

IGBT Chip in NPT-technology

FEATURES:

- 600V NPT technology
- 100µm chip
- positive temperature coefficient
- easy paralleling

This chip is used for:

- IGBT Modules

Applications:

- drives



Chip Type	V _{CE}	I _{CN}	Die Size	Package	Ordering Code
SIGC11T60SNC	600V	10A	3.25 x 3.25 mm ²	sawn on foil	Q67050-A4155-A001

MECHANICAL PARAMETER:

Raster size	3.25 x 3.25	mm ²
Area total / active	10.56 / 7.4	
Emitter pad size	2 x 1.6	
Gate pad size	1.08 x 0.68	
Thickness	100	µm
Wafer size	150	mm
Flat position	270	deg
Max.possible chips per wafer	1414	
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, $T_j=25\text{ °C}$	V_{CE}	600	V
DC collector current, limited by T_{jmax}	I_C	¹⁾	A
Pulsed collector current, t_p limited by T_{jmax}	I_{Cpuls}	30	A
Gate-emitter voltage	V_{GE}	± 20	V
Operating junction and storage temperature	T_j, T_{stg}	-55 ... +150	$^{\circ}\text{C}$

¹⁾ depending on thermal properties of assembly

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

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}=0V, I_C=500\mu A$	600			V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE}=15V, I_C=10A$	1.7	2	2.4	
Gate-emitter threshold voltage	$V_{GE(th)}$	$I_C=300\mu A, V_{GE}=V_{CE}$	3	4	5	
Zero gate voltage collector current	I_{CES}	$V_{CE}=600V, V_{GE}=0V$			0.85	μA
Gate-emitter leakage current	I_{GES}	$V_{CE}=0V, V_{GE}=20V$			100	nA

DYNAMIC CHARACTERISTICS (tested at component):

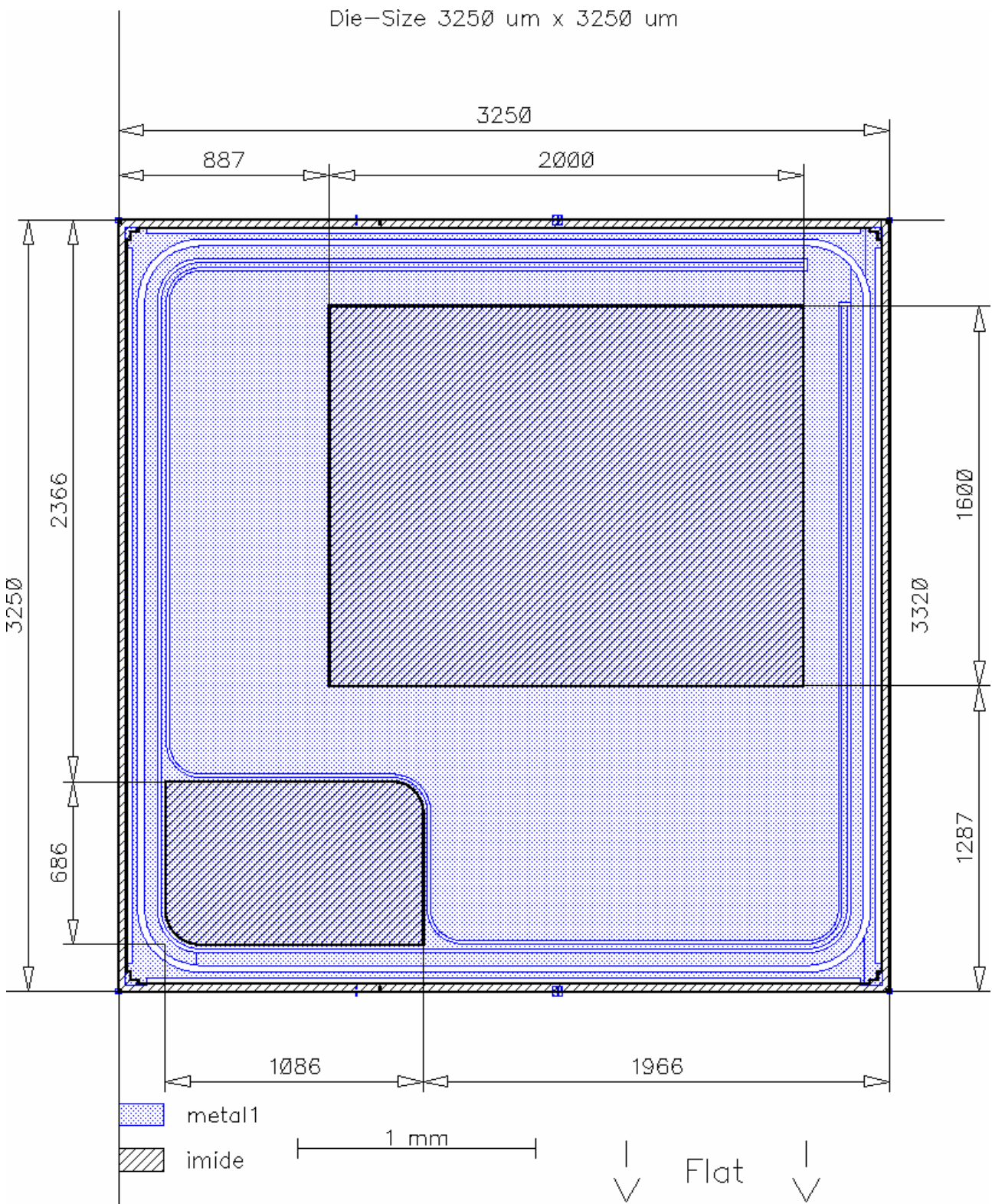
Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	$V_{CE}=25V$	-	550	660	pF
Output capacitance	C_{oss}	$V_{GE}=0V$	-	62	75	
Reverse transfer capacitance	C_{riss}	$f=1\text{MHz}$	-	42	51	

SWITCHING CHARACTERISTICS (tested at component), Inductive Load:

Parameter	Symbol	Conditions ²⁾	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	$T_j=150\text{ °C}$	-	28	34	ns
Rise time	t_r	$V_{CC}=400V$	-	12	15	
Turn-off delay time	$t_{d(off)}$	$I_C=10A$	-	198	238	
Fall time	t_f	$V_{GE}=+15/0V$	-	26	32	
		$R_G=25\Omega$				

²⁾ switching conditions different to 600V Standard IGBT 2, under comparable switching conditions 40% faster turnoff than Standard IGBT 2. Values also influenced by parasitic L- and C- in measurement and package.

CHIP DRAWING:





SIGC11T60SNC

FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the
device data sheet

SGP10N60A

Description:

AQL 0,65 for visual inspection according to failure catalog

Electrostatic Discharge Sensitive Device according to MIL-STD 883

Test-Normen Villach/Prüffeld

Published by
Infineon Technologies AG,
Bereich Kommunikation
St.-Martin-Strasse 53,
D-81541 München
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