

## IGBT Chip in NPT-technology

### FEATURES:

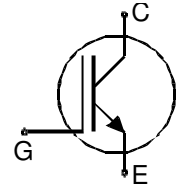
- 600V NPT technology 100µm chip
- positive temperature coefficient
- easy paralleling
- integrated gate resistor

### This chip is used for:

- IGBT Modules

### Applications:

- drives



Chip Type	V <sub>CE</sub>	I <sub>CN</sub>	Die Size	Package	Ordering Code
SIGC121T60NR2C	600V	150A	11 x 11 mm <sup>2</sup>	sawn on foil	Q67041-A4684-A001

### MECHANICAL PARAMETER:

Raster size	11 x 11	mm <sup>2</sup>
Area total / active	121 / 102.5	
Emitter pad size	8 x 6.2 x 2.55	
Gate pad size	1.51 x 0.8	
Thickness	100	µm
Wafer size	150	mm
Flat position	90	grd
Max.possible chips per wafer	106	
Passivation frontside	Photoimide	
Emitter metallization	3200 nm Al Si 1%	
Collector metallization	1200 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, $T_j=25\text{ }^\circ\text{C}$	$V_{CE}$	600	V
DC collector current, limited by $T_{jmax}$	$I_C$	<sup>1)</sup>	A
Pulsed collector current, $t_p$ limited by $T_{jmax}$	$I_{Cpuls}$	450	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), $T_j=25\text{ }^\circ\text{C}$ , unless otherwise specified:

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}=0V, I_C=4mA$	600			V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE}=15V, I_C=150A$	1.7	2	2.5	
Gate-emitter threshold voltage	$V_{GE(th)}$	$I_C=3mA, V_{GE}=V_{CE}$	4.5	5.5	6.5	
Zero gate voltage collector current	$I_{CES}$	$V_{CE}=600V, V_{GE}=0V$			10.2	$\mu\text{A}$
Gate-emitter leakage current	$I_{GES}$	$V_{CE}=0V, V_{GE}=20V$			480	nA
Integrated gate resistor	$R_{Gint}$			5	7	$\Omega$

## ELECTRICAL CHARACTERISTICS (tested at component):

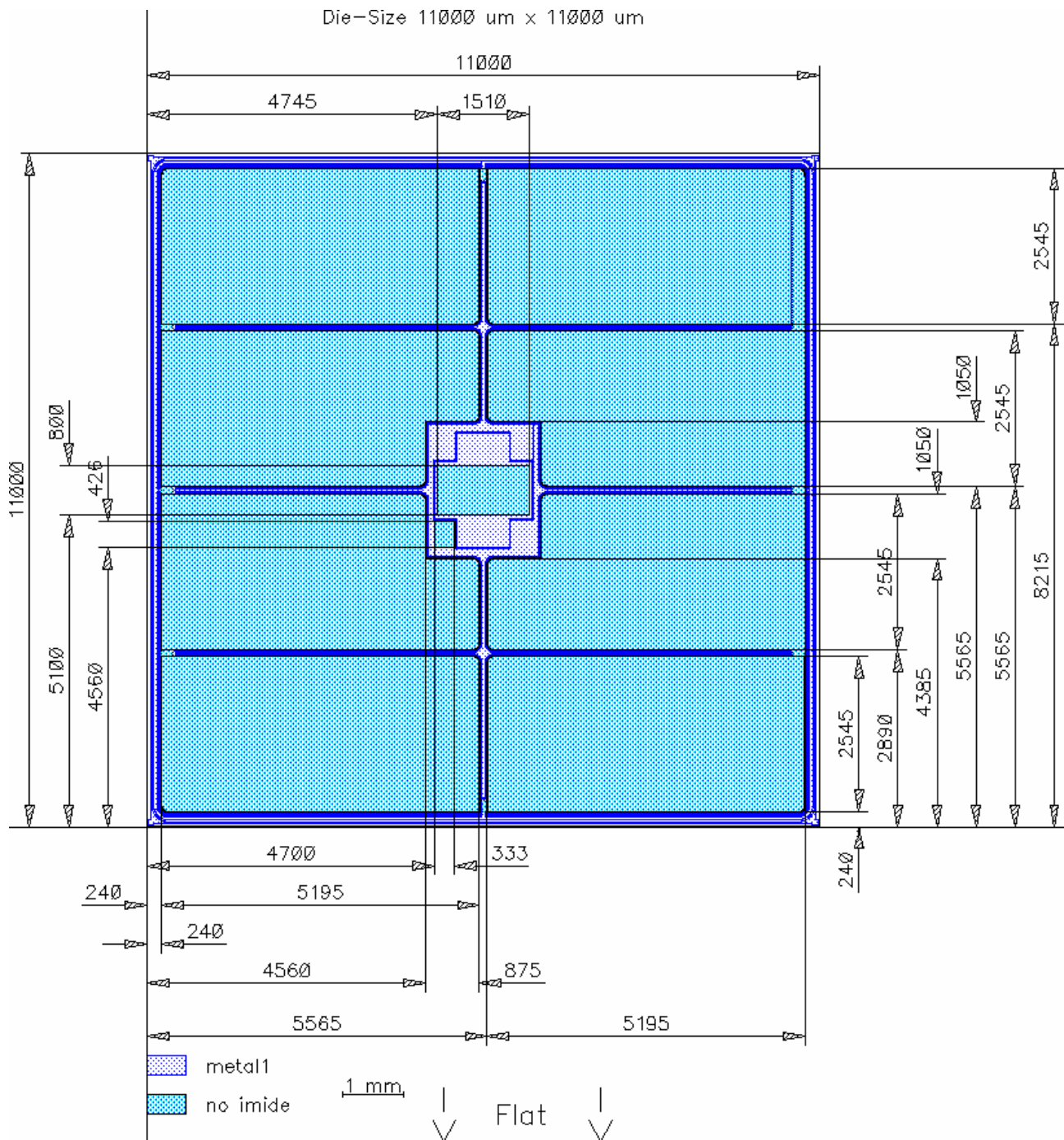
Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	$C_{iss}$	$V_{CE}=25V$	-	6500		pF
Output capacitance	$C_{oss}$	$V_{GE}=0V$	-	tbd		
Reverse transfer capacitance	$C_{riss}$	$f=1\text{ MHz}$	-	600		

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

Parameter	Symbol	Conditions <sup>1)</sup>	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	$T_j=125\text{ }^\circ\text{C}$	-	125		ns
Rise time	$t_r$	$V_{CC}=300V$	-	30		
Turn-off delay time	$t_{d(off)}$	$I_C=150\text{ A},$ $V_{GE}=-15/15V$	-	225		
Fall time	$t_f$	$R_G=1.5\text{ }\Omega$	-	35		

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

**CHIP DRAWING:**





# SIGC121T60NR2C

## FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet

BSM 150 GD 60 DLC

## DESCRIPTION:

AQL 0,65 for visual inspection according to failure catalog

Electrostatic Discharge Sensitive Device according to MIL-STD 883

Test-Normen Villach/Prüffeld

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