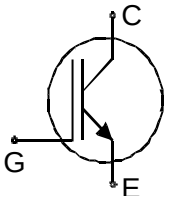
SIGC42T170R2C

IGBT Chip in NPT-technology

FEATURES:
- 1700V NPT technology
- 280µm chip
- positive temperature coefficient
- easy paralleling
- integrated gate resistor

This chip is used for:
- chip only

Applications:
- drives



Chip Type	V_{CE}	I_{Cn}	Die Size	Package	Ordering Code
SIGC42T170R2C	1700V	17A	6.51 x 6.51 mm^2	sawn on foil	Q67050-A4117-A003

MECHANICAL PARAMETER:

Raster size	6.51 x 6.51	mm^2
Area total / active	42.38 / 23.8	
Emitter pad size	2x(1.7x3.2)	
Gate pad size	1.2 x 1.2	
Thickness	280	µm
Wafer size	150	mm
Flat position	90	deg
Max.possible chips per wafer	328 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	∅ 0.65mm ; max 1.2mm	
Recommended Storage Environment	store in original container, in dry nitrogen, < 6 month at an ambient temperature of 23°C	

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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}	51	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=900µA	1700			V
Collector-emitter saturation voltage	$V_{CE(sat)}$	V_{GE}=15V, I_C=17A	2.2	2.7	3.2	
Gate-emitter threshold voltage	$V_{GE(th)}$	I_C=750µA , V_{GE}=V_{CE}	4.5	5.5	6.5	
Zero gate voltage collector current	I_{CES}	V_{CE}=1700V , V_{GE}=0V			4	µA
Gate-emitter leakage current	I_{GES}	V_{CE}=0V , V_{GE}=20V			300	nA
Integrated gate resistor	R_{Gint}			10		Ω

DYNAMIC CHARACTERISTICS (tested at component):

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	V_{CE}=25V, V_{GE}=0V, f=1MHz		1165		pF
Output capacitance	C_{oss}			tbd		
Reverse transfer capacitance	C_{rss}			tbd		

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 V_{CC}=900V, I_C=17A V_{GE}=±15V, R_G=90Ω	-	100	-	ns
Rise time	t_r		-	100	-	
Turn-off delay time	$t_{d(off)}$		-	900	-	
Fall time	t_f		-	30	-	

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

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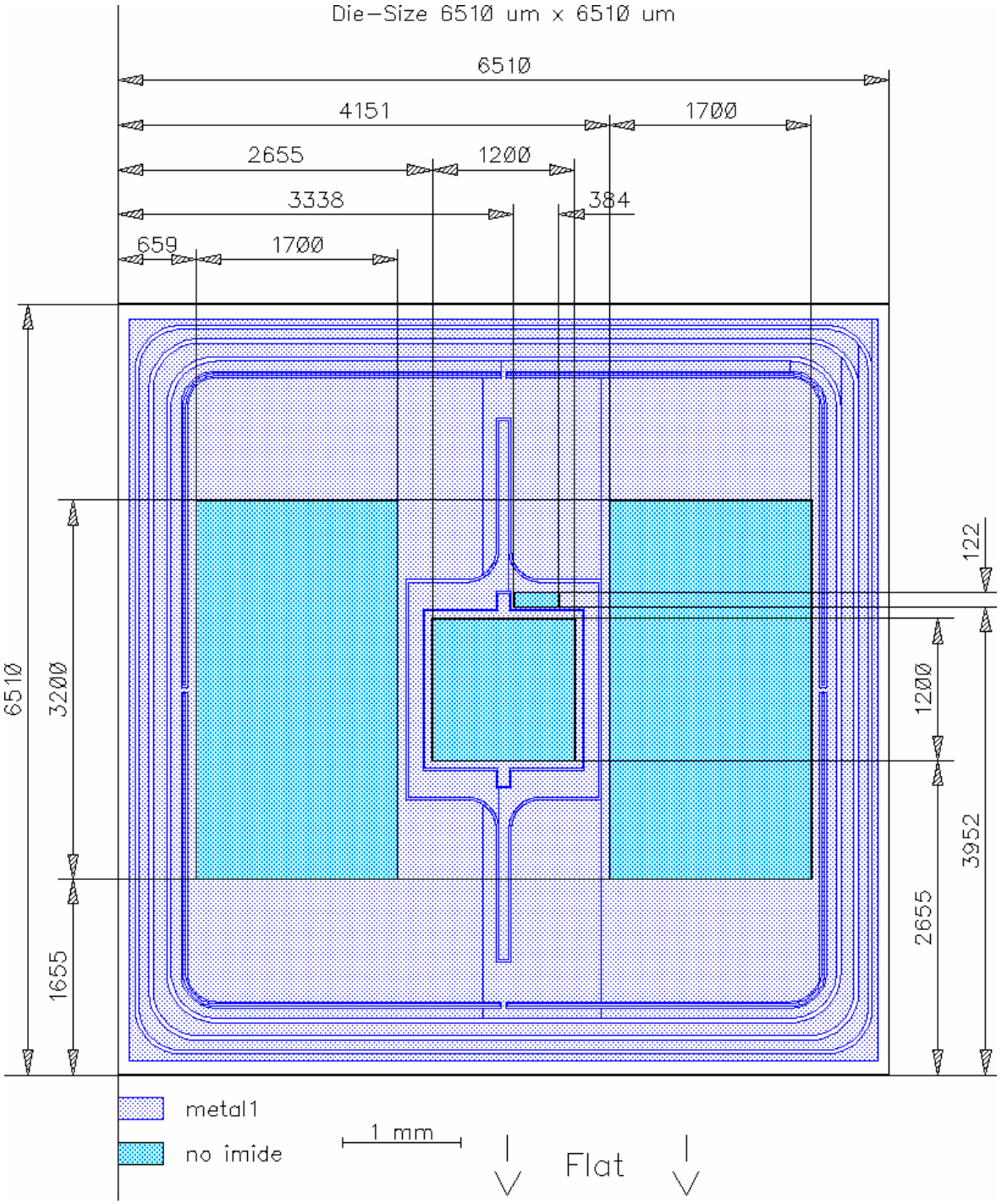
CHIP DRAWING:



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FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet	chip only

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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