

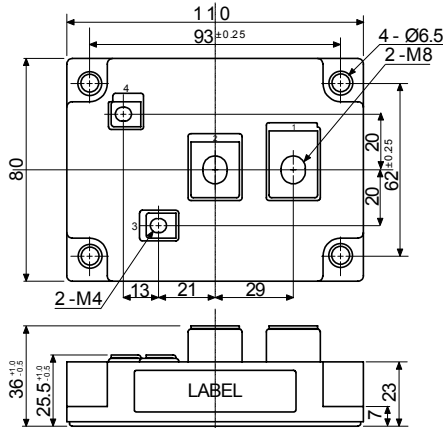
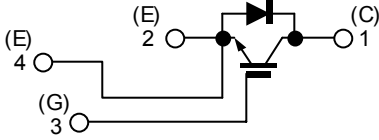
IGBT Module-Single

800A, 600V

PHMB800E6

□ 回路図 : CIRCUIT

□ 外形寸法図 : OUTLINE DRAWING



Dimension: [mm]

□ 最大定格 : MAXIMUM RATINGS (T<sub>c</sub>=25°C)

| Item  | Symbol   | Rated Value      | Unit               |
|---|--|------------------|--------------------|
| コレクタ・エミッタ間電圧<br>Collector-Emmitter Voltage              | V <sub>CES</sub>                               | 600              | V                  |
| ゲート・エミッタ間電圧<br>Gate-Emmitter Voltage                    | V <sub>GES</sub>                               | ±20              | V                  |
| コレクタ電流<br>Collector Current                             | DC   | I <sub>C</sub>   | 800                |
|   | 1ms  | I <sub>CP</sub>  | 1,600              |
| コレクタ損失<br>Collector Power Dissipation                   | P <sub>C</sub>                                 | 2,700            | W                  |
| 接合温度<br>Junction Temperature Range                      | T <sub>j</sub>                                 | -40~+150         | °C                 |
| 保存温度<br>Storage Temperature Range                       | T <sub>stg</sub>                               | -40~+125         | °C                 |
| 絶縁耐圧(Terminal to Base AC, 1minute)<br>Isolation Voltage | V <sub>ISO</sub>                               | 2,500            | V <sub>(RMS)</sub> |
| 締め付けトルク<br>Mounting Torque                              | Module Base to Heatsink<br>Busbar to Terminals | F <sub>tor</sub> | 3 (30.6)           |
|   |  | M4               | 1.4 (14.3)         |
|   |  | M8               | 10.5 (107)         |
|   |  |                  | N·m<br>(kgf·cm)    |

□ 電気的特性 : ELECTRICAL CHARACTERISTICS (T<sub>c</sub>=25°C)

| Characteristic  | Symbol                | Test Condition                                       | Min. | Tvp.   | Max. | Unit |
|---|-----------------------|--|------|--------|------|------|
| コレクタ遮断電流<br>Collector-Emmitter Cut-Off Current          | I <sub>CES</sub>      | V <sub>CE</sub> = 800V, V <sub>GE</sub> = 0V         | -    | -      | 1.0  | mA   |
| ゲート漏れ電流<br>Gate-Emmitter Leakage Current                | I <sub>GES</sub>      | V <sub>GE</sub> = ±20V, V <sub>CE</sub> = 0V         | -    | -      | 1.0  | μA   |
| コレクタ・エミッタ間飽和電圧<br>Collector-Emmitter Saturation Voltage | V <sub>CE(sat)</sub>  | I <sub>C</sub> = 800A, V <sub>GE</sub> = 15V         | -    | 2.1    | 2.6  | V    |
| ゲートしきい値電圧<br>Gate-Emmitter Threshold Voltage            | V <sub>GE(th)</sub>   | V <sub>CE</sub> = 5V, I <sub>C</sub> = 800mA         | 4.0  | -      | 8.0  | V    |
| 入力容量<br>Input Capacitance                               | C <sub>ies</sub>      | V <sub>CE</sub> = 10V, V <sub>GE</sub> = 0V, f= 1MHz | -    | 40,000 | -    | pF   |
| スイッチング時間<br>Switching Time                              | 上昇時間 Rise Time        | t <sub>r</sub>                                       | -    | 0.15   | 0.35 | μs   |
|   | ターンオン時間 Turn-on Time  | t <sub>on</sub>                                      | -    | 0.30   | 0.85 |      |
|   | 下降時間 Fall Time        | t <sub>f</sub>                                       | -    | 0.10   | 0.25 |      |
|   | ターンオフ時間 Turn-off Time | t <sub>off</sub>                                     | -    | 0.40   | 0.80 |      |

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

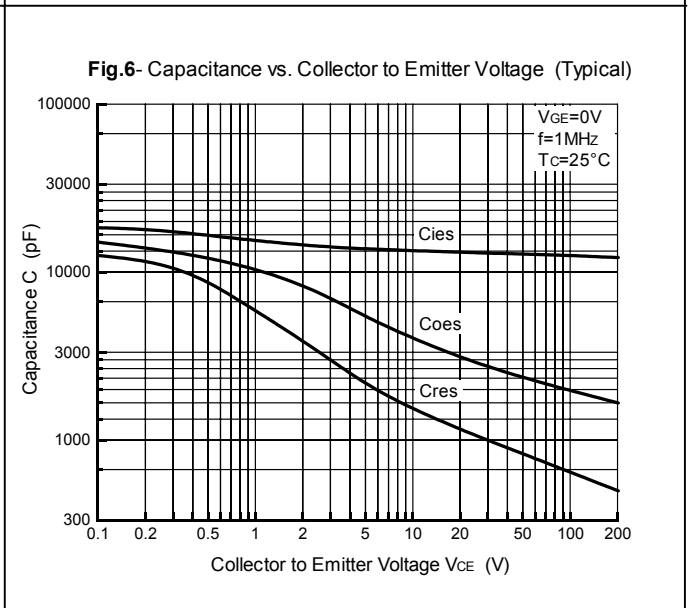
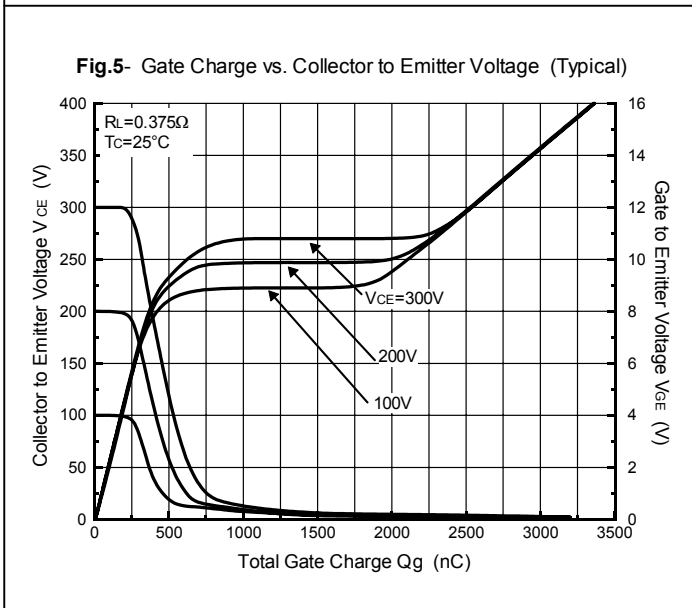
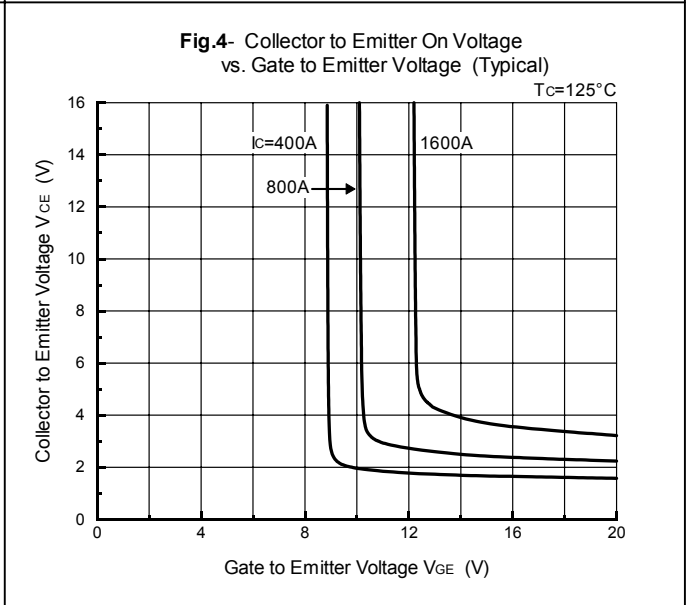
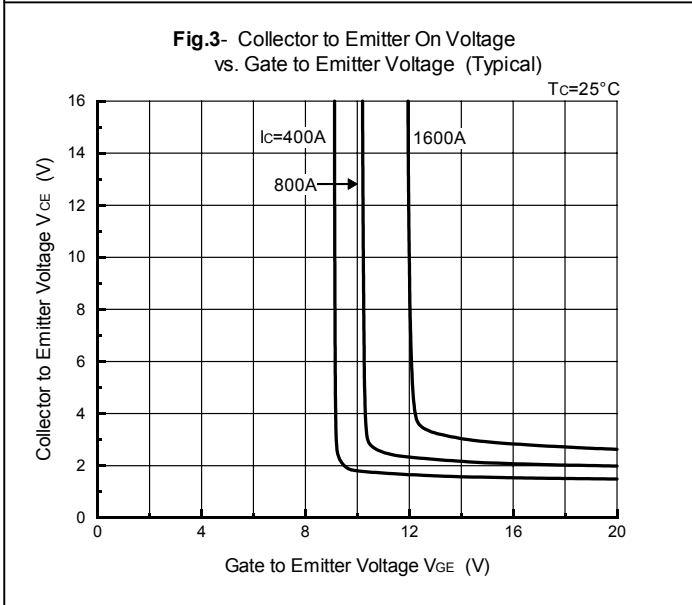
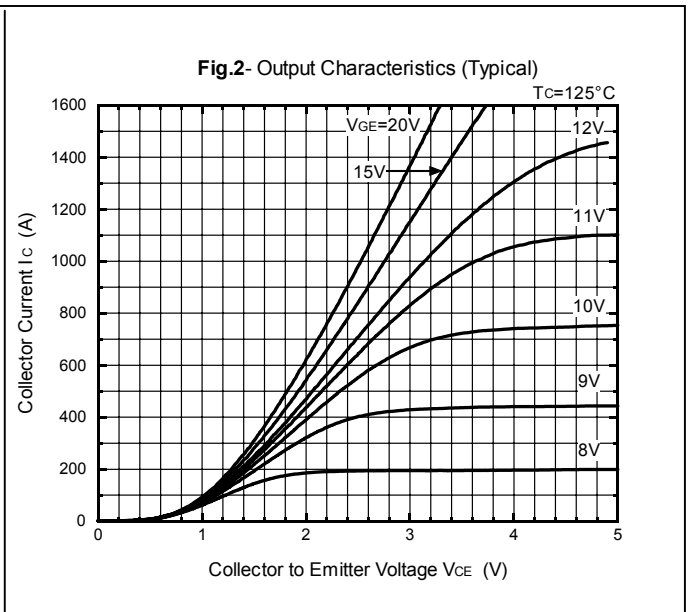
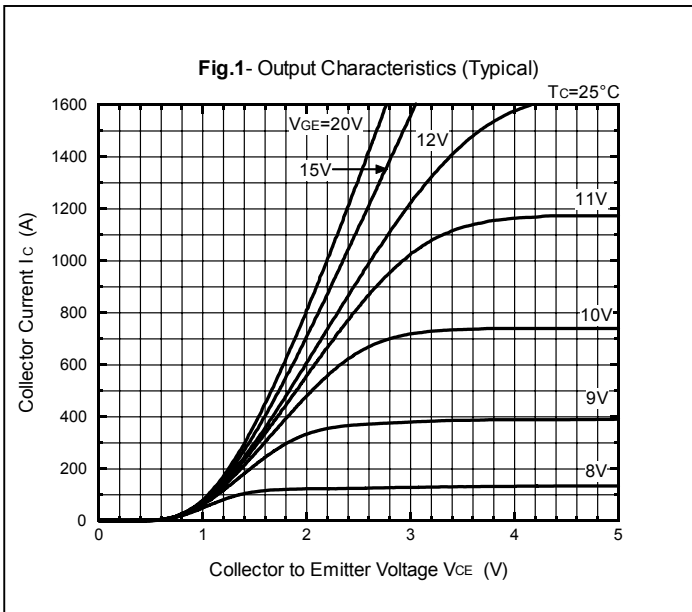
| Item                   | Symbol | Rated Value     | Unit  |
|------------------------|--------|-----------------|-------|
| 順電流<br>Forward Current | DC     | I <sub>F</sub>  | 800   |
|                        | 1ms    | I <sub>FM</sub> | 1,600 |

| Characteristic                 | Symbol          | Test Condition   | Min. | Tvp. | Max. | Unit |
|--------------------------------|-----------------|--|------|------|------|------|
| 順電圧<br>Peak Forward Voltage    | V <sub>F</sub>  | I <sub>F</sub> = 800A, V <sub>GE</sub> = 0V                      | -    | 1.9  | 2.4  | V    |
| 逆回復時間<br>Reverse Recovery Time | t <sub>rr</sub> | I <sub>F</sub> = 800A, V <sub>GE</sub> = -10V<br>di/dt= 1600A/μs | -    | 0.15 | 0.25 | μs   |

□ 熱的特性 : THERMAL CHARACTERISTICS

| Characteristic           | Symbol | Test Condition       | Min. | Tvp. | Max.  | Unit |
|--------------------------|--------|----------------------|------|------|-------|------|
| 熱抵抗<br>Thermal Impedance | IGBT   | R <sub>th(j-c)</sub> | -    | -    | 0.045 | °C/W |
|                          | Diode  |                      | -    | -    | 0.110 |      |

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Fig.7- Collector Current vs. Switching Time (Typical)

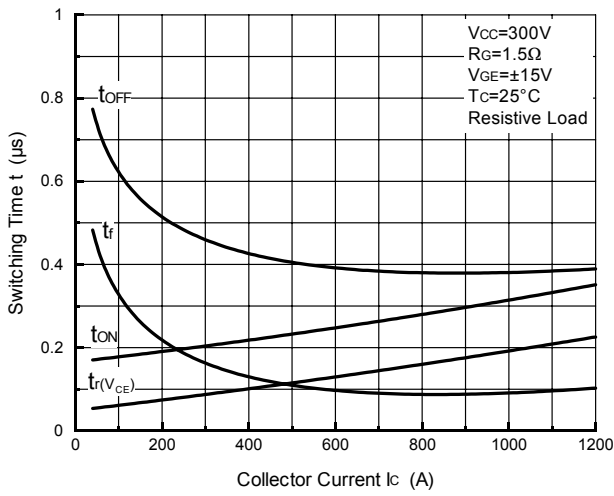


Fig.8- Series Gate Impedance vs. Switching Time (Typical)

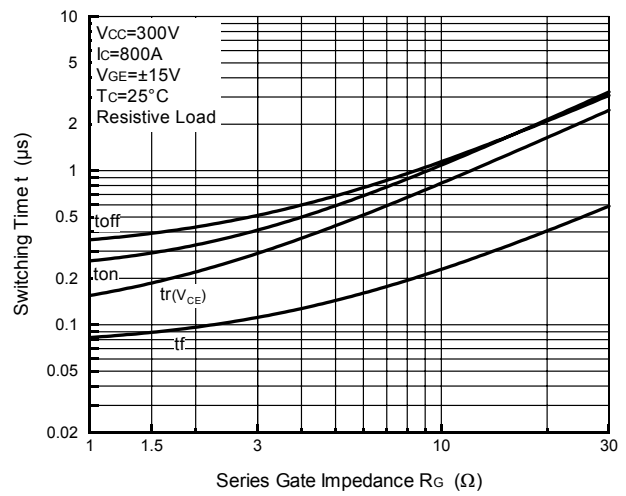


Fig.9- Collector Current vs. Switching Time

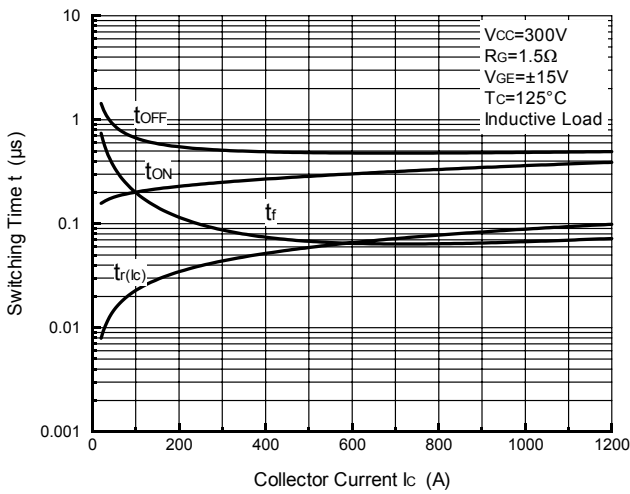


Fig.10- Series Gate Impedance vs. Switching Time

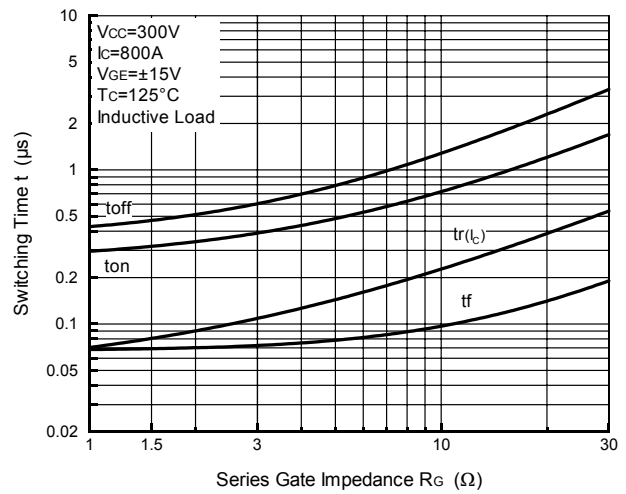


Fig.11- Collector Current vs. Switching Loss

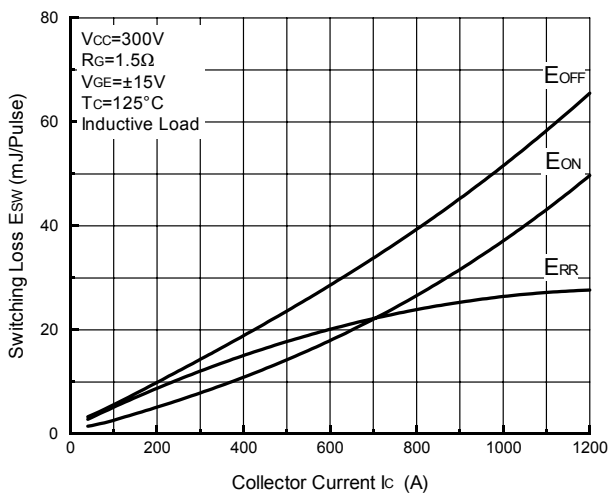
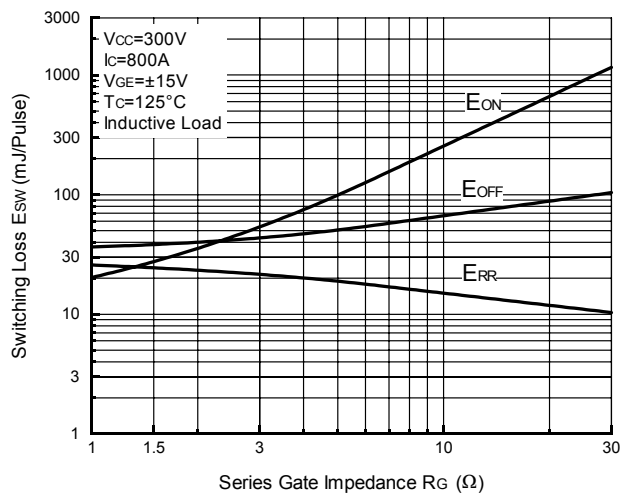


Fig.12- Series Gate Impedance vs. Switching Loss



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