

## IGBT Chip in NPT-technology

### Features:

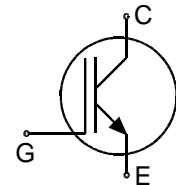
- 1700V NPT technology
- 280µm chip
- short circuit prove
- positive temperature coefficient
- easy paralleling
- Qualified according to JEDEC for target applications

### Recommended for:

- chip only

### Applications:

- drives



Chip Type	V <sub>CE</sub>	I <sub>CN</sub>	Die Size	Package
SIGC185T170R2C	1700V	100A	13.56 x 13.56 mm <sup>2</sup>	sawn on foil

### Mechanical Parameters

Die size	13.56 x 13.56	mm <sup>2</sup>
Emitter pad size (incl. gate pad)	See chip drawing	
Gate pad size	0.757 x 1.48	
Area total	183.87	
Thickness	280	µm
Wafer size	150	mm
Max.possible chips per wafer	72	
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



# SIGC185T170R2C

## Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter voltage, $T_{vj} = 25\text{ °C}$	$V_{CE}$	1700	V
DC collector current, limited by $T_{vj\text{ max}}$	$I_C$	<sup>1)</sup>	A
Pulsed collector current, $t_p$ limited by $T_{vj\text{ max}}$ <sup>2)</sup>	$I_{C,puls}$	300	A
Gate emitter voltage	$V_{GE}$	±20	V
Operating junction and storage temperature	$T_{vj}, T_{stg}$	-55 ... +150	°C
Short circuit data <sup>2)3)</sup> $V_{GE} = 15V, V_{CC} = 1000V, T_{vj} = 150\text{ °C}$	$t_{SC}$	10	µs

<sup>1)</sup> depending on thermal properties of assembly

<sup>2)</sup> not subject to production test - verified by design/characterization

<sup>3)</sup> 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	$V_{(BR)CES}$	$V_{GE}=0V, I_C=2\text{ mA}$	1700			V
Collector-Emitter saturation voltage	$V_{CEsat}$	$V_{GE}=15V, I_C=100A$	2.18	2.6	2.92	
Gate-Emitter threshold voltage	$V_{GE(th)}$	$I_C=4.4mA, V_{GE}=V_{CE}$	4.6	5.5	6.4	
Zero gate voltage collector current	$I_{CES}$	$V_{CE}=1700V, V_{GE}=0V$			3.8	µA
Gate-Emitter leakage current	$I_{GES}$	$V_{CE}=0V, V_{GE}=20V$			480	nA
Integrated gate resistor	$r_G$			2.5		Ω

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

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-Emitter saturation voltage	$V_{CEsat}$	$V_{GE}=15V, I_C=100A,$ $T_{vj}=125\text{ °C}$		3.1		V
Input capacitance	$C_{ies}$	$V_{CE}=25V,$ $V_{GE}=0V, f=1MHz$ $T_{vj}=25\text{ °C}$		15000		pF
Reverse transfer capacitance	$C_{res}$			700		



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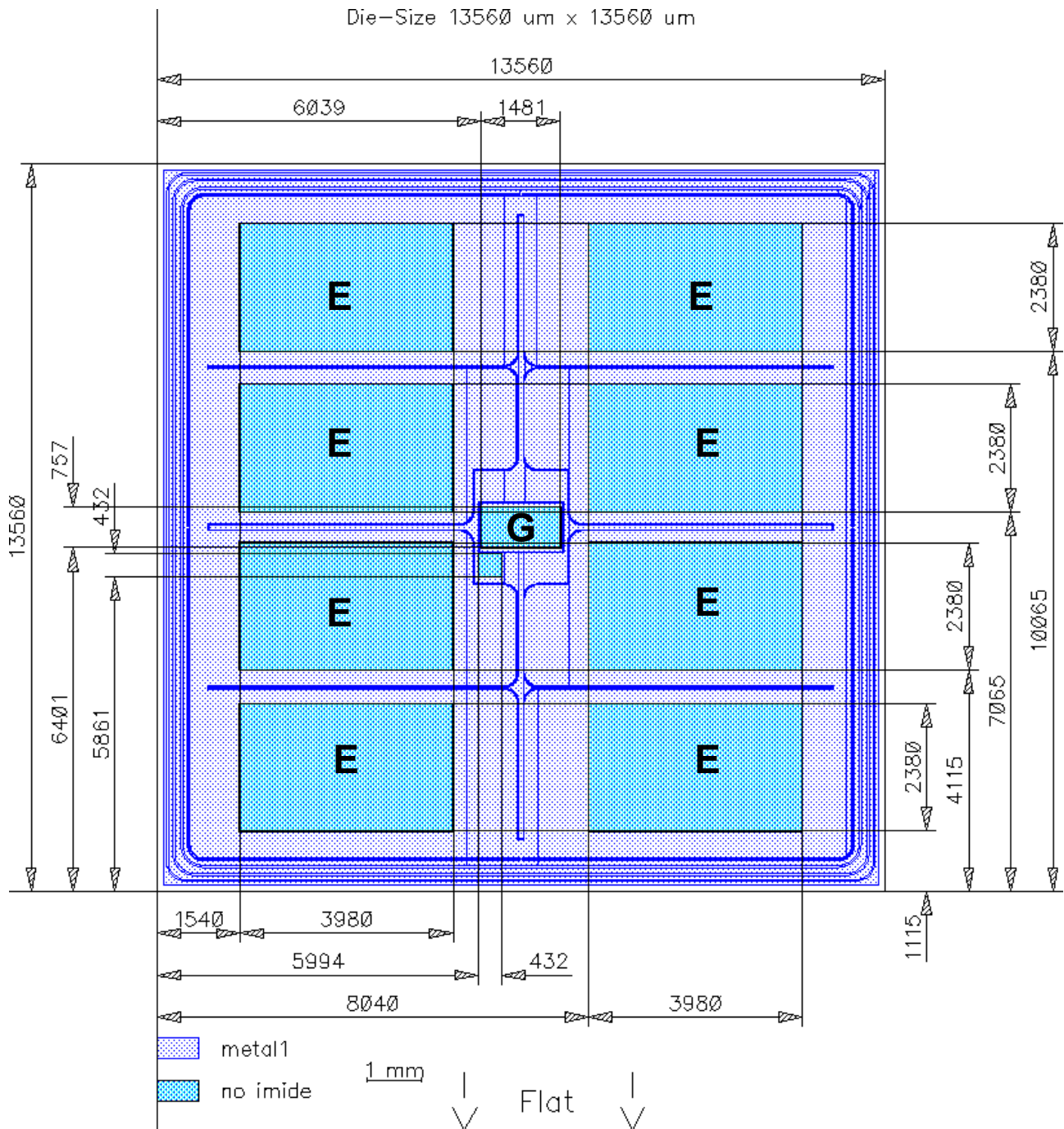
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## Further Electrical Characteristic

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	FZ800R17KF6C_B2 Rev.2.1	04.04.2013
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## Chip Drawing



**E** = Emitter

**G** = Gate



# SIGC185T170R2C

## 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

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