

# Diode

Emitter Controlled 4 High Power Technology  
**IDC51D120T8H**

Data Sheet

Industrial Power Control



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## Diode Chip in Emitter Controlled 4 High Power Technology

### Features:

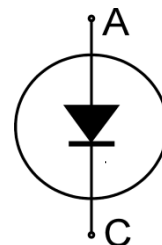
- 1200V Emitter Controlled 4 technology 120µm chip
- Soft, fast switching
- Low reverse recovery charge
- Small temperature coefficient

### Recommended for:

- Medium / high power modules

### Applications:

- Medium / high power drives



Chip Type	$V_R$	$I_{FN}$	Die Size	Package
IDC51D120T8H	1200V	100A	7.00mm x 7.30mm	Sawn on foil

### Mechanical Parameters

Die size	7.00 x 7.30	mm <sup>2</sup>
Area total	51.10	
Anode pad size	See chip drawing	
Silicon thickness	120	µm
Wafer size	200	mm
Maximum possible chips per wafer	518	
Passivation frontside	Photoimide	
Pad metal	3.2µm 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, ≤500µm	
Reject ink dot size (valid for inked delivery form only)	Ø 0.65mm; max 1.2mm	
Storage environment (<12 months)	for original and sealed MBB bags	Ambient atmosphere air, temperature 17°C – 25°C
	for open MBB bags	Acc. IEC 62258-3; Section 9.4 Storage Environment.

## Maximum Ratings

In general, from reliability and lifetime point of view, the lower the operation junction temperature and/or the applied voltage, the greater the expected lifetime of any semiconductor device.

Not subject to production test, specified by design.

Parameter	Symbol	Value	Unit
Repetitive peak reverse voltage, $T_{vj}=25^{\circ}\text{C}$	$V_{RRM}$	1200	V
Continuous forward current, limited by $T_{vj\ max}^1$	$I_F$	-	A
Maximum repetitive forward current, $t_p$ limited by $T_{vj\ max}$	$I_{FRM}$	200	
Junction temperature	$T_{vj}$	-40...+175	$^{\circ}\text{C}$
Operating junction temperature	$T_{vj\ op}$	-40...+150	$^{\circ}\text{C}$

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

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Reverse leakage current	$I_R$	$V_R=1200\text{V}$	-	-	18.0	$\mu\text{A}$
Cathode-anode breakdown voltage	$V_{BR}$	$I_R=0.25\text{mA}$	1200	-	-	V
Forward voltage drop	$V_F$	$I_F=100\text{A}$	1.55	1.90	2.25	

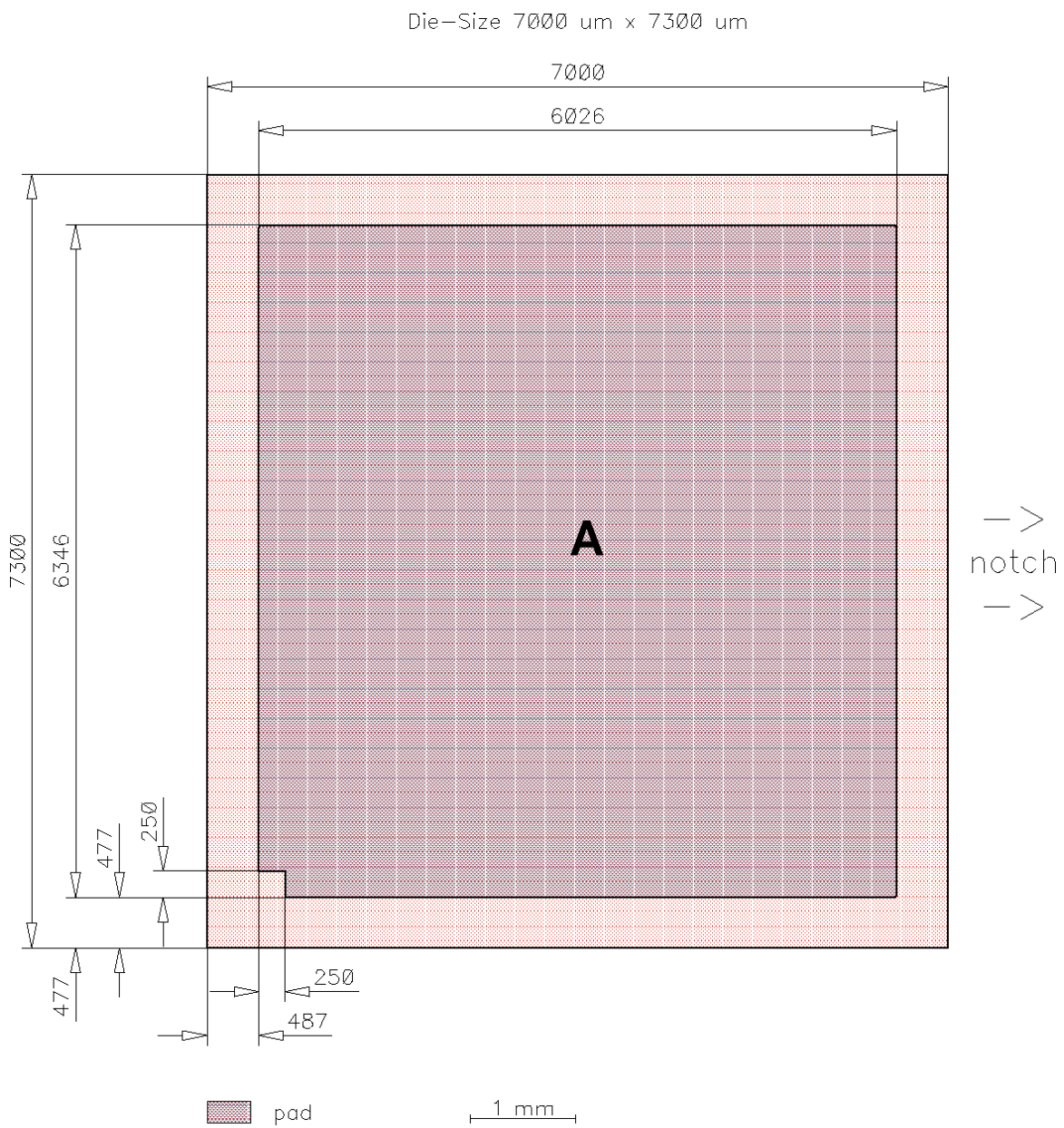
## Further Electrical Characteristics

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

Application example	FF900R12IE4	Rev. 2.4
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<sup>1</sup> Depending on thermal properties of assembly.

## Chip Drawing



**A** = Anode pad



# IDC51D120T8H

## 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

Revision	Subjects (major changes since last revision)	Date
2.0	Final data sheet	22.08.2016
2.1	Editorial changes	09.04.2021

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