SIGC42T120CQ

IGBT Chip in Fieldstop -technology

FEATURES:

- 1200V Fieldstop technology 120µm chip
- low turn-off losses
- short tail current
- positive temperature coefficient

This chip is used for:

• IGBT Modules

Applications:

• welding, SMPS, resonant applications



Chip Type	V _{CE}	I _{Cn}	Die Size	Package	Ordering Code	
SIGC42T120CQ	1200V	25A	6.59 x 6.49 mm ²	sawn on foil	SP0002-04966	

MECHANICAL PARAMETER:

Raster size	6.59 x 6.49				
Emitter pad size	2 x (2.18 x 1.58)				
Gate pad size	1.06 x 0.65				
Area total / active	42.8 / 33.5				
Thickness	120	μm			
Wafer size	150	mm			
Flat position	90	grd			
Max.possible chips per wafer	332 pcs				
Passivation frontside	Photoimide				
Emitter metallization	3200 nm Al Si Cu				
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 °C	V _{CE}	1200	V
DC collector current, limited by T _{jmax}	I _C	1)	А
Pulsed collector current, t _p limited by T _{jmax}	I _{cpuls}	75	А
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
i arameter			min.	typ.	max.	
Collector-emitter breakdown voltage	V _{(BR)CES}	V_{GE} =0 V , I_{C} = 1.5 mA	1200			
Collector-emitter saturation voltage	V _{CE(sat)}	V _{GE} =15V, I _C =25A		2.1		V
Gate-emitter threshold voltage	$V_{\rm GE(th)}$	I _C =1mA , V _{GE} =V _{CE}		5.5		
Zero gate voltage collector current	I _{CES}	V _{CE} =1200V , V _{GE} =0V			3	μA
Gate-emitter leakage current	I _{GES}	V _{CE} =0V , V _{GE} =20V			120	nA

ELECTRICAL CHARACTERISTICS (tested at component):

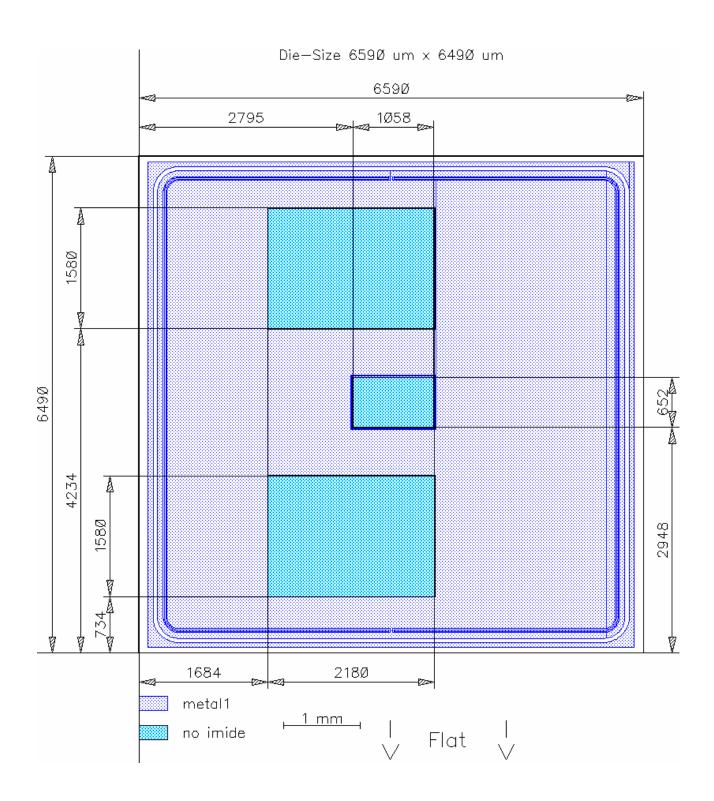
Parameter	Symbol	Conditions	Value			Unit
raiailietei			min.	typ.	max.	Oilit
Input capacitance	Ciss	V _{CE} =25V,	-	2020		pF
Output capacitance	Coss	$V_{GE}=0V$,	-	193		
Reverse transfer capacitance	Crss	f=1MHz	-	64		

SWITCHING CHARACTERISTICS (tested at component), Inductive Load

Parameter	Symbol	Conditions 1)	Value			Unit
raiametei	Symbol		min.	typ.	max.	Oilit
Turn-on delay time	$t_{d(on)}$	<i>T</i> _j =125°C	-	38		ns
Rise time	t_{r}	$V_{\rm CC} = 600 \text{V}$,	-	25		
Turn-off delay time	$t_{d(off)}$	I _C =25A, V _{GE} =-15/15V,	-	250		
Fall time	t_{f}	$R_{\rm G}$ = 22 Ω	-	96		

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

CHIP DRAWING:



SIGC42T120CQ

FURTHER ELECTRICAL CHARACTERISTICS: This chip data sheet refers to the device data sheet 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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