

## IGBT Chip in NPT-technology

### FEATURES:

- 1700V NPT technology
- 280µm chip
- short circuit prove
- positive temperature coefficient
- easy paralleling

### This chip is used for:

- chip only

### Applications:

- drives



Chip Type	V <sub>CE</sub>	I <sub>Cn</sub>	Die Size	Package	Ordering Code
SIGC104T170R2C	1700V	50A	10.12 x 10.18 mm <sup>2</sup>	sawn on foil	Q67041-A4695-A001

### MECHANICAL PARAMETER:

Raster size	10.12 x 10.18	mm <sup>2</sup>
Area total / active	103 / 71.5	
Emitter pad size	8x( 1.78x2.58 )	
Gate pad size	0.757 x 1.48	
Thickness	280	µm
Wafer size	150	mm
Flat position	90	deg
Max.possible chips per wafer	130 pcs	
Passivation frontside	Photoimide	
Emitter metalization	3200 nm Al Si 1%	
Collector metalization	1400 nm Ni Ag –system suitable for epoxy and soft solder die bonding	
Die bond	electrically conductive glue or solder	
Wire bond	Al, ≤500µm	
Reject Ink Dot Size	Ø 0.65mm ; max 1.2mm	
Recommended Storage Environment	store in original container, in dry nitrogen, < 6 month at an ambient temperature of 23°C	

## MAXIMUM RATINGS:

Parameter	Symbol	Value	Unit
Collector-emitter voltage, $T_j=25\text{ °C}$	$V_{CE}$	1700	V
DC collector current, limited by $T_{jmax}$	$I_C$	<sup>1)</sup>	A
Pulsed collector current, $t_p$ limited by $T_{jmax}$	$I_{Cpuls}$	150	A
Gate emitter voltage	$V_{GE}$	$\pm 20$	V
Operating junction and storage temperature	$T_j, T_{stg}$	-55 ... +150	$^{\circ}\text{C}$

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

## STATIC CHARACTERISTICS (tested on chip), $T_j=25\text{ °C}$ , unless otherwise specified:

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}=0V, I_C=3mA$	1700			V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE}=15V, I_C=50A$	2.2	2.7	3.2	
Gate-emitter threshold voltage	$V_{GE(th)}$	$I_C=2.2mA, V_{GE}=V_{CE}$	4.5	5.5	6.5	
Zero gate voltage collector current	$I_{CES}$	$V_{CE}=1700V, V_{GE}=0V$			12	$\mu\text{A}$
Gate-emitter leakage current	$I_{GES}$	$V_{CE}=0V, V_{GE}=20V$			300	nA
Integrated gate resistor	$R_{Gint}$			5		$\Omega$

## DYNAMIC CHARACTERISTICS (tested at component):

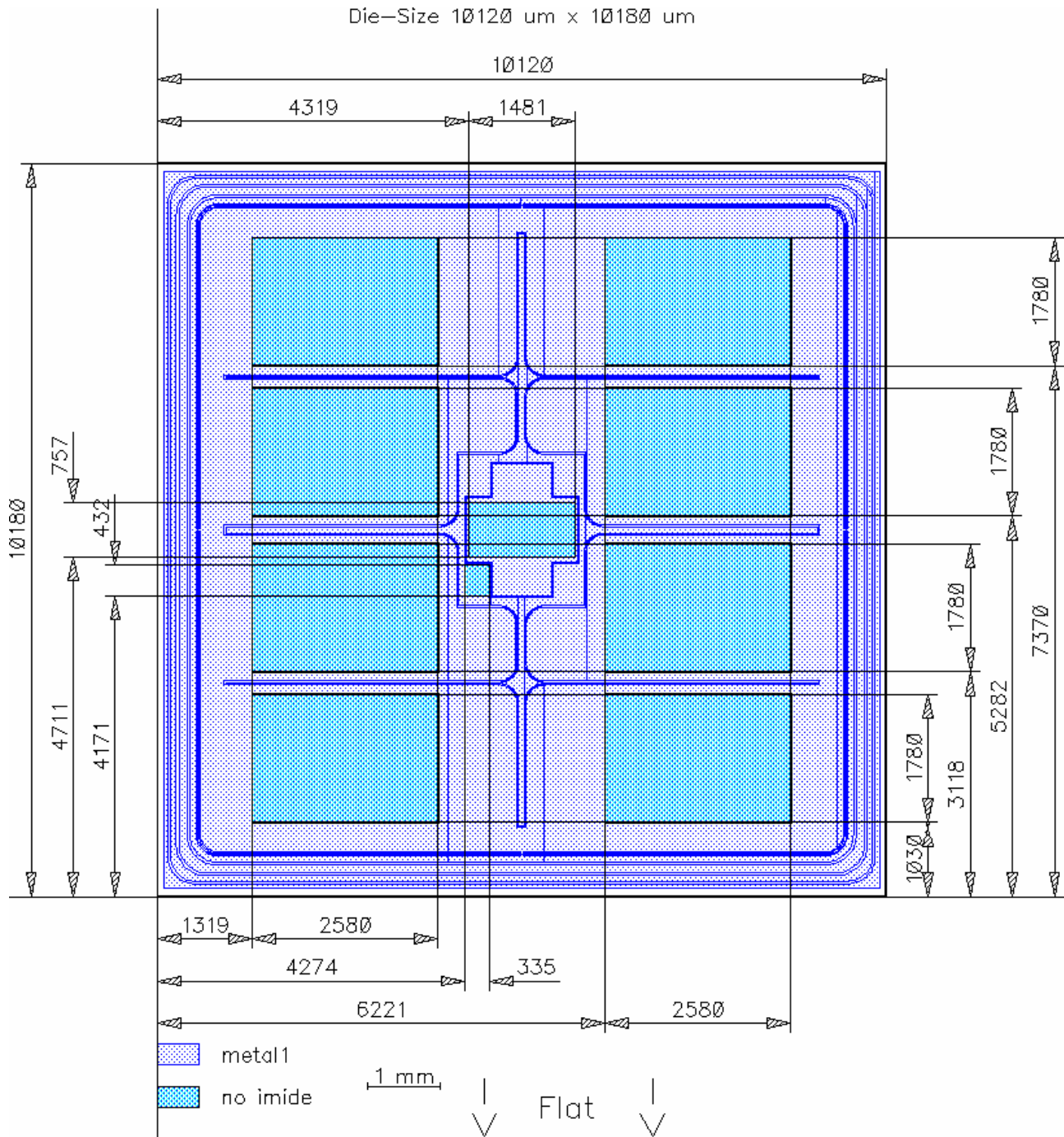
Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	$C_{iss}$	$V_{CE}=25V,$	-	3.5	-	nF
Output capacitance	$C_{oss}$	$V_{GE}=0V,$	-	tbd	-	
Reverse transfer capacitance	$C_{riss}$	$f=1\text{MHz}$	-	tbd	-	

## SWITCHING CHARACTERISTICS (tested at component), Inductive Load:

Parameter	Symbol	Conditions <sup>1)</sup>	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	$T_j=125\text{ °C}$	-	0.1	-	$\mu\text{s}$
Rise time	$t_r$	$V_{CC}=900V,$ $I_C=50A$	-	0.1	-	
Turn-off delay time	$t_{d(off)}$	$V_{GE}=\pm 15V,$ $R_G=30\Omega$	-	0.9	-	
Fall time	$t_f$		-	0.03	-	

<sup>1)</sup> values also influenced by parasitic L- and C- in measurement and package.

**CHIP DRAWING:**



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**FURTHER ELECTRICAL CHARACTERISTICS:**

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This chip data sheet refers to the  
device data sheet

chip only

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**Description:**

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AQL 0,65 for visual inspection according to failure catalog

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Electrostatic Discharge Sensitive Device according to MIL-STD 883

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Test-Normen Villach/Prüffeld

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**Published by**  
**Infineon Technologies AG,**  
**Bereich Kommunikation**  
**St.-Martin-Strasse 53,**  
**D-81541 München**  
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