Preliminary

SIPC03N60S5

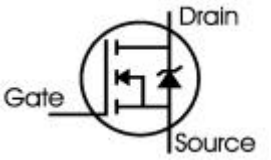
Fast CoolMOS™ Power Transistor

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
SIPC03N60S5	600V	2A	1.80 x 1.80mm^2	sawn on foil	tbd

MECHANICAL PARAMETER:

Raster size	1.80 x 1.80	mm
Source pad size	1.0 x 1.37	
Gate pad size	0.47 x 0.53	
Area total / active	3.24 / 1.50	mm^2
Thickness	175	µm
Wafer size	150	mm
Flat position	0	grd
Max.possible chips per wafer	4771	
Passivation frontside	Nitride	
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, ≤ 350µm; Gate: Al, ≤ 125µm	
Reject Ink Dot Size	∅ 0.30mm	
Recommended Storage Environment	store in original container, in dry nitrogen, < 6 month	

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MAXIMUM RATINGS:

Parameter	Symbol	Value	Unit
Drain-Source voltage	V_{DS}	600	V
DC drain current, limited by T_{jmax}	I_D	2	A
Pulsed drain current, t_p limited by T_{jmax}	I_{Dpuls}	4	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_D=2A, 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=1.2A		3.0	3.25 [1)]	Ω
Gate threshold voltage	$V_{GS(th)}$	I_D=72µA , 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}=25V			100	nA

[1)] this correlates to a max. $R_{DS(on)}$-value of 3 Ω at V_{GS}=10V, I_D=1.2A of this chip packaged in a TO220-package

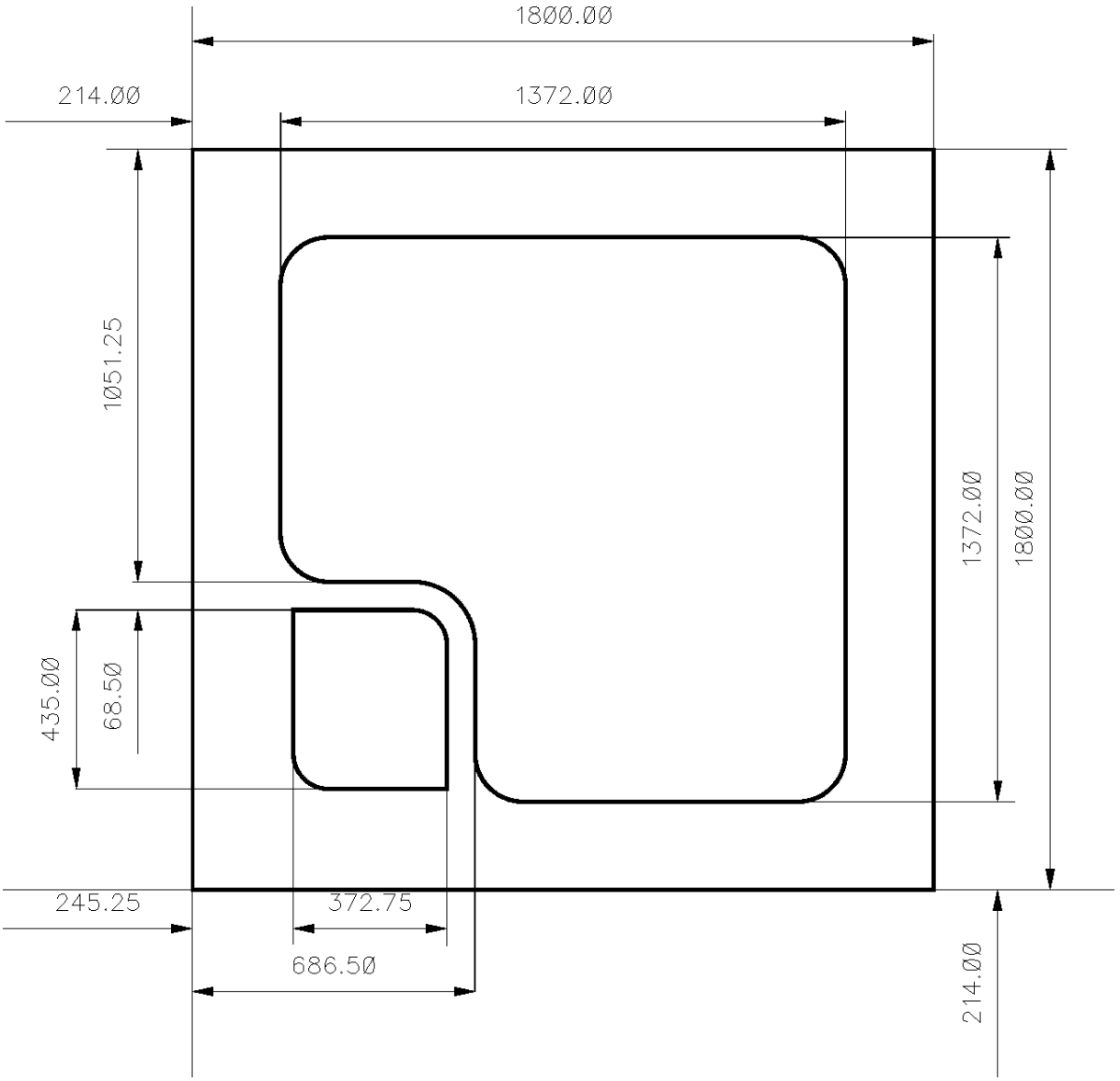
ELECTRICAL CHARACTERISTICS (tested at component):

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	V_{DS}=25V,	-	240	-	pF
Output capacitance	C_{oss}	V_{GS}=0V,	-	77	-	
Reverse transfer capacitance	C_{rss}	f=1MHz	-	4.4	-	

SWITCHING CHARACTERISTICS (tested at component), Inductive Load

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	T_j=25 °C V_{DD}=350V, I_D=1.8 A, V_{GS}=10V, R_G= 50Ω	-	35	-	ns
Rise time	t_r		-	35	-	
Turn-off delay time	$t_{d(off)}$		-	35	-	
Fall time	t_f		-	20	-	

CHIP DRAWING:



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FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet		

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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