

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}	≤ 1.8	V
Threshold voltage	$T_j=125^{\circ}C$	V_{TO}	≤ 0.9	V
Dynamic resistance	$T_j=125^{\circ}C$	R_d	≤ 1.85	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	$R_{th(j-c)}$	0.16	$^{\circ}C/W$
	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 mechanical drawings and symbols for the AKMD and AKMH modules. The drawings include:</p> <ul style="list-style-type: none"> Top View: Shows a rectangular module with a total width of 94±0.75mm and a height of 29.5±0.75mm (MAX). The terminal pitch is 23mm. The terminal diameter is 10.9mm. Side View: Shows the module's profile with a width of 34.2±0.75mm and a height of 29.5±0.75mm. Terminal View: Shows three terminals labeled 1, 2, and 3, with a distance of 23±0.5mm between them and a total width of 80±0.5mm. The terminal diameter is 10.9mm. AKMD symbol: A schematic showing a diode connected between terminals (1) and (2), and another diode connected between terminals (2) and (3). The terminals are labeled K2(7), G2(6), K1(5), and G1(4). AKMH symbol: A schematic showing a diode connected between terminals (1) and (2), and another diode connected between terminals (2) and (3). The terminals are labeled K1(5) and G1(4). 	

Performance Curves

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

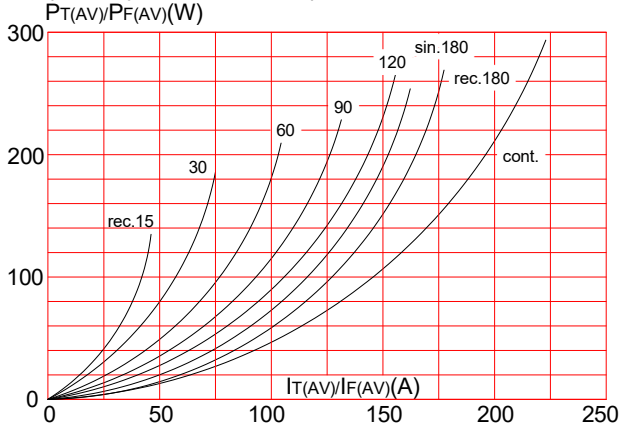


FIG.2: Maximum transient thermal impedance junction to case(per thyristor or diode)

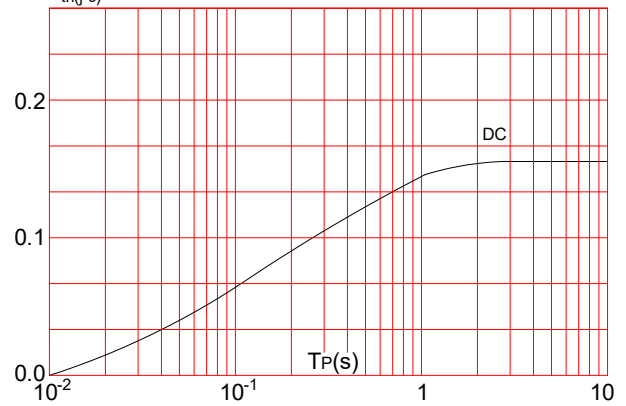


FIG.3: Forward characteristics (per thyristor or diode)

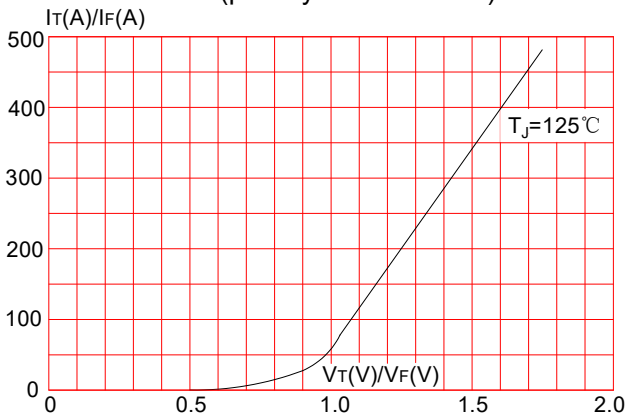
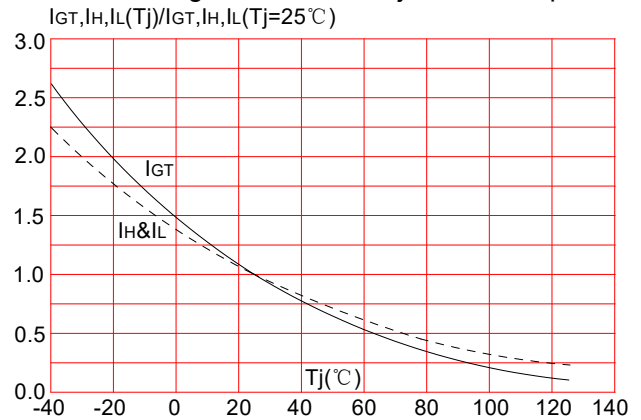


FIG.4: Relative variations of gate trigger current, holding current and latching current versus junction temperature



Ordering Information

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