

IGBT Chip in NPT-technology

FEATURES:

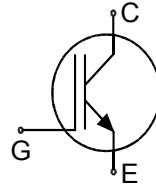
- 1200V NPT technology
- 180µm chip
- short circuit prove
- positive temperature coefficient
- easy paralleling

This chip is used for:

- IGBT-Modules
BSM150GB120DLC

Applications:

- drives



Chip Type	V _{CE}	I _{CN}	Die Size	Package	Ordering Code
SIGC223T120R2CL	1200V	150A	14.4 x 15.5 mm ²	sawn on foil	Q67050-A4286-A101

MECHANICAL PARAMETER:

Raster size	14.4 x 15.5	mm ²
Area total / active	223.2 / 189.9	
Emitter pad size	See chip drawing	
Gate pad size	1.518 x 1.496	
Thickness	180	µm
Wafer size	150	mm
Flat position	90	deg
Max.possible chips per wafer	54 pcs	
Passivation frontside	Photoimide	
Emitter metalization	3200 nm Al Si 1%	
Collector metalization	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}	450	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	$V_{(BR)CES}$	$V_{GE}=0\text{V}, I_C=8\text{mA}$	1200			V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE}=15\text{V}, I_C=150\text{A}$	1.8	2.2	2.6	
Gate-emitter threshold voltage	$V_{GE(th)}$	$I_C=6\text{mA}, V_{GE}=V_{CE}$	4.5	5.5	6.5	
Zero gate voltage collector current	I_{CES}	$V_{CE}=1200\text{V}, V_{GE}=0\text{V}$			18.2	μA
Gate-emitter leakage current	I_{GES}	$V_{CE}=0\text{V}, V_{GE}=20\text{V}$			600	nA

DYNAMIC CHARACTERISTICS (tested at component):

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	$V_{CE}=25\text{V},$	-	11	-	nF
Output capacitance	C_{oss}	$V_{GE}=0\text{V},$	-	-	-	
Reverse transfer capacitance	C_{rss}	$f=1\text{MHz}$	-	0.7	-	

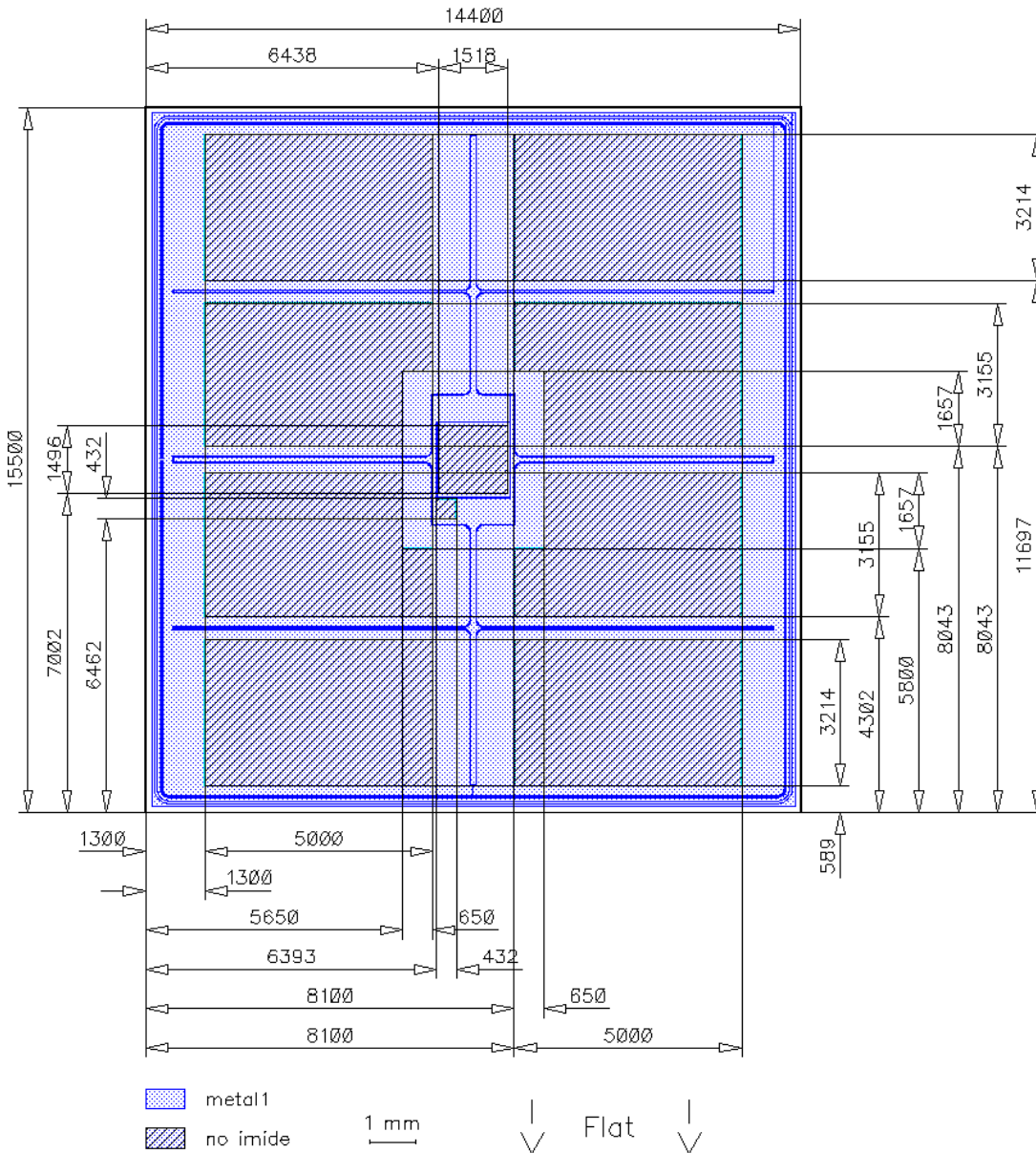
SWITCHING CHARACTERISTICS (tested at component), Inductive Load:

Parameter	Symbol	Conditions ¹⁾	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	$T_j=125^\circ\text{C}$ $V_{CC}=600\text{V},$ $I_C=150\text{A}$ $V_{GE}=\pm 15\text{V},$ $R_G=5.6\Omega$	-	50	-	ns
Rise time	t_r		-	50	-	
Turn-off delay time	$t_{d(off)}$		-	570	-	
Fall time	t_f		-	40	-	

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

CHIP DRAWING:

Die-Size 14400 um x 15500 um





SIGC223T120R2CL

FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet	BSM150GB120DLC	Half-Bridge 62mm
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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

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