

#### 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 <sub>CE</sub>	I <sub>Cn</sub>	Die Size	Package	Ordering Code
SIGC223T120R2CL	1200V	150A	14.4 x 15.5 mm <sup>2</sup>	sawn on foil	Q67050-A4286- A101

#### **MECHANICAL PARAMETER:**

Raster size	14.4 x 15.5				
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				

Edited by INFINEON Technologies AI PS DD HV3, L 7121-P, Edition 2.1, 14.09.2011



#### **MAXIMUM RATINGS:**

Parameter	Symbol	Value	Unit
Collector-emitter voltage, <i>T</i> <sub>j</sub> =25 °C	V <sub>CE</sub>	1200	V
DC collector current, limited by T <sub>jmax</sub>	Ic	1)	Α
Pulsed collector current, t <sub>p</sub> limited by T <sub>jmax</sub>	I <sub>cpuls</sub>	450	Α
Gate emitter voltage	V <sub>GE</sub>	±20	V
Operating junction and storage temperature	$T_j$ , $T_{stg}$	-55 <b>+</b> 150	°C

<sup>1)</sup> depending on thermal properties of assembly

### **STATIC CHARACTERISTICS** (tested on chip), $T_j$ =25 °C, unless otherwise specified:

Parameter	Symbol	Conditions	Value			Unit
T di diffetei			min.	typ.	max.	
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}$ =0V , $I_{C}$ =8 mA	1200			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	V <sub>GE</sub> =15V, I <sub>C</sub> =150A	1.8	2.2	2.6	V
Gate-emitter threshold voltage	$V_{\rm GE(th)}$	I <sub>C</sub> =6mA , V <sub>GE</sub> =V <sub>CE</sub>	4.5	5.5	6.5	
Zero gate voltage collector current	I <sub>CES</sub>	V <sub>CE</sub> =1200V , V <sub>GE</sub> =0V			18.2	μA
Gate-emitter leakage current	I <sub>GES</sub>	V <sub>CE</sub> =0V , V <sub>GE</sub> =20V			600	nA

#### **DYNAMIC CHARACTERISTICS** (tested at component):

Parameter	Symbol	Conditions	Value			Unit
raiailletei	Symbol	Conditions	min.	typ.	max.	Oilit
Input capacitance	Ciss	V <sub>CE</sub> =25V,	-	11	-	nF
Output capacitance	Coss	$V_{GE}=0V$ ,	-	-	-	
Reverse transfer capacitance	Crss	<i>f</i> =1MHz	-	0.7	-	

#### **SWITCHING CHARACTERISTICS** (tested at component), Inductive Load:

Parameter	Symbol	Conditions 1)	Value			Unit
raiailietei	Syllibol	Conditions	min.	typ.	max.	Oilit
Turn-on delay time	$t_{d(on)}$	$T_{\rm j}$ =125°C $V_{\rm CC}$ =600V,	-	50	-	ns
Rise time	t <sub>r</sub>	$I_{\rm C}$ =150A	-	50	-	
Turn-off delay time	$t_{d(off)}$	$V_{\rm GE}$ =±15V, $R_{\rm G}$ =5.6 $\Omega$	-	570	-	
Fall time	$t_{\mathrm{f}}$	71.G-0.032	-	40	-	

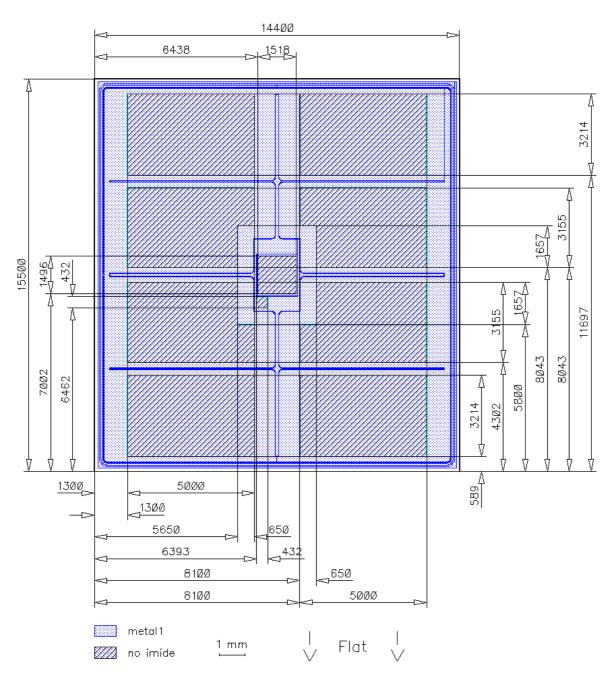
<sup>1)</sup> values also influenced by parasitic L- and C- in measurement and package.

Edited by INFINEON Technologies AI PS DD HV3, L 7121-P, Edition 2.1, 14.09.2011



#### **CHIP DRAWING:**

Die-Size 14400 um x 15500 um





#### **FURTHER ELECTRICAL CHARACTERISTICS:**

This chip data sheet refers to the device data sheet

BSM150GB120DLC Half-Bridge 62mm

#### **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 © Infineon Technologies AG 2002 All Rights Reserved.

#### Attention please!

The information herein is given to describe certain components and shall not be considered as warranted characteristics.

Terms of delivery and rights to technical change reserved.

We hereby disclaim any and all warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

Infineon Technologies is an approved CECC manufacturer.

#### Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office in Germany or our Infineon Technologies Representatives world-wide (see address list).

#### Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.

Infineon Technologies components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and / or maintain and sustain and / or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

Edited by INFINEON Technologies AI PS DD HV3, L 7121-P, Edition 2.1, 14.09.2011