

High Speed IGBT Chip in NPT-technology

FEATURES:

- low Eoff
- 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		
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	AI, ≤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 °C	V _{CE}	600	V
DC collector current, limited by T _{jmax}	I _C	1)	Α
Pulsed collector current, t _p limited by T _{jmax}	I _{cpuls}	60	Α
Gate emitter voltage	V_{GE}	±20	V
Operating junction and storage temperature	T_j , T_{stg}	-55 + 150	°C

¹⁾ depending on thermal properties of assembly

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

Parameter	Symbol	Conditions	Value			Unit
Turumeter			min.	typ.	max.	0
Collector-emitter breakdown voltage	$V_{(BR)CES}$	V_{GE} =0V, I_{C} =500 μ A	600			
Collector-emitter saturation voltage	V _{CE(sat)}	V_{GE} =15V, I_{C} =20A		2.8	3.15	V
Gate-emitter threshold voltage	$V_{GE(th)}$	I_C =500 μ A, V_{GE} = V_{CE}	3	4	5	
Zero gate voltage collector current	I _{CES}	V_{CE} =600V, V_{GE} =0V			1.5	μΑ
Gate-emitter leakage current	I _{GES}	$V_{CE}=0V$, $V_{GE}=20V$			100	nA

DYNAMIC CHARACTERISTICS (tested at component):

Parameter	Symbol	Conditions	Value			Unit
- arameter			min.	typ.	max.	Joint
Input capacitance	Ciss	<i>V</i> _{CE} =25V	-	1100		pF
Output capacitance	Coss	<i>V</i> _{GE} =0 V <i>f</i> =1MHz	-	105		
Reverse transfer capacitance	C _{rss}	,	-	64		

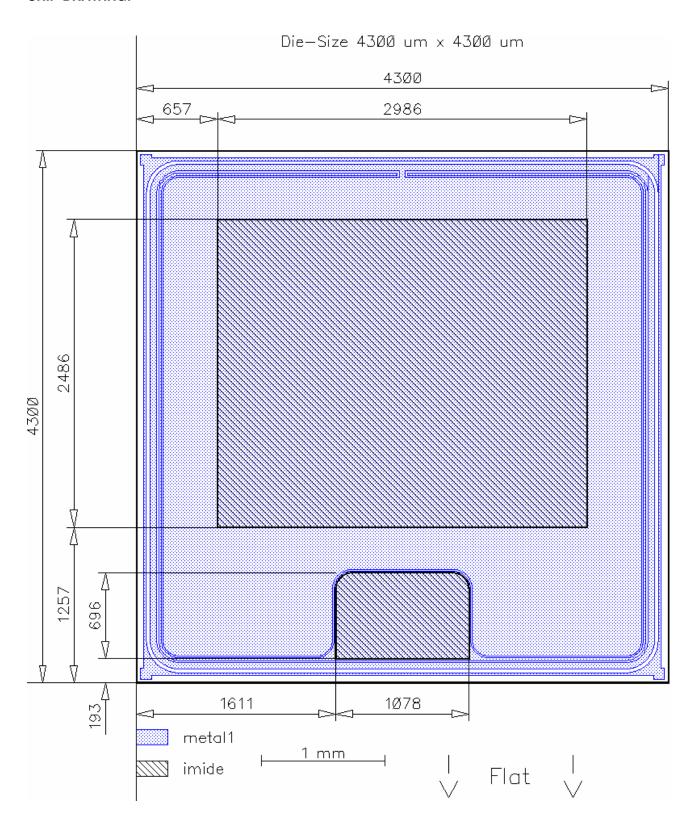
SWITCHING CHARACTERISTICS (tested at component), Inductive Load:

Parameter	Symbol	Conditions 1)	Value			Unit
			min.	typ.	max.	Joint
Turn-on delay time	$t_{d(on)}$	$T_j = 150 ^{\circ}\text{C}$	-	15		ns
Rise time	t _r	$V_{\rm CC} = 400 \rm V$	-	8.5		
Turn-off delay time	$t_{d(off)}$	$I_{\rm C}$ =20A $V_{\rm GE}$ =+15/0V	-	65		
Fall time	t_{f}	$R_{\rm G}$ =2.2 Ω	-	35		

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



CHIP DRAWING:





FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet SGP20N60HS Package :TO								
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 © Infineon Technologies AG 2002 All Rights Reserved.

Attention please!

The information herein is given to describe certain components and shall not be considered as warranted characteristics.

Terms of delivery and rights to technical change reserved.

We hereby disclaim any and all warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

Infineon Technologies is an approved CECC manufacturer.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office in Germany or our Infineon Technologies Representatives world-wide (see address list).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.

Infineon Technologies components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and / or maintain and sustain and / or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.