# JMT135KQ16S2C

## Thyristor Module

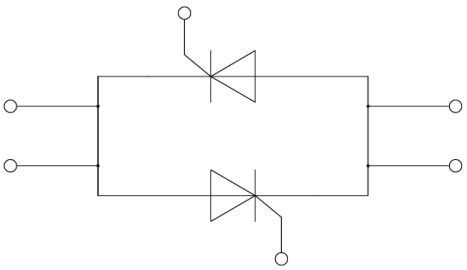
### Features

- A package consists of two inverse parallel SCR chips
- Welding by vacuum welding technology, which provide high reliability
- Insulated by silicone gel, provide a insulation voltage of 3000V~

| Parameter | Value | Unit |
|---|---|---|
| $V_{RRM}$ | 1600 | V |
| $I_{T(RMS)}$(@ $T_C$ = 80℃) | 135 | A |
| $I_{TSM}$(@ $t_P$ = 10ms) | 2000 | A |
| $V_T$(Max) | 1.85 | V |

### Applications

- Soft start
- Solid state relay
- AC/DC switch
- Temperature control



### Absolute Maximum Ratings (@ $T_C$ = 25°C unless otherwise specified)

| Parameter | Conditions | Symbol | Values | Unit |
|---|---|---|---|---|
| Repetitive peak off-state voltage | Tvj = 25°C | $V_{DRM}$ | 1600 | V |
| Repetitive peak reverse voltage | Tvj = 25°C | $V_{RRM}$ | 1600 | V |
| Non-repetitive peak off-state voltage | Tvj = 25°C | $V_{DSM}$ | 1700 | V |
| Non-repetitive peak reverse voltage | Tvj = 25°C | $V_{RSM}$ | 1700 | V |
| RMS on-state current | $T_C$ = 80°C | $I_{T(RMS)}$ | 135 | A |
| Forward surge current | 1/2 cycle, Sine wave, 50Hz Tvj = 25℃ | $I_{TSM}$ | 2000 | A |
| $I^2t$ value for fusing | | $I^2t$ | 20000 | $A^2s$ |
| Critical rate of rise of on-state current | $I_G$=2×$I_{GT}$ | di/dt | 150 | A/μs |
| RMS isolation voltage | A.C 50Hz(1s/1min) | $V_{ISO}$ | 3000/2500 | V |
| Junction temperature range | | $T_J$ | -40 ~ +125 | ℃ |
| Storage temperature range | | $T_{stg}$ | -40 ~ +125 | ℃ |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## Electrical Characteristics (@ $T_C$ = 25°C unless otherwise specified)

| Parameter | Conditions | Symbol | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Peak forward voltage | $I_T$=300A, $t_P$=380μs | $V_T$ | | | 1.85 | V |
| Repetitive peak off-state current | $V_D$ = $V_{DRM}$, $T_{vj}$ = 25℃ | $I_{DRM}$ | | | 100 | μA |
| | $V_D$ = $V_{DRM}$, $T_{vj}$ = 125℃ | | | | 20 | mA |
| Reverse leakage current | $V_R$ = $V_{RRM}$, $T_{vj}$ = 25℃ | $I_{RRM}$ | | | 100 | μA |
| | $V_R$ = $V_{RRM}$, $T_{vj}$ = 125℃ | | | | 20 | mA |
| Threshold voltage | For power loss calculation only $T_{vj}$ = 125℃, | $V_{TO}$ | | | 0.9 | V |
| Dynamic resistance | $T_{vj}$ = 125℃, | $r_T$ | | | 3.5 | mΩ |
| Triggering gate current | $V_D$=12V $R_L$=30Ω | $I_{GT}$ | 20 | | 120 | mA |
| Holding current | $I_T$=1A | $I_H$ | | | 250 | mA |
| Latching current | $I_G$=1.2 $I_{GT}$ | $I_L$ | | | 350 | mA |
| Critical rate of rise of voltage | $V_D$=2/3$V_{DRM}$ Tvj=125℃ Gate Open | dv/dt | 1000 | | | V/μs |
| Triggering gate voltage | $V_D$=12V $R_L$=30Ω | $V_{GT}$ | | | 1.5 | V |
| Non triggering gate voltage | $V_D$=$V_{DRM}$ Tvj=125℃ | $V_{GD}$ | 0.2 | | | V |

## Thermal Characteristics (@ $T_C$ = 25°C unless otherwise specified)

| Parameter | Conditions | Symbol | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Thermal resistance, junction to case | per Thyristor | $R_{th(j-c)}$ | | 0.45 | | ℃/W |
| Thermal resistance, junction to Heatsink | per module | $R_{th(j-s)}$ | | 0.55 | | ℃/W |
| Mounting torque | Module torque to heatsink | M | 1.8 | | 2.0 | N·m |


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## Ordering Information

| Device | Marking | Package | Weight | Inner Box | Per Carton |
|---|---|---|---|---|---|
| JMT135KQ16S2C | JMT135KQ16S2C | S2 | 16.8g/PCS | 90 PCS | 810 PCS |

## Typical Electrical & Thermal Characteristics

**FIG.1:** On-state characteristics(per thyristor)

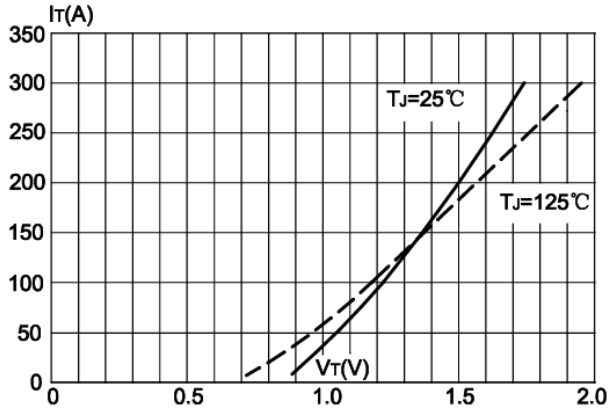



**FIG.2:** Surge overload current vs. time

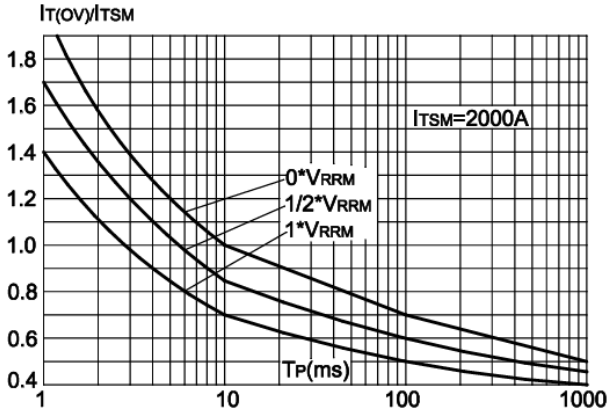



**FIG.3:** Power dissipation per module vs. R.M.S. current

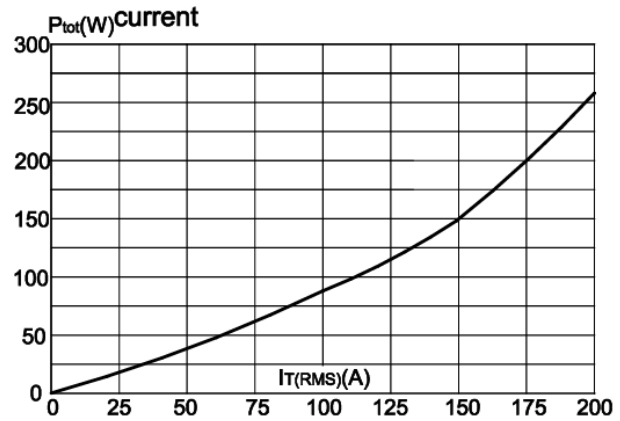
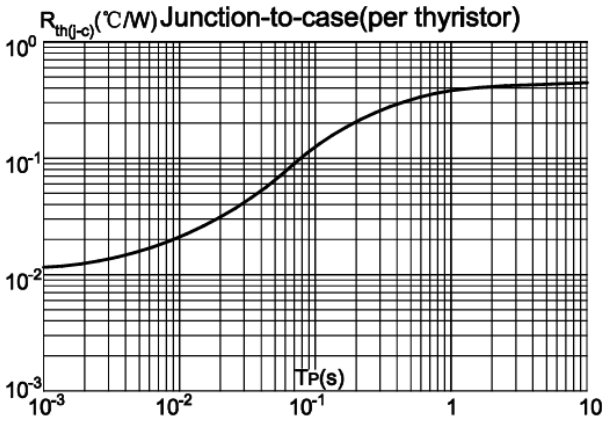
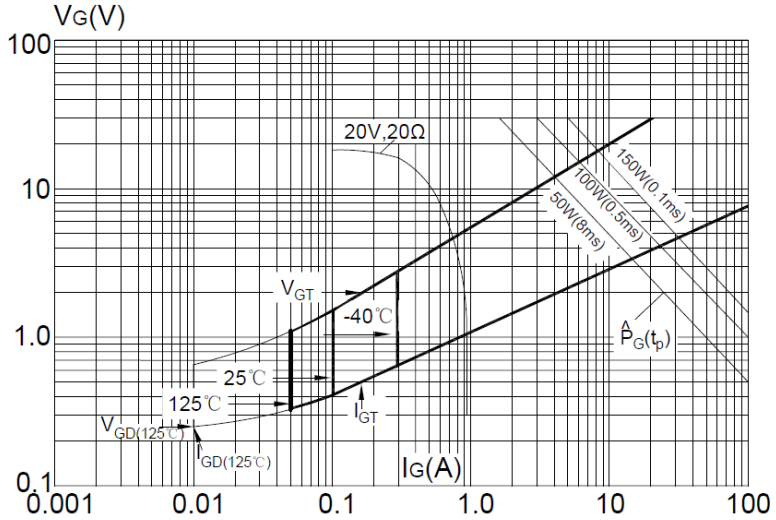



**FIG.4:** Maximum transient thermal impedance Junction-to-case(per thyristor)





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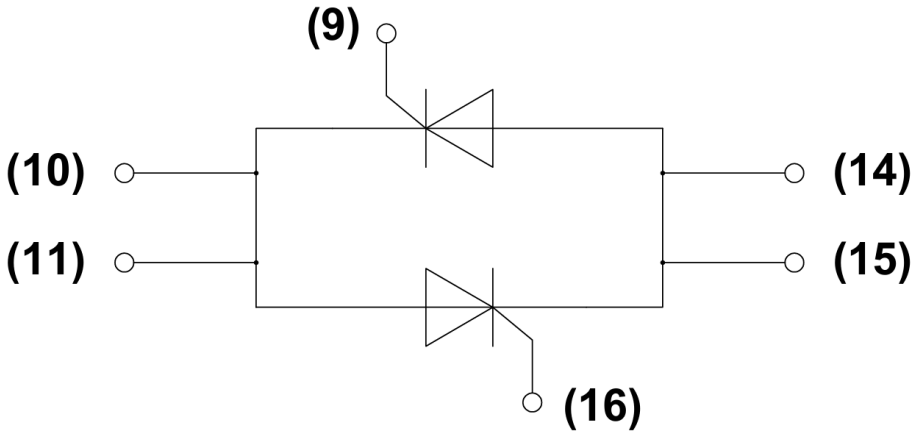
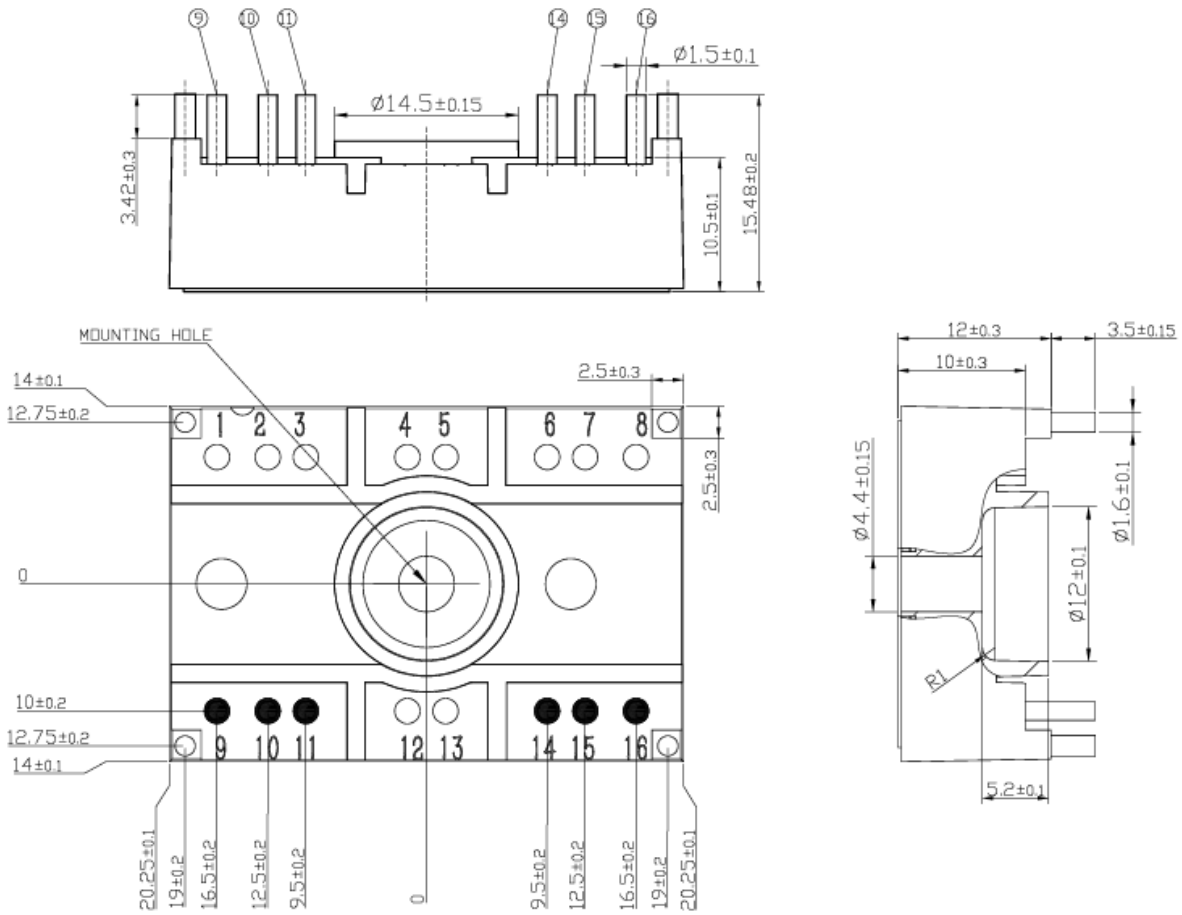
## Circuit Diagram




## Package Outlines (mm)




Unit of measurement: mm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