Diode

Emitter Controlled 4 High Power Technology

IDC51D120T8H

Data Sheet

Industrial Power Control

Table of Contents

IDC51D120T8H

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^2
Area total		51.10	
Anode pad size		6.026 x 6.346	
Silicon thickness		120	µm
Wafer size		200	mm
Maximum possible chips per wafer		518	
Passivation frontside		Photoimide	
Pad metal		3200nm 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		∅ 0.65mm; max 1.2mm	
Storage environment (<6 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.

Parameter	Symbol	Conditions	Value	Unit
Repetitive peak reverse voltage	V_{RRM}	T_{vj}=25°C	1200	V
Continuous forward current [1]	I_F		-	A
Maximum repetitive forward current [2]	I_{FRM}		200	
Junction temperature	T_{vj}		-40...+175	°C
Operating junction temperature	$T_{vj\ op}$		-40...+150	°C

Static Characteristics (tested on wafer), T_{vj}=25°C

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

Further Electrical Characteristics

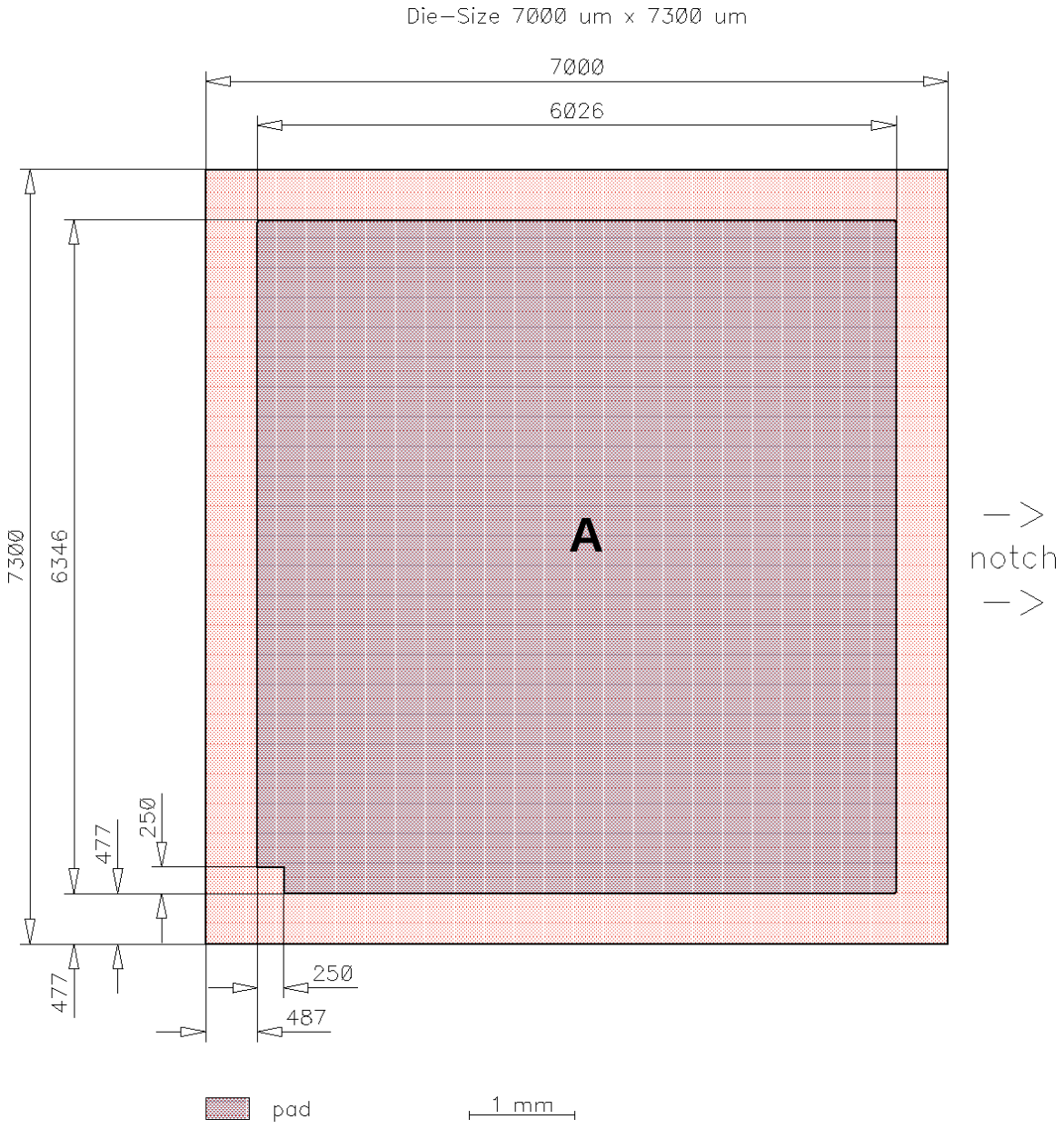
Switching characteristics and thermal properties are depending strongly on module design and mounting technology and can therefore not be specified for a bare die.

Application example	FF900R12IE4	Rev. 2.4

[1] Depending on thermal properties of assembly.

[2] Not subject to production test - verified by design/characterization.

Chip Drawing



A = Anode pad

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

Relevant Application Notes

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