

THYRISTOR MODULE

50A / 1600V

PGH5016AM

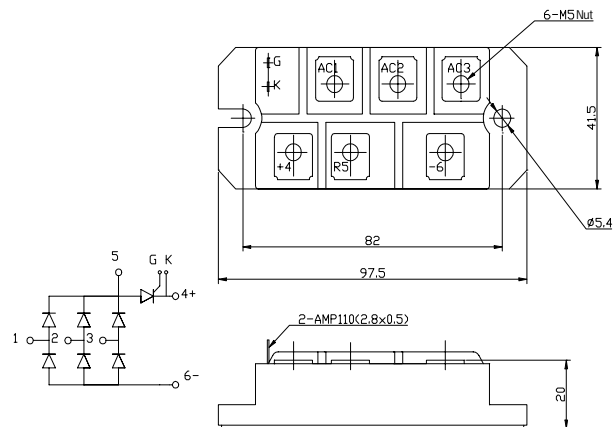
OUTLINE DRAWING

FEATURES

- * Isolated Base
- * 3 Phase Converter with Rush-Current Controllable Thyristor
- * High Surge Capability
- * UL Recognized, File No. E187184

TYPICAL APPLICATIONS

- * Converter For UPS , VVVF and Servo Motor Drive Amplifier



Approx Net Weight:200g

Pert of Diode Bridge and Thyristor Maximum Ratings

| Parameter | | Conditions | Max Rated Value | Unit |
|-------------------------------------|---------------|--|-----------------|------------|
| Average Rectified Output Current | $I_{O(AV)}$ | 3 Phase Full Wave Rectified Tc=108°C(Non-Bias) Tc=83°C(Biased) | 50 | A |
| Operating JunctionTemperature Range | Tjw | Tj>125°C, Can not be Biased for Thyristor | -40 to +150 | °C |
| Storage Temperature Range | Tstg | | -40 to +125 | °C |
| Isoration Voltage | Viso | Base Plate to Terminals, AC1min. | 2500 | V |
| Mounting torque | Case mounting | Ftor | Greased | N.m |
| | Terminals | | M5 Screw | |
| | | | M5 Screw | 2.4 to 2.8 |

Thermal Characteristics

| Characteristics | Symbol | Test Conditions | Maximum Value. | Unit |
|--------------------|----------|---------------------------|----------------|------|
| Thermal Resistance | Rth(c-f) | Case to Fin,Total,Greased | 0.06 | °C/W |

Part of Diode Bridge (6 dies)

Maximum Ratings

| Parameter | Symbol | Grade | Unit |
|--|-----------|-----------|------|
| | | PGH5016AM | |
| Repetitive Peak Reverse Voltage *1 | V_{RRM} | 1600 | V |
| Non Repetitive Peak Reverse Voltage *1 | V_{RSM} | 1700 | |

| Parameter | Symbol | Conditions | Max Rated Value | Unit |
|-------------------------------|-----------|---|-----------------|------------------|
| Surge Forward Current *1 | I_{FSM} | 50 Hz Half Sine Wave,1Pulse, Non-Repetitive | 600 | A |
| I Squared t *1 | I^2t | 2msec to 10msec | 1800 | A ² s |
| Allowable Operating Frequency | f | | 400 | Hz |

*1 Value Per 1 Arm

Electrical • Thermal Characteristics

| Characteristics | Symbol | Test Conditions | Maximum Value. | | | Unit |
|-------------------------|---------------|--------------------------------------|----------------|------|------|---------------|
| | | | Min. | Typ. | Max. | |
| Peak Reverse Current *1 | I_{RM} | $V_{RM}= V_{RRM}, T_j= 125^{\circ}C$ | | | 15 | mA |
| Peak Forward Voltage *1 | V_{FM} | $I_{FM}= 50A, T_j=25^{\circ}C$ | | | 1.30 | V |
| Thermal Resistance | $R_{th(j-c)}$ | Junction to Case (Total) | | | 0.27 | $^{\circ}C/W$ |

*1 Value Per 1 Arm

Part of Thyristor (1 die)
Maximum Ratings

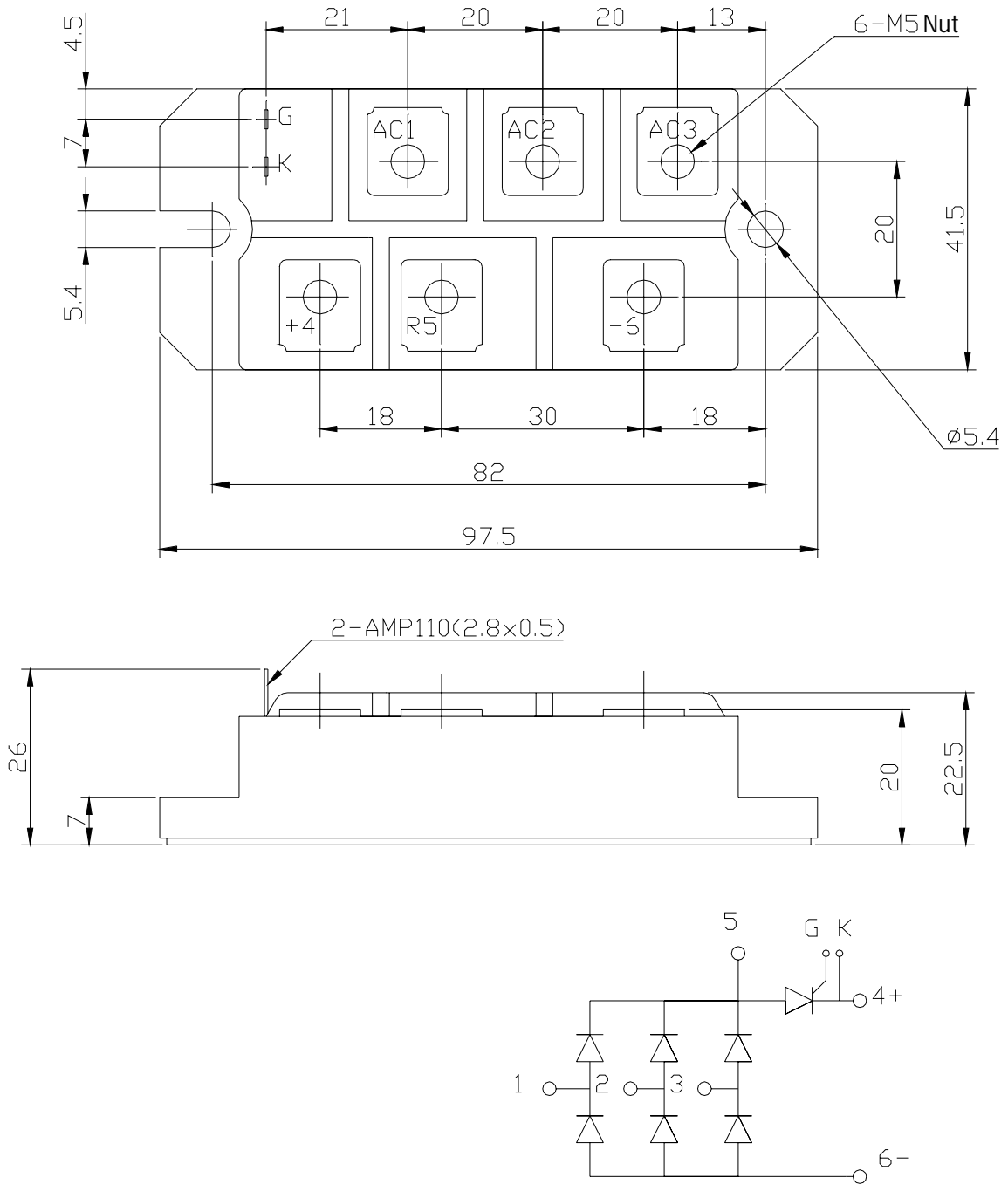
| Parameter | Symbol | Grade | | Unit |
|---------------------------------------|-----------|-----------|--|------|
| | | PGH5016AM | | |
| Repetitive Peak Off-State Voltage | V_{DRM} | 1600 | | V |
| Non Repetitive Peak Off-State Voltage | V_{DSM} | 1700 | | |
| Repetitive Peak Reverse Voltage | V_{RRM} | 1600 | | V |
| Non Repetitive Peak Reverse Voltage | V_{RSM} | 1700 | | |

| Parameter | Symbol | Conditions | Max Rated Value | Unit |
|------------------------------------|-------------|---|-----------------|-----------|
| | | | | |
| I Squared t | I^2t | 2msec to 10msec | 1800 | A^2s |
| Critical Rate of Turned-On Current | di/dt | $V_D=2/3V_{DRM}, I_{TM}=2 \cdot I_O, T_j=125^{\circ}C$ $I_G=200mA, di_G/dt=0.2A/\mu s$ | 100 | $A/\mu s$ |
| Peak Gate Power | P_{GM} | | 5 | W |
| Average Gate Power | $P_{G(AV)}$ | | 1 | W |
| Peak Gate Current | I_{GM} | | 2 | A |
| Peak Gate Voltage | V_{GM} | | 10 | V |
| Peak Gate Reverse Voltage | V_{RGM} | | 5 | V |

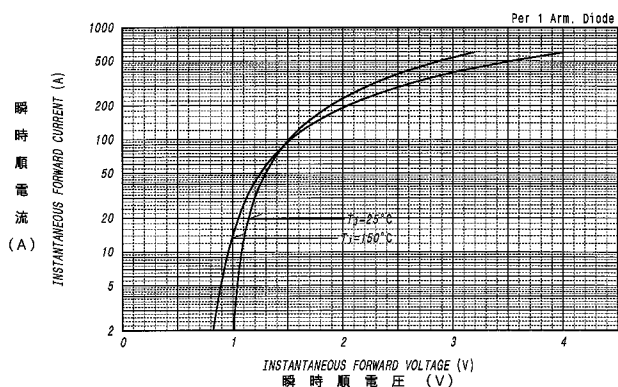
Electrical • Thermal Characteristics

| Characteristics | Symbol | Test Conditions | Maximum Value. | | | Unit |
|--|---------------|---|--------------------|------|------|---------------|
| | | | Min. | Typ. | Max. | |
| Peak Off-State Current | I_{DM} | $V_{DM}= V_{DRM}, T_j= 125^{\circ}C$ | | | 15 | mA |
| Peak Reverse Current | I_{RM} | $V_{RM}= V_{RRM}, T_j= 125^{\circ}C$ | | | 15 | mA |
| Peak On-State Voltage | V_{TM} | $I_{TM}= 50A, T_j=25^{\circ}C$ | | | 1.12 | V |
| Gate Current to Trigger | I_{GT} | $V_D=6V, I_T=1A$ | $T_j=-40^{\circ}C$ | | 200 | mA |
| | | | $T_j=25^{\circ}C$ | | 100 | |
| | | | $T_j=125^{\circ}C$ | | 50 | |
| Gate Voltage to Trigger | V_{GT} | $V_D=6V, I_T=1A$ | $T_j=-40^{\circ}C$ | | 4 | V |
| | | | $T_j=25^{\circ}C$ | | 2.5 | |
| | | | $T_j=125^{\circ}C$ | | 2 | |
| Gate Non-Trigger Voltage | V_{GD} | $V_D=2/3V_{DRM}, T_j=125^{\circ}C$ | 0.25 | | | V |
| Critical Rate of Rise of Off-State Voltage | dv/dt | $V_D=2/3V_{DRM}, T_j=125^{\circ}C$ | 500 | | | $V/\mu s$ |
| Turn-Off Time | t_q | $I_{TM}=I_O, V_D=2/3V_{DRM}$ $dv/dt=20V/\mu s, V_R=100V$ $-di/dt=20A/\mu s, T_j=125^{\circ}C$ | | 150 | | μs |
| Turn-On Time | t_{gt} | $V_D=2/3V_{DRM}, T_j=125^{\circ}C$ $I_G=200mA, di_G/dt=0.2A/\mu s$ | | 6 | | μs |
| Delay Time | t_d | | | 2 | | μs |
| Rise Time | t_r | | | 4 | | μs |
| Latching Current | I_L | $T_j=25^{\circ}C$ | | 100 | | mA |
| Holding Current | I_H | $T_j=25^{\circ}C$ | | 80 | | |
| Thermal Resistance | $R_{th(j-c)}$ | Junction to Case | | | 0.8 | $^{\circ}C/W$ |

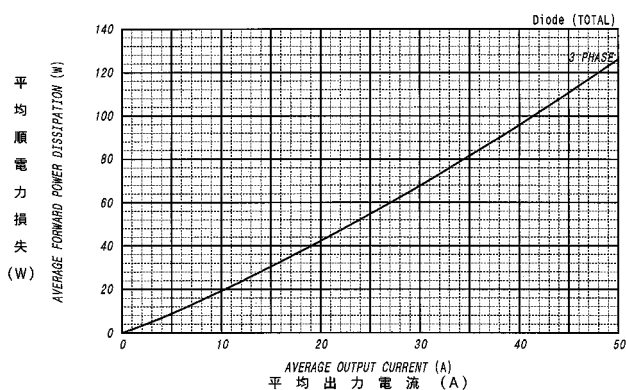
PGH5016AM OUTLINE DRAWING (Dimensions in mm)



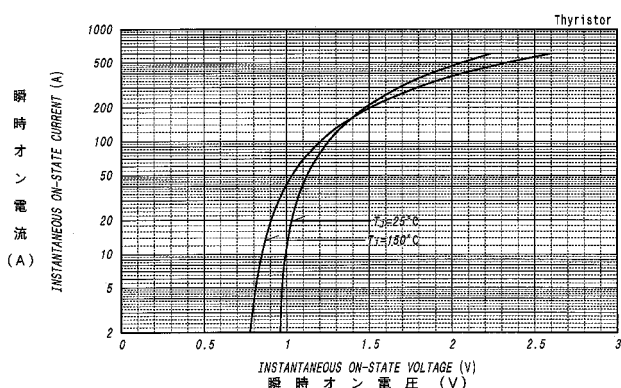
順電圧特性
FORWARD CURRENT VS. VOLTAGE



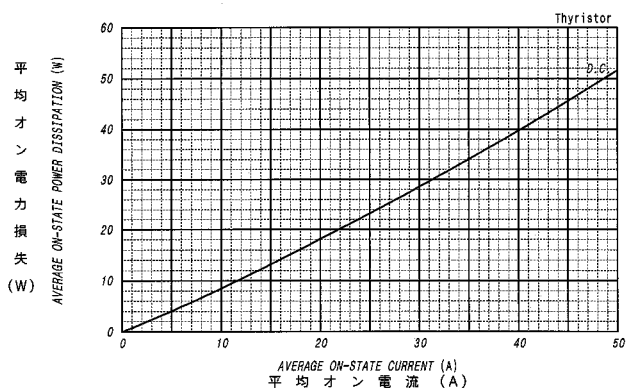
平均順電力損失特性
AVERAGE FORWARD POWER DISSIPATION



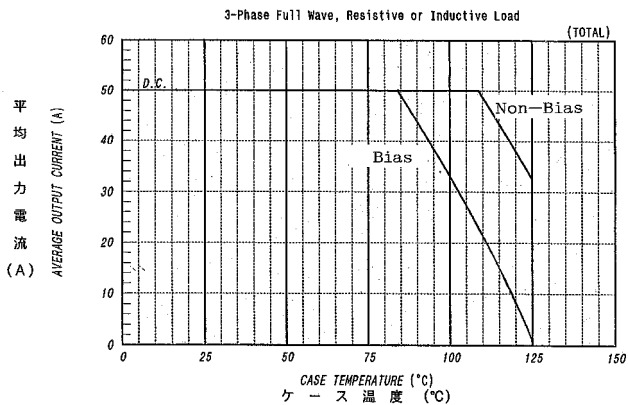
オン電圧特性
ON-STATE CURRENT VS. VOLTAGE



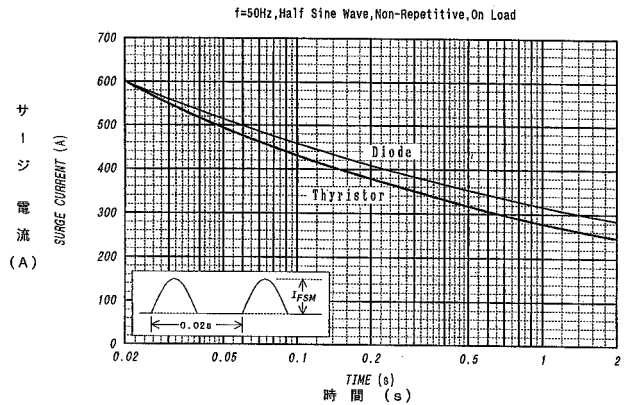
平均オン電力損失特性
AVERAGE ON-STATE POWER DISSIPATION



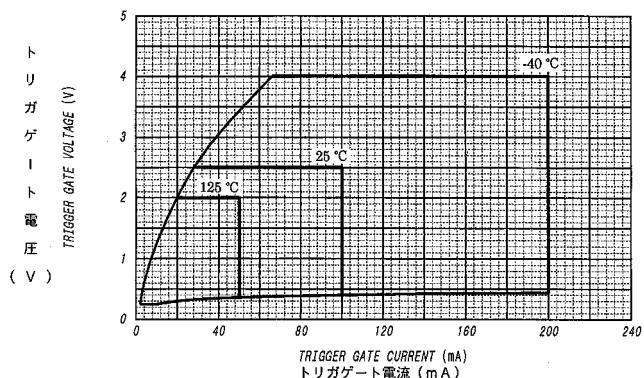
平均出力電流 - ケース温度定格
AVERAGE OUTPUT CURRENT VS. CASE TEMPERATURE



サージ電流定格
SURGE CURRENT RATINGS



ゲート特性
GATE CHARACTERISTICS



ゲート定格
GATE RATINGS

