

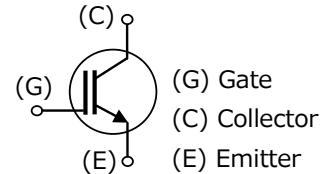


PRELIMINARY

Power Semiconductor IGBT (Insulated Gate Bipolar Transistor)

MR-Series 650V / 150A Low VCEsat

MMJ65A5A02**



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	150	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	9.3x9.3(86.5)	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)	5.0	-	6.8	V	Vce=10V,Ic=3.0mA	
Collector-Emitter saturation voltage	VCE (sat)	Tj=25°C	-	1.3	1.6	V	Ic=150A,Vge=15V
		Tj=175°C	-	1.5	-		
Input capacitance	Cies	-	13000	-	pF	VCE=25V,VGE=0V, f=1MHz	
Reverse transfer capacitance	Cres	-	450	-	pF		
Switching time *Reference characteristics	td(on)	-	75	-	ns	Vcc=300V,Ic=150A VGE=-15/+15V, Rg=10.0Ω, Inductive load, Ls≒100nH	
	tr	-	75	-	ns		
	td(off)	-	400	-	ns		
	tf	-	250	-	ns		
Short circuit withstand time	Tsc	10	-	-	μs	Vcc=360V,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

