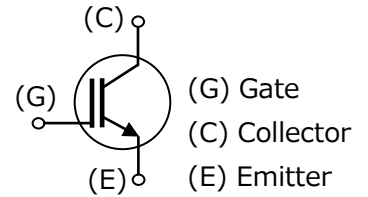


PRELIMINARY

Power Semiconductor Device IGBT (Insulated Gate Bipolar Transistor)

MI-Series 1200V/50A LowNoise

MMJC050J00**



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 swiching losses

Absolute Maximum Ratings

Tj=25deg unless otherwise noted.

| Parameter | Symbol | Rating | Unit |
|---------------------------|--------|----------|------|
| Collector-Emitter voltage | VCES | 1200 | V |
| Gate-Emitter voltage | VGES | ±30 | V |
| Collector current *1) | IC | 50 | 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 | 130 | μm |
| Die size | 6.8x7.18(48.8) | mm |
| Front metal(AlSi) | 6.5 | μm |
| Backside metal(AlSi/Ti/Ni/Au) | 1.45 | 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=1200V,Vge=0V | |
| Gate-Emitter leakage current | VGES | - | - | ±500 | nA | Vge=±30V,Vce=0V | |
| Gate-emitter threshold voltage | VGE(th) | 5.20 | - | 6.60 | V | Vce=10V,Ic=1.7mA | |
| Collector-Emitter saturation voltage | VCE (sat) | Tj=25°C | - | 1.70 | 2.05 | V | Ic=50A,Vge=15V |
| | | Tj=150°C | - | 2.00 | - | | |
| | | Tj=175°C | - | 2.10 | - | | |
| Internal gate resistor | Rgint | - | 4.0 | - | Ω | | |
| Input capacitance | Cies | - | 3600 | - | pF | VCE=25V,VGE=0V, | |
| Reverse transfer capacitance | Cres | - | 50 | - | pF | f=100kHz | |
| Switching time *Reference characteristics | td(on) | - | 50 | - | ns | Vcc=600V,Ic=50A VGE=-15/+15V, Rg=15Ω, Inductive load, Ls≒100nH | |
| | tr | - | 32 | - | ns | | |
| | td(off) | - | 200 | - | ns | | |
| | tf | - | 190 | - | ns | | |
| Short circuit withstand time | Tsc | 10 | - | - | μs | Vcc=800V,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

