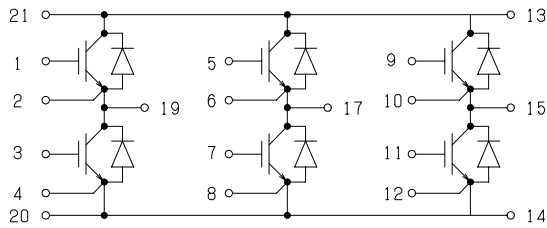
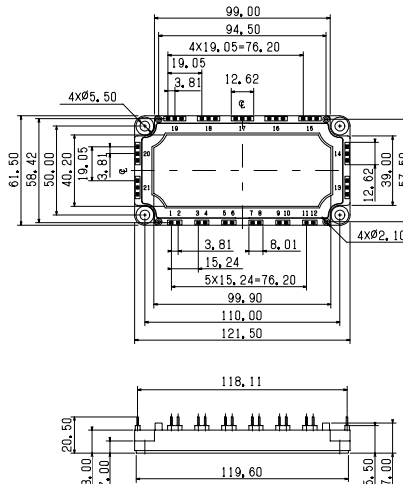


**CIRCUIT**

**OUTLINE DRAWING**


Dimension(mm)

Approximate Weight : 330g

**MAXMUM RATINGS (Tc=25°C)**

| Item                                           |                           | Symbol    | PTMB150A6C  | Unit |
|------------------------------------------------|---------------------------|-----------|-------------|------|
| Collector-Emitter Voltage                      |                           | $V_{CES}$ | 600         | V    |
| Gate - Emitter Voltage                         |                           | $V_{GES}$ | +/- 20      | V    |
| Collector Current                              | DC                        | $I_C$     | 150         | A    |
|                                                | 1 ms                      | $I_{CP}$  | 300         |      |
| Collector Power Dissipation                    |                           | $P_C$     | 415         | W    |
| Junction Temperature Range                     |                           | $T_j$     | -40 to +150 | °C   |
| Storage Temperature Range                      |                           | $T_{stg}$ | -40 to +125 | °C   |
| Isolation Voltage Terminal to Base AC, 1 min.) |                           | $V_{ISO}$ | 2500        | V    |
| Mounting Torque                                | Module Base to Heatsink   | $F_{TOR}$ | 2           | N•m  |
|                                                | Bus Bar to Main Terminals |           |             |      |

**ELECTRICAL CHARACTERISTICS (Tc=25°C)**

| Characteristic                       |               | Symbol        | Test Condition                                                                  | Min. | Typ.  | Max. | Unit |
|--------------------------------------|---------------|---------------|---------------------------------------------------------------------------------|------|-------|------|------|
| Collector-Emitter Cut-Off Current    |               | $I_{CES}$     | $V_{CE}=600V, V_{GE}=0V$                                                        | -    | -     | 2.0  | mA   |
| Gate-Emitter Leakage Current         |               | $I_{GES}$     | $V_{GE}=+/- 20V, V_{CE}=0V$                                                     | -    | -     | 1.0  | μA   |
| Collector-Emitter Saturation Voltage |               | $V_{CE(sat)}$ | $I_C=150A, V_{GE}=15V$                                                          | -    | 2.1   | 2.6  | V    |
| Gate-Emitter Threshold Voltage       |               | $V_{GE(th)}$  | $V_{CE}=5V, I_C=150mA$                                                          | 4.0  | -     | 8.0  | V    |
| Input Capacitance                    |               | $C_{ies}$     | $V_{CE}=10V, V_{GE}=0V, f=1MHz$                                                 | -    | 15000 | -    | pF   |
| Switching Time                       | Rise Time     | $t_r$         | $V_{CC}=300V$<br>$R_L=2\text{ ohm}$<br>$R_G=5.1\text{ ohm}$<br>$V_{GE}=+/- 15V$ | -    | 0.15  | 0.3  | μs   |
|                                      | Turn-on Time  | $t_{on}$      |                                                                                 | -    | 0.25  | 0.4  |      |
|                                      | Fall Time     | $t_f$         |                                                                                 | -    | 0.2   | 0.35 |      |
|                                      | Turn-off Time | $t_{off}$     |                                                                                 | -    | 0.45  | 0.7  |      |

**FREE WHEELING DIODES RATINGS & CHARACTERISTICS (Tc=25°C)**

| Item            |      | Symbol   | Rated Value | Unit |
|-----------------|------|----------|-------------|------|
| Forward Current | DC   | $I_F$    | 150         | A    |
|                 | 1 ms | $I_{FM}$ | 300         |      |

| Characteristic        | Symbol   | Test Condition                            | Min. | Typ. | Max. | Unit |
|-----------------------|----------|-------------------------------------------|------|------|------|------|
| Peak Forward Voltage  | $V_F$    | $I_F=150A, V_{GE}=0V$                     | -    | 1.9  | 2.4  | V    |
| Reverse Recovery Time | $t_{rr}$ | $I_F=150A, V_{GE}=-10V, di/dt=150A/\mu s$ | -    | 0.15 | 0.25 | μs   |

**THERMAL CHARACTERISTICS**

| Characteristic    |       | Symbol         | Test Condition   | Min. | Typ. | Max. | Unit |
|-------------------|-------|----------------|------------------|------|------|------|------|
| Thermal Impedance | IGBT  | $R_{th(\phi)}$ | Junction to Case | -    | -    | 0.22 | °C/W |
|                   | DIODE |                |                  | -    | -    | 0.45 |      |

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Fig.1- Output Characteristics (Typical)

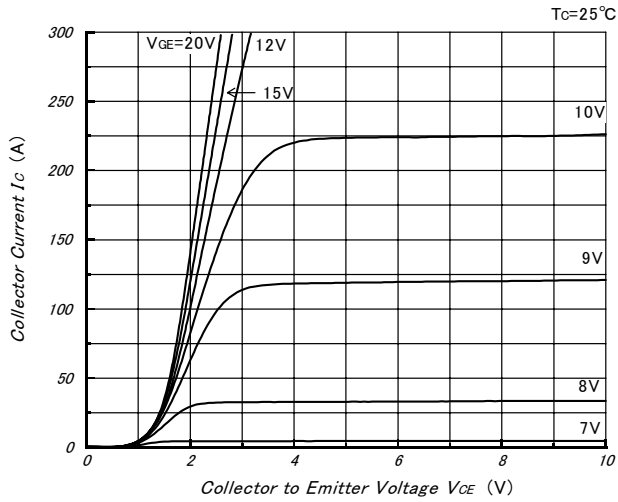


Fig.2- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

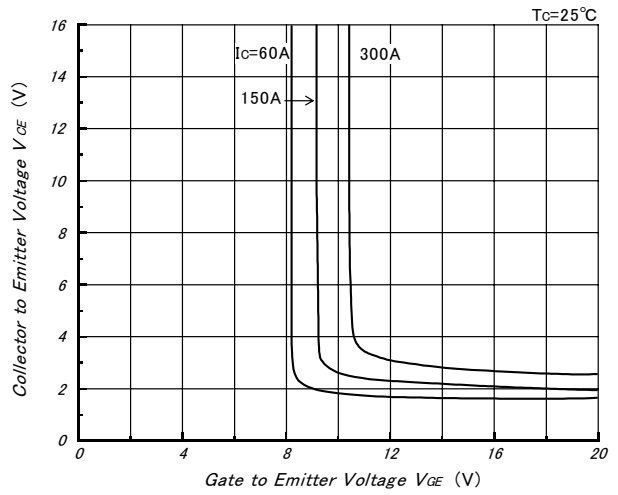


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

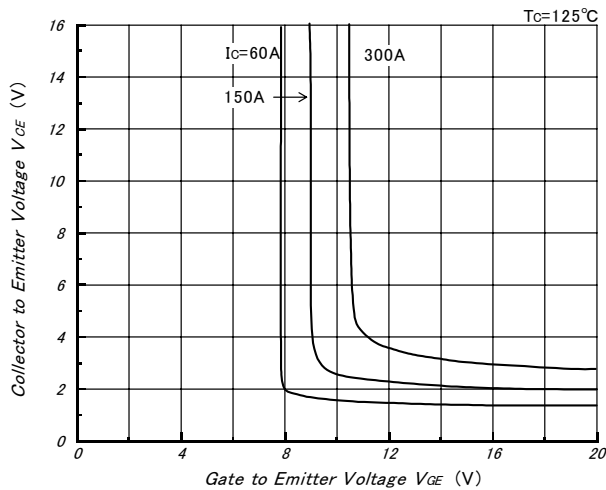


Fig.4- Gate Charge vs. Collector to Emitter Voltage (Typical)

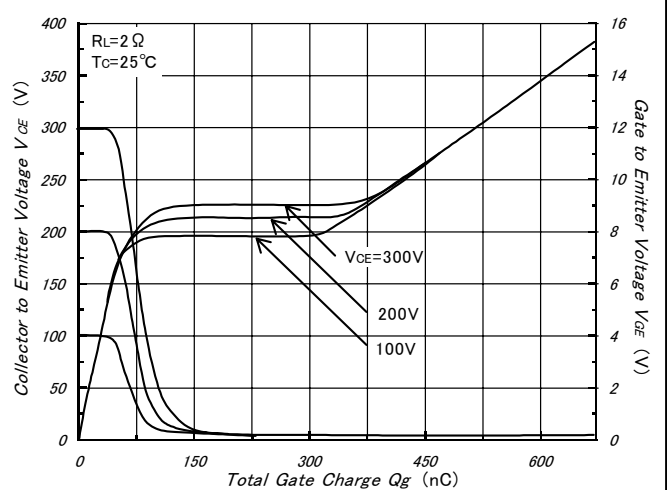


Fig.5- Capacitance vs. Collector to Emitter Voltage (Typical)

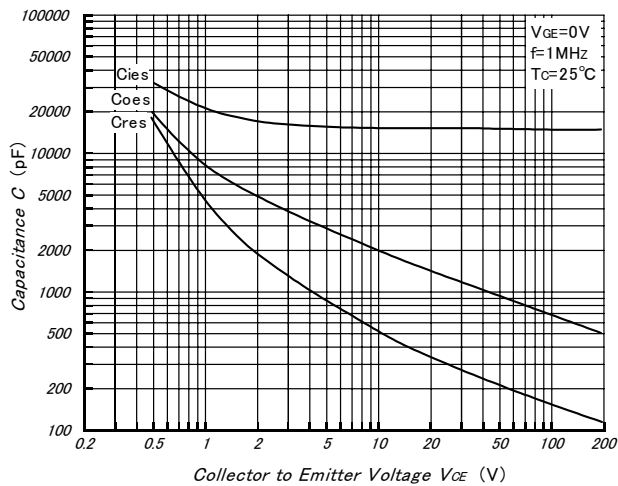
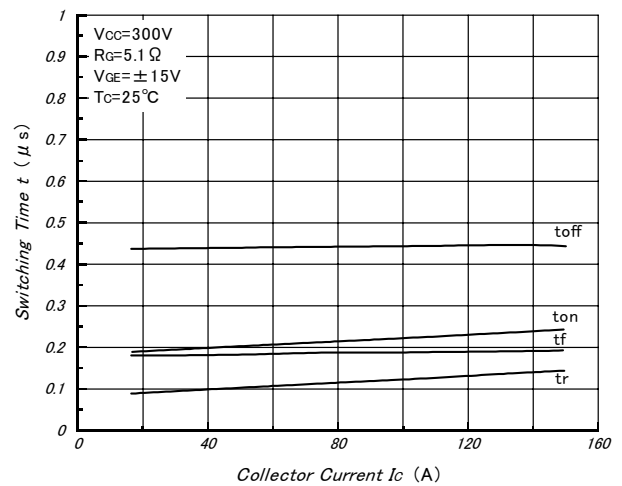


Fig.6- Collector Current vs. Switching Time (Typical)



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

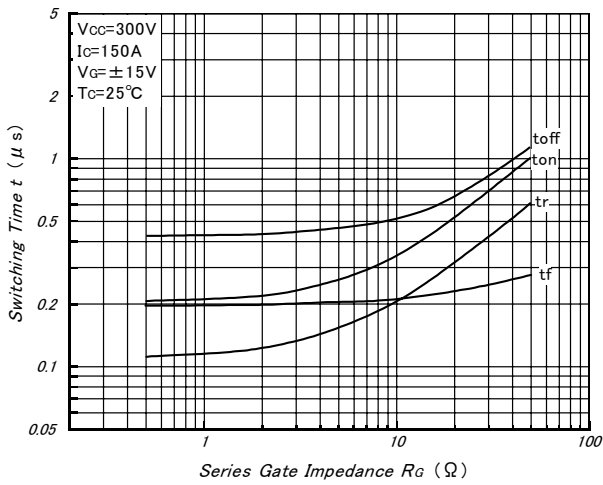


Fig.8- Forward Characteristics of Free Wheeling Diode (Typical)

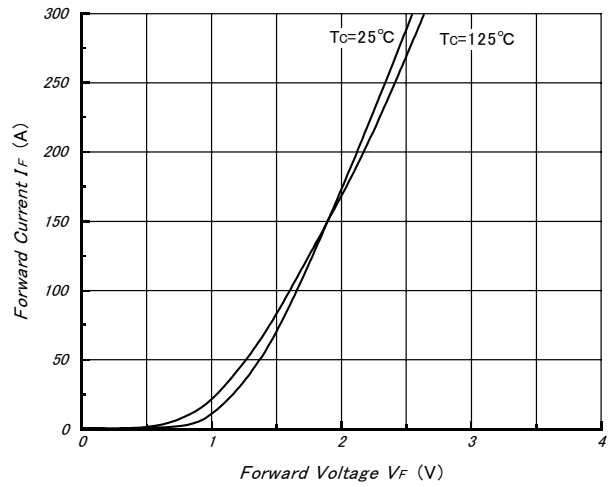


Fig.9- Reverse Recovery Characteristics (Typical)

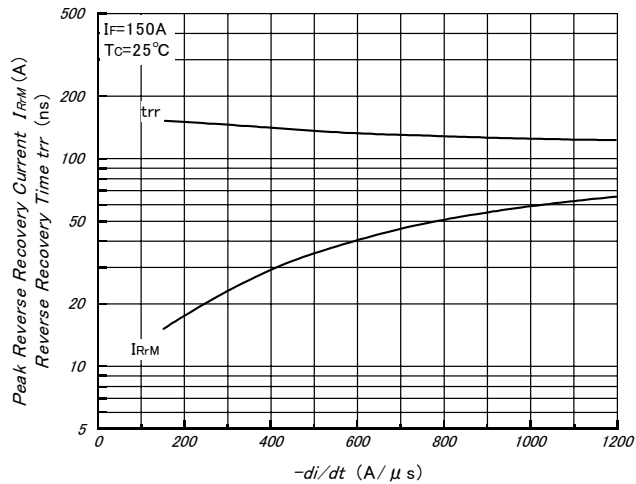


Fig.10- Reverse Bias Safe Operating Area (Typical)

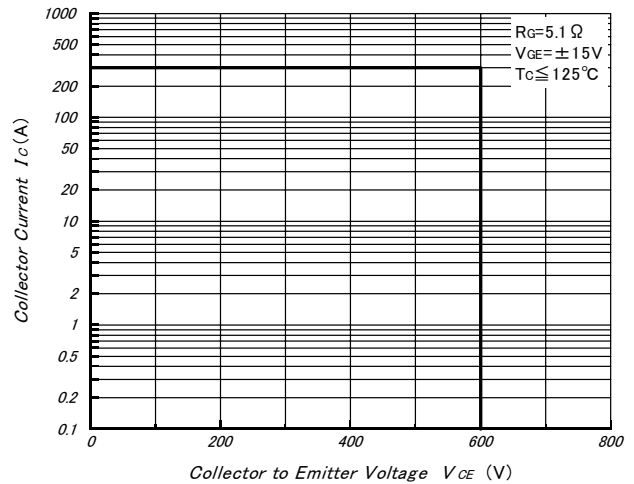


Fig.11- Transient Thermal Impedance

