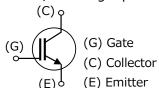


PRELIMINARY

Power Semiconductor IGBT (Insulated Gate Bipolar Transistor)

MI-Series 650V / 45A HighSpeed





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	Α
Junction temperature	Tj	-40~+175	ပ

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

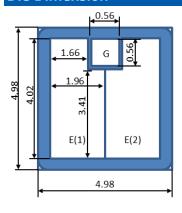
^{*1)}Collector current is limited by Tj(max) and thermal properties of assembly.

Electrical Characteristics

Tj=25deg unless otherwise noted.

Parameter		Symbol	Specification		Unit	condition	
		Symbol	Min	Тур	Max	Offic	Cortaicion
Zero gate voltage collector current		ICES	-	-	1	μΑ	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	Tj=25℃	VCE	-	2.00	2.35	V	
saturation	Tj=150℃	VCE (sat)	-	2.55	-		Ic=45A,Vge=15V
voltage	Tj=175℃	(Sat)	-	2.65	-		
Internal gate resistor		Rgint	-	-	-	Ω	
Input capacitance		Cies	-	3500	-	pF	VCE=25V,VGE=0V,
Reverse transfer capcitance		Cres	-	50	-	pF	f=100kHz
Switching time *Reference characteristics		td(on)	-	20	-	ns	Vcc=300V,Ic=45A
		tr	-	20	-	ns	VGE=-15/+15V,
		td(off)	-	100	-	ns	Rg=10Ω, Inductive load,
		tf	-	80	-	ns	Ls≒100nH
Short circuit withstand time		Tsc	5	-	-	μs	Vcc=400V,Vge=15V,Tj=150℃

Die Dimension



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.

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- The details listed here are not a guarantee of the individual products at the time of ordering.
- When using the products, you will be asked to check their specifications.