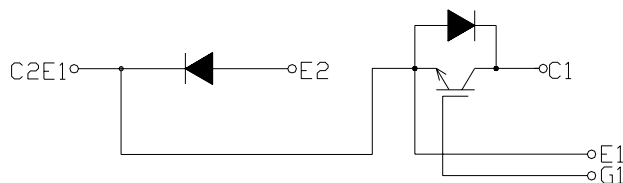


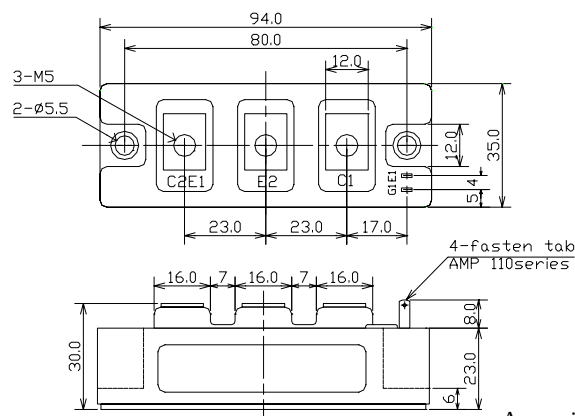
# IGBT MODULE Chopper 100A 600V

## PCHMB100A6A

### CIRCUIT



### OUTLINE DRAWING



2-fasten- tab No 110

Dimension(mm)

Approximate Weight : 220g

### MAXMUM RATINGS (Tc=25°C)

| Item                                           | Symbol                    | PCHMB100A6A | Unit |
|------------------------------------------------|---------------------------|-------------|------|
| Collector-Emitter Voltage                      | $V_{CES}$                 | 600         | V    |
| Gate - Emitter Voltage                         | $V_{GES}$                 | +/- 20      | V    |
| Collector Current                              | DC                        | $I_C$       | A    |
|                                                | 1 ms                      | $I_C$       |      |
| Collector Power Dissipation                    | $P_C$                     | 400         | W    |
| Junction Temperature Range                     | $T_j$                     | -40 to +150 | °C   |
| Storage Temperature Range                      | $T_{sg}$                  | -40 to +125 | °C   |
| Isolation Voltage Terminal to Base AC, 1 min.) | $V_{ISO}$                 | 2500        | V    |
| Mounting Torque                                | Module Base to Heat sink  | 2.04        | 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    | $I_{CES}$     | $V_{CE}=600V, V_{GE}=0V$        | -    | -     | 1.0  | mA   |
| Gate-Emitter Leakage Current         | $I_{GES}$     | $V_{GE}=+/- 20V, V_{CE}=0V$     | -    | -     | 0.5  | µA   |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=100A, V_{GE}=15V$          | -    | 2.1   | 2.6  | V    |
| Gate-Emitter Threshold Voltage       | $V_{GE(th)}$  | $V_{CE}=5V, I_C=100mA$          | 4.0  | -     | 8.0  | V    |
| Input Capacitance                    | $C_{ies}$     | $V_{CE}=10V, V_{GE}=0V, f=1MHz$ | -    | 10000 | -    | pF   |
| Switching Time                       | Rise Time     | $V_{CC}=300V$                   | —    | 0.15  | 0.3  | µs   |
|                                      | Turn-on Time  | $R_L=3\text{ ohm}$              | —    | 0.25  | 0.4  |      |
|                                      | Fall Time     | $R_G=7.5\text{ ohm}$            | —    | 0.2   | 0.35 |      |
|                                      | Turn-off Time | $V_{GE}=+/- 15V$                | —    | 0.45  | 0.7  |      |

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

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

| Characteristic        | Symbol   | Test Condition                            | Min. | Typ. | Max. | Unit |
|-----------------------|----------|-------------------------------------------|------|------|------|------|
| Peak Forward Voltage  | $V_F$    | $I_F=100A, V_{GE}=0V$                     | -    | 1.9  | 2.4  | V    |
| Reverse Recovery Time | $t_{rr}$ | $I_F=100A, V_{GE}=-10V, di/dt=100A/\mu s$ | -    | 0.15 | 0.25 | µs   |

### THERMAL CHARACTERISTICS

| Characteristic    | Symbol | Test Condition   | Min. | Typ. | Max. | Unit |
|-------------------|--------|------------------|------|------|------|------|
| Thermal Impedance | IGBT   | Junction to Case | -    | -    | 0.31 | °C/W |
|                   | DIODE  |                  | -    | -    | 0.65 |      |

Fig.1- Output Characteristics (Typical)

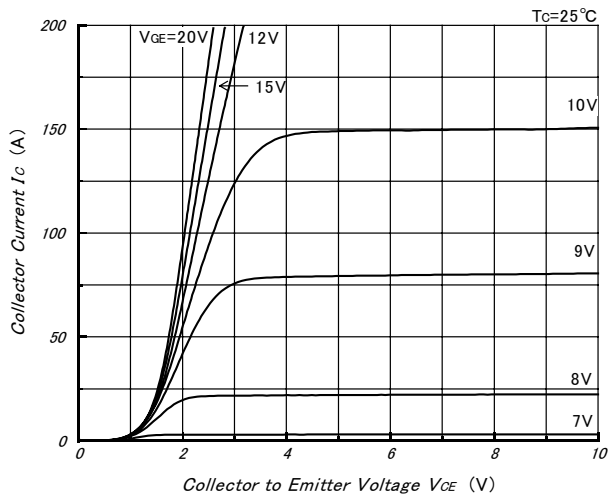


Fig.2- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

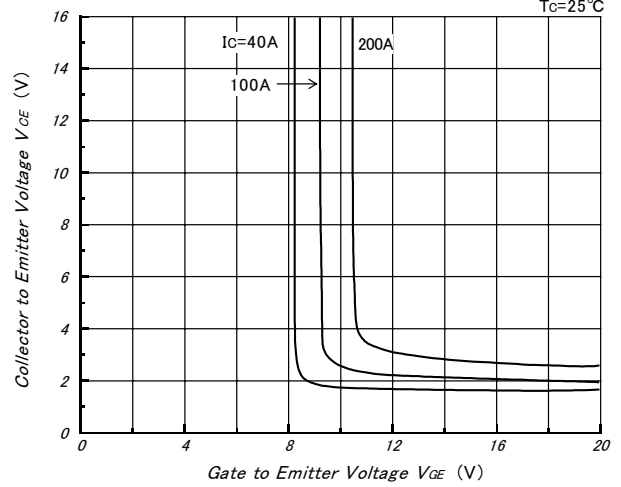


Fig.3- Collector to Emitter On Voltage vs. Gate to Emitter Voltage (Typical)

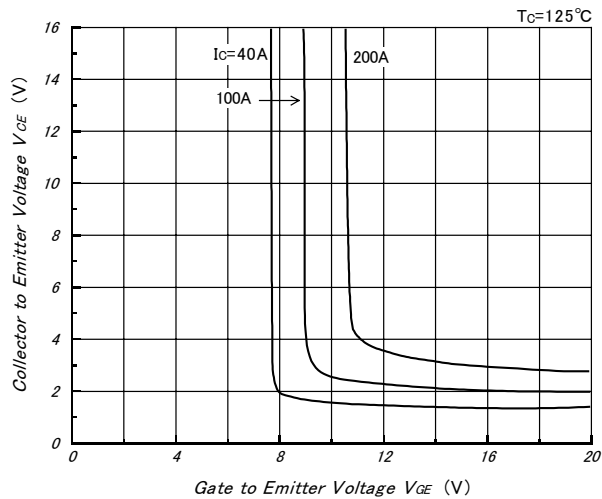


Fig.4- Gate Charge vs. Collector to Emitter Voltage (Typical)

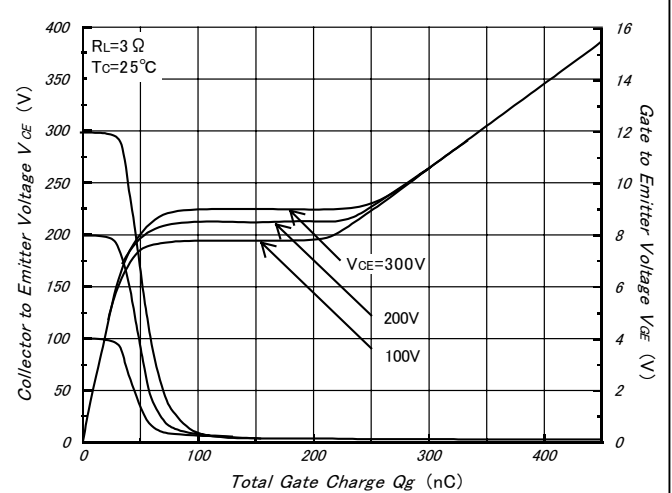


Fig.5- Capacitance vs. Collector to Emitter Voltage (Typical)

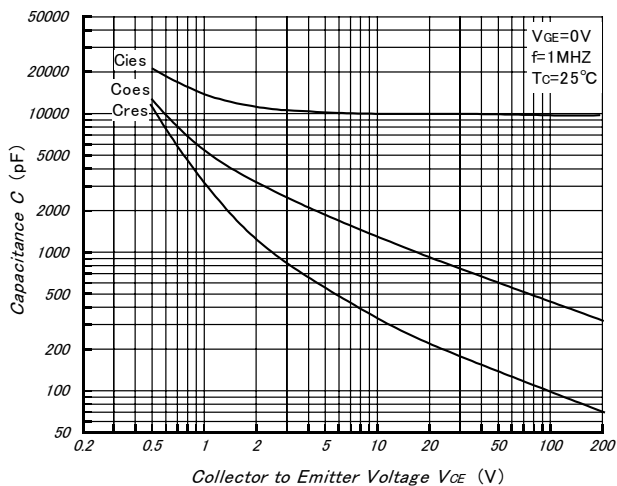


Fig.6- Collector Current vs. Switching Time (Typical)

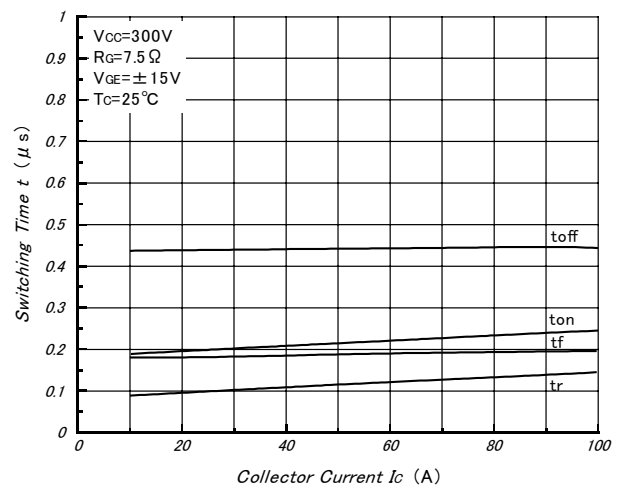


Fig.7- Series Gate Impedance vs. Switching Time (Typical)

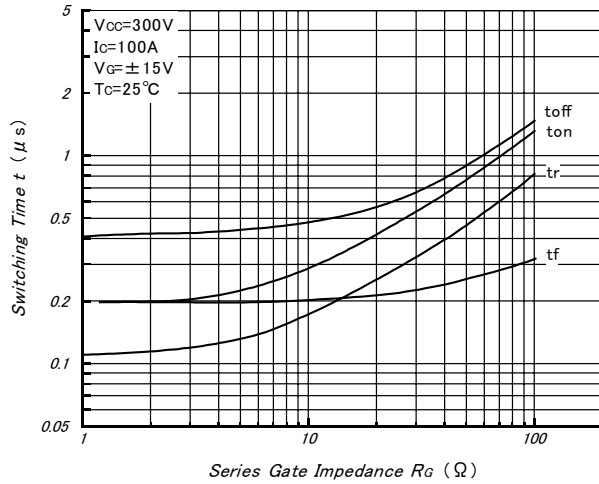


Fig.8- Forward Characteristics of Free Wheeling Diode (Typical)

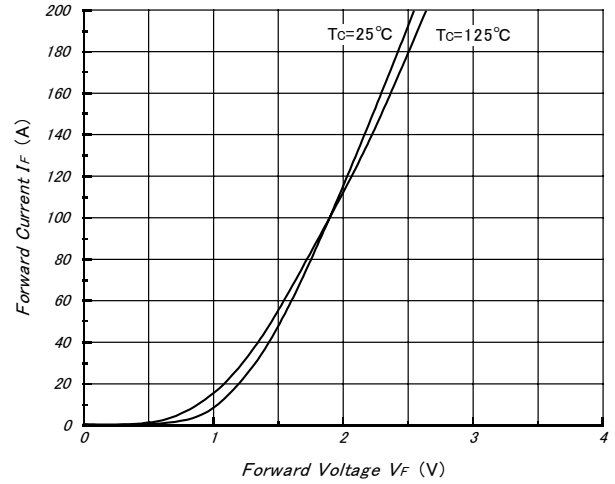


Fig.9- Reverse Recovery Characteristics (Typical)

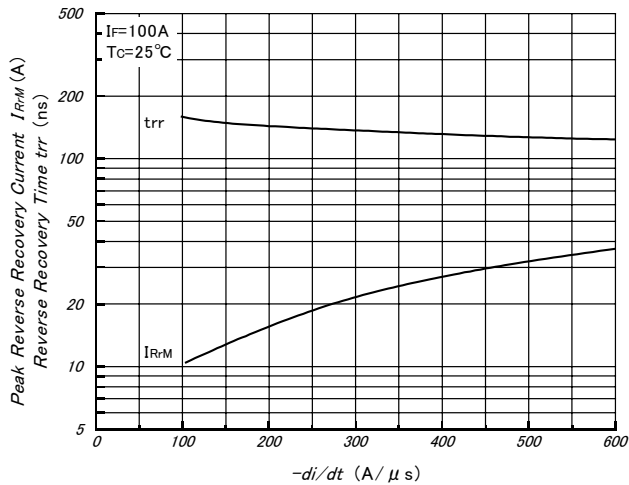


Fig.10- Reverse Bias Safe Operating Area (Typical)

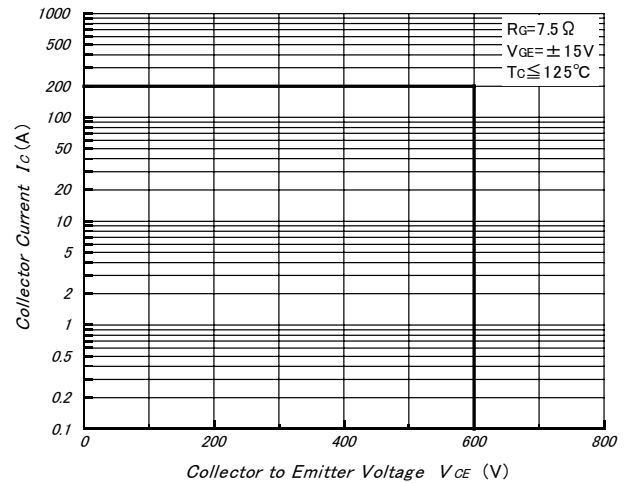


Fig.11- Transient Thermal Impedance

