

TM60SA-6

MEDIUM POWER GENERAL USE
NON-INSULATED TYPE

TM60SA-6



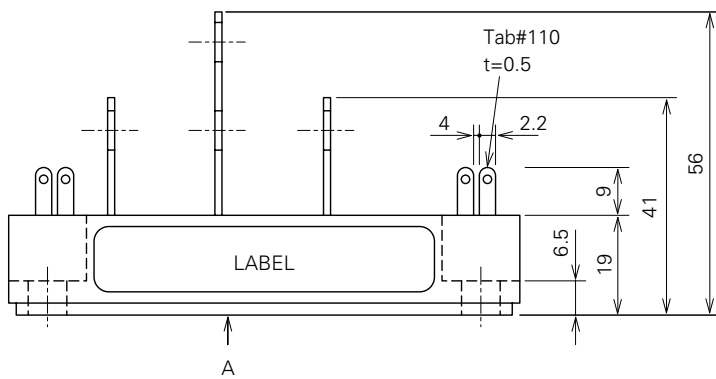
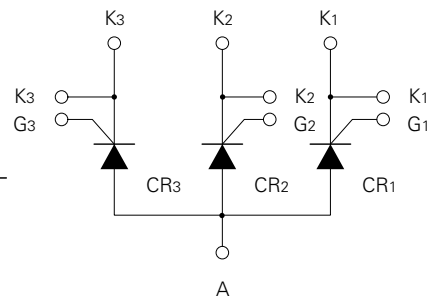
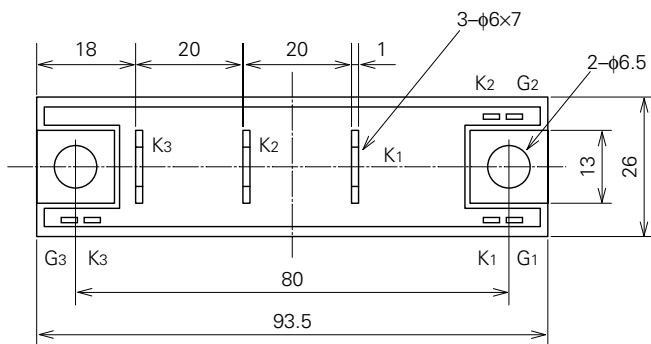
- **IT (AV)** Average on-state current **60A**
- **VRRM** Repetitive peak reverse voltage **300V**
- **VDRM** Repetitive peak off-state voltage **300V**
- **TRIPLE ARMS**
- **Non-Insulated Type**

APPLICATION

Welders

OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



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ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Voltage class | | Unit |
|---------|---------------------------------------|---------------|--|------|
| | | 6 | | |
| VRRM | Repetitive peak reverse voltage | 300 | | V |
| VRSM | Non-repetitive peak reverse voltage | 360 | | V |
| VR (DC) | DC reverse voltage | 240 | | V |
| VDRM | Repetitive peak off-state voltage | 300 | | V |
| VDSM | Non-repetitive peak off-state voltage | 360 | | V |
| VD (DC) | DC off-state voltage | 240 | | V |

| Symbol | Parameter | Conditions | Ratings | Unit |
|------------------|---|---|-----------------------|------------------|
| IT (RMS) | RMS on-state current | | 94 | A |
| IT (AV) | Average on-state current | Three-phase, half-wave, Tc=125°C | 60 | A |
| ITSM | Surge (non-repetitive) on-state current | One half cycle at 60Hz, peak value | 1200 | A |
| I ² t | I ² t for fusing | Value for one cycle of surge current | 6.0 × 10 ³ | A ² s |
| di/dt | Critical rate of rise of on-state current | V _D =1/2V _{DRM} , I _G =1.0A, T _j =150°C | 50 | A/μs |
| PGM | Peak gate power dissipation | | 5.0 | W |
| PG (AV) | Average gate power dissipation | | 0.5 | W |
| VFGM | Peak gate forward voltage | | 10 | V |
| VRGM | Peak gate reverse voltage | | 5.0 | V |
| IFGM | Peak gate forward current | | 2.0 | A |
| T _j | Junction temperature | | -40~+150 | °C |
| T _{stg} | Storage temperature | | -40~+125 | °C |
| — | Mounting torque | Main terminal screw M5 | 1.47~1.96 | N·m |
| | | | 15~20 | kg·cm |
| | | Mounting screw M6 | 1.96~2.94 | N·m |
| | | | 20~30 | kg·cm |
| — | Weight | Typical value | 160 | g |

ELECTRICAL CHARACTERISTICS

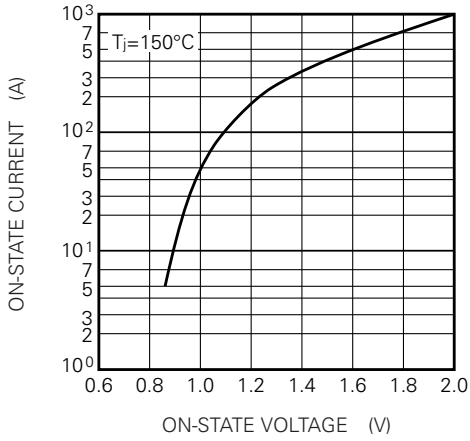
| Symbol | Parameter | Test conditions | Limits | | | Unit |
|-----------------------|--|---|--------|------|------|------|
| | | | Min. | Typ. | Max. | |
| IRRM | Repetitive peak reverse current | T _j =150°C, VRRM applied | — | — | 15 | mA |
| IDRM | Repetitive peak off-state current | T _j =150°C, VDRM applied | — | — | 15 | mA |
| VTM | On-state voltage | T _j =150°C, I _{TM} =180A, instantaneous meas. | — | — | 1.2 | V |
| dv/dt | Critical rate of rise of off-state voltage | T _j =150°C, V _D =2/3V _{DRM} | 200 | — | — | V/μs |
| VGT | Gate trigger voltage | T _j =25°C, V _D =6V, R _L =2Ω | — | — | 3.0 | V |
| VGD | Gate non-trigger voltage | T _j =150°C, V _D =1/2V _{DRM} | 0.25 | — | — | V |
| IGT | Gate trigger current | T _j =25°C, V _D =6V, R _L =2Ω | 15 | — | 100 | mA |
| R _{th (j-c)} | Thermal resistance | Junction to case (per 1/3 module) | — | — | 0.3 | °C/W |
| R _{th (c-f)} | Contact thermal resistance | Case to fin, conductive grease applied (per 1/3 module) | — | — | 0.3 | °C/W |

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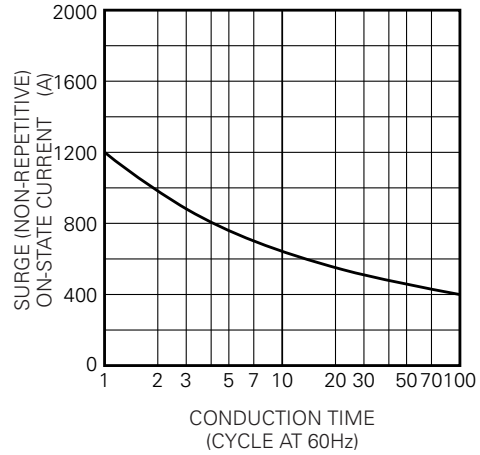
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PERFORMANCE CURVES

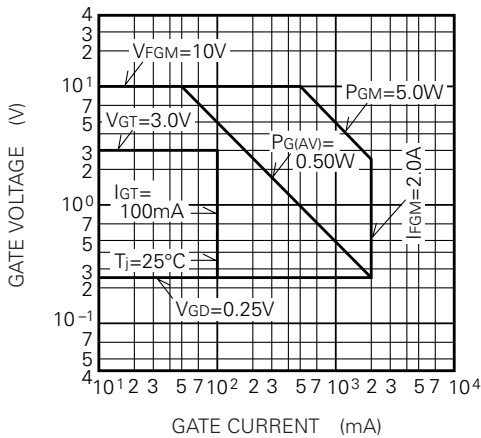
MAXIMUM ON-STATE CHARACTERISTIC



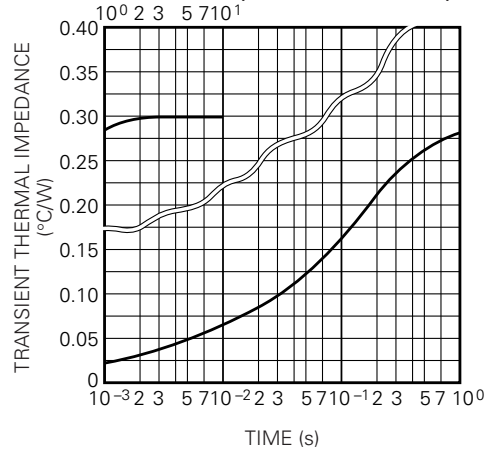
RATED SURGE (NON-REPETITIVE) ON-STATE CURRENT



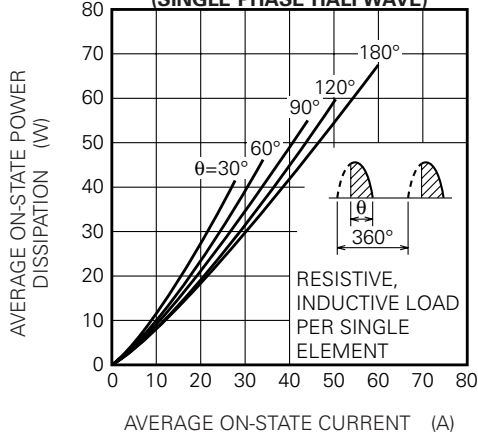
GATE CHARACTERISTICS



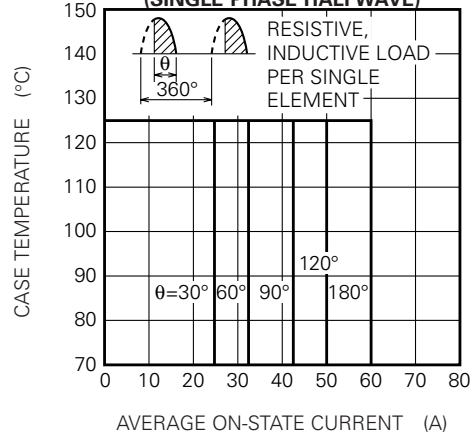
MAXIMUM TRANSIENT THERMAL IMPEDANCE (JUNCTION TO CASE)



MAXIMUM AVERAGE ON-STATE POWER DISSIPATION (SINGLE PHASE HALFWAVE)



LIMITING VALUE OF THE AVERAGE ON-STATE CURRENT (SINGLE PHASE HALFWAVE)



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