

High Speed IGBT Chip in NPT-technology

FEATURES:

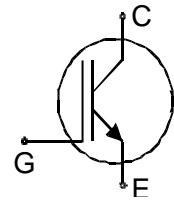
- **low E_{off}**
- 600V NPT technology
- 100µm chip
- short circuit prove
- positive temperature coefficient
- easy paralleling

This chip is used for:

- SGP20N60HS

Applications:

- Welding
- PFC
- UPS



Chip Type	V _{CE}	I _{Cn}	Die Size	Package	Ordering Code
SIGC18T60UN	600V	20A	4.3 x 4.3 mm ²	sawn on foil	Q67050-A4222-A101

MECHANICAL PARAMETER:

Raster size	4.3 x 4.3	mm ²
Area total / active	18.5 / 14.2	
Emitter pad size	2.986 x 2.486	
Gate pad size	1.078 x 0.696	
Thickness	100	µm
Wafer size	150	mm
Flat position	270	deg
Max.possible chips per wafer	796	
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}	60	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	$V_{(BR)CES}$	$V_{GE}=0\text{V}, I_C=500\mu\text{A}$	600			V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE}=15\text{V}, I_C=20\text{A}$		2.8	3.15	
Gate-emitter threshold voltage	$V_{GE(th)}$	$I_C=500\mu\text{A}, V_{GE}=V_{CE}$	3	4	5	
Zero gate voltage collector current	I_{CES}	$V_{CE}=600\text{V}, V_{GE}=0\text{V}$			1.5	μA
Gate-emitter leakage current	I_{GES}	$V_{CE}=0\text{V}, V_{GE}=20\text{V}$			100	nA

DYNAMIC CHARACTERISTICS (tested at component):

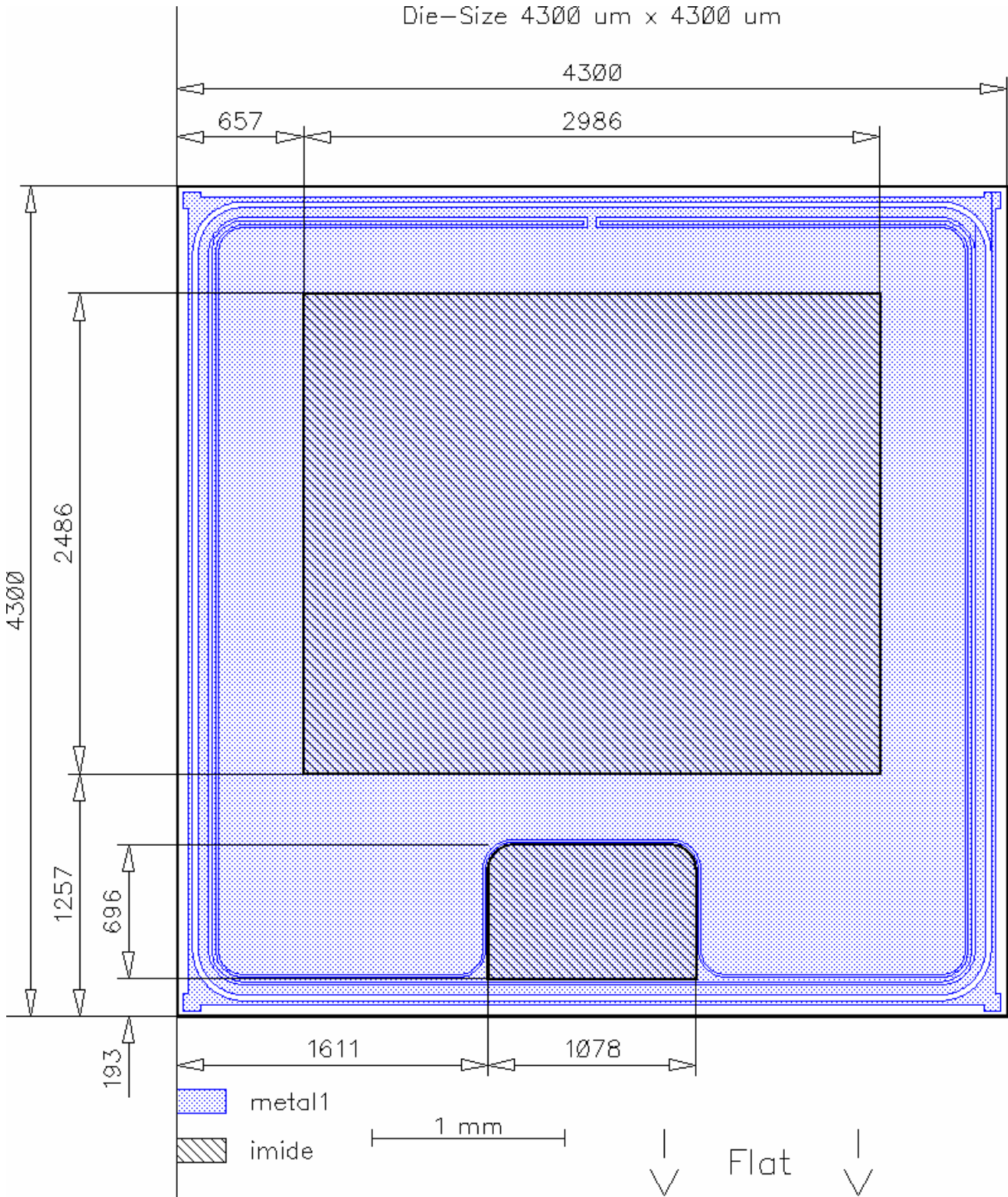
Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	$V_{CE}=25\text{V}$	-	1100		pF
Output capacitance	C_{oss}	$V_{GE}=0\text{V}$	-	105		
Reverse transfer capacitance	C_{riss}	$f=1\text{MHz}$	-	64		

SWITCHING CHARACTERISTICS (tested at component), Inductive Load:

Parameter	Symbol	Conditions 1)	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	$T_j=150\text{ °C}$	-	15		ns
Rise time	t_r	$V_{CC}=400\text{V}$	-	8.5		
Turn-off delay time	$t_{d(off)}$	$I_C=20\text{A}$	-	65		
Fall time	t_f	$V_{GE}=+15/0\text{V}$	-	35		

1) values also influenced by parasitic L- and C- in measurement and package.

CHIP DRAWING:





SIGC18T60UN

FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the
device data sheet

SGP20N60HS

Package :TO220

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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