

IGBT4 Medium Power Chip

Features:

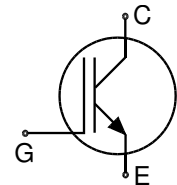
- 1200V Trench + Field stop technology
- low switching losses
- soft turn off
- positive temperature coefficient
- easy paralleling
- Qualified according to JEDEC for target applications

Recommended for:

- medium power modules

Applications:

- medium power drives



Chip Type	V_{CE}	$I_{Cn}^{1)}$	Die Size	Package
IGC70T120T8RM	1200V	75A	9.12 x 7.71 mm ²	sawn on foil

¹⁾ nominal collector current at $T_c = 100^\circ\text{C}$, not subject to production test - verified by design/characterization

Mechanical Parameters

Die size		9.12 x 7.71	mm ²
Emitter pad size (incl. gate pad)		See chip drawing	
Gate pad size		0.811 x 1.31	
Area total		70.3	
Thickness		120	µm
Wafer size		200	mm
Max.possible chips per wafer		370	
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		Ø 0.65mm ; max 1.2mm	
Storage environment	for original and sealed MBB bags	Ambient atmosphere air, Temperature 17°C – 25°C, < 6 month	
	for open MBB bags	Acc. to IEC62258-3: Atmosphere >99% Nitrogen or inert gas, Humidity <25%RH, Temperature 17°C – 25°C, < 6 month	

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter voltage, $T_{vj} = 25\text{ °C}$	V_{CE}	1200	V
DC collector current, limited by $T_{vj\text{ max}}$	I_C	¹⁾	A
Pulsed collector current, t_p limited by $T_{vj\text{ max}}$ 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⁾ $V_{GE} = 15V$, $V_{CC} = 800V$, $T_{vj} = 150\text{ °C}$	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), $T_{vj} = 25\text{ °C}$

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-Emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}=0V$, $I_C=2.6\text{ mA}$	1200			V
Collector-Emitter saturation voltage	V_{CEsat}	$V_{GE}=15V$, $I_C=75A$	1.58	1.85	2.07	
Gate-Emitter threshold voltage	$V_{GE(th)}$	$I_C=2.6mA$, $V_{GE}=V_{CE}$	5.3	5.8	6.3	
Zero gate voltage collector current	I_{CES}	$V_{CE}=1200V$, $V_{GE}=0V$			1	μA
Gate-Emitter leakage current	I_{GES}	$V_{CE}=0V$, $V_{GE}=20V$			120	nA
Integrated gate resistor	r_G			10		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}	$V_{GE}=15V$, $I_C=75A$, $T_{vj}=150\text{ °C}$		2.15		V
Input capacitance	C_{ies}	$V_{CE}=25V$, $V_{GE}=0V$, $f=1\text{ MHz}$		4300		pF
Reverse transfer capacitance	C_{res}	$T_{vj}=25\text{ °C}$		160		



IGC70T120T8RM

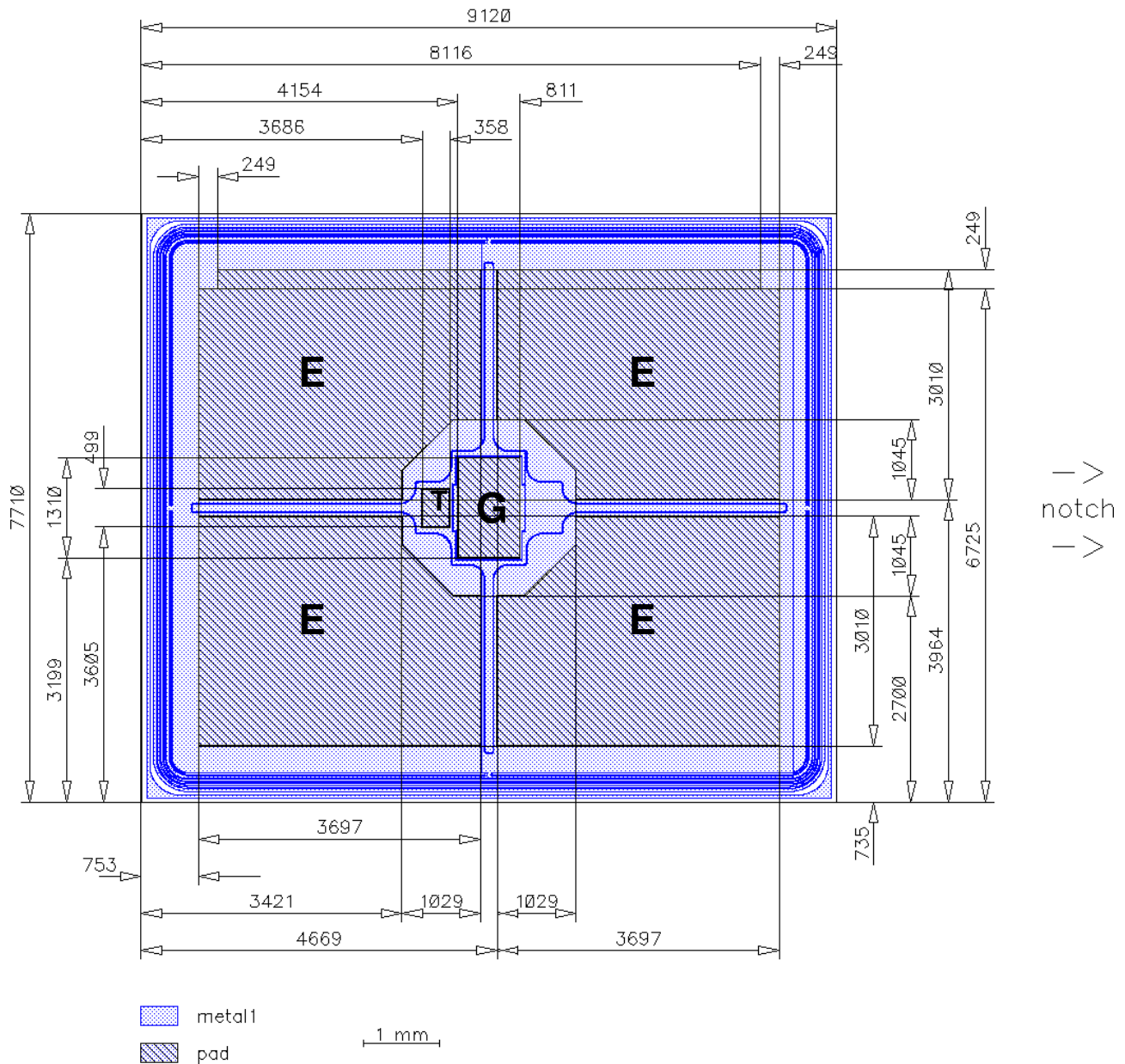
Further Electrical Characteristic

Switching characteristics and thermal properties are depending strongly on module design and mounting technology and can therefore not be specified for a bare die.

This chip data sheet refers to the device data sheet	IFS75B12N3E4_B31	Rev. 2.0
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Chip Drawing

Die-Size 9120 um x 7710 um



E = Emitter

G = Gate

T = Test pad do not contact



IGC70T120T8RM

Description

AQL 0,65 for visual inspection according to failure catalogue

Electrostatic Discharge Sensitive Device according to MIL-STD 883

Revision History

Version	Subjects (major changes since last revision)	Date

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