

## MOSFET

Metal Oxide Semiconductor Field Effect Transistor

### Bare Die

OptiMOS™3 Power MOS Transistor Chip  
IPC302N12N3

### Data Sheet

Rev. 2.5  
Final

Industrial & Multimarket

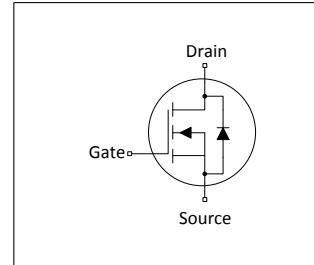
## 1 Description

- N-channel enhancement mode
- For dynamic characterization refer to the datasheet of IPB038N12N3 G
- AQL 0.65 for visual inspection according to failure catalogue
- Electrostatic Discharge Sensitive Device according to MIL-STD 883C
- Die bond: soldered or glued
- Backside metallization: NiV system
- Frontside metallization: AlSi system
- Passivation: nitride (only on edge structure)

Power MOS Transistor Chip


**Table 1 Key Performance Parameters**

Parameter	Value	Unit
$V_{(BR)DSS}$	120	V
$R_{DS(on)}$	3.8 <sup>1)</sup>	$\text{m}\Omega$
Die size	6.7 x 4.5	$\text{mm}^2$
Thickness	250	$\mu\text{m}$



Type / Ordering Code	Package	Marking	Related Links
IPC302N12N3	Chip	not defined	-

## 2 Electrical Characteristics on Wafer Level

at  $T_j = 25^\circ\text{C}$ , unless otherwise specified

**Table 2**

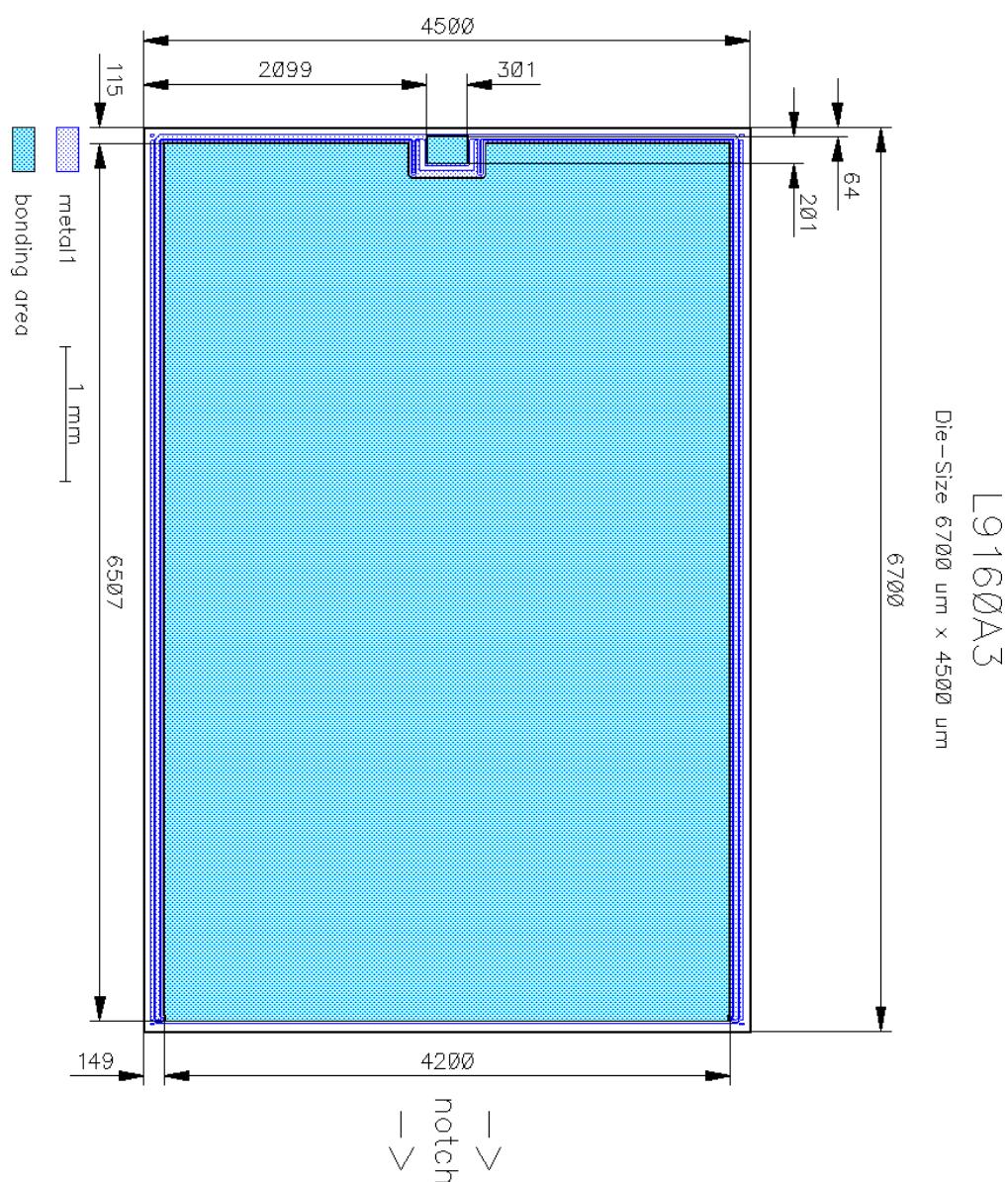
Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Drain-source breakdown voltage	$V_{(BR)DSS}$	120	-	-	V	$V_{GS}=0\text{ V}$ , $I_D=1\text{ mA}$
Gate threshold voltage	$V_{GS(\text{th})}$	2	3	4	V	$V_{DS}=V_{GS}$ , $I_D=275\text{ }\mu\text{A}$
Zero gate voltage drain current	$I_{DSS}$	-	0.1	1	$\mu\text{A}$	$V_{GS}=0\text{ V}$ , $V_{DS}=100\text{ V}$
Gate-source leakage current	$I_{GSS}$	-	1	100	nA	$V_{GS}=20\text{ V}$ , $V_{DS}=0\text{ V}$
Drain-source on- resistance	$R_{DS(\text{on})}$	-	2.5 <sup>2)</sup>	100 <sup>3)</sup>	$\text{m}\Omega$	$V_{GS}=10\text{ V}$ , $I_D=2.0\text{ A}$
Reverse diode forward on-voltage	$V_{SD}$	-	1.0	1.2	V	$V_{GS}=0\text{ V}$ , $I_F=1\text{ A}$
Avalanche energy, single pulse	$E_{AS}$	-	45 <sup>4)</sup>	-	mJ	$I_D = 30\text{ A}$ , $R_{GS} = 25\text{ }\Omega$

<sup>1)</sup> packaged in a P-TO263-3 (see ref. product)

<sup>2)</sup> typical bare die  $R_{DS(\text{on})}$ ;  $V_{GS}=10\text{ V}$ 
<sup>3)</sup> limited by wafer test-equipment

<sup>4)</sup> Wafer tested. For general avalanche capability refer to the datasheet of IPB038N12N3 G

### 3 Package Outlines



**Figure 1 Outline Chip, dimensions in  $\mu\text{m}$**

## Revision History

IPC302N12N3

**Revision: 2014-07-25, Rev. 2.5**

Previous Revision

Revision	Date	Subjects (major changes since last revision)
2.5	2014-07-25	Release Final Version

### We Listen to Your Comments

Any information within this document that you feel is wrong, unclear or missing at all? Your feedback will help us to continuously improve the quality of this document. Please send your proposal (including a reference to this document) to:  
[erratum@infineon.com](mailto:erratum@infineon.com)

**Published by**  
**Infineon Technologies AG**  
**81726 München, Germany**  
**© 2014 Infineon Technologies AG**  
**All Rights Reserved.**

### Legal Disclaimer

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.

### Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office ([www.infineon.com](http://www.infineon.com)).

### Warnings

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

The Infineon Technologies component described in this Data Sheet may be used in life-support devices or systems and/or automotive, aviation and aerospace applications or systems only 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, automotive, aviation and aerospace 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.