**TECHSEM**

# MFG300 MFY300
## Thyristor/Diode Modules(Non-isolated Type)

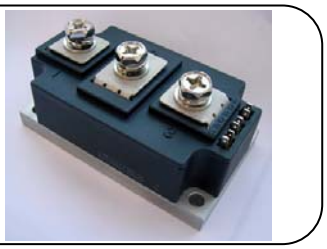
**Features:**

- Non-Isolated.Mounting base as common
- Pressure contact technology with Incrtased power cycling capability
- Low on-state voltage drop

**Typical Applications**

- Welding Power Supply
- Various DC Power supplies
- DC supply for PWM inverter

| | |
|---|---|
| $I_{T(AV)}$ | 300 A |
| $V_{DRM}/V_{RRM}$ | 800~1800 V |
| $I_{TSM}$ | 8.3 A×$10^3$ |
| $I^2t$ | 344 $A^2$ S*$10^3$ |



| SYMBOL | CHARACTERISTIC | TEST CONDITIONS | $T_j$(°C) | VALUE | | | UNIT |
|---|---|---|---|---|---|---|---|
| | | | | Min | Type | Max | |
| $I_{T(AV)}$ | Mean on-state current | 180° half sine wave 50Hz<br>Single side cooled,$T_c$=90°C | 125 | | | 300 | A |
| $I_{T(RMS)}$ | RMS on-state current | | 125 | | | 471 | A |
| $V_{DRM}$<br>$V_{RRM}$ | Repetitive peak off-state voltage<br>Repetitive peak reverse voltage | $V_{DRM}$&$V_{RRM}$ tp=10ms<br>$V_{DsM}$&$V_{RsM}$= $V_{DRM}$&$V_{RRM}$+100V<br>respectively | 125 | 800 | | 1800 | V |
| $I_{DRM}$<br>$I_{RRM}$ | Repetitive peak current | at $V_{DRM}$<br>at $V_{RRM}$ | 125 | | | 25 | mA |
| $I_{TSM}$ | Surge on-state current | 10ms half sine wave<br>$V_R$=60%$V_{RRM}$ | 125 | | | 8.3 | KA |
| $I^2t$ | $I^2T$ for fusing coordination | | | | | 344 | $A^2s*10^3$ |
| $V_{TO}$ | Threshold voltage | | 125 | | | 0.80 | V |
| $r_T$ | On-state slop resistance | | | | | 0.72 | mΩ |
| $V_{TM}$ | Peak on-state voltage | $I_{TM}$=900A | 25 | | | 1.58 | V |
| dv/dt | Critical rate of rise of off-state voltage | $V_{DM}$=67%$V_{DRM}$ | 125 | | | 800 | V/μs |
| di/dt | Critical rate of rise of on-state current | Gate source 1.5A<br>$t_r$≤0.5μs Repetitive | 125 | | | 100 | A/μs |
| $I_{GT}$ | Gate trigger current | $V_A$=12V, $I_A$=1A | 25 | 30 | | 150 | mA |
| $V_{GT}$ | Gate trigger voltage | | | 1.0 | | 2.5 | V |
| $I_H$ | Holding current | | | 20 | | 100 | mA |
| $V_{GD}$ | Non-trigger gate voltage | At 67%$V_{DRM}$ | 125 | 0.2 | | | V |
| $R_{th(j-c)}$ | Thermal resistance<br>Junction to case | Single side cooled | | | | 0.08 | °C /W |
| $R_{th(c-h)}$ | Thermal resistance<br>case to heatsink | Single side cooled | | | | 0.04 | °C /W |
| $F_m$ | Thermal connection torque(M8) | | | | 12 | | N·m |
| | Mounting torque(M6) | | | | 6 | | N·m |
| $T_{stg}$ | Stored temperature | | | -40 | | 125 | °C |
| $W_t$ | Weight | | | | 680 | | g |
| Outline | 404F4/407F2 | | | | | | |

Peak on-state Voltage Vs.Peak on-state Current

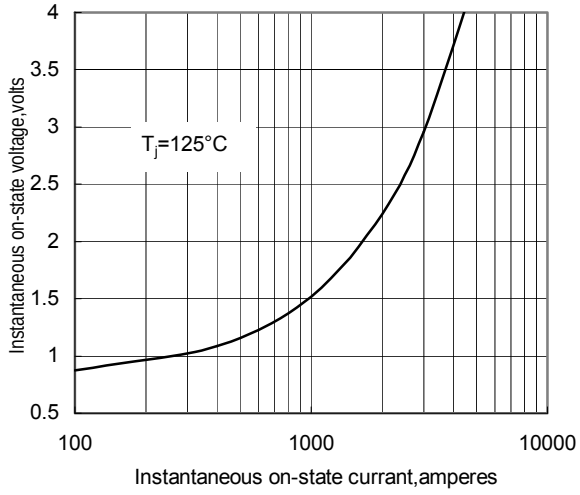



Fig.1

Max. junction To case Thermai Impedance Vs.Time

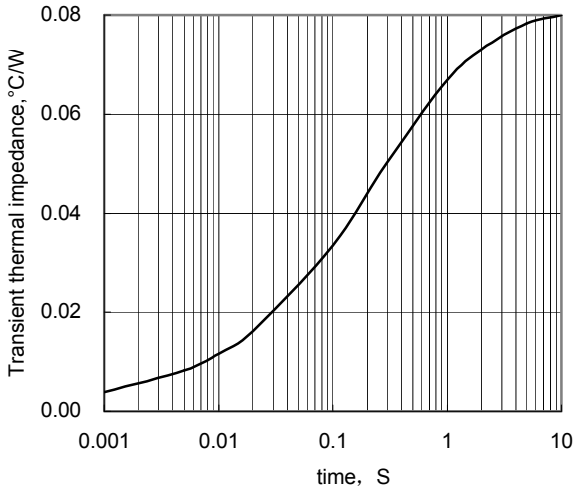



Fig.2

Max. Power Dissipation Vs.Mean on-state

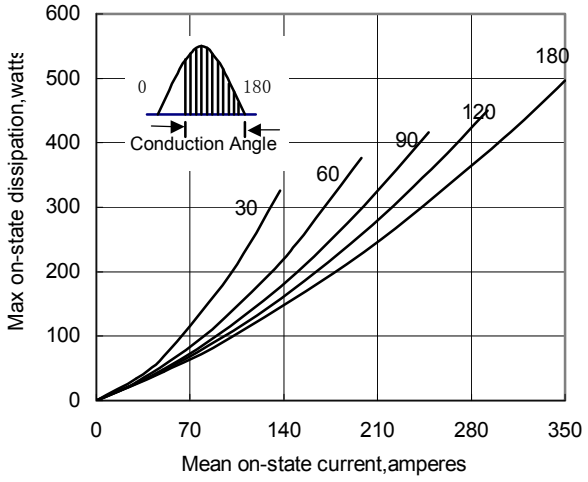



Fig.3

Max. case Temperature Vs.Mean on-state Current

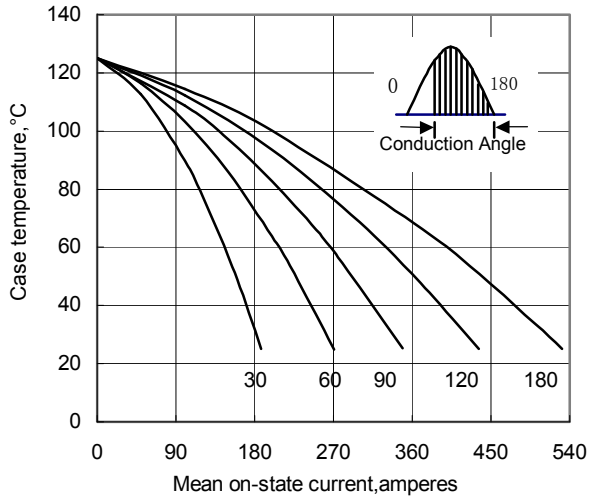



Fig.4

Max. Power Dissipation Vs.Mean on-state Current

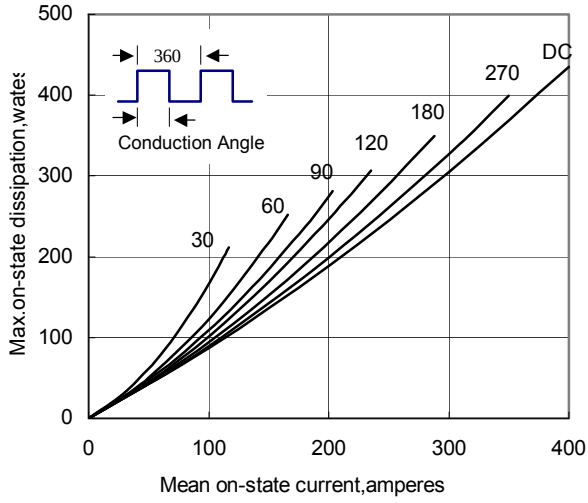



Fig.5

Max. case Temperature Vs.Mean on-state Current

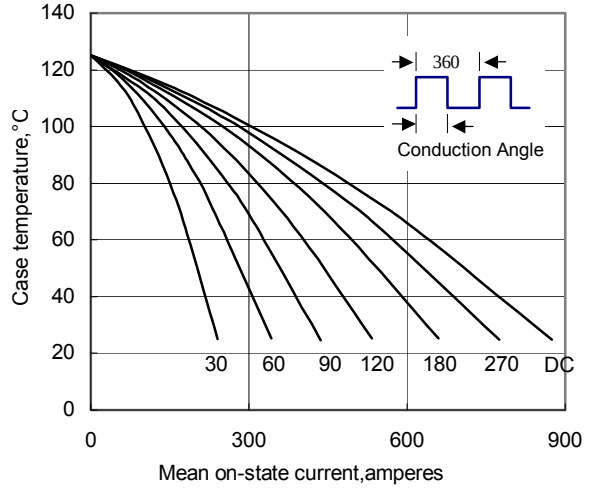



Fig.6

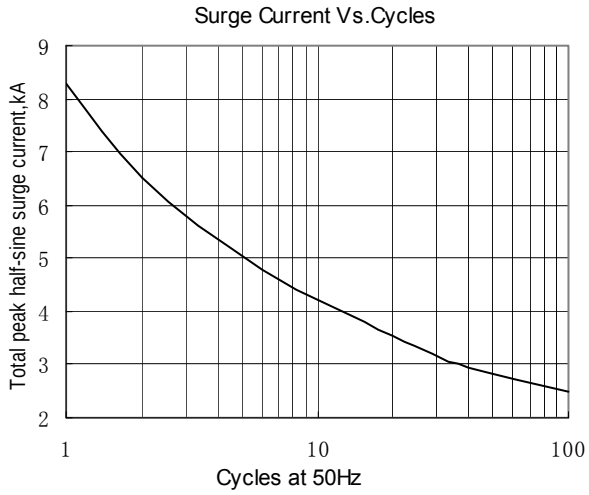



Fig.7

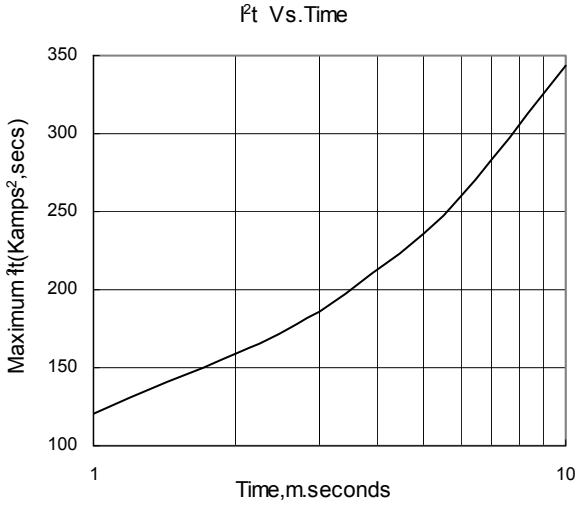



Fig.8

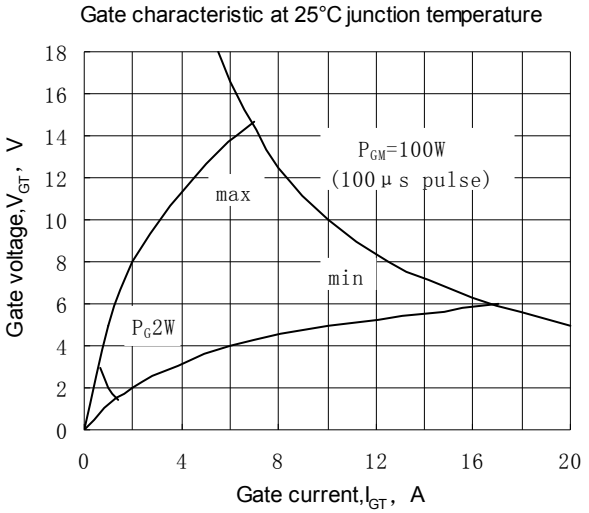



Fig.9

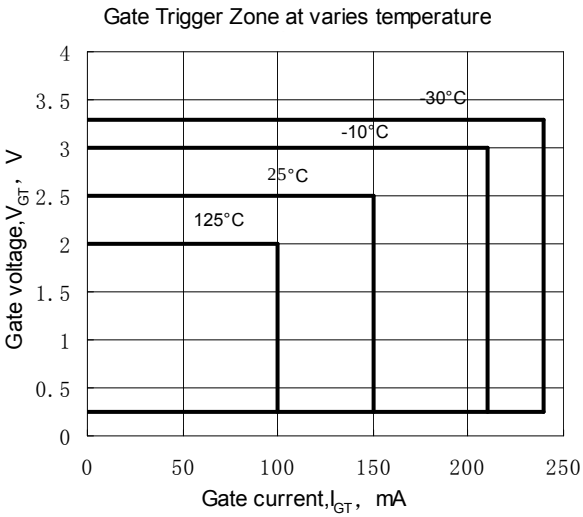
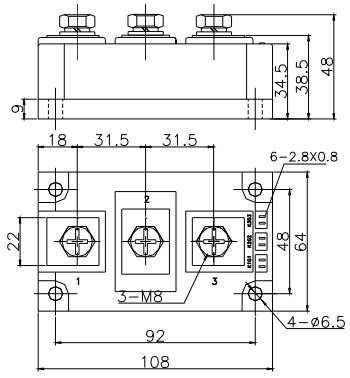



Fig.10

**Outline:**




**404F4**