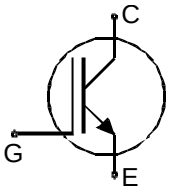
SIGC42T170R3

IGBT^3 Chip

FEATURES:
- 1700V Trench + Field Stop technology
- low turn-off losses
- short tail current
- positive temperature coefficient
- easy paralleling

This chip is used for:
- power module

Applications:
- drives



Chip Type	V_{CE}	I_{Cn}	Die Size	Package	Ordering Code
SIGC42T170R3	1700V	29A	6.5 x 6.46 mm^2	sawn on foil	Q67050-A4151-A001

MECHANICAL PARAMETER:

Raster size	6.5 x 6.46	mm
Emitter pad size	4.27 x 4.27	
Gate pad size	1.18 x 1.09	
Area total / active	42 / 28.7	mm^2
Thickness	190	µm
Wafer size	150	mm
Flat position	180	grd
Max.possible chips per wafer	338 pcs	
Passivation frontside	Photoimide	
Emitter metalization	3200 nm AlSiCu	
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	∅ 0.65mm ; max 1.2mm	
Recommended Storage Environment	store in original container, in dry nitrogen, < 6 month at an ambient temperature of 23°C	

SIGC42T170R3

MAXIMUM RATINGS:

Parameter	Symbol	Value	Unit
Collector-emitter voltage, T_j=25 °C	V_{CE}	1700	V
DC collector current, limited by T_{jmax}	I_C	1)	A
Pulsed collector current, t_p limited by T_{jmax}	I_{cpuls}	87	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= 1.5mA	1700			V
Collector-emitter saturation voltage	$V_{CE(sat)}$	V_{GE}=15V, I_C=29A	1.6	2	2.4	
Gate-emitter threshold voltage	$V_{GE(th)}$	I_C=1.2mA , V_{GE}=V_{CE}	5.2	5.8	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			600	nA
Integrated gate resistor	R_{Gint}			8		Ω

ELECTRICAL CHARACTERISTICS (tested at component):

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	V_{CE}=25V,		2500		pF
Output capacitance	C_{oss}	V_{GE}=0V,		105		
Reverse transfer capacitance	C_{rss}	f=1MHz		84		

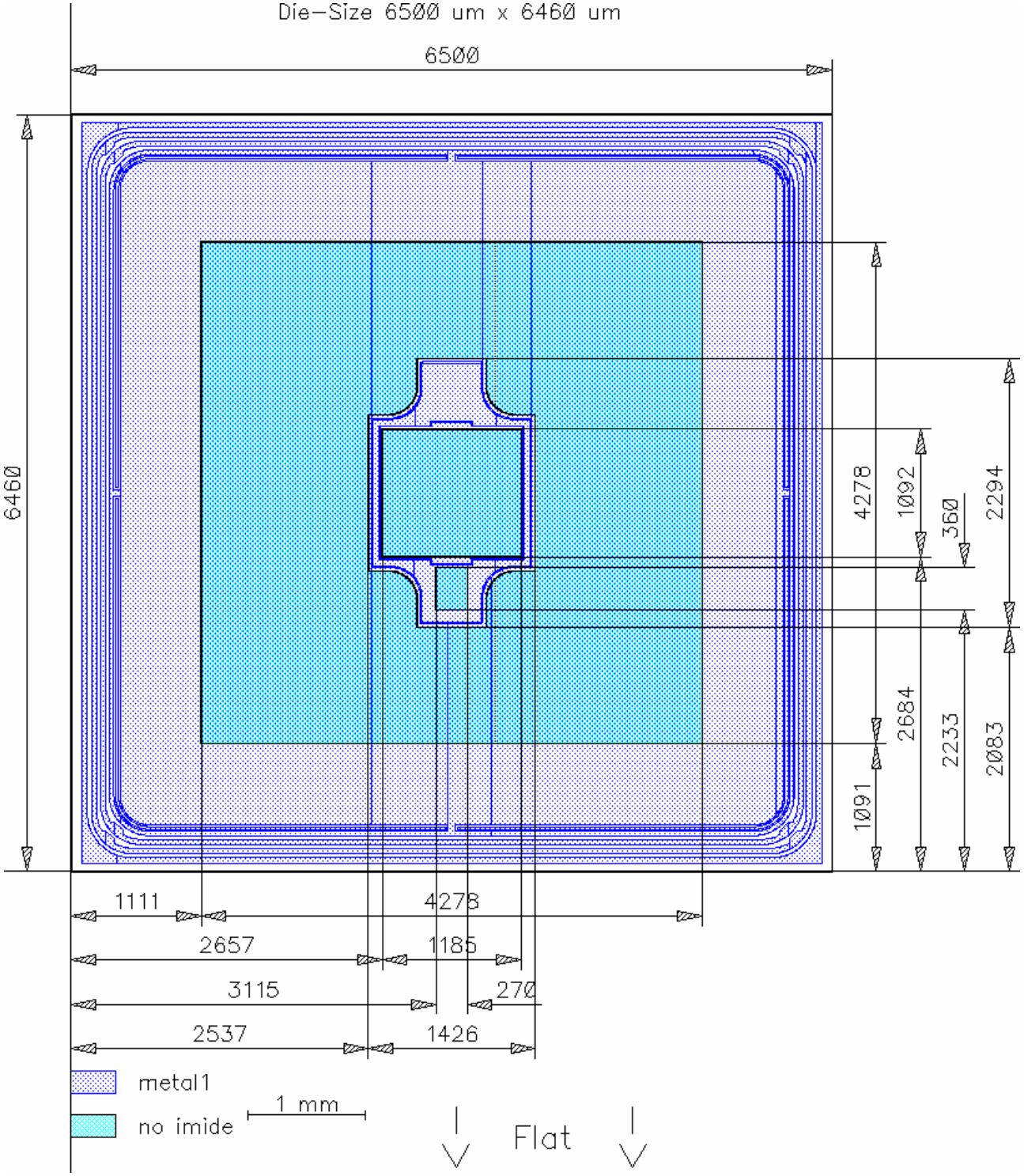
SWITCHING CHARACTERISTICS (tested at component), Inductive Load

Parameter	Symbol	Conditions 1)	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	T_j=125°C		400		ns
Rise time	t_r	V_{CC}=900V,		50		
Turn-off delay time	$t_{d(off)}$	I_C=29A,		800		
Fall time	t_f	V_{GE}=-15/15V, R_G= 18Ω		300		

1) values also influenced by parasitic L- and C- in measurement and package.

Edited by INFINEON Technologies AI PS DD HV3, L 7751-A, Edition 2, 04.09.03

CHIP DRAWING:



SIGC42T170R3

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

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

Attention please!

The information herein is given to describe certain components and shall not be considered as warranted characteristics.

Terms of delivery and rights to technical change reserved.

We hereby disclaim any and all warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

Infineon Technologies is an approved CECC manufacturer.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office in Germany or our Infineon Technologies Representatives world-wide (see address list).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.

Infineon Technologies components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and / or maintain and sustain and / or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.