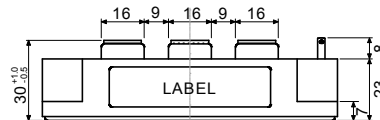
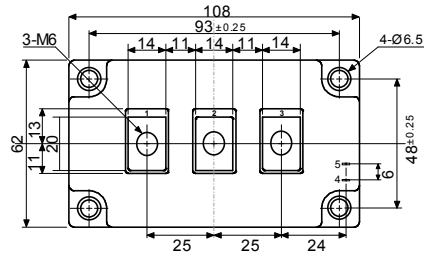
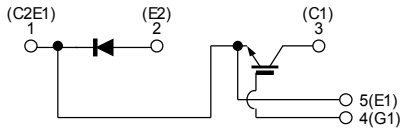


□ 回路図 : **CIRCUIT**

□ 外形寸法図 : **OUTLINE DRAWING**



Dimension: [mm]

□ **最大定格 : MAXIMUM RATINGS** (at $T_c=25^\circ\text{C}$ unless otherwise specified)

| Item | Symbol | Rated Value | 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 | 400 | A |
| | 1ms | 800 | |
| コレクタ損失 Collector Power Dissipation | P_C | 1,470 | W |
| 接合温度 Junction Temperature Range | T_j | $-40 \sim +150$ | $^\circ\text{C}$ |
| 保存温度 Storage Temperature Range | T_{stg} | $-40 \sim +125$ | $^\circ\text{C}$ |
| 絶縁耐圧 (Terminal to Base AC, 1minute) Isolation Voltage | V_{iso} | 2,500 | V (RMS) |
| 締め付けトルク Mounting Torque | Module Base to Heatsink | 3 (30.6) | N·m (kgf·cm) |
| | Busbar to Main Terminal | | |

□ **電気的特性 : ELECTRICAL CHARACTERISTICS** (at $T_j=25^\circ\text{C}$ unless otherwise specified)

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--|-----------------------|--|------|--------|------|---------------|
| コレクタ遮断電流 Collector-Emitter Cut-Off Current | I_{CES} | $V_{CE} = 600\text{V}, V_{GE} = 0\text{V}$ | — | — | 1.0 | mA |
| ゲート漏れ電流 Gate-Emitter Leakage Current | I_{GES} | $V_{GE} = \pm 20\text{V}, V_{CE} = 0\text{V}$ | — | — | 1.0 | μA |
| コレクタ・エミッタ間飽和電圧 Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 400\text{A}, V_{GE} = 15\text{V}$ | — | 2.1 | 2.6 | V |
| ゲートしきい値電圧 Gate-Emitter Threshold Voltage | $V_{GE(th)}$ | $V_{CE} = 5\text{V}, I_C = 400\text{mA}$ | 4.0 | — | 8.0 | V |
| 入力容量 Input Capacitance | C_{ies} | $V_{CE} = 10\text{V}, V_{GE} = 0\text{V}, f = 1\text{MHz}$ | — | 20,000 | — | pF |
| スイッチング時間 Switching Time | 上昇時間 Rise Time | $V_{CC} = 300\text{V}$ $R_L = 0.75\Omega$ $R_G = 3.0\Omega$ $V_{GE} = \pm 15\text{V}$ | — | 0.15 | 0.30 | μs |
| | ターンオン時間 Turn-on Time | | — | 0.25 | 0.40 | |
| | 下降時間 Fall Time | | — | 0.10 | 0.35 | |
| | ターンオフ時間 Turn-off Time | | — | 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** (at $T_c=25^\circ\text{C}$) & **CHARACTERISTICS** (at $T_j=25^\circ\text{C}$)

| Item | Symbol | Rated Value | Unit |
|------------------------|--------|-------------|------|
| 順電流 Forward Current | DC | 400 | A |
| | 1ms | 800 | |

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------------|----------|--|------|------|------|---------------|
| 順電圧 Peak Forward Voltage | V_F | $I_F = 400\text{A}, V_{GE} = 0\text{V}$ | — | 1.9 | 2.4 | V |
| 逆回復時間 Reverse Recovery Time | t_{rr} | $I_F = 400\text{A}, V_{GE} = -10\text{V}$ $di/dt = 800\text{A}/\mu\text{s}$ | — | 0.15 | 0.25 | μs |

□ **熱的特性 : THERMAL CHARACTERISTICS**

| Characteristic | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------|--------|---|------|------|-------|---------------------------|
| 熱抵抗 Thermal Impedance | IGBT | Junction to Case (T_c チップ直下での測定点) | — | — | 0.085 | $^\circ\text{C}/\text{W}$ |
| | Diode | | — | — | 0.20 | |

Fig.1- Output Characteristics (Typical)

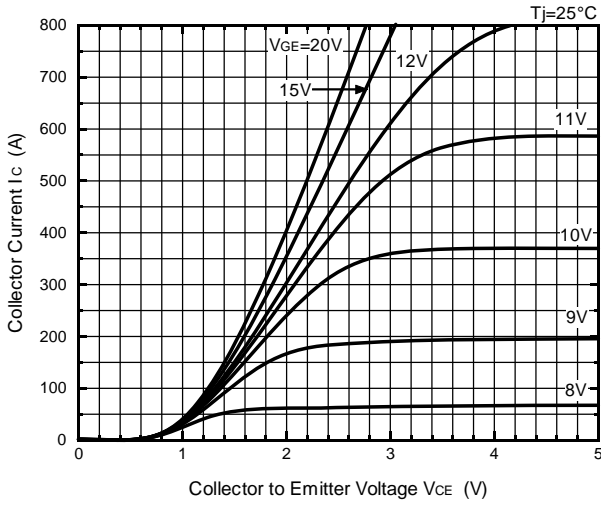


Fig.2- Output Characteristics (Typical)

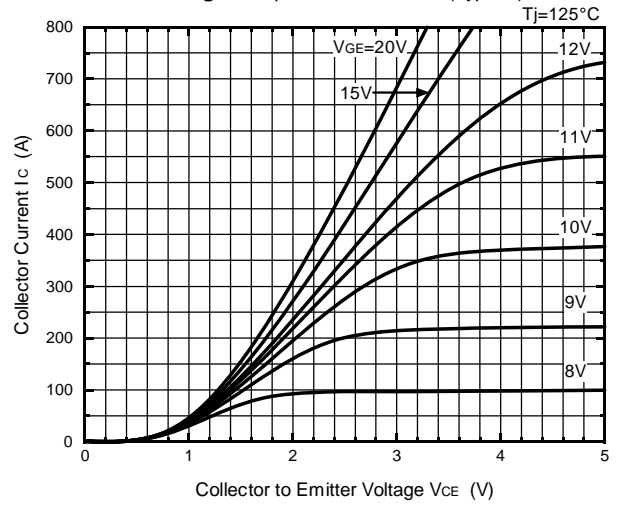


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

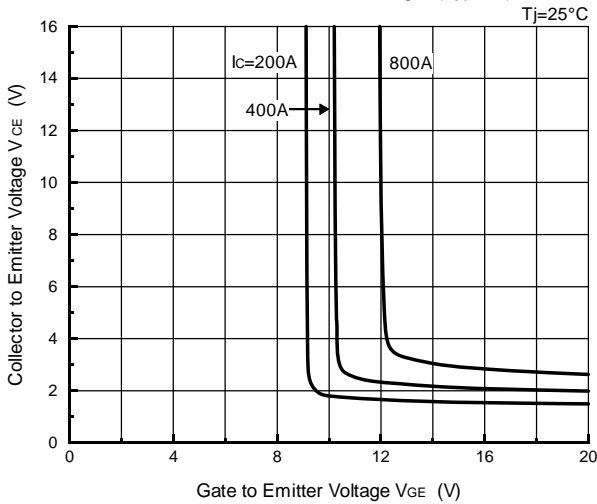


Fig.4- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

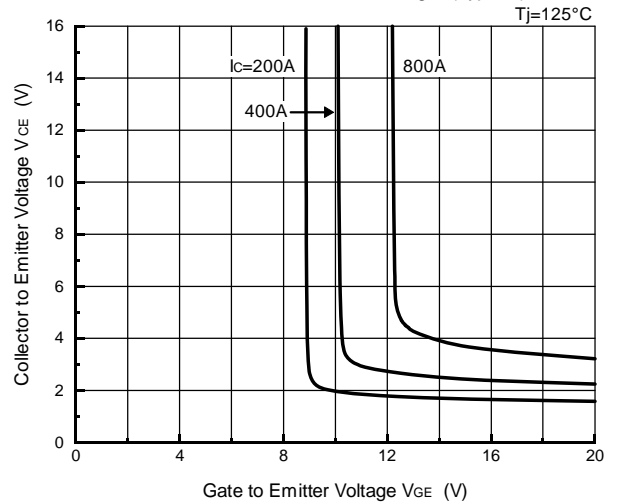


Fig.5- Gate Charge vs. Collector to Emitter Voltage (Typical)

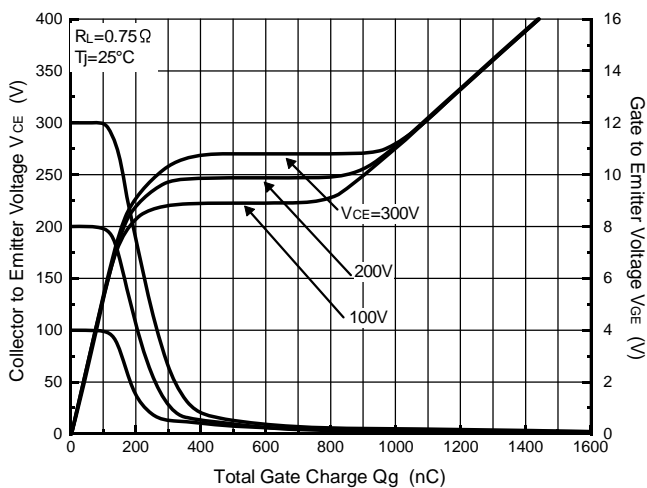


Fig.6- Capacitance vs. Collector to Emitter Voltage (Typical)

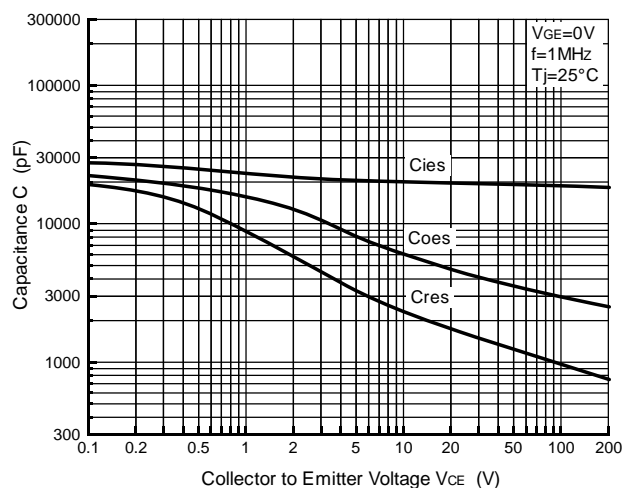


Fig.7- Collector Current vs. Switching Time (Typical)

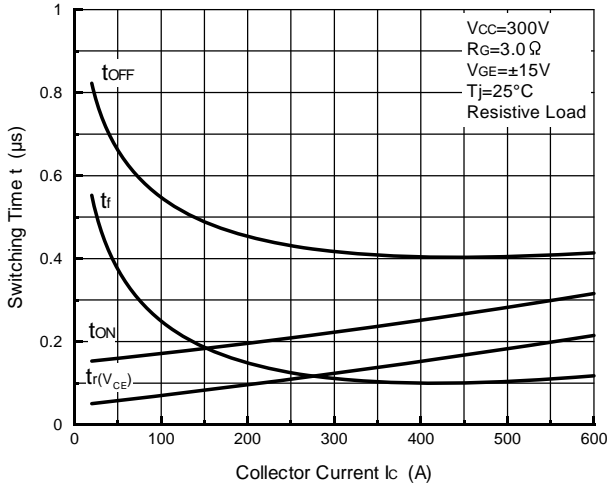


Fig.8- Series Gate Impedance vs. Switching Time (Typical)

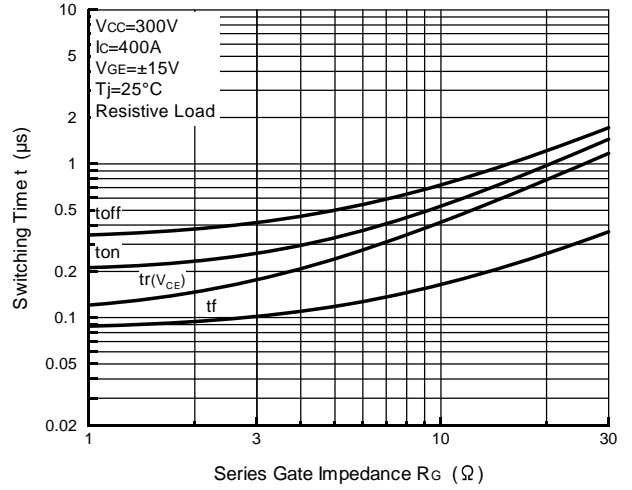


Fig.9- Collector Current vs. Switching Time

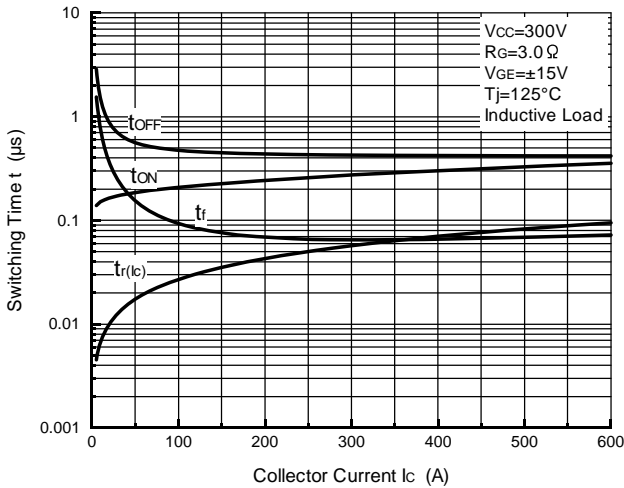


Fig.10- Series Gate Impedance vs. Switching Time

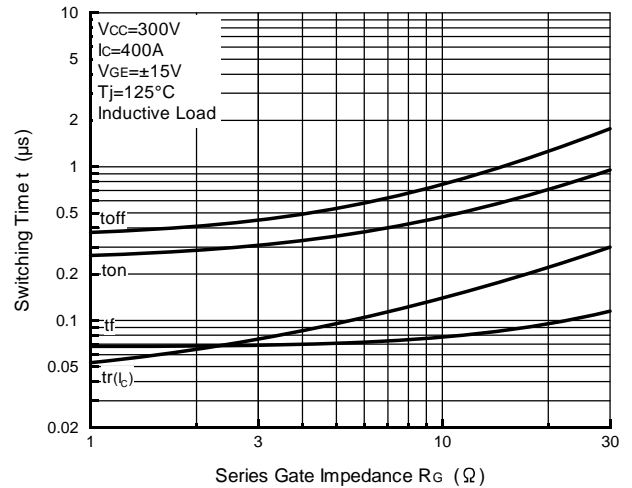


Fig.11- Collector Current vs. Switching Loss

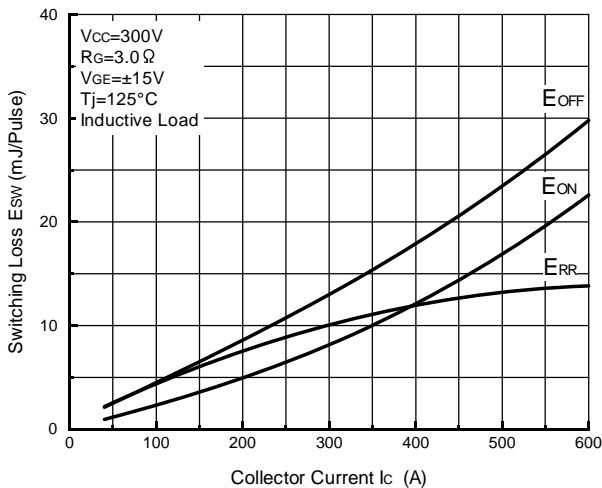


Fig.12- Series Gate Impedance vs. Switching Loss

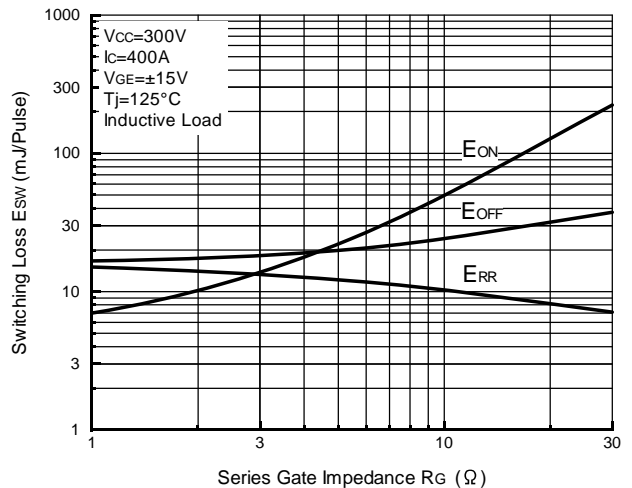


Fig.13- Forward Characteristics of Free Wheeling Diode (Typical)

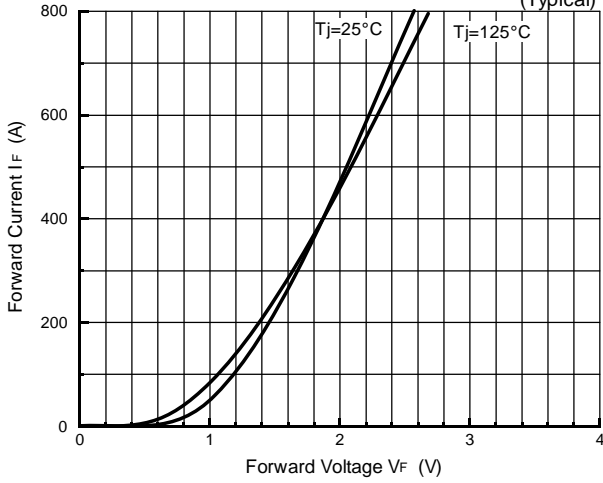


Fig.14- Reverse Recovery Characteristics (Typical)

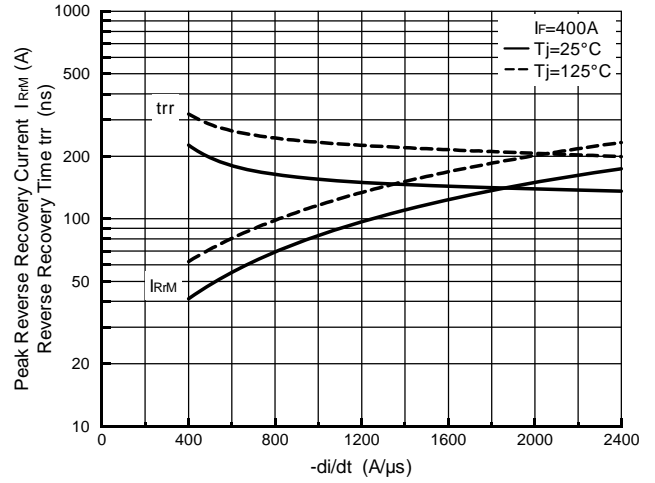


Fig.15- Reverse Bias Safe Operating Area

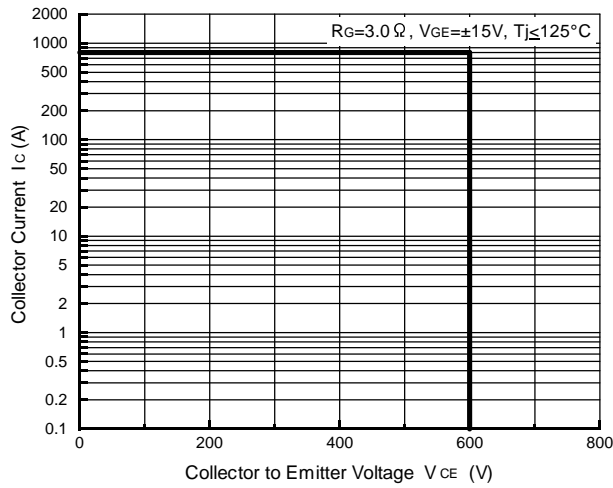


Fig.16- Transient Thermal Impedance

