Preliminary

SIPC69N60C2

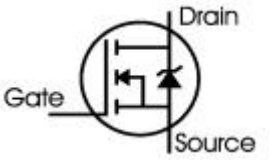
Fast CoolMOS™ Power Transistor

FEATURES:

- New revolutionary high voltage technology
- Ultra low gate charge
- Worlbest $R_{DS(on)}$ per chip area
- Ultra low effective capacitances
- Improved noise immunity

Applications:

- SMPS, resonant applications



Chip Type	V_{DS}	I_D	Die Size	Package	Ordering Code
SIPC69N60C2	600V	47A	10.52 x 6.59 mm^2	sawn on foil	Q67050-A4073-A001

MECHANICAL PARAMETER:

Raster size	10.52 x 6.59	mm
Source pad size	2.4 x 6.0 (4 pads)	
Gate pad size	0.380 x 0.548	
Area total / active	69.33 / 58.61	mm^2
Thickness	175	µm
Wafer size	150	mm
Flat position	270	grd
Max.possible chips per wafer	204	
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 (proposed)	Source: Al, ≤ 500µm; Gate: Al, ≤ 125µm	
Reject Ink Dot Size	∅ 0.65mm ; max 1.2mm	
Recommended Storage Environment	store in original container, in dry nitrogen, < 6 month	

Edited by INFINEON technologies, L 5443-N, Edition 1, 18.01.01 15:08

Preliminary

SIPC69N60C2

MAXIMUM RATINGS:

Parameter	Symbol	Value	Unit
Drain-Source voltage	V_{DS}	600	V
DC drain current, limited by T_{jmax}	I_D	47	A
Pulsed drain current, t_p limited by T_{jmax}	I_{Dpuls}	94	A
Gate source voltage	V_{GS}	±20	V
Operating junction and storage temperature	T_j, T_{stg}	-55 ... +150	°C
Reverse diode dv/dt I_S=47A, V_{DS}<V_{DSS}, di/dt=100 A/µs, T_{jmax}=150°C	dv/dt	6	KV/µs

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

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V , I_D= 0.25mA			600	V
Gate-source on-state resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=30A		70	90 [1)]	mΩ
Gate threshold voltage	$V_{GS(th)}$	I_D=2.7mA , V_{GS}=V_{DS}	3.5	4.5	5.5	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=600V , V_{GS}=0V		0.1	25	µA
Gate-source leakage current	I_{GSS}	V_{DS}=0V , V_{GS}=20V			100	nA

[1)] this correlates to a max. $R_{DS(on)}$-value of 70 mΩ at V_{GS}=10V, I_D=30A of this chip packaged in a TO247-package

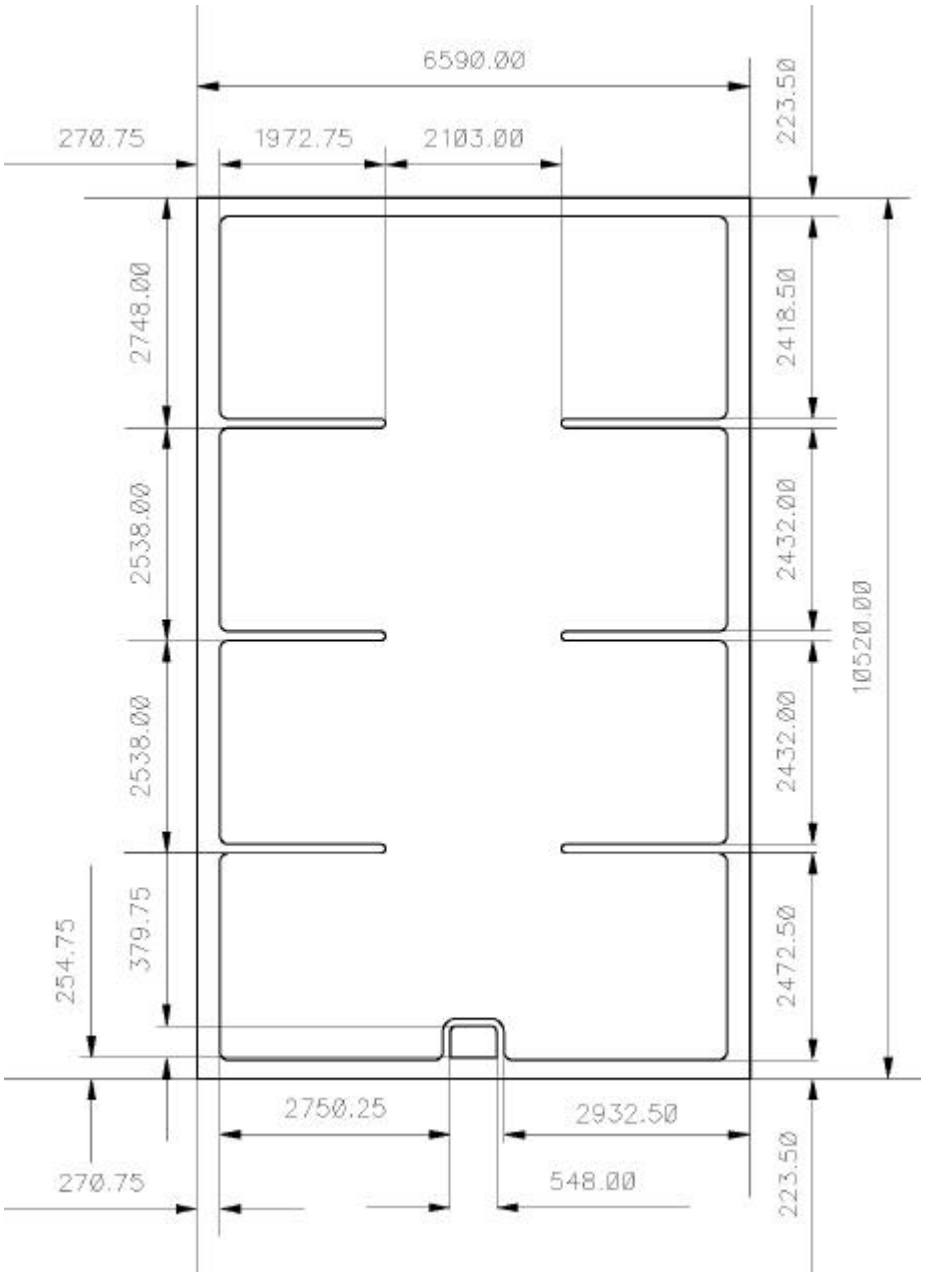
ELECTRICAL CHARACTERISTICS (tested at component):

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	V_{DS}=25V,	-	8800		pF
Output capacitance	C_{oss}	V_{GS}=0V,	-	3150		
Reverse transfer capacitance	C_{rss}	f=1MHz	-	36		

SWITCHING CHARACTERISTICS (tested at component), Inductive Load

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	T_j=125°C V_{DD}=380V, I_D=47A, V_{GS}=0 /13V, R_G= 1.8Ω	-	28		ns
Rise time	t_r		-	95		
Turn-off delay time	$t_{d(off)}$		-	105		
Fall time	t_f		-	10		

CHIP DRAWING:



FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet		

Preliminary

SIPC69N60C2

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 i Gr.,
Bereich Kommunikation
St.-Martin-Strasse 53,
D-81541 München

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 worldwide (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, L 5443-N, Edition 1, 18.01.01 15:08