	≤ 1.65	m Ω
Repetitive peak off-state current	$V_D=V_{DRM}$ $T_C=25^{\circ}C$	I_{DRM1}	≤ 100	μA
	$T_C=125^{\circ}C$	I_{DRM2}	≤ 50	mA
Repetitive peak reverse current	$V_R=V_{RRM}$ $T_C=25^{\circ}C$	I_{RRM1}	≤ 100	μA
	$T_C=125^{\circ}C$	I_{RRM2}	≤ 50	mA
Triggering gate current	$V_D=12V$ $R_L=30\Omega$	I_{GT}	20-120	mA
Holding current	$I_T=1A$	I_H	≤ 250	mA
Latching current	$I_G=1.2 I_{GT}$	I_L	≤ 300	mA
Triggering gate voltage	$V_D=12V$ $R_L=30\Omega$	V_{GT}	≤ 1.8	V
Non triggering gate voltage	$V_D=V_{DRM}$ $T_j=125^{\circ}C$	V_{GD}	≥ 0.25	V
Critical rate of rise of voltage	$V_D=2/3V_{DRM}$ $T_j=125^{\circ}C$ Gate Open	dv/dt	≥ 1000	V/ μs
Thermal resistance	Junction to case	$R_{th(j-c)}$	0.19	$^{\circ}C/W$
	Case to heatsink	$R_{th(c-s)}$	0.12	

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

The image contains several technical drawings and circuit symbols:

- Top Left:** A perspective view of the module with dimensions: height 29.5 ± 0.75 mm (MAX 9), length 94 ± 0.75 mm, and a width of 34.2 ± 0.75 mm.
- Top Right:** A side view of the module with dimensions: height 7.8 mm and width 31.6 mm.
- Bottom Left:** A top-down view of the terminal block with dimensions: terminal spacing 23 ± 0.5 mm, total width 80 ± 0.5 mm, and individual terminal widths of 14.1 mm. It also shows $2 \times \phi 6.4$ holes and $3 \times M6$ mounting holes.
- Bottom Center:** A label "T2" is positioned below the top-down view.
- Right Side:** Two circuit symbols are shown. The top one is labeled "AKMD symbol" and shows a bridge rectifier with terminals (1), (2), (3), (4), (5), (6), and (7). The bottom one is labeled "AKMH symbol" and shows a similar bridge rectifier with terminals (1), (2), (3), (4), and (5).

Performance Curves

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

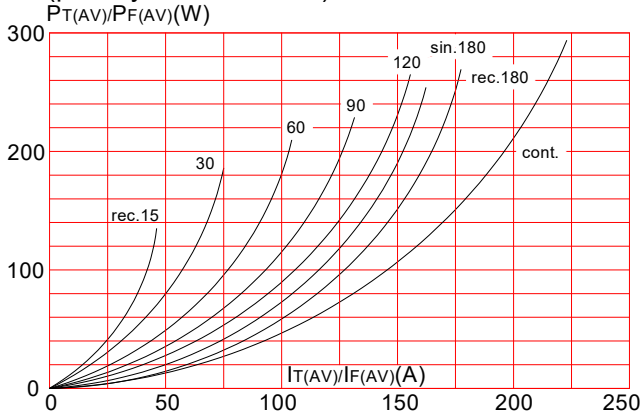


FIG.2: Maximum transient thermal impedance junction to case (per thyristor or diode)

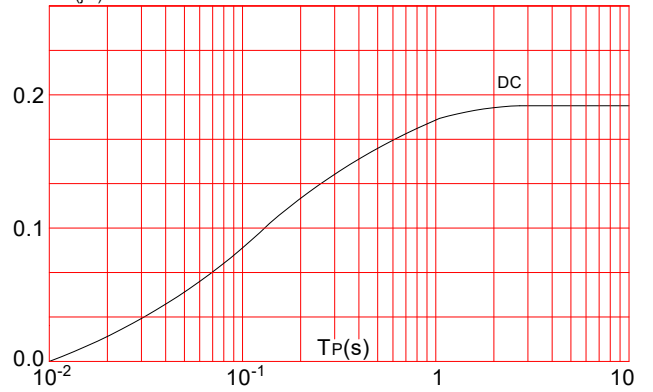


FIG.3: Forward characteristics (per thyristor or diode)

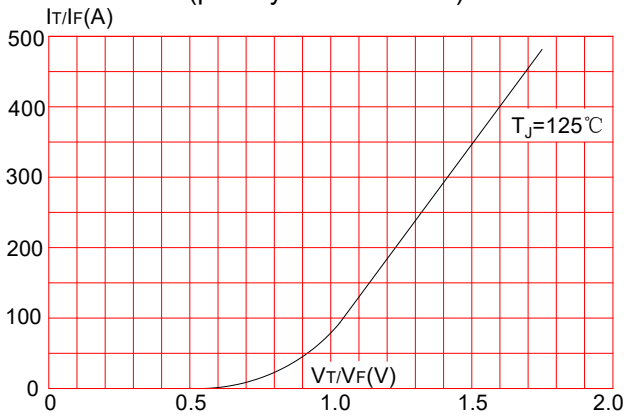
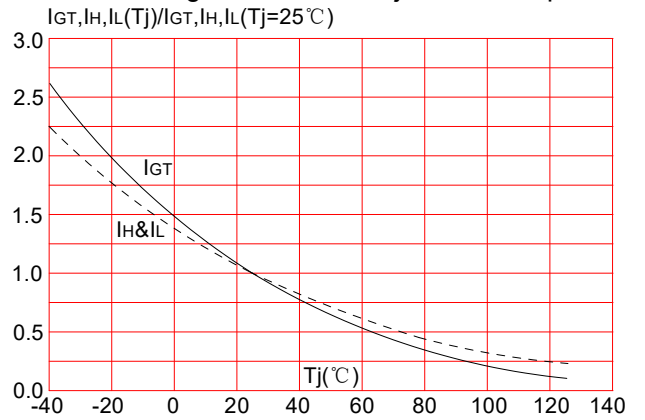


FIG.4: Relative variations of gate trigger current, holding current and latching current versus junction temperature



Ordering Information

<p style="text-align: center; font-size: 2em; font-weight: bold;">AK</p> <p style="text-align: center;">Aiko Electronics Technology Co., LTD</p>	<p style="text-align: center; font-size: 2em; font-weight: bold;">MD</p> <p style="text-align: center;">MD: Thyristor module MH: Thyristor and diode module</p>	<p style="text-align: center; font-size: 2em; font-weight: bold;">162 / 16</p> <p style="text-align: center;">I_{T(AV)}/I_{F(AV)}=160A</p>	<p style="font-size: 0.8em;">12: V_{DSM}/V_{RSM} ≥ 1300V 16: V_{DSM}/V_{RSM} ≥ 1700V 18: V_{DSM}/V_{RSM} ≥ 1900V</p>
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