

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 | $T_C=85^{\circ}C$ | $I_{T(AV)}/I_{F(AV)}$ | 90 | | | A |
| Peak on-state surge current | $t_p=10ms$ $V_R=0.6V_{RRM}$ | I_{TSM}/I_{FSM} | 1800 | | | A |
| I^2t value for fusing | $t_p=10ms$ $V_R=0.6V_{RRM}$ | I^2t | 16200 | | | 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 | $I_T=270A$ $t_P=380\mu s$ | 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 | ≤ 2.1 | 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} | ≤ 30 | 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} | ≤ 30 | 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 | $I_G=1.2I_{GT}$ | 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 base plate | $R_{th(j-b)}$ | 0.34 | $^{\circ}C/W$ |
| | Case to heatsink | $R_{th(c-s)}$ | 0.22 | |
| | Junction to case | $R_{th(j-c)}$ | 0.3 | |

Mechanical Characteristics

| | |
|---------------------------------------|---------------|
| Module size | 95.2mm×22.7mm |
| Module height | 30.3mm |
| Terminal distance of (1)/(2)/(3) | 20mm |
| Mounting torque(M5) | 5±15%Nm |
| Terminal torque(M5) | 3±15%Nm |
| <p style="text-align: center;">T1</p> | |

Performance Curves

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

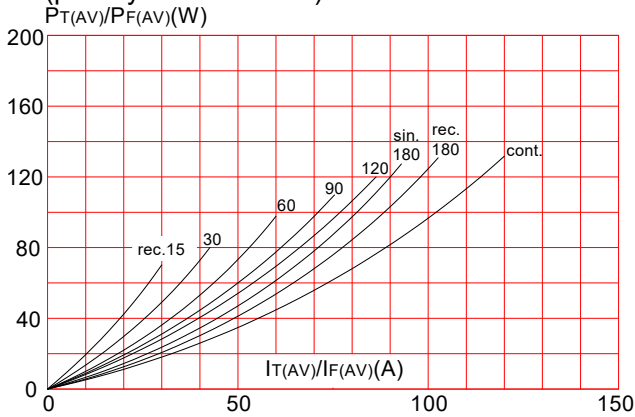


FIG.2: Maximum transient thermal impedance junction to case (per thyristor or diode)

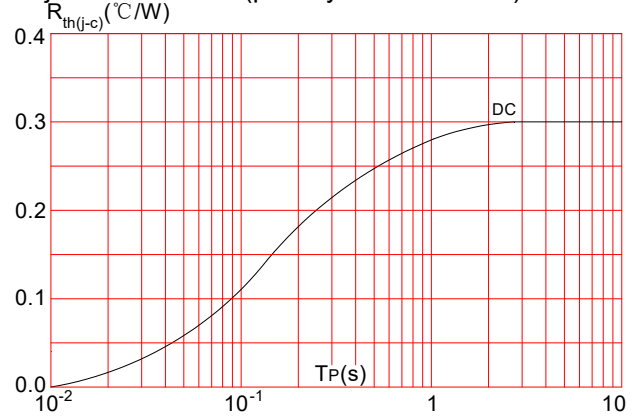


FIG.3: Forward characteristics (per thyristor or diode)

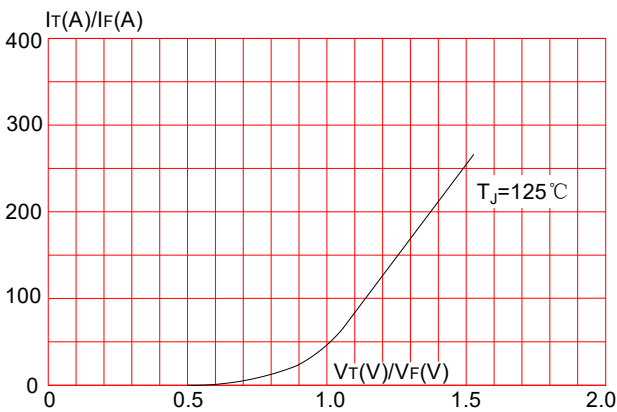
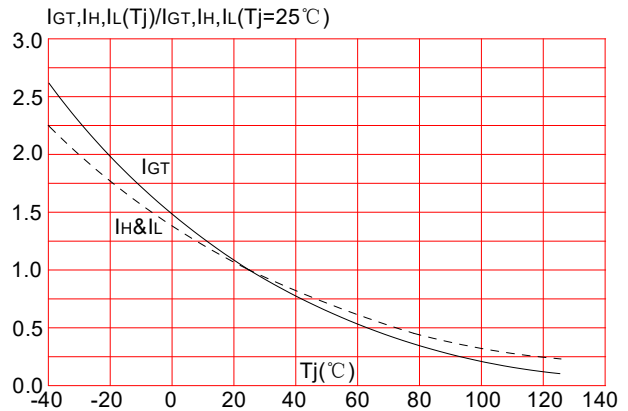


FIG.4: Relative variations of gate trigger current, holding current and latching current versus junction temperature



Ordering Information

AK

MD

090

/ 16

Aiko Electronics Technology Co., LTD

MD: Thyristor module

MH: Thyristor and diode module

12: $V_{DSM}/V_{RSM} \geq 1300V$

16: $V_{DSM}/V_{RSM} \geq 1700V$

18: $V_{DSM}/V_{RSM} \geq 1900V$

$I_{T(AV)}/I_{F(AV)}=90A$