

IGBT

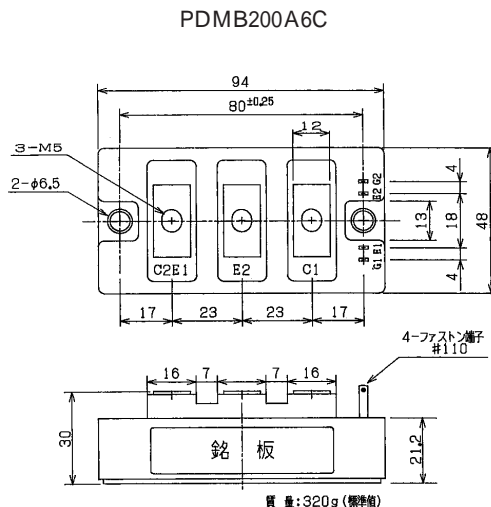
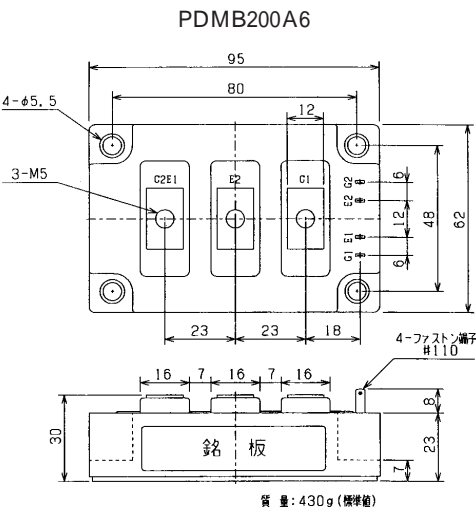
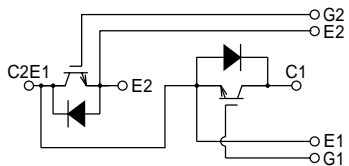
200 A 600 V

PDMB200A6
PDMB200A6C

回路図 CIRCUIT

外形寸法図 OUTLINE DRAWING

(単位 Dimension : mm)



最大定格 Maximum Ratings ($T_c = 25$)

| 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-Emitter Voltage | V_{CES} | 600 | V |
| ゲート・エミッタ間電圧 Gate-Emitter 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 | 780 | 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 | PDMB200A6 2 (20.4) | N·m (kgf·cm) |
| | 端子部 Busbar to Terminal | PDMB200A6C 3 (30.6) 2 (20.4) | |

電気的特性 Electrical Characteristics ($T_c = 25$)

| 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-Emitter Cut-Off Current | I_{CES} | $V_{CE} = 600V, V_{GE} = 0V$ | | | 2.0 | mA |
| ゲート漏れ電流 Gate-Emitter Leakage Current | I_{GES} | $V_{GE} = \pm 20V, V_{CE} = 0V$ | | | 500 | nA |
| コレクタ・エミッタ間飽和電圧 Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_c = 200A, V_{GE} = 15V$ | | 2.1 | 2.6 | V |
| ゲートしきい値電圧 Gate-Emitter Threshold Voltage | $V_{GE(th)}$ | $V_{CE} = 5V, I_c = 200mA$ | 4.0 | | 8.0 | V |
| 入力容量 Input Capacitance | C_{ies} | $V_{CE} = 10V, V_{GE} = 0V, f = 1MHz$ | | 20000 | | pF |
| スイッチング時間 Switching Time | 上昇時間 Rise Time | $V_{CC} = 300V$ $R_L = 3$ $R_G = 3.6$ $V_{GE} = \pm 15V$ | | 0.15 | 0.3 | μs |
| | ターン・オン時間 Turn-On Time | | | 0.25 | 0.4 | |
| | 下降時間 Fall Time | | | 0.2 | 0.35 | |
| | ターン・オフ時間 Turn-Off Time | | | 0.45 | 0.7 | |

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

| 項目 Item | | 記号 Symbol | 定格値 Rated Value | 単位 Unit |
|------------------------|-----|--------------|--------------------|------------|
| 順電流 Forward Current | DC | I_F | 200 | A |
| | 1ms | I_{FM} | 400 | |

| 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 | $I_F = 200A, V_{GE} = 0V$ | | 1.9 | 2.4 | V |
| 逆回復時間 Reverse Recovery Time | t_{rr} | $I_F = 200A, V_{GE} = -10V$ $di/dt = 200A/\mu s$ | | 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 | | | 0.16 | /W |
| | Diode | | | | 0.38 | |

定格・特性曲線

Fig. 1 Output Characteristics (Typical)

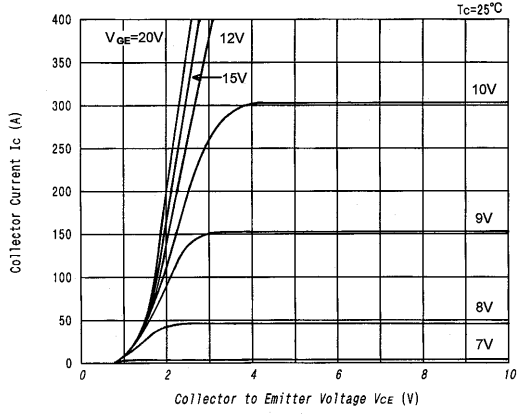


Fig. 2 Collector to Emitter on Voltage vs. Gate to Emitter Voltage (Typical)

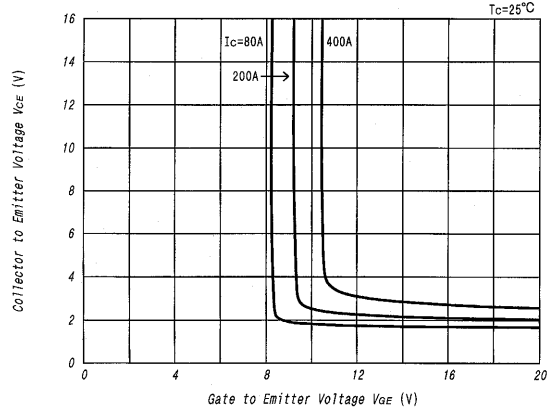


Fig. 3 Collector to Emitter on Voltage vs. Gate to Emitter Voltage (Typical)

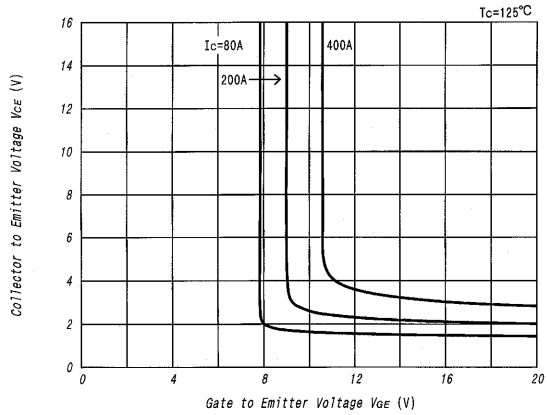


Fig. 4 Gate Charge vs. Collector to Emitter Voltage (Typical)

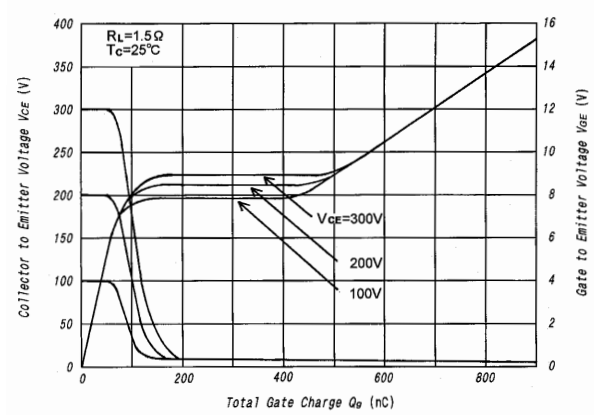


Fig. 5 Capacitance vs. Collector to Emitter Voltage (Typical)

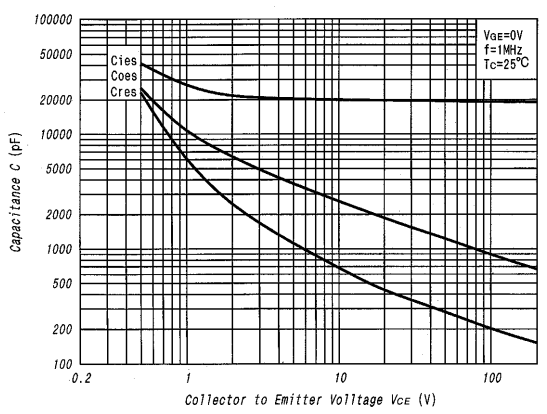


Fig. 6 Collector Current vs. Switching Time (Typical)

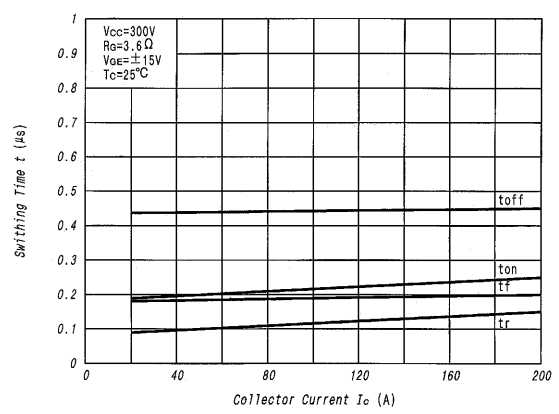


Fig. 7 Series Gate Impedance vs. Switching Time (Typical)

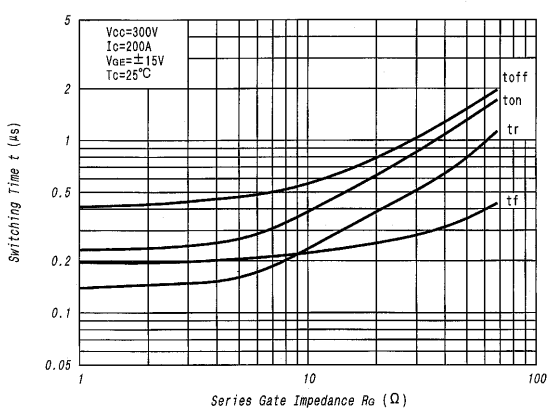


Fig. 8 Forward Characteristics of Free Wheeling Diode (Typical)

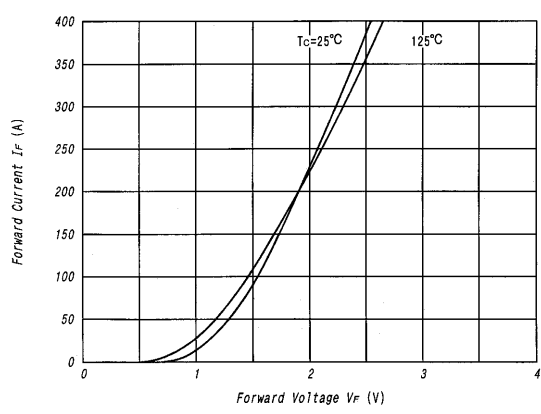


Fig. 9 Reverse Recovery Capacitance (Typical)

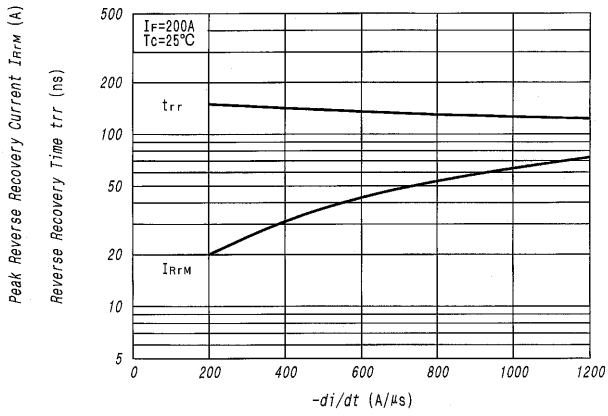


Fig. 10 Reverse Bias Safe Operating Area

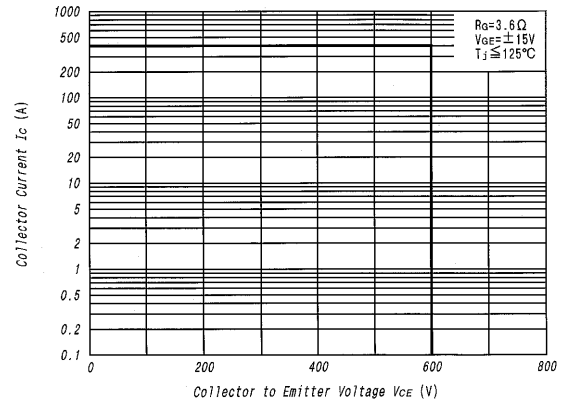


Fig. 11 Transient Thermal Impedance

