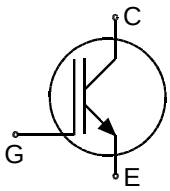
SIGC104T170R2C

IGBT Chip in NPT-technology

Features:
- 1700V NPT technology
- 280µm chip
- short circuit prove
- positive temperature coefficient
- easy paralleling
- Qualified according to JEDEC for target applications

Recommended for:
- chip only

Applications:
- drives



Chip Type	V_{CE}	I_{Cn}	Die Size	Package
SIGC104T170R2C	1700V	50A	10.12 x 10.18 mm^2	sawn on foil

Mechanical Parameters

Die size		10.12 x 10.18	mm^2
Emitter pad size (incl. gate pad)		See chip drawing	
Gate pad size		0.757 x 1.48	
Area total		103	
Thickness		280	µm
Wafer size		150	mm
Max.possible chips per wafer		130	
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	
	for open MBB bags	Acc. to IEC62258-3: Atmosphere >99% Nitrogen or inert gas, Humidity <25%RH, Temperature 17°C – 25°C, < 6 month	

Edited by INFINEON Technologies, IFAG IPC TD VLS, L7351M, Edition 2.2, 15.05.2013

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Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter voltage, T_{vj} =25 °C	V_{CE}	1700	V
DC collector current, limited by $T_{vj\,max}$	I_C	[1]	A
Pulsed collector current, t_p limited by $T_{vj\,max}$ [2]	$I_{c,puls}$	150	A
Gate emitter voltage	V_{GE}	±20	V
Operating junction and storage temperature	T_{vj}, T_{stg}	-55 ... +150	°C
Short circuit data [2][3] V_{GE} = 15V, V_{CC} = 1000V, 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=2 mA	1700			V
Collector-Emitter saturation voltage	V_{CEsat}	V_{GE}=15V, I_C=50A	2.18	2.6	2.92	
Gate-Emitter threshold voltage	$V_{GE(th)}$	I_C=2.2mA , V_{GE}=V_{CE}	4.6	5.5	6.4	
Zero gate voltage collector current	I_{CES}	V_{CE}=1700V , V_{GE}=0V			2	µA
Gate-Emitter leakage current	I_{GES}	V_{CE}=0V , V_{GE}=20V			300	nA
Integrated gate resistor	r_G			5		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=50A, T_{vj} =125 °C		3.1		V
Input capacitance	C_{ies}	V_{CE}=25V, V_{GE}=0V, f=1MHz T_{vj} =25 °C		7000		pF
Reverse transfer capacitance	C_{res}			300		

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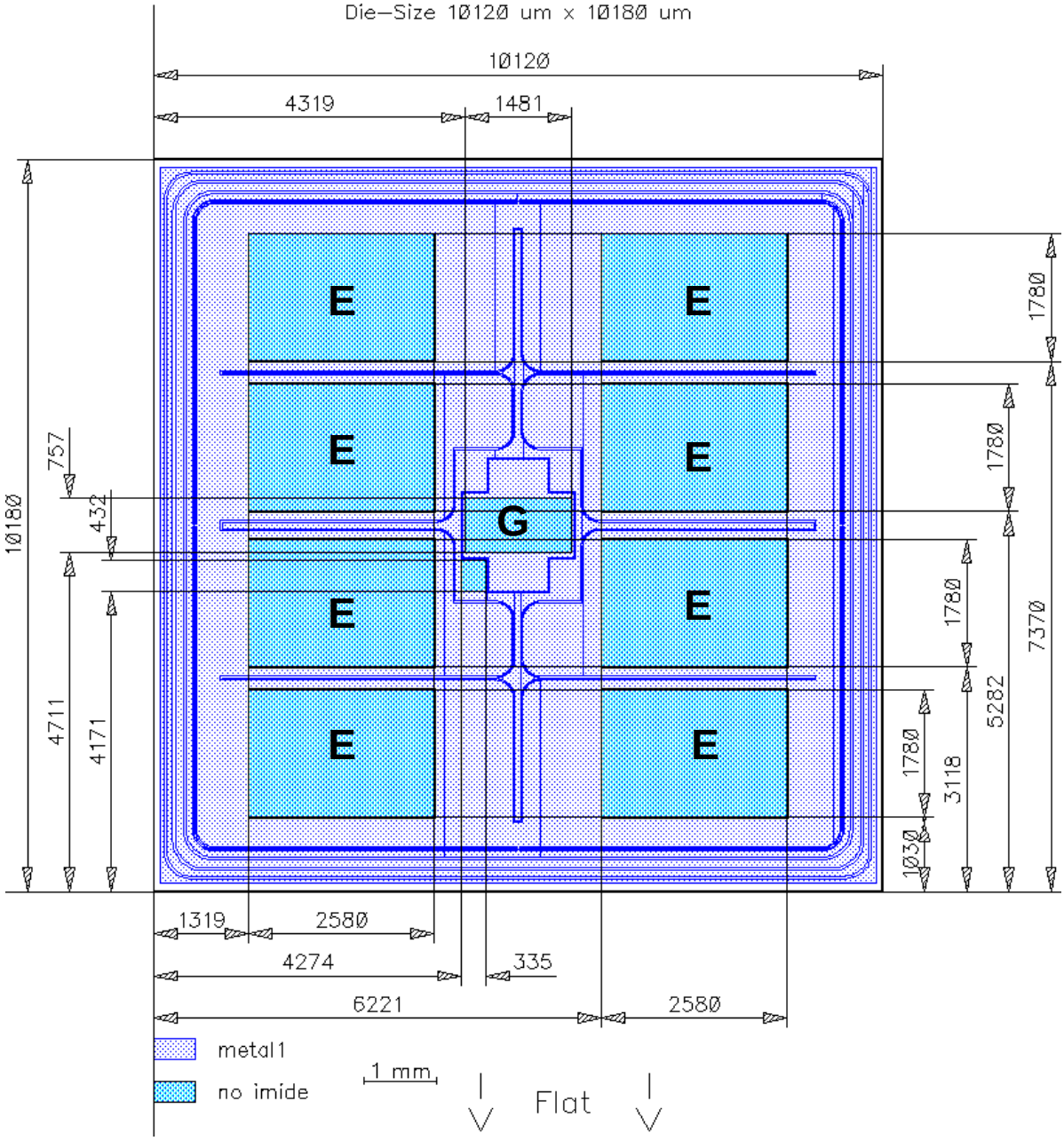
Further Electrical Characteristic

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	FZ800R17KF6 Rev. 2.1	04.04.2013

Chip Drawing



E = Emitter
G = Gate

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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
2.2	Operating junction and storage temperature	15.05.2013

Published by
Infineon Technologies AG
81726 Munich, Germany

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