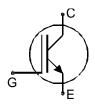


## IGBT<sup>3</sup> Chip

### FEATURES:

- 1200V 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 <sub>CE</sub>	I <sub>Cn</sub>	Die Size	Package	Ordering Code
SIGC84T120R3	1200V	75A	9.13 x 9.15 mm <sup>2</sup>	sawn on foil	Q67050- A4107-A001

### **MECHANICAL PARAMETER:**

Raster size	9.13 x 9.15	mm		
Emitter pad size	8x(1.864 x 3.736)			
Gate pad size	1.139 x 1.139			
Area total / active	83.5 / 63.6	mm <sup>2</sup>		
Thickness	140	μm		
Wafer size	150	mm		
Flat position	90	grd		
Max.possible chips per wafer	164 pcs			
Passivation frontside	Photoimide			
Emitter metallization	3200 nm AlSiCu			
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	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 <sub>j</sub> =25 °C	V <sub>CE</sub>	1200	V
DC collector current, limited by T <sub>jmax</sub>	I <sub>C</sub>	1)	А
Pulsed collector current, tp limited by Tjmax	I <sub>cpuls</sub>	225	А
Gate emitter voltage	V <sub>GE</sub>	±20	V
Operating junction and storage temperature	T <sub>j</sub> , T <sub>stg</sub>	-55 +150	°C

<sup>1)</sup> depending on thermal properties of assembly

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

Parameter	Symbol	Conditions	Value			Unit
Tarameter			min.	typ.	max.	
Collector-emitter breakdown voltage	V <sub>(BR)CES</sub>	$V_{GE}$ =0V , $I_C$ = 3 mA	1200			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	V <sub>GE</sub> =15V, I <sub>C</sub> =75A	1.4	1.7	2.1	V
Gate-emitter threshold voltage	V <sub>GE(th)</sub>	$I_C=3mA$ , $V_{GE}=V_{CE}$	5.0	5.8	6.5	
Zero gate voltage collector current	I <sub>CES</sub>	$V_{CE}$ =1200V , $V_{GE}$ =0V			10.1	μA
Gate-emitter leakage current	I <sub>GES</sub>	$V_{CE}=0V$ , $V_{GE}=20V$			600	nA
Integrated gate resistor	R <sub>Gint</sub>			10		Ω

### ELECTRICAL CHARACTERISTICS (tested at component):

Parameter	Symbol	Conditions	Value			Unit
Falameter	Symbol		min.	typ.	max.	
Input capacitance	Ciss	V <sub>CE</sub> =25V,		5345		pF
Output capacitance	Coss	$V_{GE}=0V$ ,		280		
Reverse transfer capacitance	Crss	f=1MHz		242		

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

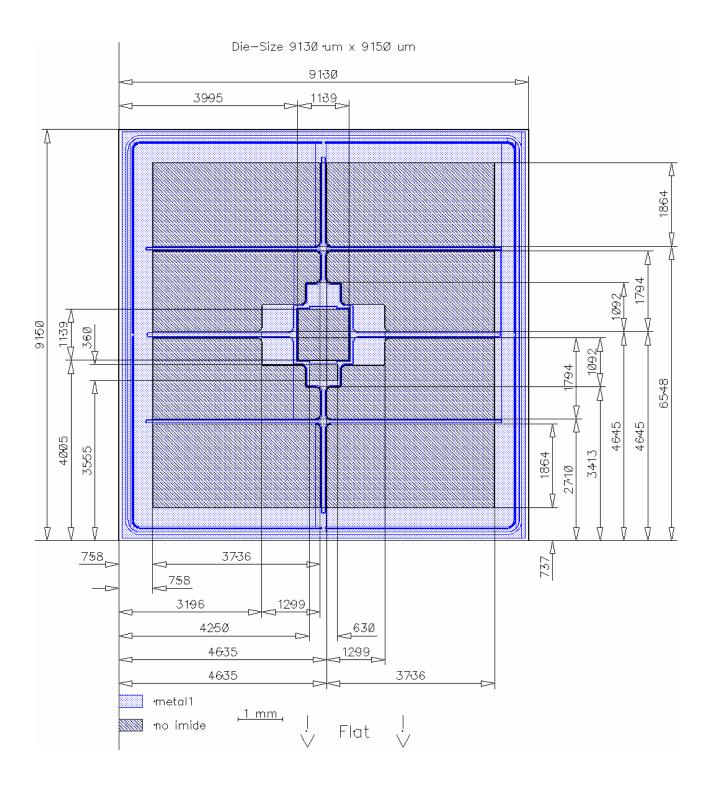
Parameter	Symbol	Conditions <sup>1)</sup>	Value			Unit
			min.	typ.	max.	
Turn-on delay time	t <sub>d(on)</sub>	$T_{\rm j}$ =125°C		285		ns
Rise time	t <sub>r</sub>	$V_{\rm CC} = 600 V$ ,		45		
Turn-off delay time	t <sub>d(off)</sub>	I <sub>C</sub> =75A, V <sub>GE</sub> =-15/15V,		520		
Fall time	t <sub>f</sub>	R <sub>G</sub> = 4.7Ω		90		

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

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### CHIP DRAWING:





### FURTHER ELECTRICAL CHARACTERISTICS:

#### **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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