

## Fast switching diode chip in Emitter Controlled Technology

### Features:

- 1200V Emitter Controlled technology
- 120  $\mu\text{m}$  chip
- Soft, fast switching
- Low reverse recovery charge
- Small temperature coefficient
- Qualified according to JEDEC for target applications

### Recommended for:

- Power modules and discrete devices

### Applications:

- SMPS, resonant applications, drives



Chip Type	$V_R$	$I_{Fn}$	Die Size	Package
SIDC105D120H8	1200V	200A	8.7 x 12.1 mm <sup>2</sup>	sawn on foil

### Mechanical Parameters

Die size	8.7 x 12.1	
Area total	105.27	mm <sup>2</sup>
Anode pad size	7.746 x 11.146	
Thickness	120	µm
Wafer size	200	mm
Max. possible chips per wafer	242	
Passivation frontside	Photoimide	
Pad metal	3200 nm AlSiCu	
Backside metal	Ni Ag – system To achieve a reliable solder connection it is strongly recommended not to consume the Ni layer completely during production process	
Die bond	Electrically conductive epoxy glue and soft solder	
Wire bond	Al, $\leq 500 \mu\text{m}$	
Reject ink dot size	$\varnothing 0.65 \text{ mm}$ ; max 1.2 mm	
Storage environment	for original and sealed MBB bags	Ambient atmosphere air, Temperature 17 °C – 25 °C, < 6 months
	for open MBB bags	Acc. to IEC62258-3: Atmosphere > 99% Nitrogen or inert gas, Humidity < 25% RH, Temperature 17 °C – 25 °C, < 6 months

## Maximum Ratings

Parameter	Symbol	Condition	Value	Unit
Repetitive peak reverse voltage	$V_{RRM}$	$T_{vj} = 25^\circ\text{C}$	1200	V
Continuous forward current	$I_F$	$T_{vj} < 150^\circ\text{C}$	1) 400	A
Maximum repetitive forward current <sup>2)</sup>	$I_{FRM}$	$T_{vj} < 150^\circ\text{C}$		
Junction temperature range	$T_{vj}$		-40...+175	°C
Operating junction temperature	$T_{vj}$		-40...+150	°C

1) depending on thermal properties of assembly

2) not subject to production test - verified by design/characterisation

## Static Characteristics (tested on wafer), $T_{vj} = 25^\circ\text{C}$

Parameter	Symbol	Condition	Value			Unit
			min.	typ.	max.	
Reverse leakage current	$I_R$	$V_R = 1200\text{V}$			27	μA
Cathode-Anode breakdown voltage	$V_{BR}$	$I_R = 0.25\text{ mA}$	1200			V
Forward voltage drop	$V_F$	$I_F = 60\text{A}$	1.06	1.29	1.41	

## Electrical Characteristics (not subject to production test - verified by design / characterization)

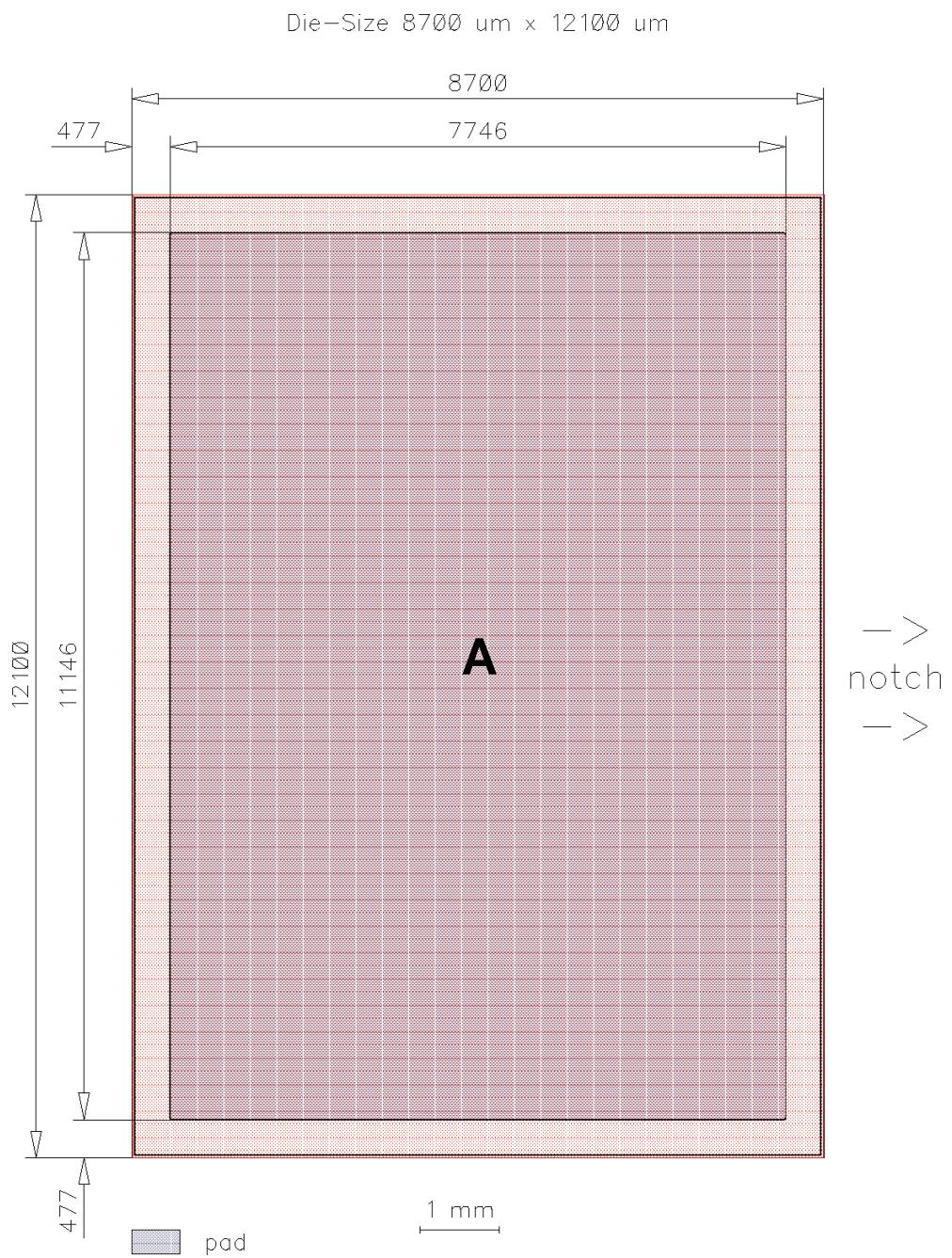
Parameter	Symbol	Condition	Value			Unit
			min.	typ.	max.	
Forward voltage drop	$V_F$	$I_F = 200\text{A}$		1.7	2.2	V
				1.65		

## Further Electrical Characteristics

Switching characteristics and thermal properties are depending strongly on module design and mounting technology and can therefore not be specified for a bare die.

This chip data sheet refers to the device data sheet	FS200R12KT4R	Rev. 2.0, 05.11.2013
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## Chip Drawing



A: Anode pad



# SIDC105D120H8

## Bare Die Product Specifics

Test coverage at wafer level cannot cover all application conditions. Therefore it is recommended to test all characteristics which are relevant for the application at package level, including RBSOA and SCSOA.

## Description

AQL 0.65 for visual inspection according to failure catalogue

Electrostatic Discharge Sensitive Device according to MIL-STD 883

## Revision History

Version	Subject (major changes since last revision)	Date
2.0	Final data sheet	30.12.2014
2.1	Editorial changes	14.10.2015



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