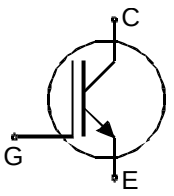
SIGC42T120CS

IGBT Chip in NPT-technology

FEATURES:
- 1200V NPT technology
- 180µm chip
- low turn-off losses
- short tail current
- positive temperature coefficient
- easy paralleling

This chip is used for:
- SGW25N120

Applications:
- drives, SMPS, resonant applications



Chip Type	V_{CE}	I_{Cn}	Die Size	Package	Ordering Code
SIGC42T120CS	1200V	25A	6.59 x 6.49 mm^2	sawn on foil	Q67050-A4048-A001

MECHANICAL PARAMETER:

Raster size	6.59 x 6.49	mm^2
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	180	µm
Wafer size	150	mm
Flat position	180	grd
Max.possible chips per wafer	334 pcs	
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	∅ 0.65mm ; max 1.2mm	
Recommended Storage Environment	store in original container, in dry nitrogen, < 6 month at an ambient temperature of 23°C	

Edited by INFINEON Technologies AI PS DD HV3, L 7151-S, Edition 2, 03.09.2003

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)	A
Pulsed collector current, t_p limited by T_{jmax}	I_{cpuls}	75	A
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
			min.	typ.	max.	
Collector-emitter breakdown voltage	$V_{(BR)CES}$	V_{GE}=0V , I_C= 1.5mA	1200			V
Collector-emitter saturation voltage	$V_{CE(sat)}$	V_{GE}=15V, I_C=25A	2.5	3.0	3.6	
Gate-emitter threshold voltage	$V_{GE(th)}$	I_C=1mA , V_{GE}=V_{CE}	3.0	4.0	5.0	
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):

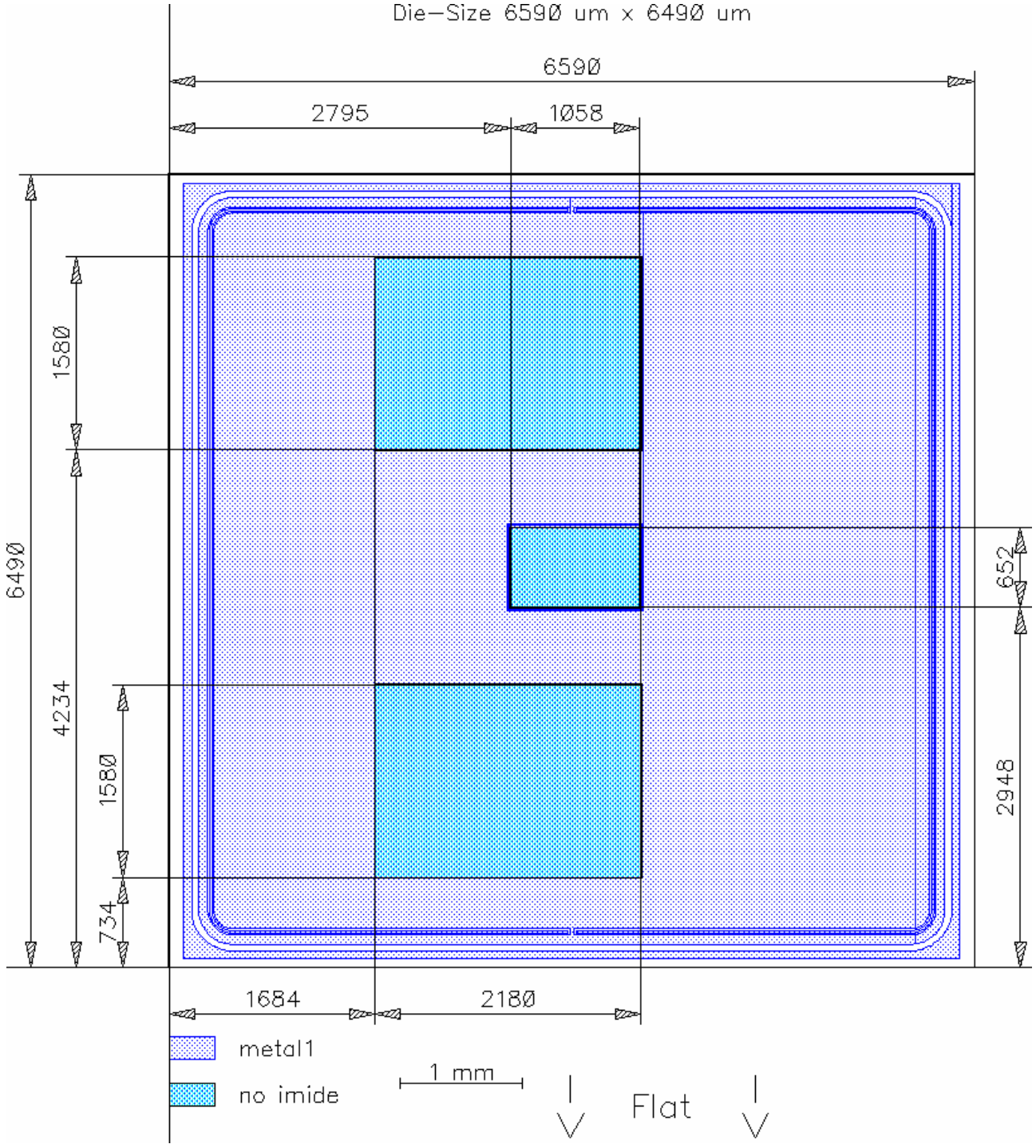
Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	V_{CE}=25V,	-	2150	2600	pF
Output capacitance	C_{oss}	V_{GE}=0V,	-	160	190	
Reverse transfer capacitance	C_{rss}	f=1MHz	-	110	130	

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°C	-	50	60	ns
Rise time	t_r	V_{CC}=800V,	-	36	43	
Turn-off delay time	$t_{d(off)}$	I_C=25A, V_{GE}=-15/15V,	-	820	990	
Fall time	t_f	R_G= 22Ω	-	42	50	

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

CHIP DRAWING:



SIGC42T120CS

FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet		SGW25N120

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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