

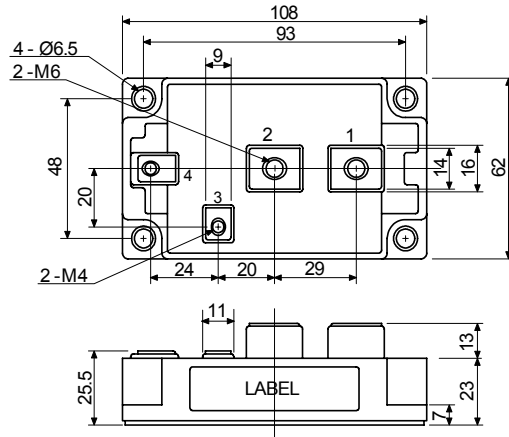
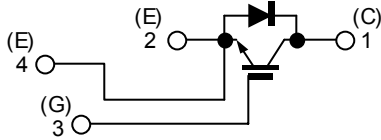
IGBT Module-Single

200 A, 1200V

PHMB200B12

□ 回路図 : CIRCUIT

□ 外形寸法図 : OUTLINE DRAWING



Dimension: [mm]

□ 最大定格 : MAXIMUM RATINGS (T_c=25°C)

| Item | Symbol | Rated Value | Unit | |
|--|------------------|-------------------------|--------------------|------------|
| コレクタ・エミッタ間電圧 Collector-Emittor Voltage | V _{CEs} | 1,200 | V | |
| ゲート・エミッタ間電圧 Gate-Emittor Voltage | V _{GES} | ±20 | V | |
| コレクタ電流 Collector Current | I _C | DC | 200 | |
| | | 1ms | 400 | |
| コレクタ損失 Collector Power Dissipation | P _C | 960 | W | |
| 接合温度 Junction Temperature Range | T _J | -40~+150 | °C | |
| 保存温度 Storage Temperature Range | T _{stg} | -40~+125 | °C | |
| 絶縁耐圧(Terminal to Base AC, 1 minute) Isolation Voltage | V _{ISO} | 2,500 | V _(RMS) | |
| 締め付けトルク Mounting Torque | F _{tor} | Module Base to Heatsink | 3 (30.6) | |
| | | Busbar to Main Terminal | M4 | 1.4 (14.3) |
| | | | M6 | 3 (30.6) |

□ 電気的特性 : ELECTRICAL CHARACTERISTICS (T_c=25°C)

| Characteristic | Symbol | Test Condition | Min. | Tvp. | Max. | Unit |
|--|-----------------------|--|------|--------|------|------|
| コレクタ遮断電流 Collector-Emittor Cut-Off Current | I _{CEs} | V _{CE} =1200V, V _{GE} =0V | - | - | 4.0 | mA |
| ゲート漏れ電流 Gate-Emittor Leakage Current | I _{GES} | V _{GE} =±20V, V _{CE} =0V | - | - | 1.0 | μA |
| コレクタ・エミッタ間飽和電圧 Collector-Emittor Saturation Voltage | V _{CE(sat)} | I _C =200A, V _{GE} =15V | - | 1.9 | 2.4 | V |
| ゲートしきい値電圧 Gate-Emittor Threshold Voltage | V _{GE(th)} | V _{CE} =5V, I _C =200mA | 4.0 | - | 8.0 | V |
| 入力容量 Input Capacitance | C _{ies} | V _{CE} =10V, V _{GE} =0V, f=1MHz | - | 16,600 | - | pF |
| スイッチング時間 Switching Time | 上昇時間 Rise Time | V _{CC} =600V R _f =3Ω R _g =2Ω V _{GE} =±15V | - | 0.25 | 0.45 | μs |
| | ターンオン時間 Turn-on Time | | - | 0.40 | 0.70 | |
| | 下降時間 Fall Time | | - | 0.25 | 0.35 | |
| | ターンオフ時間 Turn-off Time | | - | 0.80 | 1.10 | |

□ フリーホイーリングダイオードの特性 : FREE WHEELING DIODE RATINGS & CHARACTERISTICS (T_c=25°C)

| Item | Symbol | Rated Value | Unit |
|------------------------|----------------|-------------|------|
| 順電流 Forward Current | I _F | DC | 200 |
| | | 1ms | 400 |

| Characteristic | Symbol | Test Condition | Min. | Tvp. | Max. | Unit |
|--------------------------------|-----------------|--|------|------|------|------|
| 順電圧 Peak Forward Voltage | V _F | I _F =200A, V _{GE} =0V | - | 1.9 | 2.4 | V |
| 逆回復時間 Reverse Recovery Time | t _{rr} | I _F =200A, V _{GE} =-10V di/dt=400A/μs | - | 0.2 | 0.3 | μs |

□ 熱的特性 : THERMAL CHARACTERISTICS

| Characteristic | Symbol | Test Condition | Min. | Tvp. | Max. | Unit |
|--------------------------|----------------------|----------------|------|------|-------|------|
| 熱抵抗 Thermal Impedance | R _{th(j-c)} | IGBT | - | - | 0.125 | °C/W |
| | | Diode | - | - | 0.24 | |

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Fig.1- Output Characteristics (Typical)

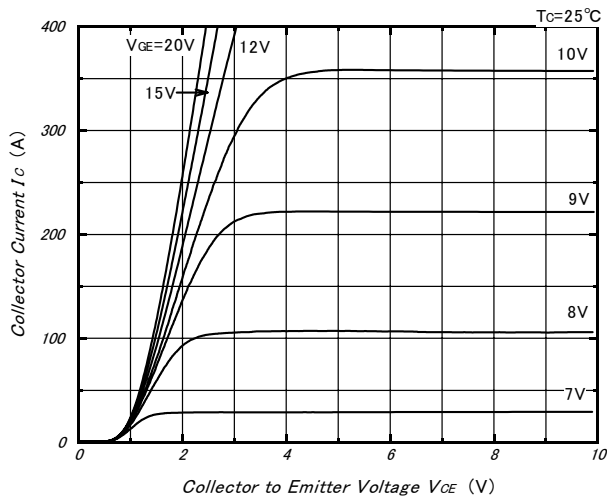


Fig.2- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

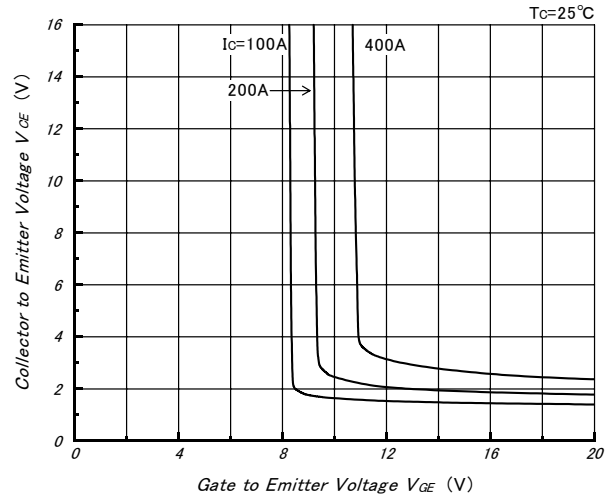


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

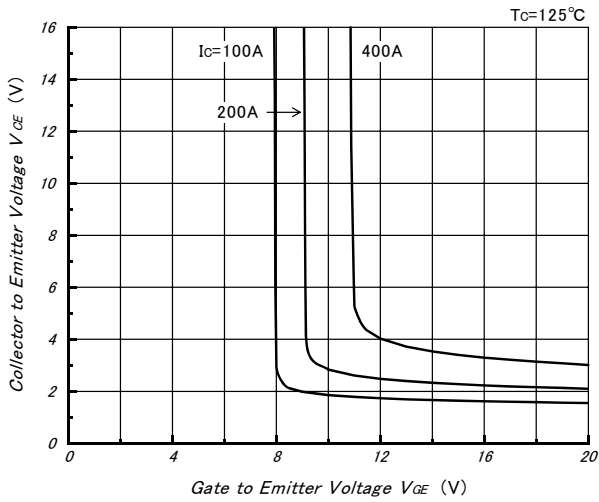


Fig.4- Gate Charge vs. Collector to Emitter Voltage (Typical)

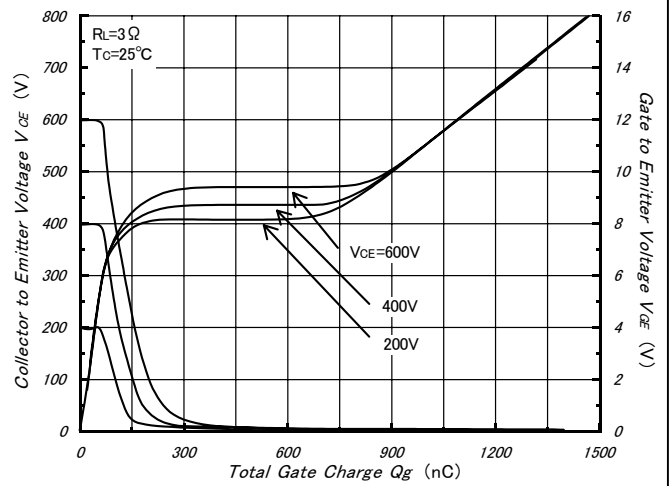


Fig.5- Capacitance vs. Collector to Emitter Voltage (Typical)

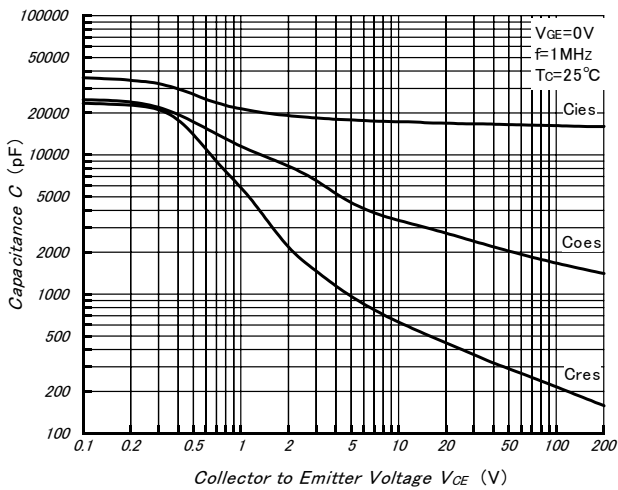
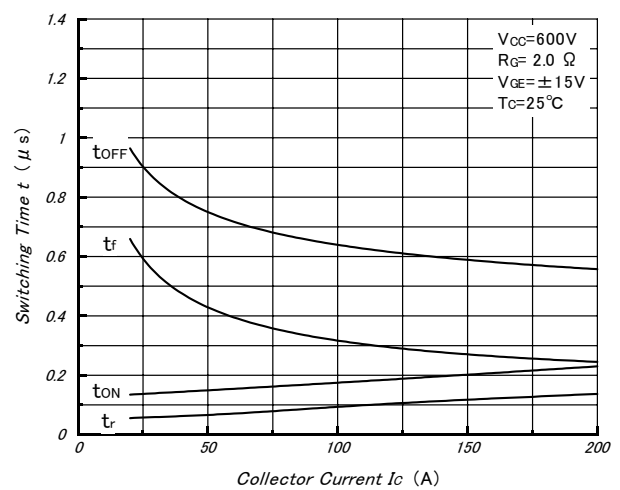


Fig.6- Collector Current vs. Switching Time (Typical)



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

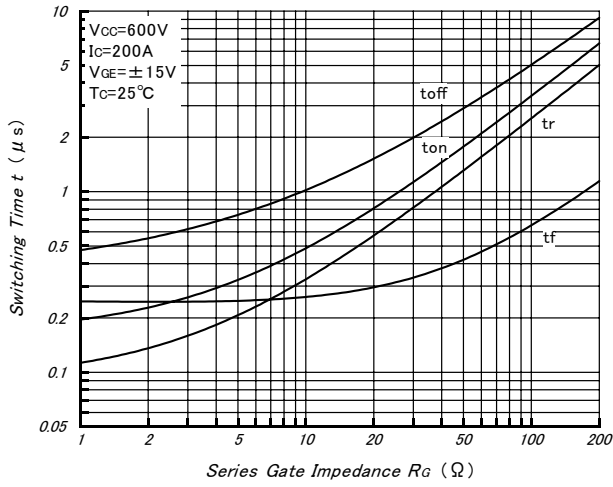


Fig.8- Forward Characteristics of Free Wheeling Diode (Typical)

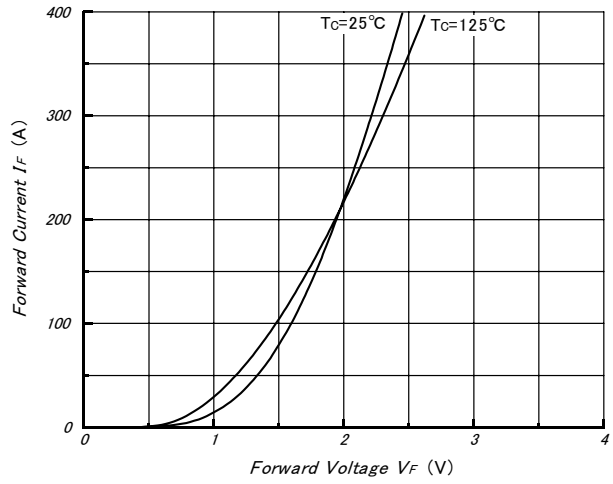


Fig.9- Reverse Recovery Characteristics (Typical)

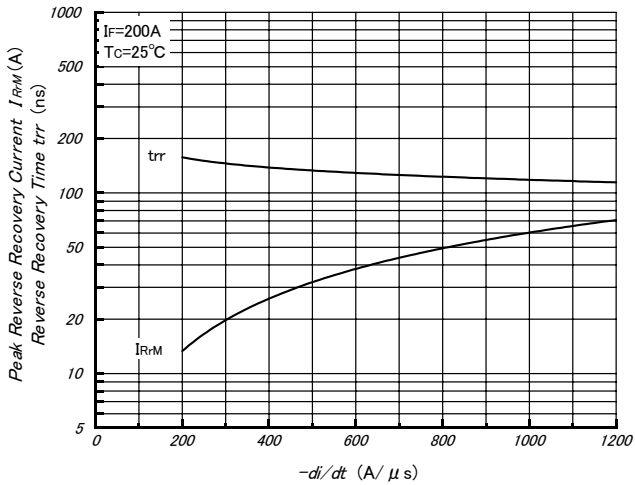


Fig.10- Reverse Bias Safe Operating Area

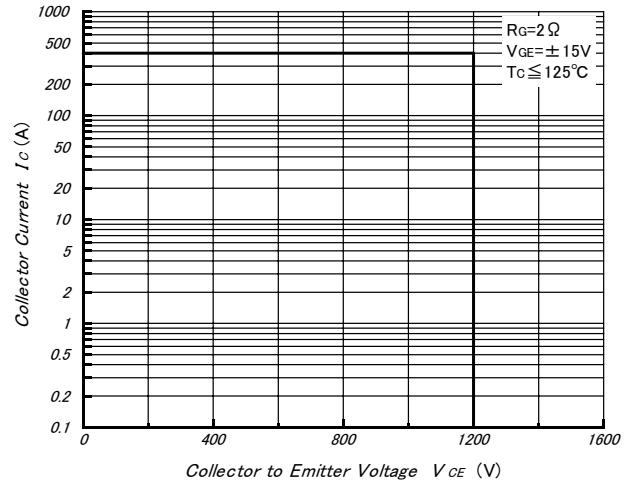


Fig.11- Transient Thermal Impedance

