

SIGC14T60SNC

IGBT Chip in NPT-technology

FEATURES:

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

This chip is used for:

• SGP15N60



Applications:

• drives

Chip Type	V _{CE}	I _{Cn}	Die Size	Package	Ordering Code
SIGC14T60SNC	600V	15A	3.8 x 3.8 mm ²	sawn on foil	Q67041-A4665- A001
SIGC14T60SNC	600V	15A	3.8 x 3.8 mm ²	unsawn	Q67041-A4665- A002

MECHANICAL PARAMETER:

Raster size	3.8 x 3.8				
Area total / active	14.44 / 10.7	1			
Emitter pad size	1.89 x 2.19	1			
Gate pad size	0.7 x 1.09	1			
Thickness	100	μm			
Wafer size	150	mm			
Flat position	270	deg			
Max.possible chips per wafer	1032				
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				



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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}	45	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_i =25 °C, unless otherwise specified:

Parameter	Symbol	Conditions	Value			Unit
T drameter			min.	typ.	max.	5
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 =15A	1.6	2	2.5	V
Gate-emitter threshold voltage	$V_{\rm GE(th)}$	I_C =400 μ A, V_{GE} = V_{CE}	3	4	5	
Zero gate voltage collector current	I _{CES}	V_{CE} =600V, V_{GE} =0V			1.2	μΑ
Gate-emitter leakage current	I _{GES}	$V_{CE}=0V$, $V_{GE}=20V$			120	nA

DYNAMIC CHARACTERISTICS (tested at component):

Parameter	Symbol	Conditions	Value			Unit
raiailletei	Symbol	Conditions	min.	typ.	max.	Oilit
Input capacitance	Ciss	V _{CE} =25V	-	800	960	pF
Output capacitance	Coss	$V_{GE}=0V$	-	84	100	
Reverse transfer capacitance	C_{rss}	f=1MHz	-	52	63	

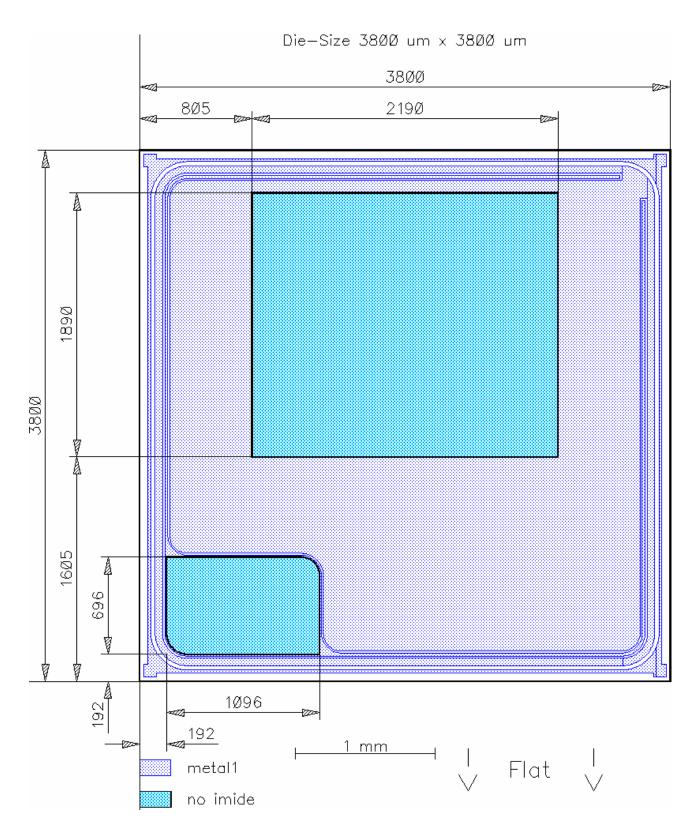
SWITCHING CHARACTERISTICS (tested at component), Inductive Load:

Parameter	Symbol	Conditions ²⁾	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	$T_{\rm j} = 150 ^{\circ} ^{\rm C}$ $V_{\rm CC} = 400 ^{\rm V}$	-	31	38	ns
Rise time	t _r	$I_{\rm C}=15A$	-	23	28	
Turn-off delay time	$t_{d(off)}$	$V_{\rm GE}$ =+15/0V $R_{\rm G}$ =21 Ω	-	261	313	
Fall time	t_{f}		-	54	65	

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:





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FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the	SGP15N60	Package :TO220
device data sheet	301 131100	rackage .10220

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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