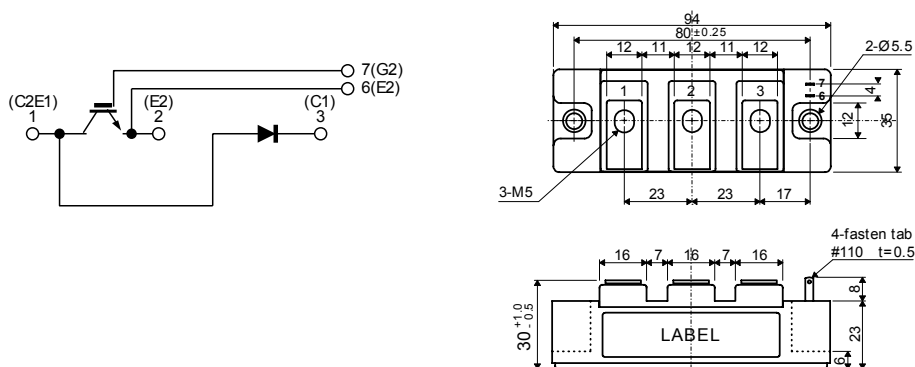


□ 回路図 : *CIRCUIT*□ 外形寸法図 : *OUTLINE DRAWING*

Dimension: [mm]

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

| 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                      |                         | $V_{GES}$ | $\pm 20$        | V                |
| コレクタ電流<br>Collector Current                              | DC                      | $I_C$     | 75              | A                |
|                                                          | 1ms                     | $I_{CP}$  | 150             |                  |
| コレクタ損失<br>Collector Power Dissipation                    |                         | $P_C$     | 320             | W                |
| 接合温度<br>Junction Temperature Range                       |                         | $T_j$     | $-40 \sim +150$ | $^\circ\text{C}$ |
| 保存温度<br>Storage Temperature Range                        |                         | $T_{stg}$ | $-40 \sim +125$ | $^\circ\text{C}$ |
| 絶縁耐圧(Terminal to Base AC, 1 minute)<br>Isolation Voltage |                         | $V_{ISO}$ | 2,500           | V (RMS)          |
| 締め付けトルク<br>Mounting Torque                               | Module Base to Heatsink | $F_{tor}$ | 2               | N·m              |
|                                                          | Busbar to Main Terminal |           | 2 (20.4)        | (kgf·cm)         |

□ 電気的特性 : *ELECTRICAL CHARACTERISTICS* ( $T_c = 25^\circ\text{C}$ )

| Characteristic                                         |                       | Symbol        | Test Condition                                                                                 | Min. | Typ.  | Max. | Unit          |
|--------------------------------------------------------|-----------------------|---------------|------------------------------------------------------------------------------------------------|------|-------|------|---------------|
| コレクタ遮断電流<br>Collector-Emitter Cut-Off Current          |                       | $I_{CES}$     | $V_{CE} = 600\text{V}, V_{GE} = 0\text{V}$                                                     | —    | —     | 1.0  | mA            |
| ゲート漏れ電流<br>Gate-Emitter Leakage Current                |                       | $I_{GES}$     | $V_{GE} = \pm 20\text{V}, V_{CE} = 0\text{V}$                                                  | —    | —     | 1.0  | $\mu\text{A}$ |
| コレクタ・エミッタ間飽和電圧<br>Collector-Emitter Saturation Voltage |                       | $V_{CE(sat)}$ | $I_C = 75\text{A}, V_{GE} = 15\text{V}$                                                        | —    | 2.1   | 2.6  | V             |
| ゲートしきい値電圧<br>Gate-Emitter Threshold Voltage            |                       | $V_{GE(th)}$  | $V_{CE} = 5\text{V}, I_C = 75\text{mA}$                                                        | 4.0  | —     | 8.0  | V             |
| 入力容量<br>Input Capacitance                              |                       | $C_{ies}$     | $V_{CE} = 10\text{V}, V_{GE} = 0\text{V}, f = 1\text{MHz}$                                     | —    | 3,200 | —    | pF            |
| スイッチング時間<br>Switching Time                             | 上昇時間 Rise Time        | $t_r$         | $V_{CC} = 300\text{V}$<br>$R_L = 4.0\Omega$<br>$R_G = 12.0\Omega$<br>$V_{GE} = \pm 15\text{V}$ | —    | 0.15  | 0.30 | $\mu\text{s}$ |
|                                                        | 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* ( $T_c = 25^\circ\text{C}$ )

| Item                   |     | Symbol   | Rated Value | Unit |
|------------------------|-----|----------|-------------|------|
| 順電流<br>Forward Current | DC  | $I_F$    | 75          | A    |
|                        | 1ms | $I_{FM}$ | 150         |      |

| Characteristic                 |  | Symbol   | Test Condition                                                                | Min. | Typ. | Max. | Unit          |
|--------------------------------|--|----------|-------------------------------------------------------------------------------|------|------|------|---------------|
| 順電圧<br>Peak Forward Voltage    |  | $V_F$    | $I_F = 75\text{A}, V_{GE} = 0\text{V}$                                        | —    | 1.9  | 2.4  | V             |
| 逆回復時間<br>Reverse Recovery Time |  | $t_{rr}$ | $I_F = 75\text{A}, V_{GE} = -10\text{V}$<br>$di/dt = 150\text{A}/\mu\text{s}$ | —    | 0.15 | 0.25 | $\mu\text{s}$ |

□ 熱的特性 : *THERMAL CHARACTERISTICS*

| Characteristic           |       | Symbol        | Test Condition                        | Min. | Typ. | Max. | Unit                      |
|--------------------------|-------|---------------|---------------------------------------|------|------|------|---------------------------|
| 熱抵抗<br>Thermal Impedance | IGBT  | $R_{th(j-c)}$ | Junction to Case<br>( $T_c$ 測定点チップ直下) | —    | —    | 0.38 | $^\circ\text{C}/\text{W}$ |
|                          | Diode |               |                                       | —    | —    | 0.80 |                           |

Fig.1- Output Characteristics (Typical)

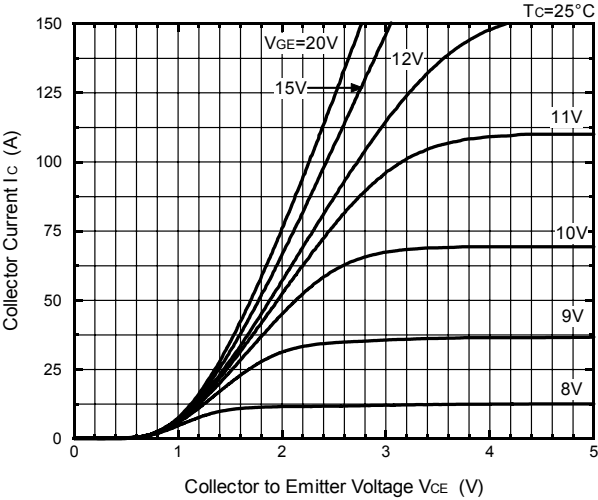


Fig.2- Output Characteristics (Typical)

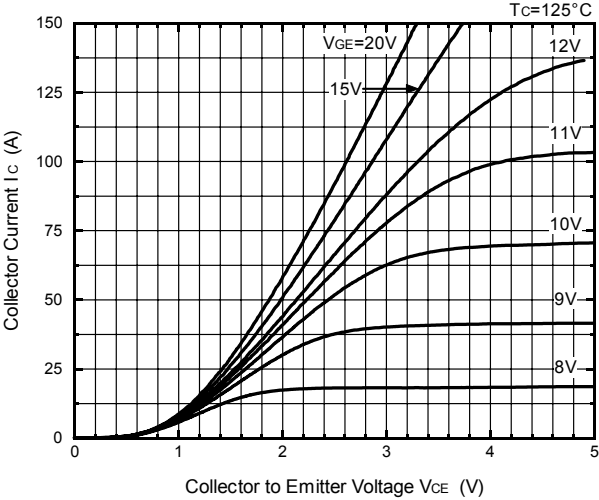


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

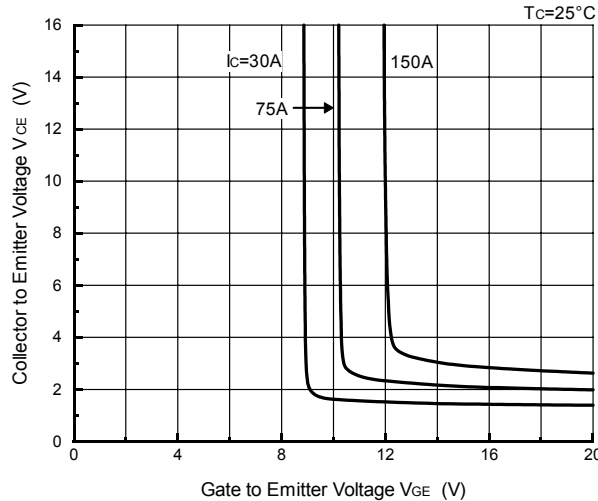


Fig.4- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

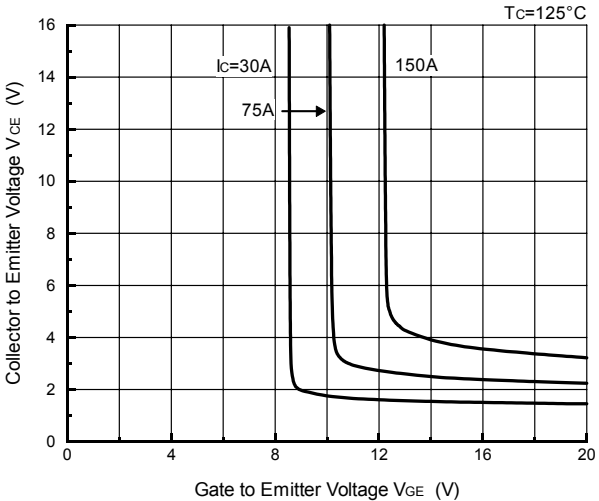


Fig.5- Gate Charge vs. Collector to Emitter Voltage (Typical)

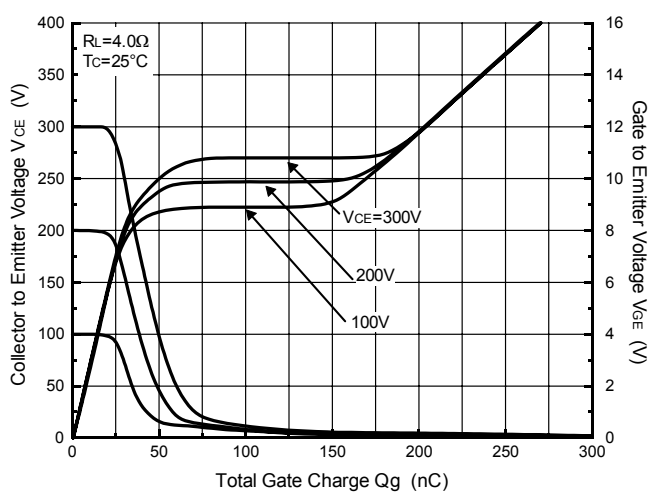


Fig.6- Capacitance vs. Collector to Emitter Voltage (Typical)

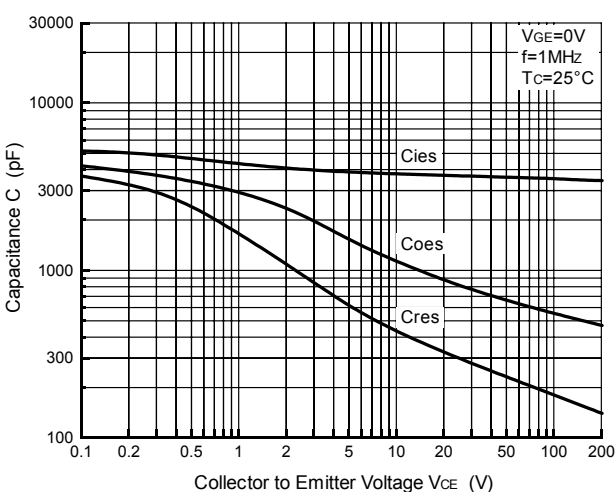


Fig.7- Collector Current vs. Switching Time (Typical)

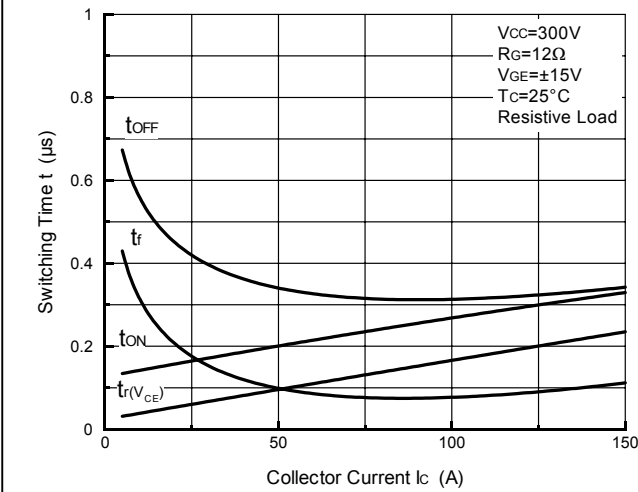


Fig.8- Series Gate Impedance vs. Switching Time (Typical)

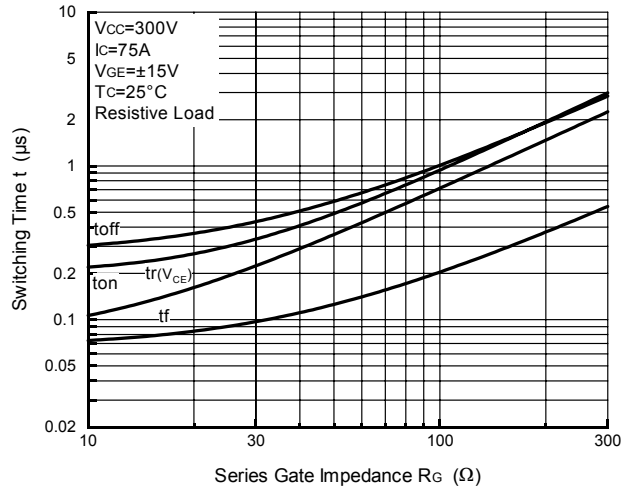


Fig.9- Collector Current vs. Switching Time

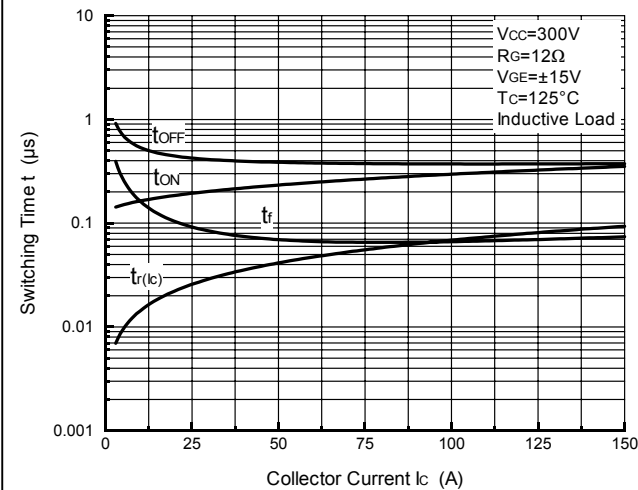


Fig.10- Series Gate Impedance vs. Switching Time

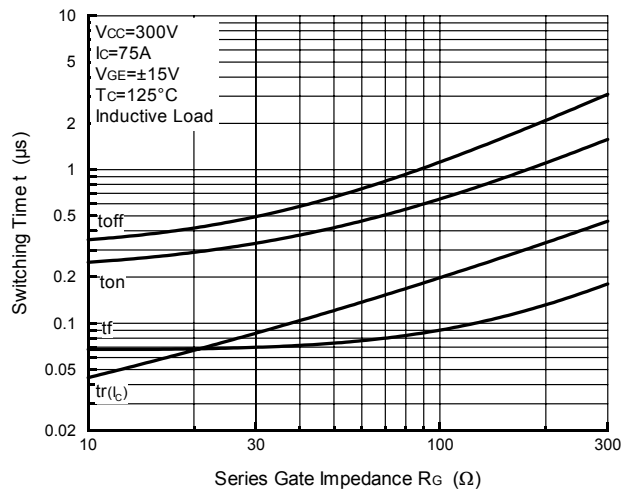


Fig.11- Collector Current vs. Switching Loss

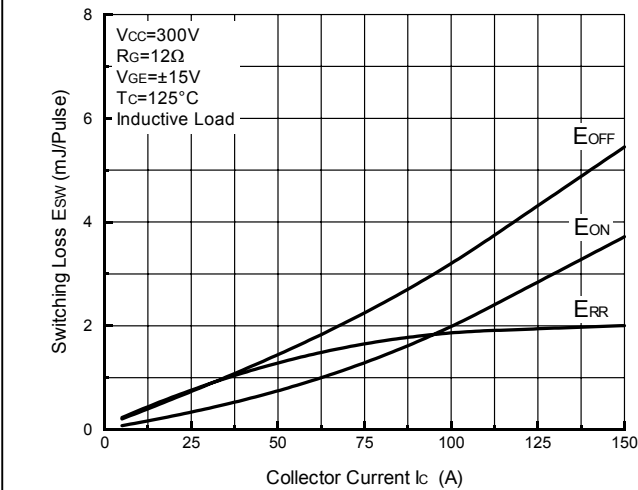


Fig.12- Series Gate Impedance vs. Switching Loss

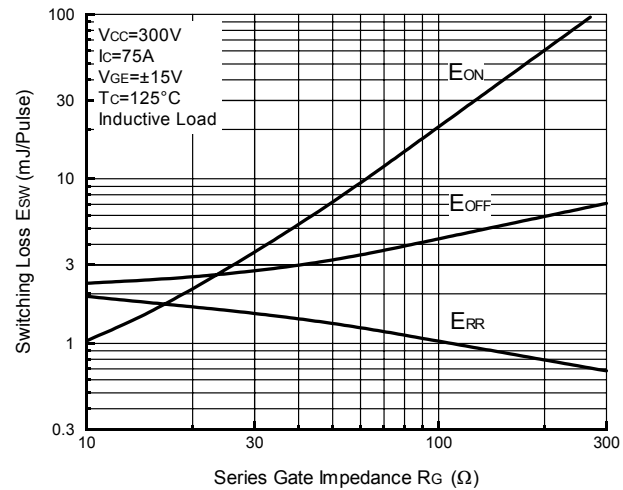


Fig.13- Forward Characteristics of Free Wheeling Diode (Typical)

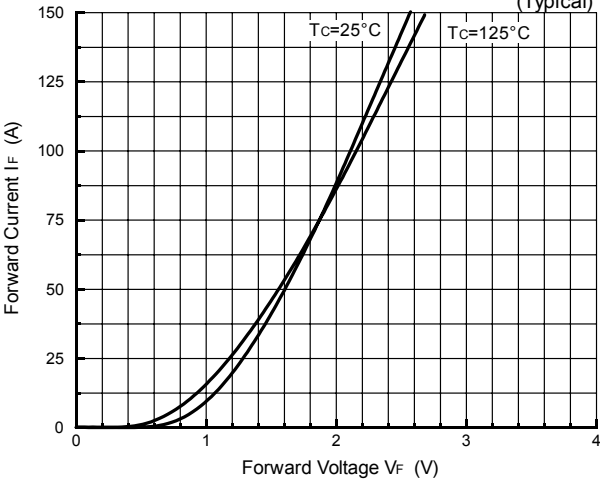


Fig.14- Reverse Recovery Characteristics (Typical)

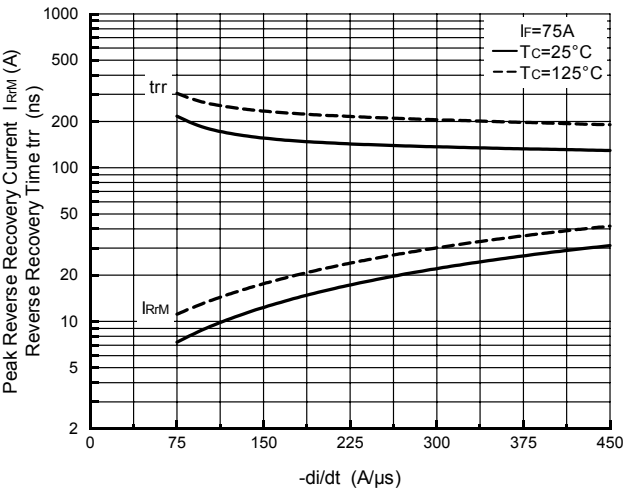


Fig.15- Reverse Bias Safe Operating Area

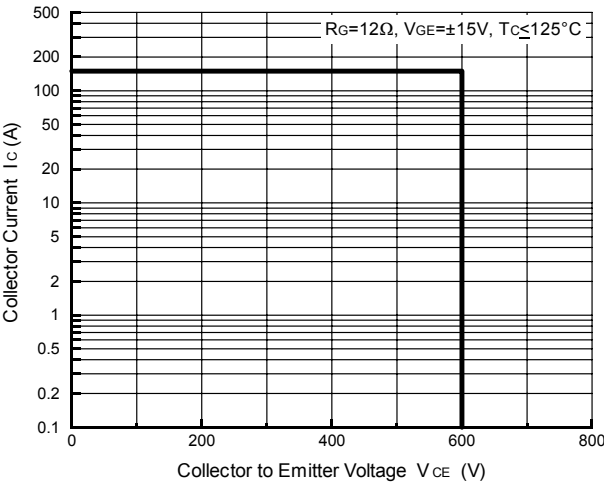


Fig.16- Transient Thermal Impedance

