

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

### FEATURES:

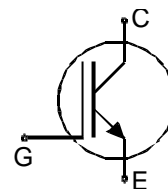
- 1200V Trench + Field Stop technology
- low turn-off losses
- short tail current
- positive temperature coefficient
- easy paralleling

### This chip is used for:

- power module

### Applications:

- drives



Chip Type	V <sub>CE</sub>	I <sub>Cn</sub>	Die Size	Package	Ordering Code
SIGC57T120R3	1200V	50A	7.6 x 7.53 mm <sup>2</sup>	sawn on foil	Q67050-A4106-A001

### MECHANICAL PARAMETER:

Raster size	7.6 x 7.53	mm
Emitter pad size	4x(2.98 x 2.97)	
Gate pad size	1.139 x 1.139	
Area total / active	57.2 / 42.8	mm <sup>2</sup>
Thickness	140	µm
Wafer size	150	mm
Flat position	90	grd
Max.possible chips per wafer	246 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 $T_{jmax}$	$I_C$	50	A
Pulsed collector current, $t_p$ limited by $T_{jmax}$	$I_{cpuls}$	100	A
Gate emitter voltage	$V_{GE}$	$\pm 20$	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	$V_{(BR)CES}$	$V_{GE}=0V, I_C=2mA$	1200			V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE}=15V, I_C=50A$	1.4	1.7	2.1	
Gate-emitter threshold voltage	$V_{GE(th)}$	$I_C=2mA, V_{GE}=V_{CE}$	5.0	5.8	6.5	
Zero gate voltage collector current	$I_{CES}$	$V_{CE}=1200V, V_{GE}=0V$			400	$\mu A$
Gate-emitter leakage current	$I_{GES}$	$V_{CE}=0V, V_{GE}=30V$			600	nA
Integrated gate resistor	$R_{Gint}$			4		$\Omega$

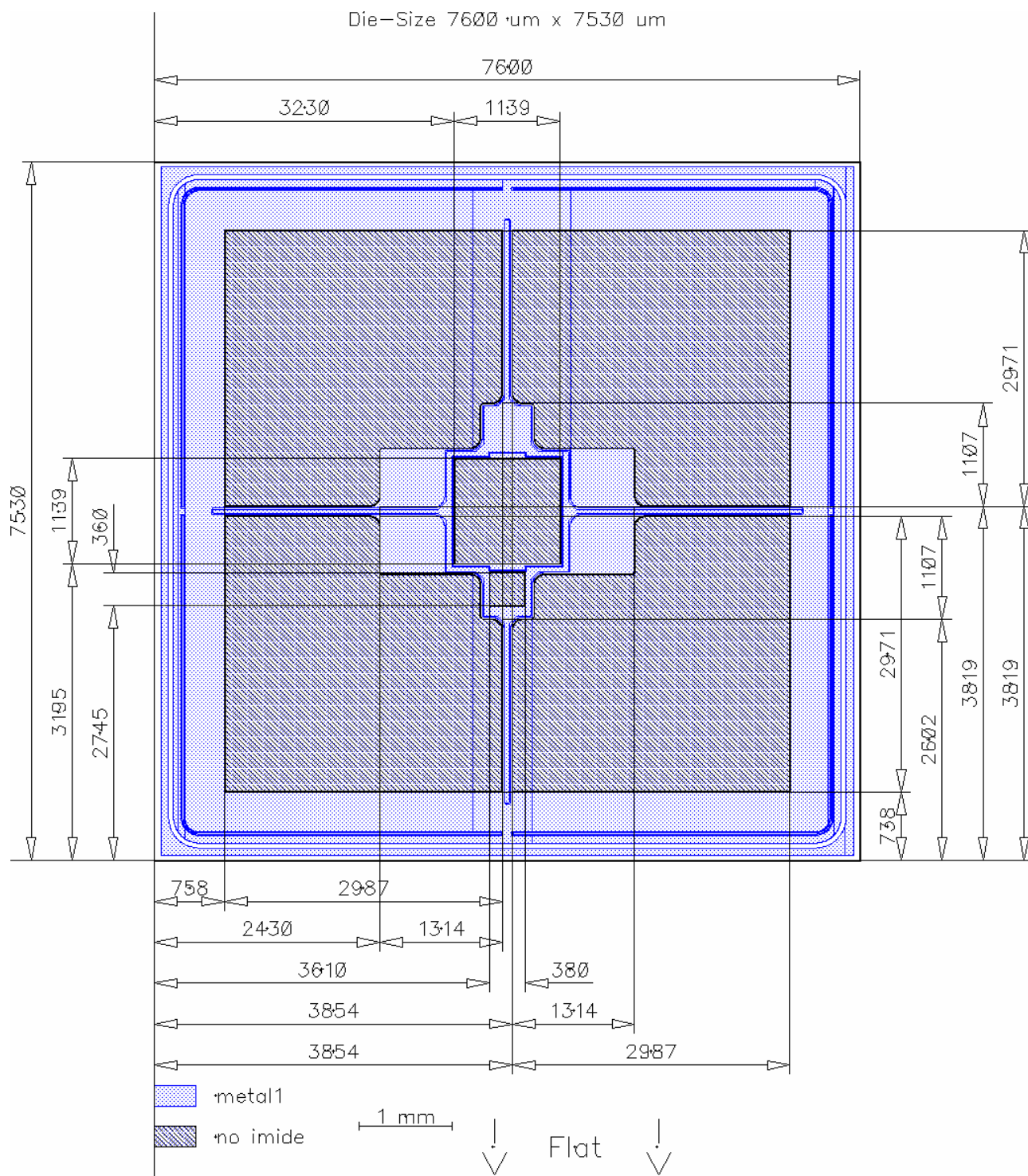
**ELECTRICAL CHARACTERISTICS (tested at component):**

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	$C_{iss}$	$V_{CE}=25V,$ $V_{GE}=0V,$ $f=1MHz$		3600		pF
Output capacitance	$C_{oss}$			188		
Reverse transfer capacitance	$C_{rss}$			163		

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

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	$T_j=125^\circ\text{C}$ $V_{CC}=600V,$ $I_C=50A,$ $V_{GE}=-15/15V,$ $R_G=18\Omega$		90		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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