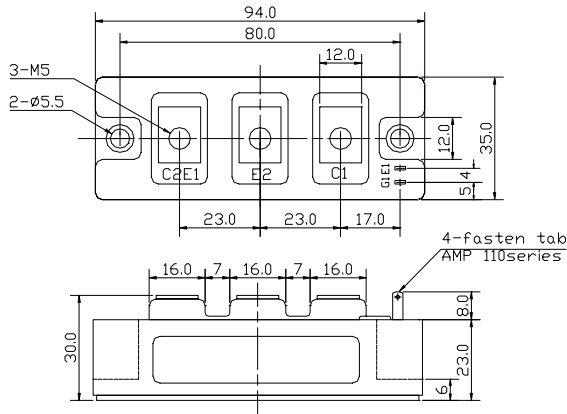
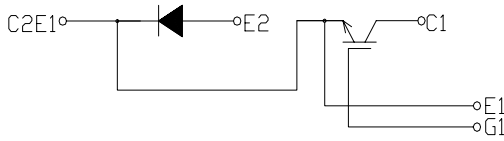


CIRCUIT

OUTLINE DRAWING



2-fasten-tab No 110

Dimension(mm)

MAXIMUM RATINGS (Tc=25°C)

Approximate Weight : 220g

| Item   | Symbol                    | PCHMB100B12      | Unit |
|--|---------------------------|------------------|------|
| Collector-Emitter Voltage                      | V <sub>CES</sub>          | 1200             | V    |
| Gate - Emitter Voltage                         | V <sub>GES</sub>          | +/- 20           | V    |
| Collector Current                              | DC                        | I <sub>C</sub>   | 100  |
|  | 1 ms                      | I <sub>CP</sub>  | 200  |
| Collector Power Dissipation                    | P <sub>C</sub>            | 500              | W    |
| Junction Temperature Range                     | T <sub>j</sub>            | -40 to +150      | °C   |
| Storage Temperature Range                      | T <sub>stg</sub>          | -40 to +125      | °C   |
| Isolation Voltage Terminal to Base AC, 1 min.) | V <sub>ISO</sub>          | 2500             | V    |
| Mounting Torque                                | Module Base to Heatsink   | F <sub>TOR</sub> | 3    |
|  | Bus Bar to Main Terminals |                  | 2    |

ELECTRICAL CHARACTERISTICS (Tc=25°C)

| Characteristic                       | Symbol               | Test Condition                                    | Min. | Typ. | Max. | Unit |
|--------------------------------------|----------------------|---|------|------|------|------|
| Collector-Emitter Cut-Off Current    | I <sub>CES</sub>     | V <sub>CE</sub> =1200V, V <sub>GE</sub> =0V       | -    | -    | 2.0  | mA   |
| Gate-Emitter Leakage Current         | I <sub>GES</sub>     | V <sub>GE</sub> =+/- 20V, V <sub>CE</sub> =0V     | -    | -    | 1.0  | μA   |
| Collector-Emitter Saturation Voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =100A, V <sub>GE</sub> =15V        | -    | 1.9  | 2.4  | V    |
| Gate-Emitter Threshold Voltage       | V <sub>GE(th)</sub>  | V <sub>CE</sub> =5V, I <sub>C</sub> =100mA        | 4.0  | -    | 8.0  | V    |
| Input Capacitance                    | C <sub>ies</sub>     | V <sub>CE</sub> =10V, V <sub>GE</sub> =0V, f=1MHz | -    | 8300 | -    | pF   |
| Switching Time                       | Rise Time            | t <sub>r</sub>                                    | -    | 0.25 | 0.45 | μs   |
|                                      | Turn-on Time         | t <sub>on</sub>                                   | -    | 0.40 | 0.70 |      |
|                                      | Fall Time            | t <sub>f</sub>                                    | -    | 0.25 | 0.35 |      |
|                                      | Turn-off Time        | t <sub>off</sub>                                  | -    | 0.80 | 1.10 |      |

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

| Item            | Symbol | Rated Value     | Unit |
|-----------------|--------|-----------------|------|
| Forward Current | DC     | I <sub>F</sub>  | 100  |
|                 | 1 ms   | I <sub>FM</sub> | 200  |

| Characteristic        | Symbol          | Test Condition   | Min. | Typ. | Max. | Unit |
|-----------------------|-----------------|--|------|------|------|------|
| Peak Forward Voltage  | V <sub>F</sub>  | I <sub>F</sub> =100A, V <sub>GE</sub> =0V                  | -    | 1.9  | 2.4  | V    |
| Reverse Recovery Time | t <sub>rr</sub> | I <sub>F</sub> =100A, V <sub>CE</sub> =-10V, di/dt=200A/μs | -    | 0.2  | 0.3  | μs   |

THERMAL CHARACTERISTICS

| Characteristic    | Symbol | Test Condition       | Min. | Typ. | Max. | Unit |
|-------------------|--------|----------------------|------|------|------|------|
| Thermal Impedance | IGBT   | R <sub>th(j-c)</sub> | -    | -    | 0.24 | °C/W |
|                   | DIODE  |                      | -    | -    | 0.42 |      |

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Fig.1- Output Characteristics (Typical)

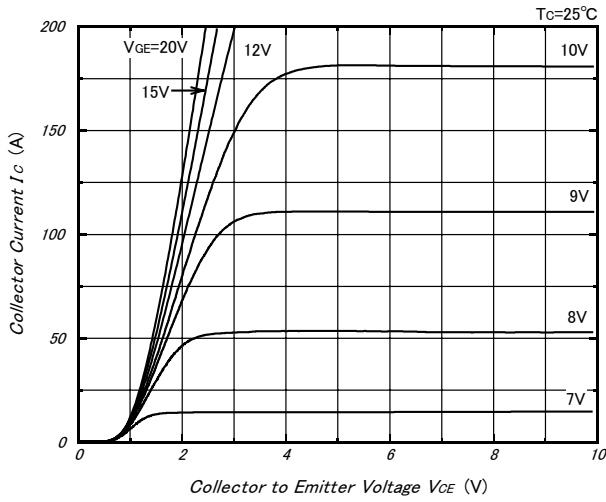


Fig.2- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

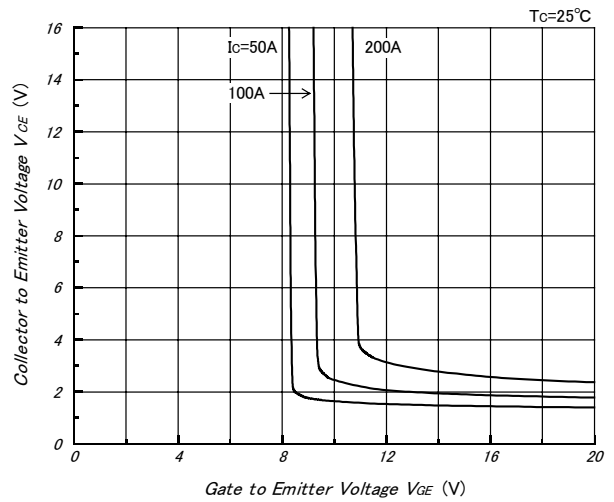


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

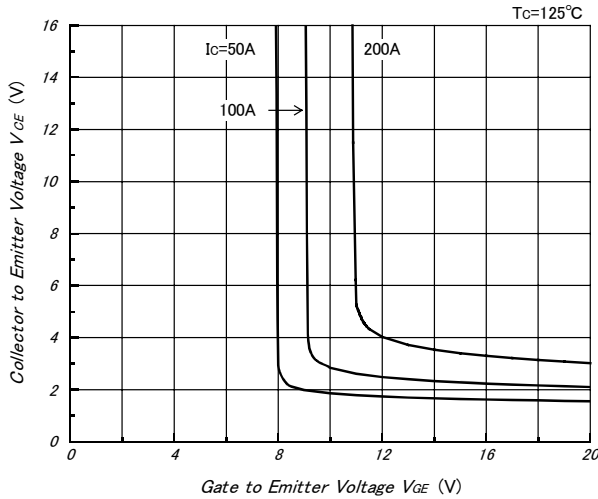


Fig.4- Gate Charge vs. Collector to Emitter Voltage (Typical)

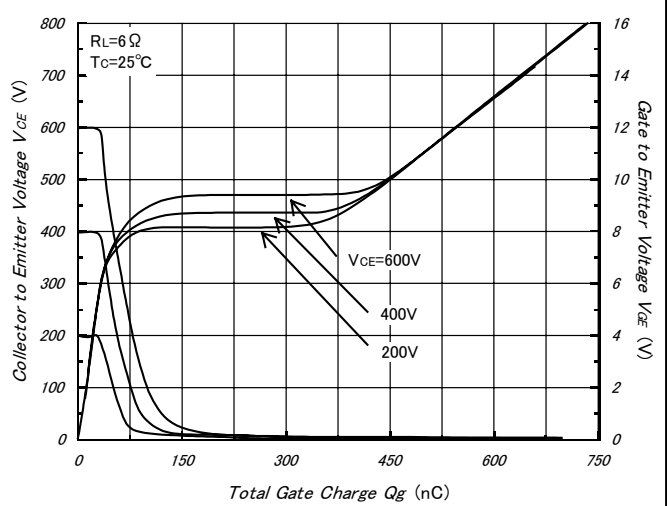


Fig.5- Capacitance vs. Collector to Emitter Voltage (Typical)

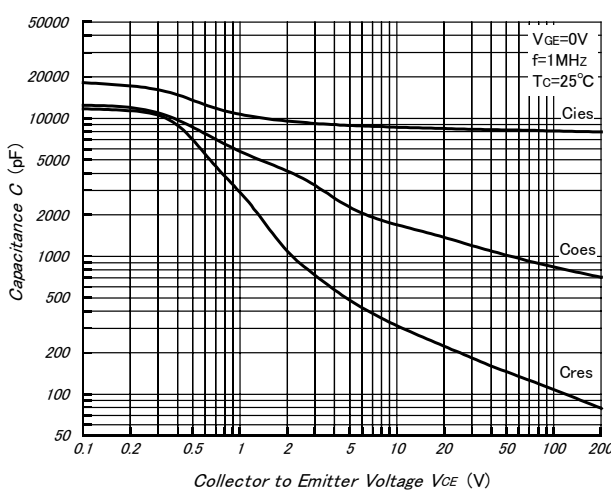
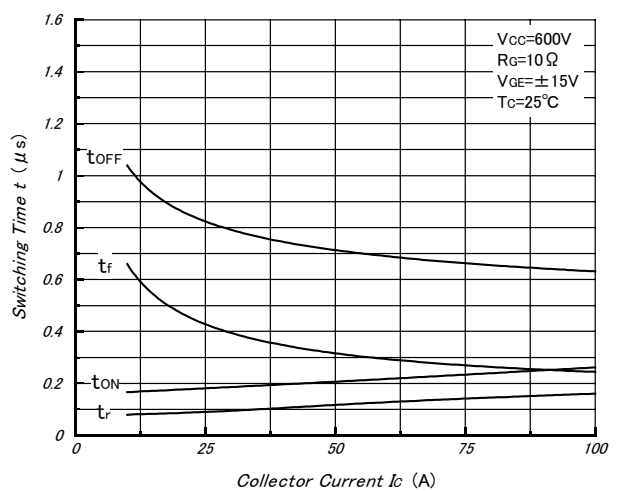


Fig.6- Collector Current vs. Switching Time (Typical)



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

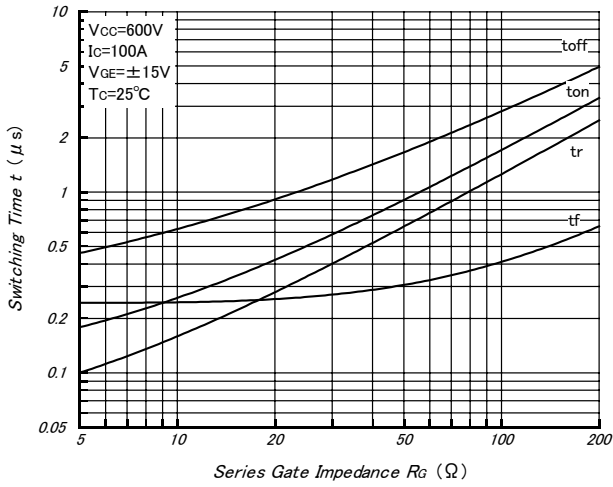


Fig.8- Forward Characteristics of Free Wheeling Diode (Typical)

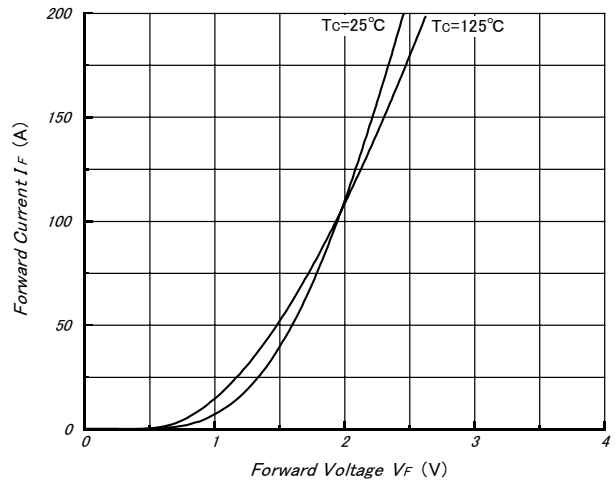


Fig.9- Reverse Recovery Characteristics (Typical)

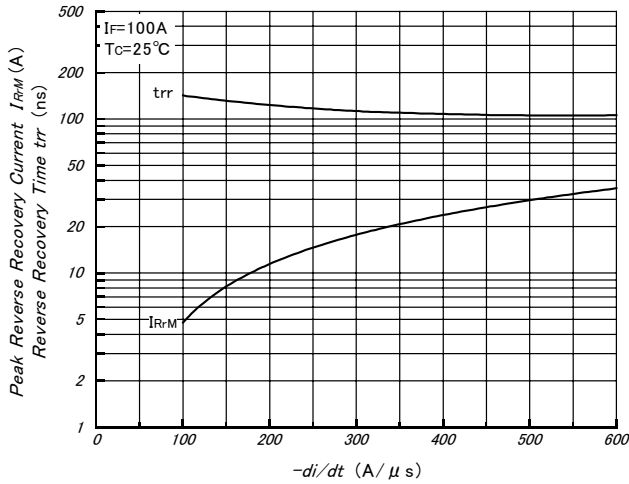


Fig.10- Reverse Bias Safe Operating Area (Typical)

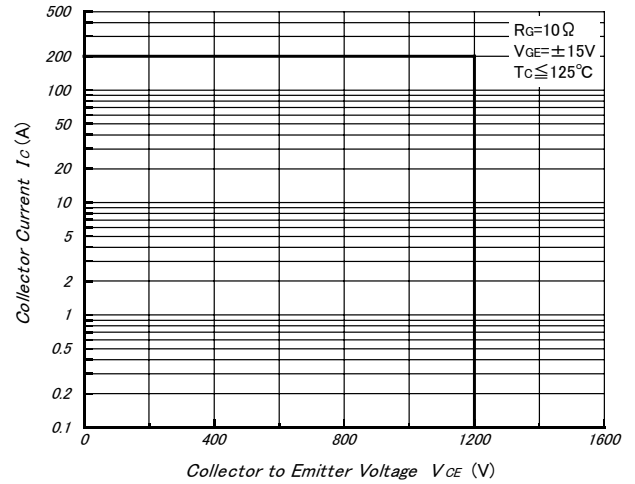


Fig.11- Transient Thermal Impedance

