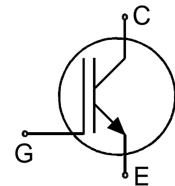
IGC39T65T8M

IGBT3 Chip Medium Power

Features:
- 650V Trench & Field Stop technology
- high short circuit capability, self limiting short circuit current
- positive temperature coefficient
- easy paralleling
- Qualified according to JEDEC for target applications

Recommended for:
- power modules

Applications:
- drives



Chip Type	V_{CE}	I_{Cn}	Die Size	Package
IGC39T65T8M	650V	75A	6.59 x 5.91 mm^2	sawn on foil

Mechanical Parameters

Die size		6.59 x 5.91	mm^2
Emitter pad size (incl. gate pad)		See chip drawing	mm^2
Gate pad size		1.52 x 0.817	mm^2
Area total		38.9	mm^2
Thickness		80	µm
Wafer size		200	mm
Max.possible chips per wafer		686	
Passivation frontside		Photoimide	
Pad metal		3200 nm AlSiCu	
Backside metal		Ni Ag –system	
Die bond		Electrically conductive epoxy glue and soft solder	
Wire bond		Al, <500µm	
Reject ink dot size		∅ 0.65mm ; max 1.2mm	
Storage environment	for original and sealed MBB bags	Ambient atmosphere air, Temperature 17°C – 25°C, < 6 month	
Storage environment	for open MBB bags	Acc. to IEC62258-3: Atmosphere >99% Nitrogen or inert gas, Humidity <25%RH, Temperature 17°C – 25°C, < 6 month	

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Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter voltage, T_{vj} =25 °C	V_{CE}	650	V
DC collector current, limited by $T_{vj\,max}$	I_C	[1]	A
Pulsed collector current, t_p limited by $T_{vj\,max}$ [2]	$I_{c,puls}$	225	A
Gate emitter voltage	V_{GE}	±20	V
Operating junction temperature	T_{vj}	-40 ... +175	°C
Short circuit data [2][3] V_{GE} = 15V, V_{CC} = 360V, T_{vj} = 150°C	t_{SC}	10	µs

[1] depending on thermal properties of assembly

[2] not subject to production test - verified by design/characterization

[3] allowed number of short circuits: <1000; time between short circuits: >1s.

Static Characteristics (tested on wafer), T_{vj} =25 °C

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-Emitter breakdown voltage	$V_{(BR)CES}$	V_{GE}=0V , I_C=4 mA	650			V
Collector-Emitter saturation voltage	V_{CEsat}	V_{GE}=15V, I_C=75A	1.08	1.55	1.82	
Gate-Emitter threshold voltage	$V_{GE(th)}$	I_C=1.2mA , V_{GE}=V_{CE}	5.1	5.8	6.4	
Zero gate voltage collector current	I_{CES}	V_{CE}=650V , V_{GE}=0V			0.39	µA
Gate-Emitter leakage current	I_{GES}	V_{CE}=0V , V_{GE}=20V			600	nA
Integrated gate resistor	r_G			none		Ω

Electrical Characteristics (not subject to production test - verified by design / characterization)

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-Emitter saturation voltage	V_{CEsat}	V_{GE}=15V, I_C=75A, T_{vj} =150 °C		1.75		V
Input capacitance	C_{ies}	V_{CE}=25V, V_{GE}=0V, f=1MHz T_{vj} =25 °C		4620		pF
Reverse transfer capacitance	C_{res}			137		

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