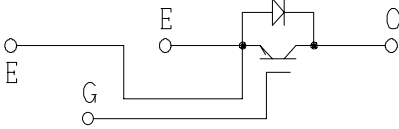
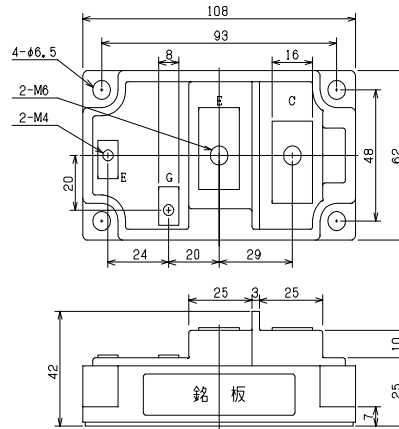


CIRCUIT



OUTLINE DRAWING



Dimension(mm)

Approximate Weight : 500g

MAXMUM RATINGS (Tc=25°C)

| Item | Symbol | PHMB400A6 | Unit | |
|---|------------------|---------------------------|------|-----|
| Collector-Emitter Voltage | V _{CES} | 600 | V | |
| Gate - Emitter Voltage | V _{GES} | +/- 20 | V | |
| Collector Current | DC | I _C | 400 | |
| | 1 ms | I _{CP} | 800 | |
| Collector Power Dissipation | P _C | 1470 | W | |
| Junction Temperature Range | T _j | -40 to +150 | °C | |
| Storage Temperature Range | T _{stg} | -40 to +125 | °C | |
| Isolation Voltage (Terminal to Base AC, 1 min.) | V _{ISO} | 2500 | V | |
| Mounting Torque | F _{TOR} | Module Base to Heatsink | 3 | |
| | | Bus Bar to Main Terminals | M4 | 1.4 |
| | | | M6 | 3 |

ELECTRICAL CHARACTERISTICS (Tc=25°C)

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------------------|----------------------|---|------|--------|------|------|
| Collector-Emitter Cut-Off Current | I _{CES} | V _{CE} =600V, V _{GE} =0V | - | - | 4.0 | mA |
| Gate-Emitter Leakage Current | I _{GES} | V _{CE} =+/- 20V, V _{GE} =0V | - | - | 1.0 | μA |
| Collector-Emitter Saturation Voltage | V _{CE(sat)} | I _C =400A, V _{GE} =15V | - | 2.1 | 2.6 | V |
| Gate-Emitter Threshold Voltage | V _{GE(th)} | V _{CE} =5V, I _C =400mA | 4.0 | - | 8.0 | V |
| Input Capacitance | C _{ies} | V _{CE} =10V, V _{GE} =0V, f=1MHz | - | 40,000 | - | pF |
| Switching Time | Rise Time | V _{CC} = 300V | - | 0.25 | 0.45 | μs |
| | Turn-on Time | R _L = 0.75 ohm | - | 0.45 | 0.85 | |
| | Fall Time | R _G = 1.6 ohm | - | 0.2 | 0.35 | |
| | Turn-off Time | V _{GE} = +/- 15V | - | 0.6 | 0.8 | |

FREE WHEELING DIODES RATINGS & CHARACTERISTICS (Tc=25°C)

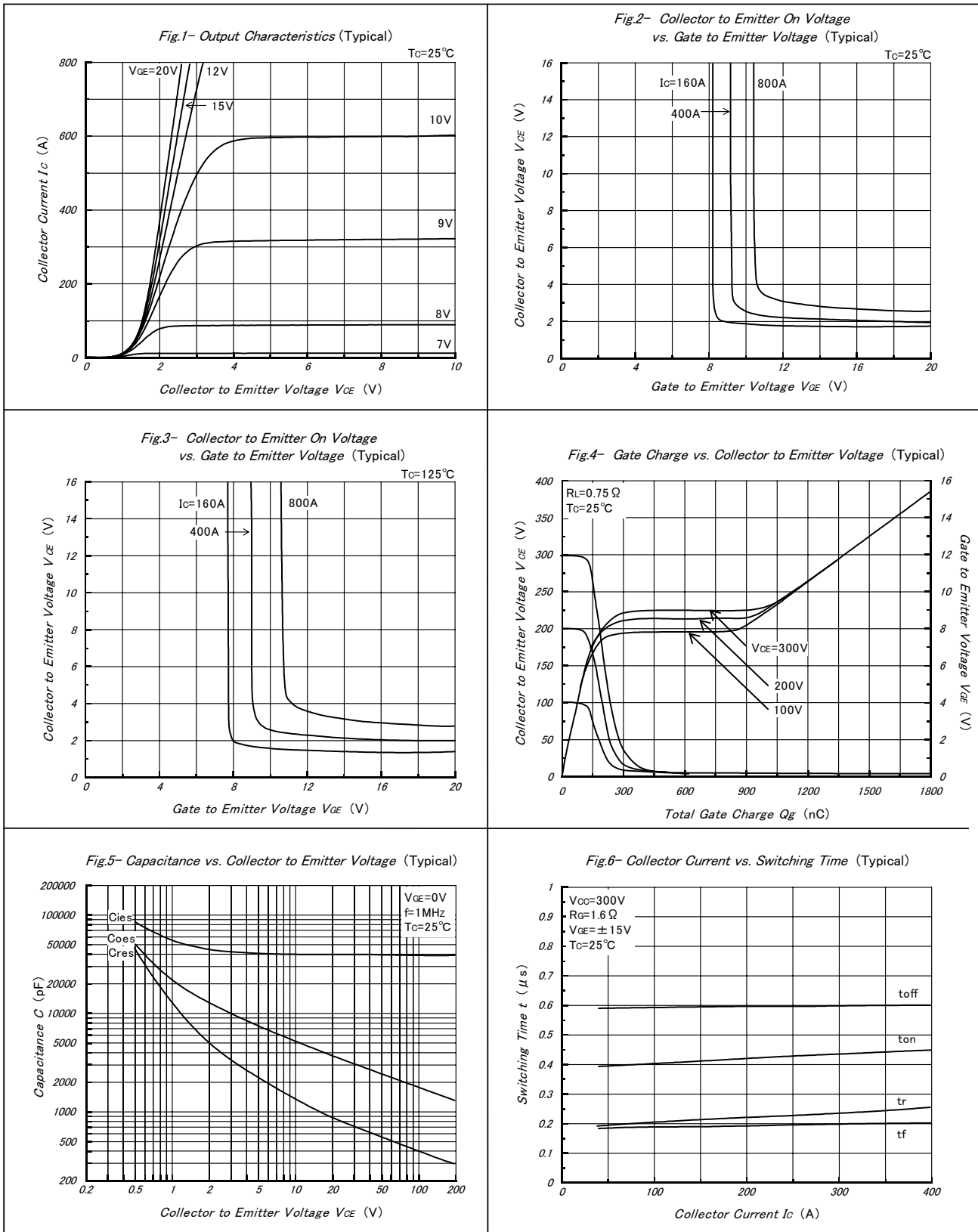
| Item | Symbol | Rated Value | Unit |
|-----------------|--------|-----------------|------|
| Forward Current | DC | I _F | 400 |
| | 1 ms | I _{FM} | 800 |

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|-----------------------|----------------|--|------|------|------|------|
| Peak Forward Voltage | V _F | I _F =400A, V _{GE} =0V | - | 1.9 | 2.4 | V |
| Reverse Recovery Time | t _r | I _F =400A, V _{GE} =-10V, di/dt=400A/μs | - | 0.15 | 0.25 | μs |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|-------------------|--------|------------------|------|------|-------|------|
| Thermal Impedance | IGBT | Junction to Case | - | - | 0.085 | °C/W |
| | DIODE | | - | - | 0.20 | |

PHMB400A6



PHMB400A6

Fig.7- Series Gate Impedance vs. Switching Time (Typical)

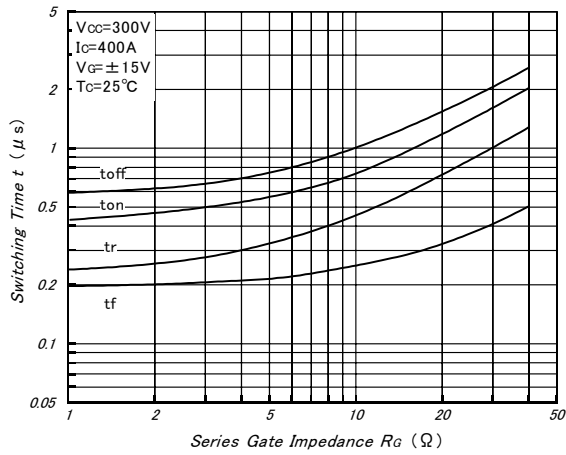


Fig.8- Forward Characteristics of Free Wheeling Diode (Typical)

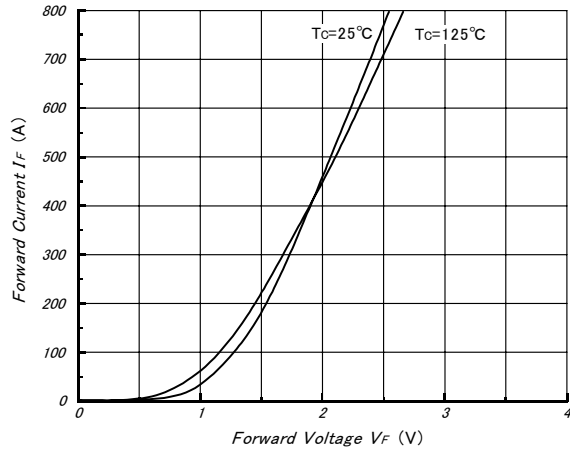


Fig.9- Reverse Recovery Characteristics (Typical)

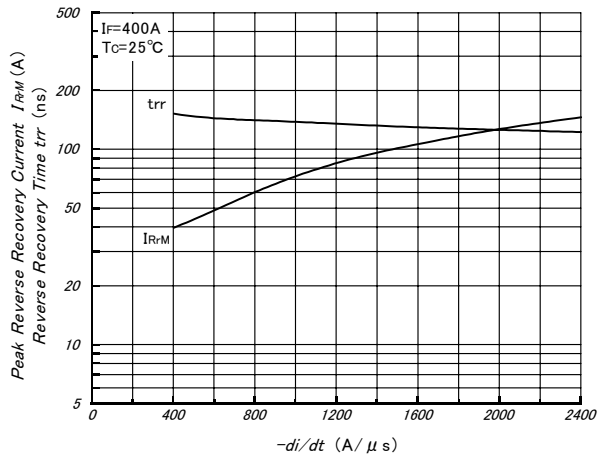


Fig.10- Reverse Bias Safe Operating Area (Typical)

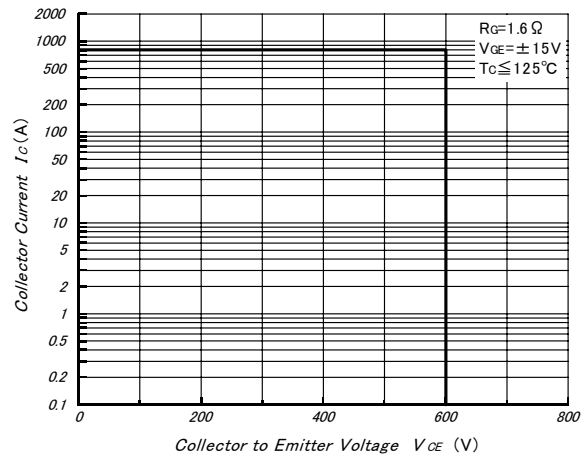


Fig.11- Transient Thermal Impedance

