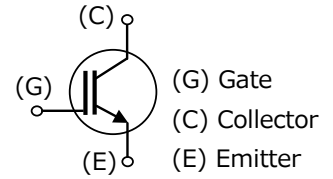




# MMJ6545G00\*\*



### Outline

IGBT (Bare chip) utilizes various technologies that we cultivated by analog semiconductor device production and is the product which prepared a lineup of the wide high voltage, high current which can contribute to high efficiency and saving energy.

### Applications

- Industrial Motor Drivers
- Inverter
- Welding
- UPS

### Features

- ① Field Stop Trench gate IGBT
- ② Low Collector-Emitter saturation voltage
- ③ High short circuit capability
- ④ Low switching losses

### Absolute Maximum Ratings

Tj=25deg unless otherwise noted.

| Parameter                 | Symbol | Rating   | Unit |
|---------------------------|--------|----------|------|
| Collector-Emitter voltage | VCES   | 650      | V    |
| Gate-Emitter voltage      | VGES   | ±30      | V    |
| Collector current *1)     | IC     | 45       | A    |
| Junction temperature      | Tj     | -40~+175 | °C   |

\*1)Collector current is limited by Tj(max) and thermal properties of assembly.

### Die Specification

| Item                          | Value           | Unit |
|-------------------------------|-----------------|------|
| Die thickness                 | 90              | μm   |
| Die size                      | 4.98x4.98(24.8) | mm   |
| Front metal(AlSi)             | 6.5             | μm   |
| Backside metal(AlSi/Ti/Ni/Au) | 1.25            | μm   |

### Electrical Characteristics

Tj=25deg unless otherwise noted.

| Parameter                                    | Symbol    | Specification |      |      | Unit | condition                   |                |
|--|-----------|---------------|------|------|------|-----------------------------|----------------|
|  |           | Min           | Typ  | Max  |      |                             |                |
| Zero gate voltage collector current          | ICES      | -             | -    | 1    | μA   | Vce=650V,Vge=0V             |                |
| Gate-Emitter leakage current                 | IGES      | -             | -    | ±500 | nA   | Vge=±30V,Vce=0V             |                |
| Gate-emitter threshold voltage               | VGE(th)   | 5.20          | -    | 6.60 | V    | Vce=10V,Ic=0.72mA           |                |
| Collector-Emitter saturation voltage         | VCE (sat) | Tj=25°C       | -    | 2.00 | 2.35 | V                           | Ic=45A,Vge=15V |
|  |           | Tj=150°C      | -    | 2.55 | -    |                             |                |
|  |           | Tj=175°C      | -    | 2.65 | -    |                             |                |
| Internal gate resistor                       | Rgint     | -             | -    | -    | Ω    |                             |                |
| Input capacitance                            | Cies      | -             | 3500 | -    | pF   | VCE=25V,VGE=0V,             |                |
| Reverse transfer capacitance                 | Cres      | -             | 50   | -    | pF   | f=100kHz                    |                |
| Switching time<br>*Reference characteristics | td(on)    | -             | 20   | -    | ns   | Vcc=300V,Ic=45A             |                |
|  | tr        | -             | 20   | -    | ns   | VGE=-15/+15V,               |                |
|  | td(off)   | -             | 100  | -    | ns   | Rg=10Ω,                     |                |
|  | tf        | -             | 80   | -    | ns   | Inductive load,<br>Ls≒100nH |                |
| Short circuit withstand time                 | Tsc       | 5             | -    | -    | μs   | Vcc=400V,Vge=15V,Tj=150°C   |                |

This characteristic is when it is incorporated in a mold package or evaluation board.

Depending on the assembly conditions etc., it may not be satisfied. Please note that it is not a guaranteed value.

### Die Dimension

