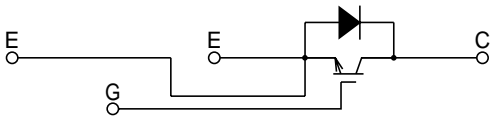
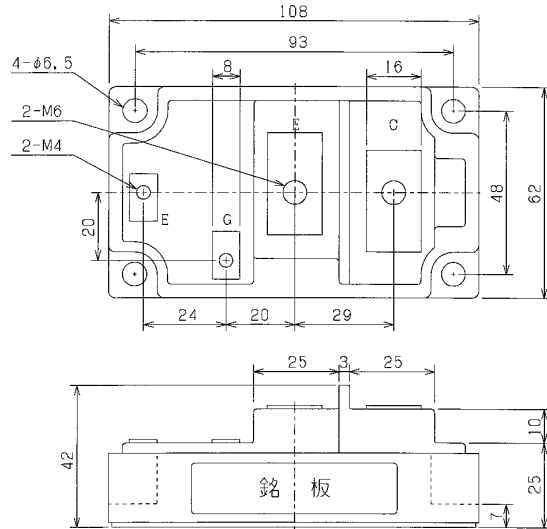


| | | |
|------|-------------|-----------|
| IGBT | 300 A 600 V | PHMB300A6 |
|------|-------------|-----------|

回路図 CIRCUIT



外形寸法図 OUTLINE DRAWING (単位 Dimension : mm)



質量: 500g (標準値)

最大定格 Maximum Ratings (Tc = 25)

| 項目 Item | 記号 Symbol | 定格値 Rated Value | 単位 Unit |
|---|-----------------------------------|--------------------|-------------------|
| コレクタ・エミッタ間電圧 Collector-Emmitter Voltage | V _{CEs} | 600 | V |
| ゲート・エミッタ間電圧 Gate-Emmitter Voltage | V _{GES} | ± 20 | V |
| コレクタ電流 Collector Current | DC | I _c | A |
| | 1ms | I _{cP} | |
| コレクタ損失 Collector Power Dissipation | P _c | 1040 | W |
| 接合温度 Junction Temperature Range | T _j | - 40 ~ + 150 | |
| 保存温度 Storage Temperature Range | T _{stg} | - 40 ~ + 125 | |
| 絶縁耐圧 端子 - ベース間, AC 1 分間) Isolation Voltage(Terminal to Base, AC 1 min.) | V _{iso} | 2500 | V (RMS) |
| 締付トルク Mounting Torque | ベース取付部 Module Base to Heatsink | 3 (30.6) | N・m (kgf・cm) |
| | 端子部 Busbar to Terminal | M4 1.4 (14.3) | |
| | M6 3 (30.6) | | |

電気的特性 Electrical Characteristics (Tc = 25)

| 項目 Characteristic | 記号 Symbol | 条件 Test Conditions | 最小 Min. | 標準 Typ. | 最大 Max. | 単位 Unit |
|---|---------------------------|---|------------|------------|------------|------------|
| コレクタ遮断電流 Collector-Emmitter Cut-Off Current | I _{CEs} | V _{CE} = 600V, V _{GE} = 0V | | | 3.0 | mA |
| ゲート漏れ電流 Gate-Emmitter 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-Emmitter Saturation Voltage | V _{CE(sat)} | I _c = 300A, V _{GE} = 15V | | 2.1 | 2.6 | V |
| ゲートしきい値電圧 Gate-Emmitter Threshold Voltage | V _{GE(th)} | V _{CE} = 5V, I _c = 300mA | 4.0 | | 8.0 | V |
| 入力容量 Input Capacitance | C _{ies} | V _{CE} = 10V, V _{GE} = 0V, f = 1MHz | | 30000 | | pF |
| スイッチング時間 Switching Time | 上昇時間 Rise Time | V _{CC} = 300V R _L = 1.0 R _G = 2.0 V _{GE} = ± 15V | | 0.2 | 0.4 | μs |
| | ターン・オン時間 Turn-On Time | | | 0.4 | 0.75 | |
| | 下降時間 Fall Time | | | 0.2 | 0.35 | |
| | ターン・オフ時間 Turn-Off Time | | | 0.6 | 0.8 | |

フリーホイーリングダイオードの特性 Free Wheeling Diode Ratings & Characteristics (Tc = 25)

| 項目 Item | | 記号 Symbol | 定格値 Rated Value | 単位 Unit |
|------------------------|-----|-----------------|--------------------|------------|
| 順電流 Forward Current | DC | I _F | 300 | A |
| | 1ms | I _{FM} | 600 | |

| 項目 Characteristic | 記号 Symbol | 条件 Test Conditions | 最小 Min. | 標準 Typ. | 最大 Max. | 単位 Unit |
|--------------------------------|-----------------|--|------------|------------|------------|------------|
| 順電圧 Peak Forward Voltage | V _F | I _F = 300A, V _{GE} = 0V | | 1.9 | 2.4 | V |
| 逆回復時間 Reverse Recovery Time | t _{rr} | I _F = 300A, V _{GE} = -10V di/dt = 300A/μs | | 0.15 | 0.25 | μs |

熱的特性 Thermal Characteristics

| 項目 Characteristic | 記号 Symbol | 条件 Test Conditions | 最小 Min. | 標準 Typ. | 最大 Max. | 単位 Unit |
|--------------------------|--------------|--------------------------------|------------|------------|------------|------------|
| 熱抵抗 Thermal Impedance | IGBT | 接合部 - ケース間 Junction to Case | | | 0.12 | /W |
| | Diode | | | | 0.24 | |

定格・特性曲線

Fig. 1 Output Characteristics (Typical)

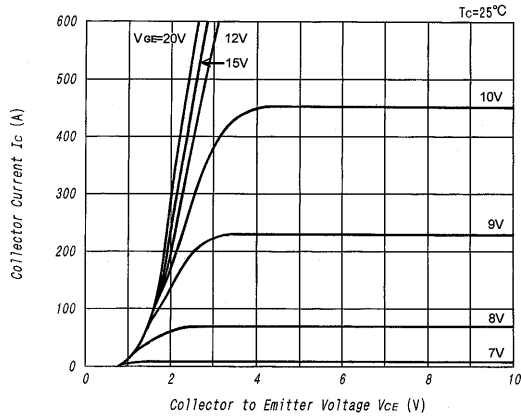


Fig. 2 Collector to Emitter on Voltage vs. Gate to Emitter Voltage (Typical)

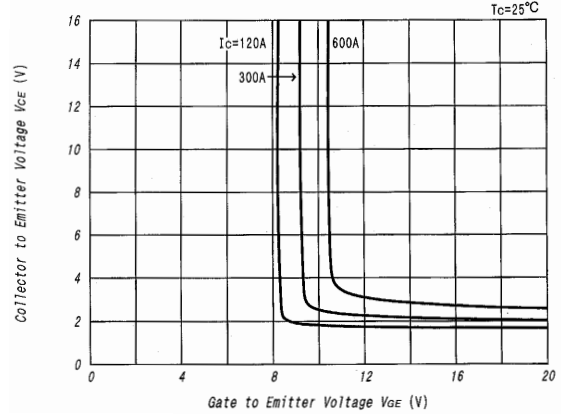


Fig. 3 Collector to Emitter on Voltage vs. Gate to Emitter Voltage (Typical)

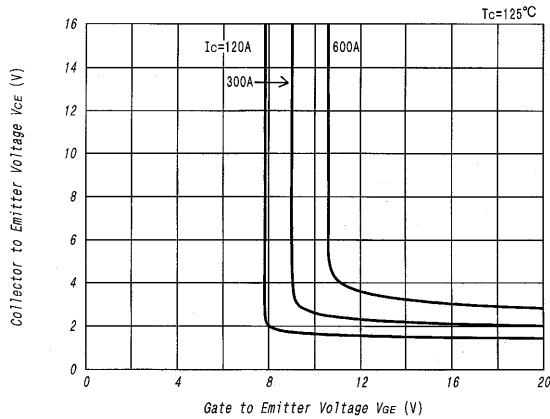


Fig. 4 Charge vs. Collector to Emitter Voltage (Typical)

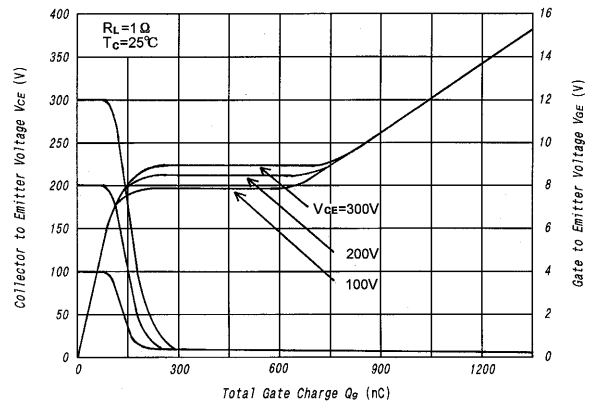


Fig. 5 Capacitance vs. Collector to Emitter Voltage (Typical)

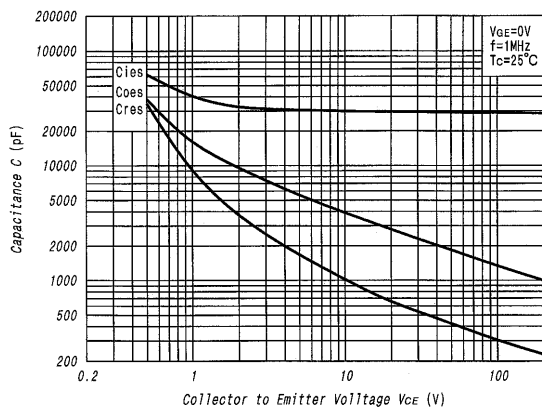


Fig. 6 Collector Current vs. Switching Time (Typical)

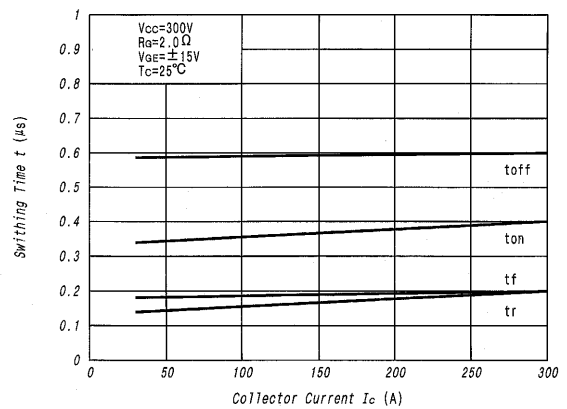


Fig. 7 Series Gate Impedance vs. Switching Time (Typical)

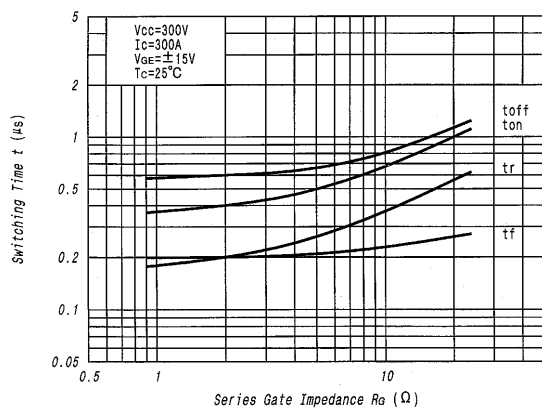


Fig. 8 Forward Characteristics of Free Wheeling Diode (Typical)

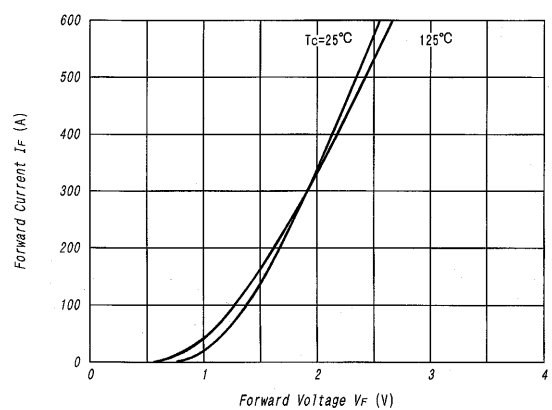


Fig. 9 Reverse Recovery Capacitance (Typical)

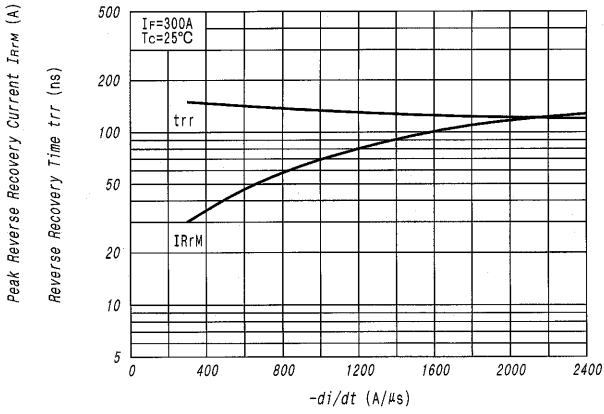


Fig. 10 Reverse Bias Safe Operating Area

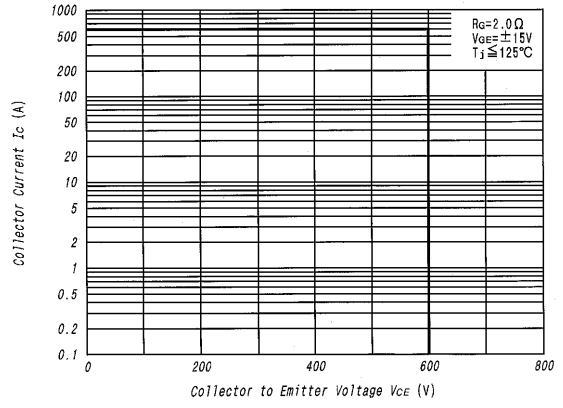


Fig. 11 Transient Thermal Impedance

