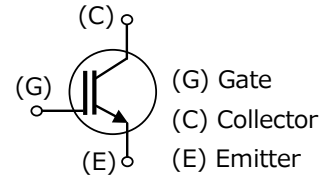




Power Semiconductor IGBT (Insulated Gate Bipolar Transistor)

MR-Series 650V / 12A

MMJ6512B00**



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

T_j=25deg unless otherwise noted.

Parameter	Symbol	Rating	Unit
Collector-Emitter voltage	VCES	650	V
Gate-Emitter voltage	VGES	±30	V
Collector current *1)	IC	12	A
Junction temperature	T _j	-40~+150	°C

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

Die Specification

Item	Value	Unit
Die thickness	86	μm
Die size	2.7x2.7(7.29)	mm
Front metal(AlSi)	6.5	μm
Backside metal(AlSi/Ti/Ni/Au)	1.25	μm

Electrical Characteristics

T_j=25deg unless otherwise noted.

Parameter	Symbol	Specification			Unit	condition
		Min	Typ	Max		
Zero gate voltage collector current	ICES	-	-	1	μA	V _{ce} =650V, V _{ge} =0V
Gate-Emitter leakage current	IGES	-	-	±100	nA	V _{ge} =±30V, V _{ce} =0V
Gate-emitter threshold voltage	VGE(th)	4.0	-	6.0	V	V _{ce} =10V, I _c =0.4mA
Collector-Emitter saturation voltage	VCE (sat)	-	1.65	1.95	V	I _c =12A, V _{ge} =15V
Input capacitance	Cies	-	600	-	pF	V _{CE} =25V, V _{GE} =0V, f=100kHz
Reverse transfer capacitance	Cres	-	30	-	pF	
Switching time *Reference characteristics	td(on)	-	40	-	ns	V _{cc} =330V, I _c =12A V _{GE} =15/0V, T _j =150°C R _g (on/off)=22Ω/51Ω, Inductive load
	t _r	-	35	-	ns	
	td(off)	-	210	-	ns	
	t _f	-	165	-	ns	
Short circuit withstand time	Tsc	5	-	-	μs	V _{cc} =400V, V _{ge} =15V, T _j =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

