

SIGC42T170R3

IGBT³ Chip

FEATURES:

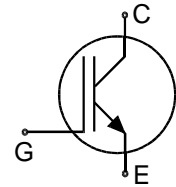
- 1700V Trench + Field Stop technology
- low turn-off losses
- short tail current
- positive temperature coefficient
- easy paralleling

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 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	

MAXIMUM RATINGS:

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CE}	1700	V
DC collector current, limited by T_{jmax}	I_C	29	A
Pulsed collector current, t_p limited by T_{jmax}	I_{Cpuls}	58	A
Gate emitter voltage	V_{GE}	± 20	V
Operating junction and storage temperature	T_j, T_{stg}	-55 ... +150	$^{\circ}C$

STATIC CHARACTERISTICS (tested on chip), $T_j=25^{\circ}C$, 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}	$V_{CE}=1700V, V_{GE}=0V$			400	μA
Gate-emitter leakage current	I_{GES}	$V_{CE}=0V, V_{GE}=30V$			600	nA
Integrated gate resistor	R_{Gint}			8		Ω

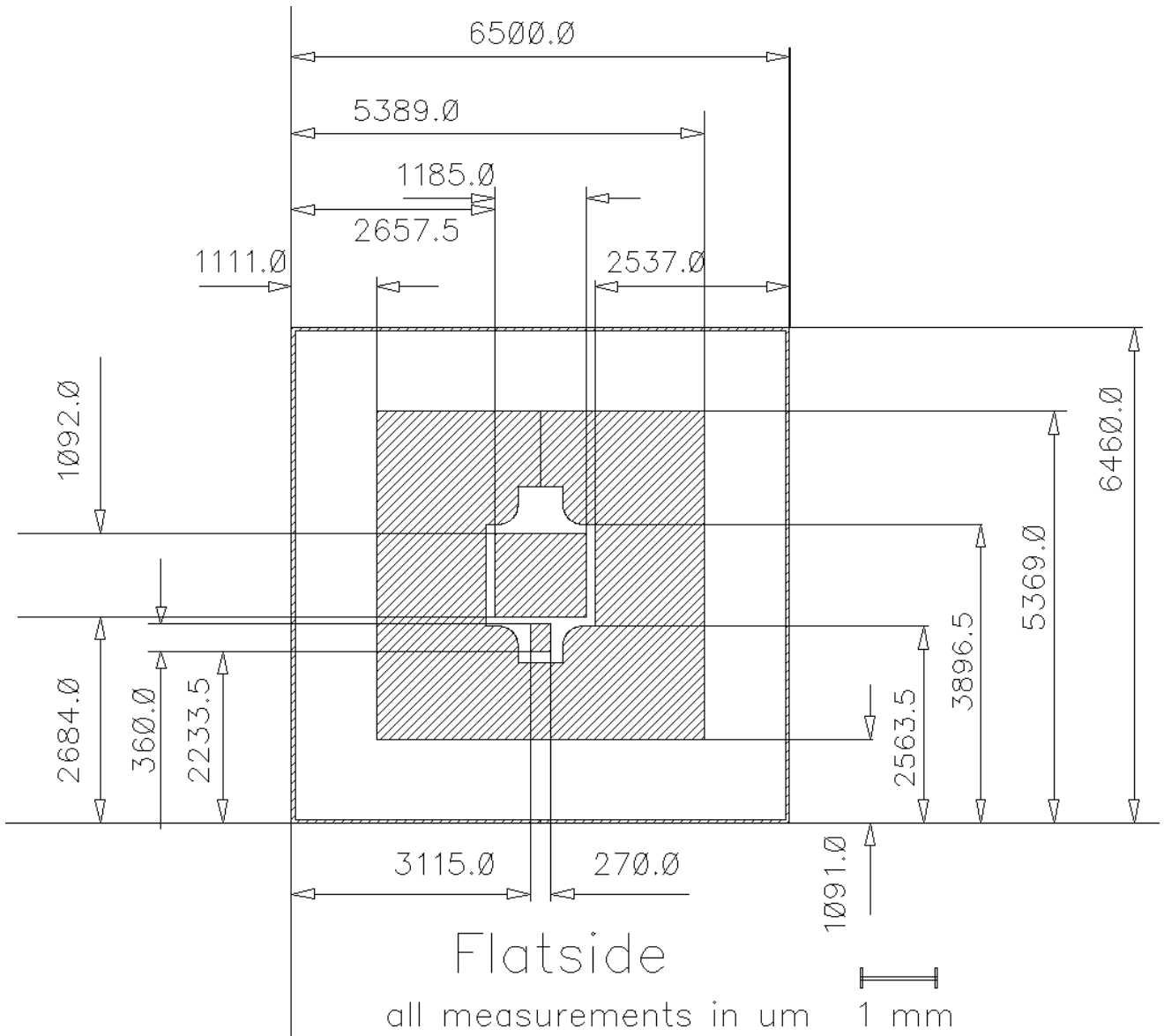
ELECTRICAL CHARACTERISTICS (tested at component):

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_{riss}	$f=1MHz$		84		

SWITCHING CHARACTERISTICS (tested at component), Inductive Load

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	$T_j=125^{\circ}C$ $V_{CC}=1200V,$ $I_C=29A,$ $V_{GE}=-15/15V,$ $R_G=--\Omega$		tbd		μs
Rise time	t_r			tbd		
Turn-off delay time	$t_{d(off)}$			tbd		
Fall time	t_f			tbd		

CHIP DRAWING:





Preliminary

SIGC42T170R3

FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet	tbd	
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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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