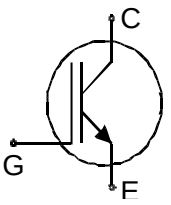
SIGC42T60SNC

IGBT Chip in NPT-technology

FEATURES:
- 600V NPT technology
- 100µm chip
- positive temperature coefficient
- easy paralleling

This chip is used for:
- IGBT-Modules

Applications:
- drives



Chip Type	V_{CE}	I_{Cn}	Die Size	Package	Ordering Code
SIGC42T60SNC	600V	50A	6.5 x 6.5 mm^2	sawn on foil	Q67050-A4181-A001
SIGC42T60SNC	600V	50A	6.5 x 6.5 mm^2	unsawn	Q67050-A4181-A002

MECHANICAL PARAMETER:

Raster size	6.5 x 6.5	mm^2
Area total / active	42.25 / 35.6	
Emitter pad size	2x(3.0x2.85)	
Gate pad size	0.8 x 1.5	
Thickness	100	µm
Wafer size	150	mm
Flat position	90	deg
Max.possible chips per wafer	334	
Passivation frontside	Photoimide	
Emitter metallization	3200 nm Al Si 1%	
Collector metallization	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	∅ 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 °C	V_{CE}	600	V
DC collector current, limited by T_{jmax}	I_C	1)	A
Pulsed collector current, t_p limited by T_{jmax}	I_{cpuls}	150	A
Gate emitter voltage	V_{GE}	±20	V
Operating junction and storage temperature	T_j, T_{stg}	-55 ... +150	°C

1) depending on thermal properties of assembly

STATIC CHARACTERISTICS (tested on chip), T_j=25 °C, unless otherwise specified:

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-emitter breakdown voltage	$V_{(BR)CES}$	V_{GE}=0V, I_C=2mA	600			V
Collector-emitter saturation voltage	$V_{CE(sat)}$	V_{GE}=15V, I_C=50A	1.7	2	2.5	
Gate-emitter threshold voltage	$V_{GE(th)}$	I_C=1mA, V_{GE}=V_{CE}	3	4	5	
Zero gate voltage collector current	I_{CES}	V_{CE}=600V, V_{GE}=0V			3.5	µA
Gate-emitter leakage current	I_{GES}	V_{CE}=0V, V_{GE}=20V			120	nA

DYNAMIC CHARACTERISTICS (tested at component):

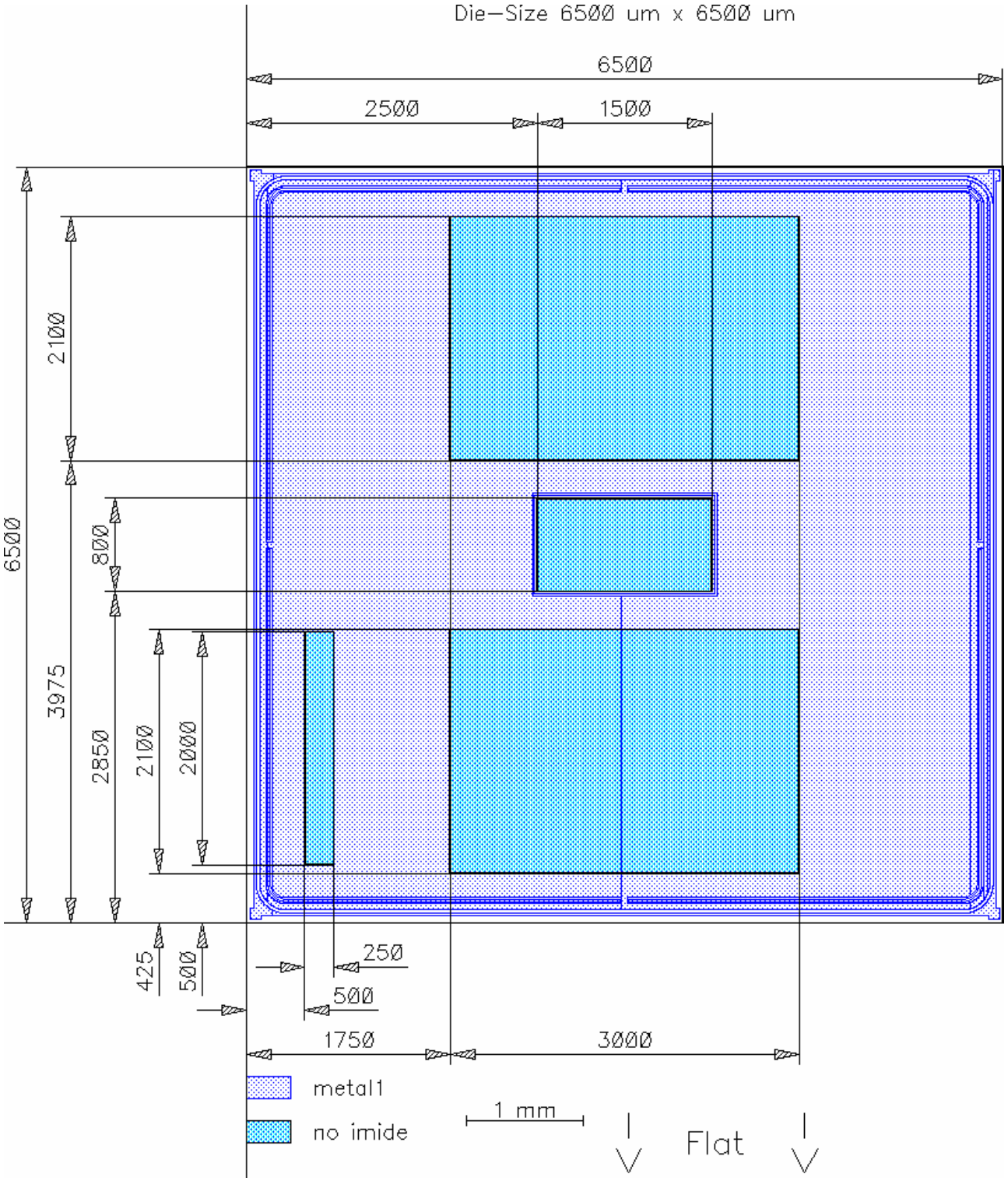
Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	V_{CE}=25V	-	2660	3190	pF
Output capacitance	C_{oss}	V_{GE}=0V	-	250	300	
Reverse transfer capacitance	C_{rss}	f=1MHz	-	153	182	

SWITCHING CHARACTERISTICS (tested at component), Inductive Load:

Parameter	Symbol	Conditions 2)	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	T_j=150°C V_{CC}=400V I_C=50A V_{GE}=+15/0V R_G=6.8Ω	-	55	77	ns
Rise time	t_r		-	40	56	
Turn-off delay time	$t_{d(off)}$		-	380	532	
Fall time	t_f		-	80	112	

2) switching conditions different to 600V Standard IGBT 2, under comparable switching conditions 40% faster turnoff than Standard IGBT 2. Values also influenced by parasitic L- and C- in measurement and package.

CHIP DRAWING:



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FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet

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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