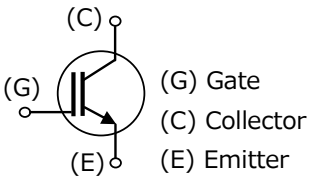
MITSUMI

PRELIMINARY

Power Semiconductor IGBT (Insulated Gate Bipolar Transistor) MI-Series 650V / 45A

MMJ6545F00**



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	650	V
Gate-Emitter voltage	VGES	±30	V
Collector current *1)	IC	45	A
Junction temperature	Tj	-40～+175	℃

*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

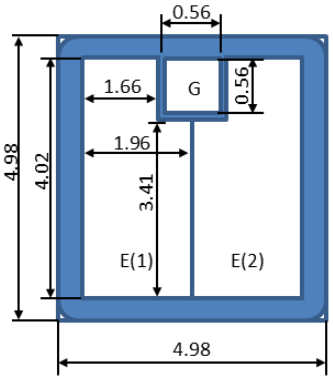
Electrical Characteristics

Tj=25deg unless otherwise noted.

Parameter		Symbol	Specification Min	Typ	Max	Unit	condition
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
Collecter-Emitter saturation voltage	Tj=25℃	VCE (sat)	-	1.55	1.85	V	Ic=45A,Vge=15V
	Tj=150℃		-	1.85	-		
	Tj=175℃		-	1.95	-		
Internal gate resistor		Rgint	-	-	-	Ω	
Input capacitance		Cies	-	3000	-	pF	VCE=25V,VGE=0V, f=100kHz
Reverse transfer capcitance		Cres	-	50	-	pF	
Switching time *Reference characteristics		td(on)	-	25	-	ns	Vcc=300V,Ic=45A VGE=-15/+15V, Rg=10Ω, Inductive load, Ls≒100nH
		tr	-	25	-	ns	
		td(off)	-	130	-	ns	
		tf	-	210	-	ns	
Short circuit withstand time		Tsc	10	-	-	μs	Vcc=400V,Vge=15V,Tj=150℃

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



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