

IGBT³ Chip

FEATURES:

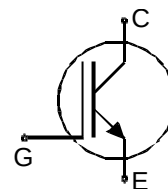
- 1200V Trench + Field Stop technology
- low turn-off losses
- short tail current
- positive temperature coefficient
- easy paralleling

This chip is used for:

- power module

Applications:

- drives



Chip Type	V _{CE}	I _{Cn}	Die Size	Package	Ordering Code
SIGC84T120R3	1200V	75A	9.13 x 9.15 mm ²	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 ²
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 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	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	V_{CE}	1200	V
DC collector current, limited by T_{jmax}	I_C	75	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

STATIC CHARACTERISTICS (tested on chip), $T_j=25^\circ\text{C}$, unless otherwise specified:

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}=0V, I_C=3\text{ mA}$	1200			V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE}=15V, I_C=75A$	1.4	1.7	2.1	
Gate-emitter threshold voltage	$V_{GE(th)}$	$I_C=3mA, V_{GE}=V_{CE}$	5.0	5.8	6.5	
Zero gate voltage collector current	I_{CES}	$V_{CE}=1200V, V_{GE}=0V$			500	μA
Gate-emitter leakage current	I_{GES}	$V_{CE}=0V, V_{GE}=30V$			600	nA
Integrated gate resistor	R_{Gint}			10		Ω

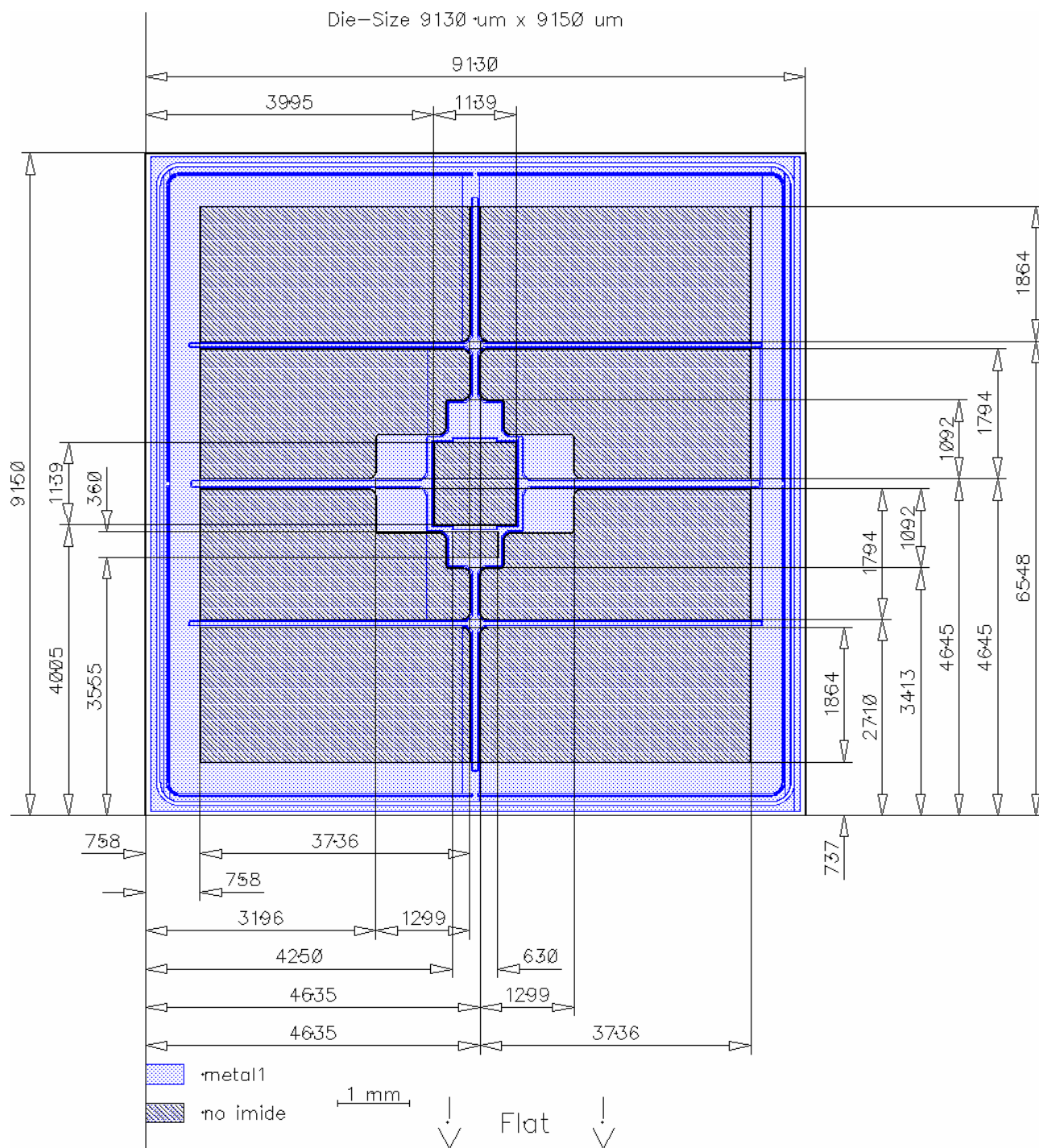
ELECTRICAL CHARACTERISTICS (tested at component):

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	$V_{CE}=25V,$ $V_{GE}=0V,$ $f=1\text{MHz}$		5345		pF
Output capacitance	C_{oss}			280		
Reverse transfer capacitance	C_{rss}			242		

SWITCHING CHARACTERISTICS (tested at component), Inductive Load

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	$T_j=125^\circ\text{C}$ $V_{CC}=600V,$ $I_C=75A,$ $V_{GE}=-15/15V,$ $R_G=4.7\Omega$		285		ns
Rise time	t_r			45		
Turn-off delay time	$t_{d(off)}$			520		
Fall time	t_f			90		

CHIP DRAWING:



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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