

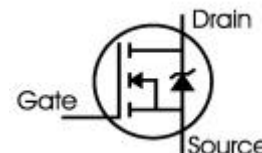
Fast CoolMOS™ Power Transistor

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
SIPC14N60S5	600V	11A	3.70 x 3.70 mm ²	sawn on foil	Q67050-A4093-A001

MECHANICAL PARAMETER:

Raster size	3.70 x 3.70	mm
Source pad size	2.79 x 3.28	
Gate pad size	0.47 x 0.53	
Area total / active	13.69 / 10.16	mm ²
Thickness	175	μm
Wafer size	150	mm
Flat position	0	grd
Max.possible chips per wafer	1097	
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, ≤ 500μm; Gate: Al, ≤ 125μm	
Reject Ink Dot Size	Ø 0.65mm ; max 1.2mm	
Recommended Storage Environment	store in original container, in dry nitrogen, < 6 month	

MAXIMUM RATINGS:

Parameter	Symbol	Value	Unit
Drain-Source voltage	V_{DS}	600	V
DC drain current, limited by T_{jmax}	I_D	11	A
Pulsed drain current, t_p limited by T_{jmax}	I_{Dpuls}	22	A
Gate source voltage	V_{GS}	± 20	V
Operating junction and storage temperature	T_j, T_{stg}	-55 ... +150	°C
Reverse diode dv/dt $I_S=11A, V_{DS}<V_{DSS}, di/dt=100 A/\mu s, T_{jmax}=150^\circ C$	dv/dt	6	KV/ μs

STATIC CHARACTERISTICS (tested on chip), $T_j=25^\circ C$, 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	$R_{DS(on)}$	$V_{GS}=10V, I_D=1A$		0,38	0.45 ¹⁾	Ω
Gate threshold voltage	$V_{GS(th)}$	$I_D=485\mu A, V_{GS}=V_{DS}$	3.5	4.5	5.5	V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=600V, V_{GS}=0V$		0.2	50	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 380 m Ω at $V_{GS}=10V, I_D=1A$ of this chip packaged in a TO220-package

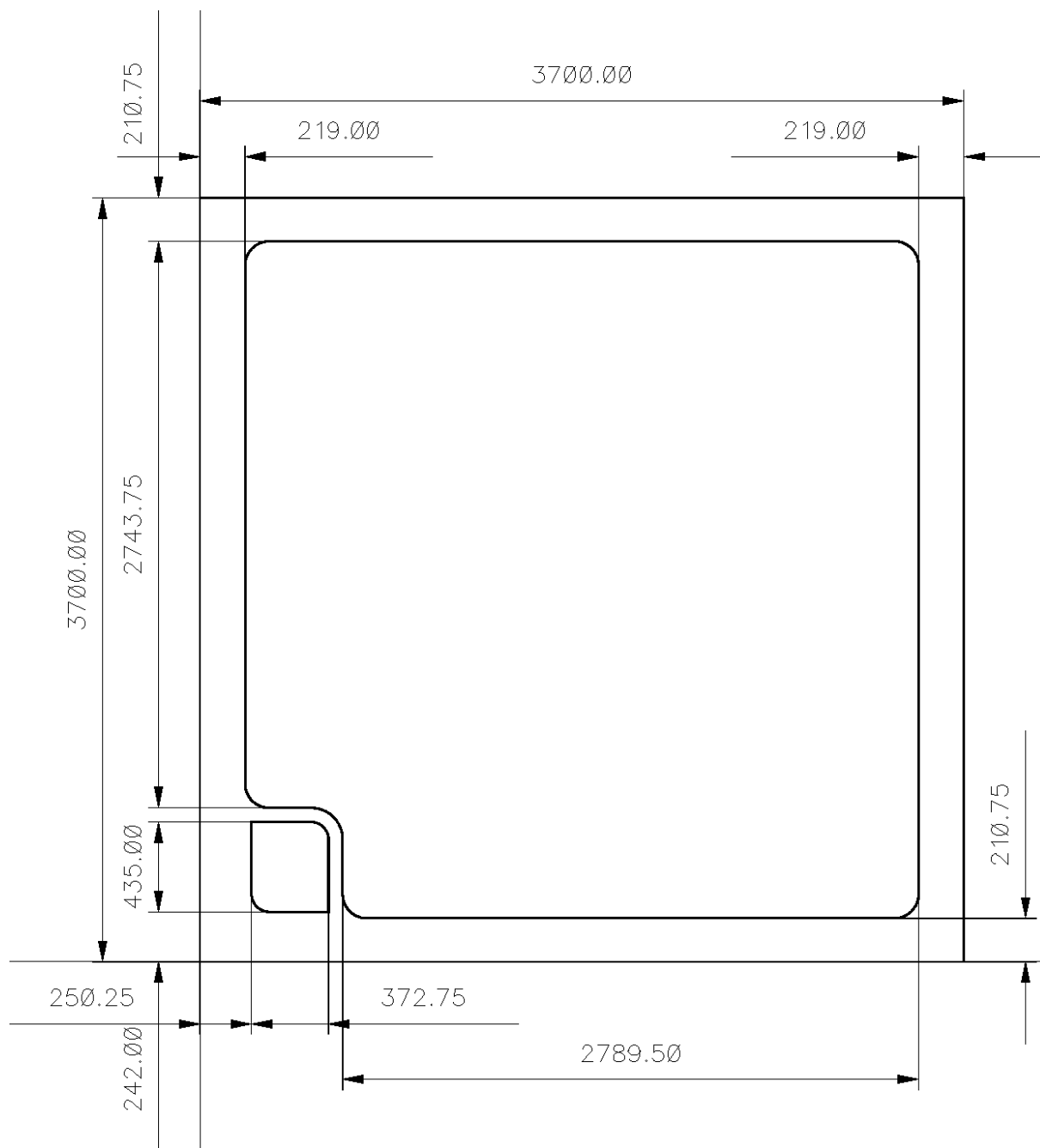
ELECTRICAL CHARACTERISTICS (tested at component):

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	$V_{DS}=25V,$	-	1460	-	pF
Output capacitance	C_{oss}	$V_{GS}=0V,$	-	610	-	
Reverse transfer capacitance	C_{rss}	$f=1MHz$	-	21	-	

SWITCHING CHARACTERISTICS (tested at component), Inductive Load

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	$T_j=25^\circ C$	-	130	-	ns
Rise time	t_r	$V_{DD}=350V,$	-	35	-	
Turn-off delay time	$t_{d(off)}$	$I_D=11 A,$	-	150	-	
Fall time	t_f	$V_{GS}=10V,$	-	20	-	
		$R_G= 6.8\Omega$				

CHIP DRAWING:





Preliminary

SIPC14N60S5

FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet		
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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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