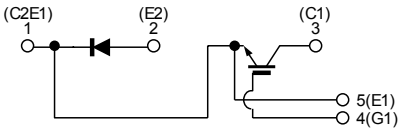
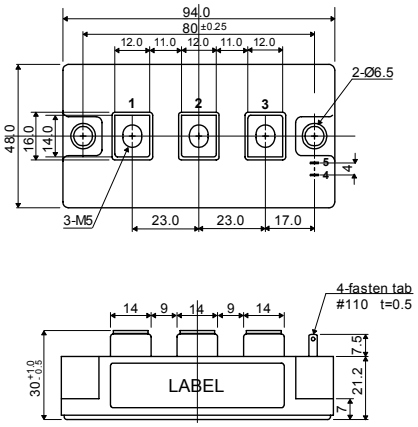
# ＩＧＢＴ Module-Chopper　　２００A, 600V　　ＰＣＨＭＢ２００Ｅ６

□ 回路図 : *CIRCUIT*




□ 外形寸法図 : *OUTLINE DRAWING*




Dimension: [mm]

□ 最大定格 : *MAXIMUM RATINGS* ($T_C$=２５℃)

| Item | | Symbol | Rated Value | Unit |
|---|---|---|---|---|
| コレクタ・エミッタ間電圧<br>Collector-Emitter Voltage | | $V_{CES}$ | ６００ | V |
| ゲート・エミッタ間電圧<br>Gate-Emitter Voltage | | $V_{GES}$ | ±２０ | V |
| コレクタ電流<br>Collector Current | DC | $I_C$ | ２００ | A |
| | 1ms | $I_{CP}$ | ４００ | |
| コレクタ損失<br>Collector Power Dissipation | | $P_C$ | ７８０ | W |
| 接合温度<br>Junction Temperature Range | | $T_j$ | －４０～＋１５０ | ℃ |
| 保存温度<br>Storage Temperature Range | | $T_{stg}$ | －４０～＋１２５ | ℃ |
| 絶縁耐圧(Terminal to Base AC, 1minute)<br>Isolation Voltage | | $V_{ISO}$ | 2,５００ | $V_{(RMS)}$ |
| 締め付けトルク<br>Mounting Torque | Module Base to Heatsink | $F_{tor}$ | 3 (30.6) | N・m<br>(kgf・cm) |
| | Busbar to Main Terminal | | 2 (20.4) | |

□ 電気的特性 : *ELECTRICAL CHARACTERISTICS* ($T_C$=２５℃)

| Characteristic | | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| コレクタ遮断電流<br>Collector-Emitter Cut-Off Current | | $I_{CES}$ | $V_{CE}$= 600V, $V_{GE}$= 0V | － | － | 1.0 | mA |
| ゲート漏れ電流<br>Gate-Emitter 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<br>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<br>Gate-Emitter Threshold Voltage | | $V_{GE(th)}$ | $V_{CE}$= 5V, $I_C$= 200mA | 4.0 | － | 8.0 | V |
| 入力容量<br>Input Capacitance | | $C_{ies}$ | $V_{CE}$= 10V, $V_{GE}$= 0V, f= 1MHz | － | 10,000 | － | pF |
| スイッチング時間<br>Switching Time | 上昇時間 Rise Time | $t_r$ | $V_{CC}$= 300V<br>$R_L$= 1.5Ω<br>$R_G$= 3.6Ω<br>$V_{GE}$= ±15V | － | 0.15 | 0.30 | μs |
| | ターンオン時間 Turn-on Time | $t_{on}$ | | － | 0.25 | 0.40 | |
| | 下降時間 Fall Time | $t_f$ | | － | 0.10 | 0.35 | |
| | ターンオフ時間 Turn-off Time | $t_{off}$ | | － | 0.35 | 0.70 | |

□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℃)

| Item | | Symbol | Rated Value | Unit |
|---|---|---|---|---|
| 順電流<br>Forward Current | DC | $I_F$ | ２００ | A |
| | 1ms | $I_{FM}$ | ４００ | |

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| 順電圧<br>Peak Forward Voltage | $V_F$ | $I_F$= 200A, $V_{GE}$= 0V | － | 1.9 | 2.4 | V |
| 逆回復時間<br>Reverse Recovery Time | $t_{rr}$ | $I_F$= 200A, $V_{GE}$= -10V<br>di/dt= 400A/μs | － | 0.15 | 0.25 | μs |

□ 熱的特性 : *THERMAL CHARACTERISTICS*

| Characteristic | | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| 熱抵抗<br>Thermal Impedance | IGBT | Rth(j-c) | Junction to Case<br>(Tc測定点チップ直下) | － | － | 0.16 | ℃／W |
| | Diode | | | － | － | 0.38 | |



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**Fig.1**- Output Characteristics (Typical)

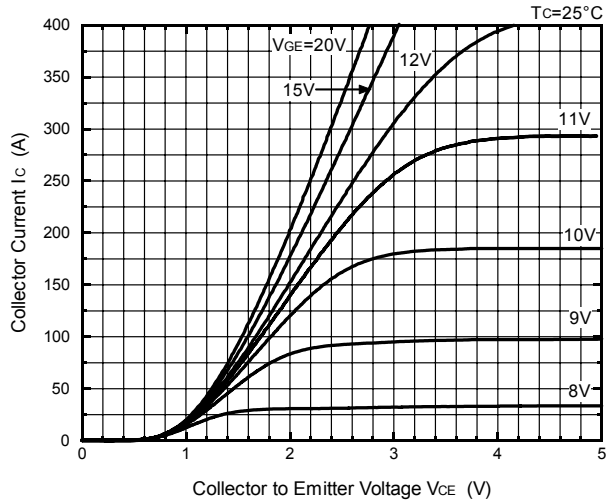



**Fig.2**- Output Characteristics (Typical)

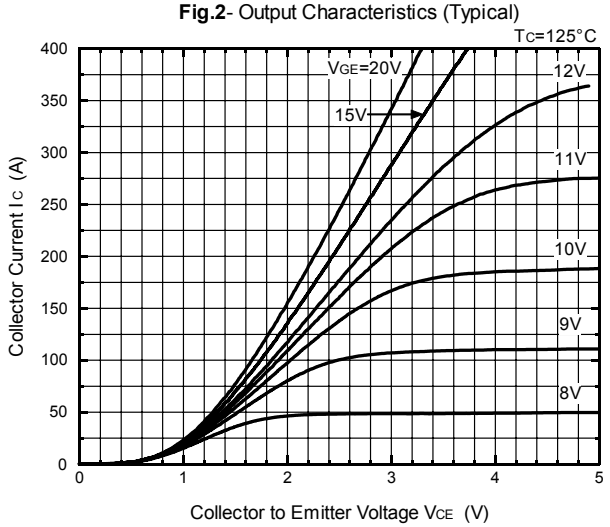



**Fig.3**- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

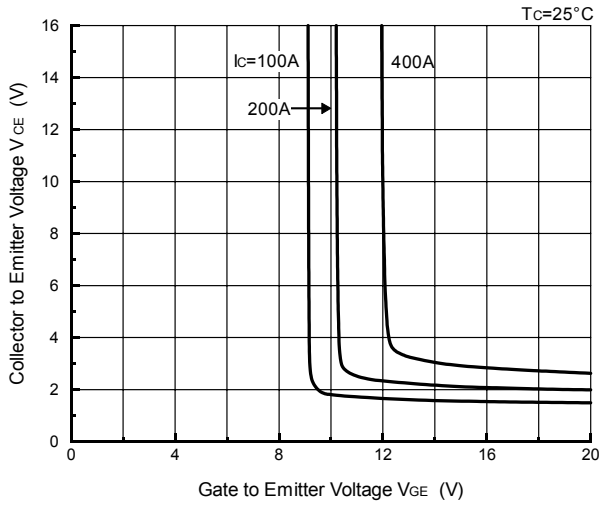



**Fig.4**- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

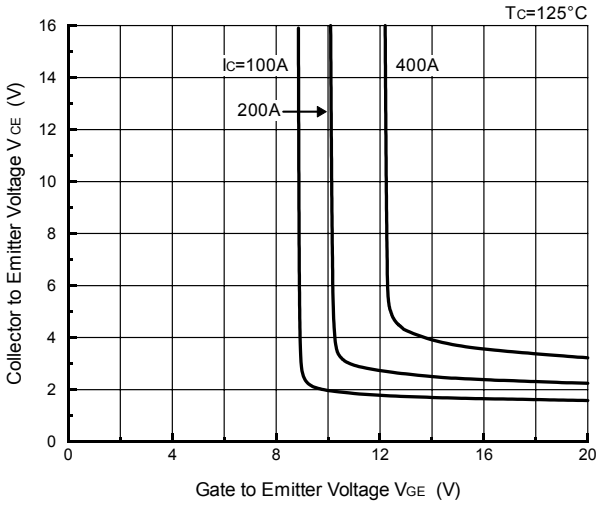



**Fig.5**- Gate Charge vs. Collector to Emitter Voltage (Typical)

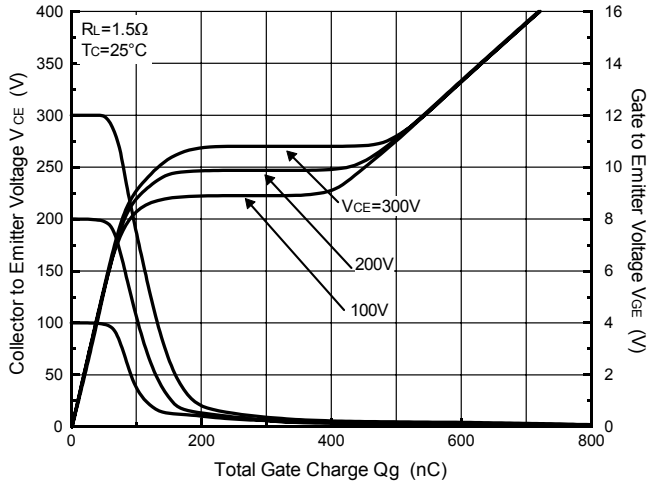



**Fig.6**- Capacitance vs. Collector to Emitter Voltage (Typical)

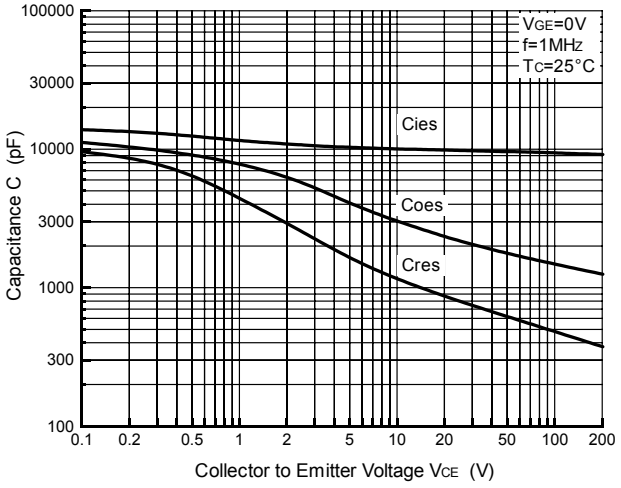


**Fig.7**- Collector Current vs. Switching Time (Typical)

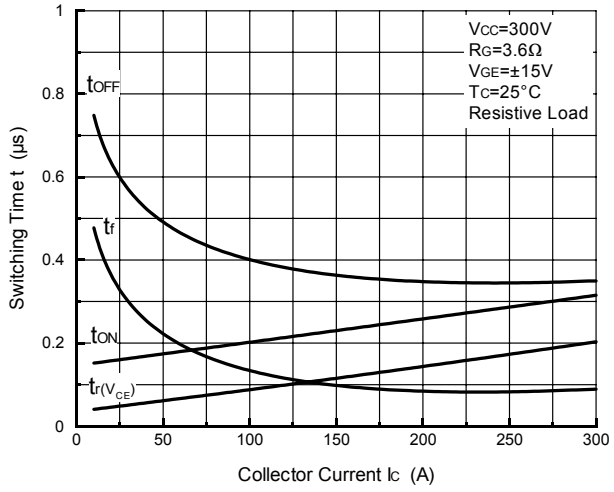



**Fig.8**- Series Gate Impedance vs. Switching Time (Typical)

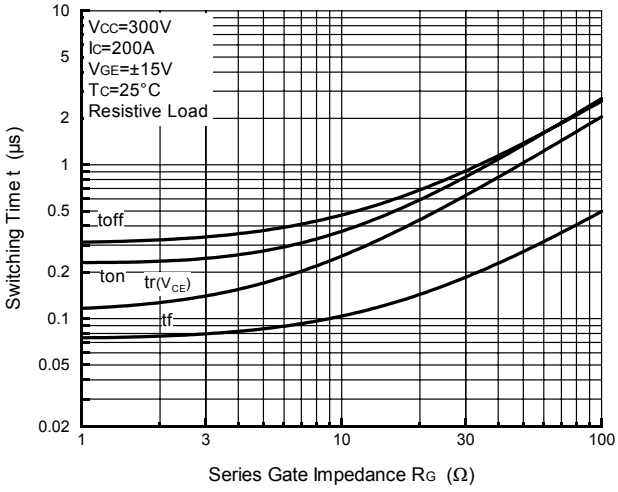



**Fig.9**- Collector Current vs. Switching Time

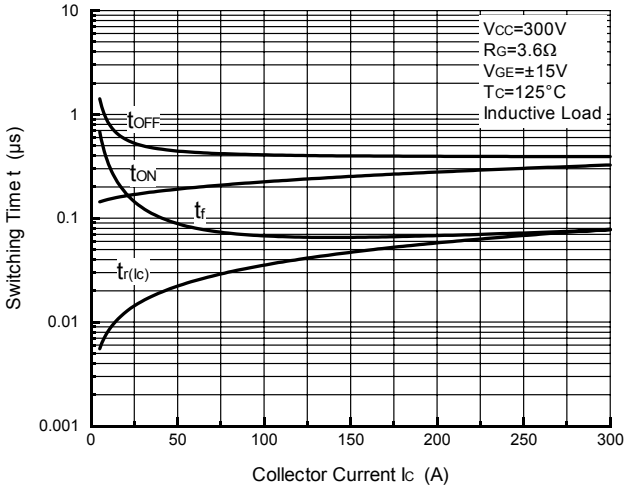



**Fig.10**- Series Gate Impedance vs. Switching Time

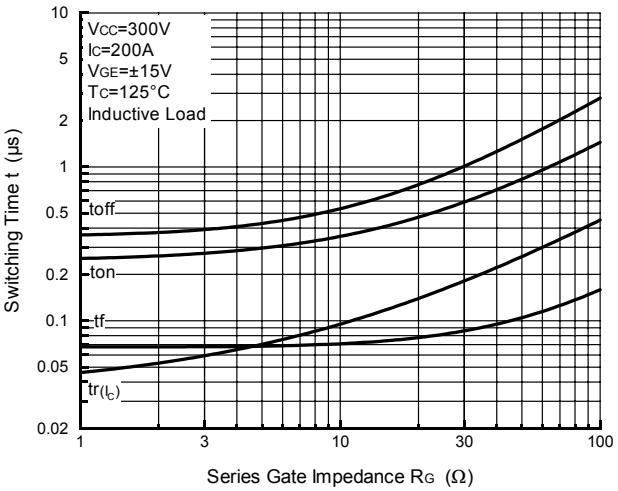



**Fig.11**- Collector Current vs. Switching Loss

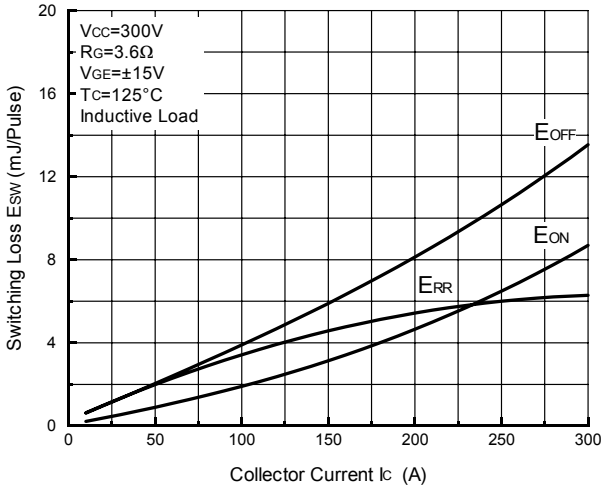



**Fig.12**- Series Gate Impedance vs. Switching Loss

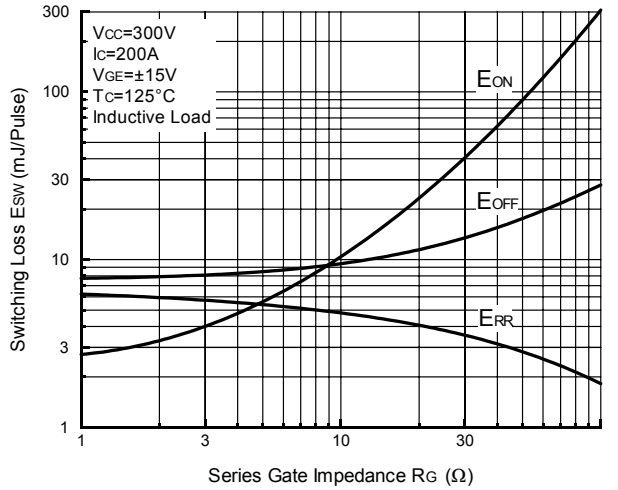


**Fig.13**- Forward Characteristics of Free Wheeling Diode (Typical)

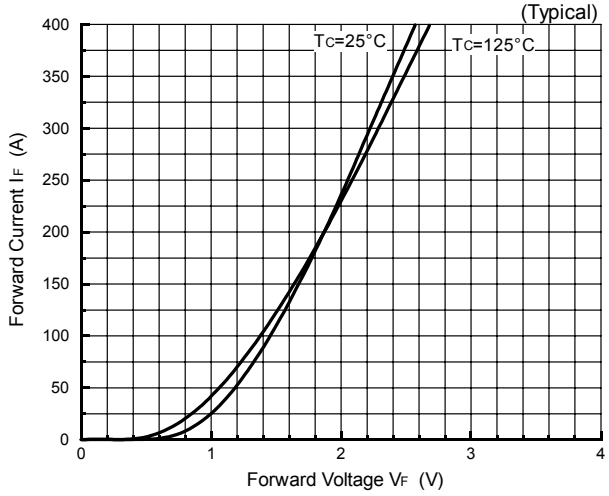



**Fig.14**- Reverse Recovery Characteristics (Typical)

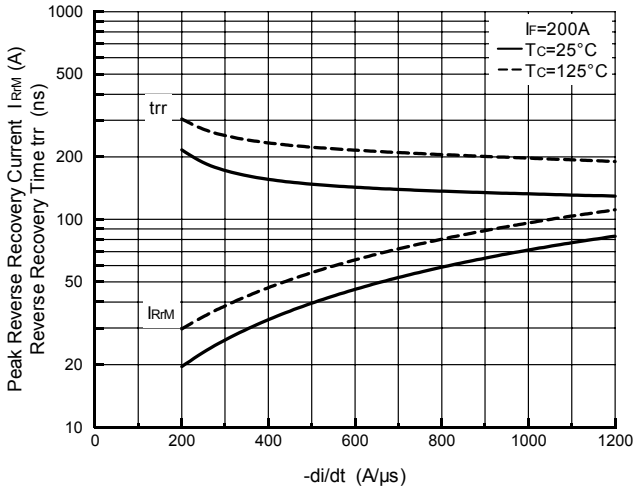



**Fig.15**- Reverse Bias Safe Operating Area

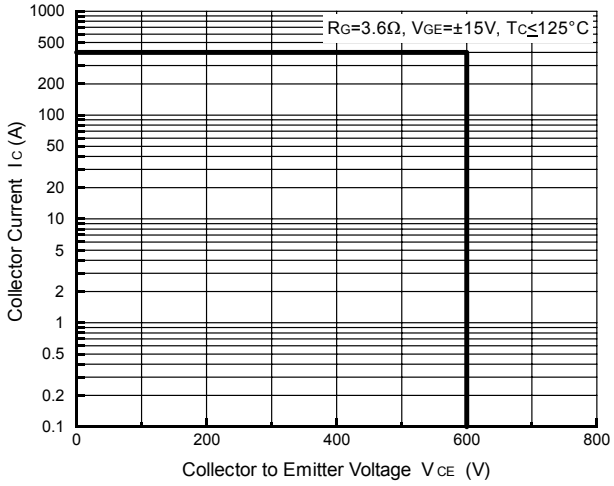



**Fig.16**- Transient Thermal Impedance

