

IGBT Chip in NPT-technology

FEATURES:

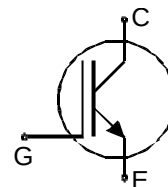
- 1200V NPT technology
- 200µm chip
- low turn-off losses
- positive temperature coefficient
- easy paralleling

This chip is used for:

- BUP 314

Applications:

- drives



Chip Type	V _{CE}	I _{Cn}	Die Size	Package	Ordering Code
SIGC42T120C	1200V	25A	6.59 x 6.49 mm ²	sawn on foil	Q67041- A4724-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	200	µm
Wafer size	150	mm
Flat position	90	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	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, $T_j=25^\circ\text{C}$	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	$^\circ\text{C}$

¹⁾ depending on thermal properties of assembly

STATIC CHARACTERISTICS (tested on chip), $T_j=25^\circ\text{C}$, unless otherwise specified:

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}=0\text{V}$, $I_C=1.5\text{mA}$	1200			V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE}=15\text{V}$, $I_C=25\text{A}$	2.0	2.5	3.0	
Gate-emitter threshold voltage	$V_{GE(th)}$	$I_C=1\text{mA}$, $V_{GE}=V_{CE}$	4.5	5.5	6.5	
Zero gate voltage collector current	I_{CES}	$V_{CE}=1200\text{V}$, $V_{GE}=0\text{V}$			3.1	μA
Gate-emitter leakage current	I_{GES}	$V_{CE}=0\text{V}$, $V_{GE}=20\text{V}$			120	nA

ELECTRICAL CHARACTERISTICS (tested at component):

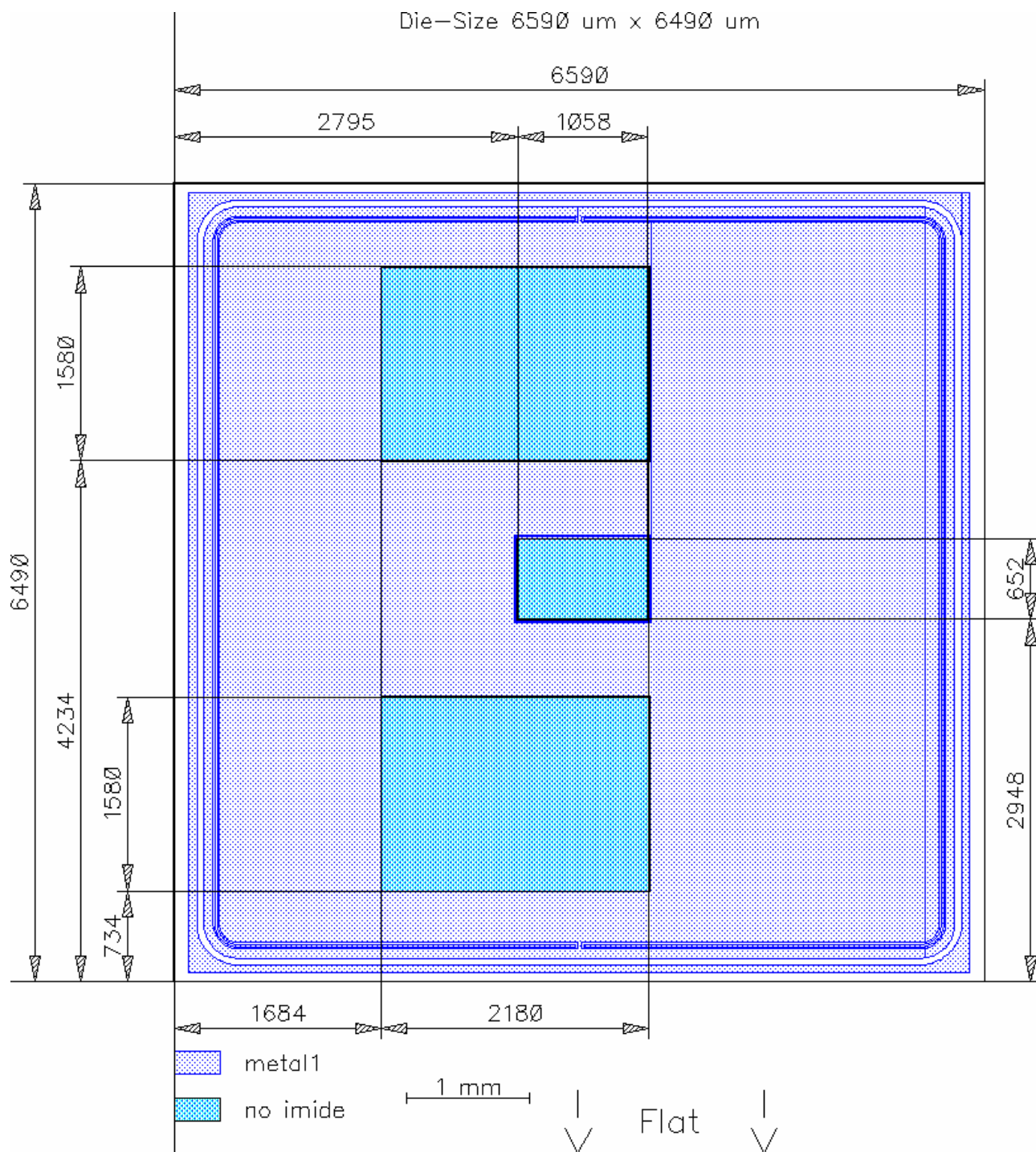
Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	$V_{CE}=25\text{V}$,	-	1650	2200	pF
Output capacitance	C_{oss}	$V_{GE}=0\text{V}$,	-	250	380	
Reverse transfer capacitance	C_{rss}	$f=1\text{MHz}$	-	110	160	

SWITCHING CHARACTERISTICS (tested at component), Inductive Load

Parameter	Symbol	Conditions ¹⁾	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	$T_j=125^\circ\text{C}$	-	75	110	ns
Rise time	t_r	$V_{CC}=600\text{V}$,	-	65	100	
Turn-off delay time	$t_{d(off)}$	$I_C=25\text{A}$,	-	420	560	
Fall time	t_f	$V_{GE}=+15/-15\text{V}$, $R_G=47\Omega$	-	45	60	

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	BUP 314	Package TO218
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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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