## Features

- $V_{RRM}$ = 1200 V
- $I_{Fn}$ = 3 A
- 1200 V emitter controlled technology
- Soft, fast switching
- Low reverse recovery charge
- Small temperature coefficient


## Potential applications

- SMPS
- Resonant applications
- Drives

## Description

Recommended for:

• Power modules

• Discrete devices

| Type | Die size | Delivery form |
|---|---|---|
| SIDC03D120H8 | 1.75 mm x 1.85 mm | Sawn on foil |

# Table of contents

# 1 Mechanical parameters

**Table 1 Mechanical parameters**

| Parameter | Values |
|---|---|
| Die size | 1.75 mm x 1.85 mm |
| Area total | 3.24 $mm^2$ |
| Anode pad size | See chip drawing |
| Silicon thickness | 120 µm |
| Wafer size | 200 mm |
| Maximum possible chips per wafer | 8701 |
| Passivation frontside | Photoimide |
| Pad metal | 3.2 µm 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 attach | Electrically conductive epoxy glue and soft solder |
| Frontside interconnect | Wire bond: Al ≤ 500 µm |
| Reject ink dot size (valid for inked delivery form only) | Ø 0.65 mm; max. 1.2 mm |
| Storage environment (<6 months) for original and sealed MBB bags | Ambient atmosphere air, temperature 17°C – 25°C |
| Storage environment (<6 months) for open MBB bags | Acc. IEC 62258-3; Section 9.4 Storage Environment |

# 2 Characteristics

**Table 2 Maximum ratings**

| Parameter | Symbol | Note or test condition | | Values | Unit |
|---|---|---|---|---|---|
| Repetitive peak reverse voltage | $V_{RRM}$ | | $T_{vj}$ = 25 °C | 1200 | V |
| Continuous forward current, limited by $T_{vj,max}$ [1)] | $I_F$ | | | - | A |
| Maximum repetitive forward current, tp limited by $T_{vj, max}$ | $I_{FRM}$ | | | 6 | A |
| Junction temperature range | $T_{vj}$ | | | -40...175 | °C |
| Operating junction temperature | $T_{vjop}$ | | | -40...150 | °C |

1) Depending on thermal properties of assembly

**Table 3 Static characteristics (tested on wafer), Tvj = 25°C**

| Parameter | Symbol | Note or test condition | Values | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Diode forward voltage | $V_F$ | $I_F$ = 3 A | 1.23 | 1.6 | 1.97 | V |
| Reverse leakage current | $I_R$ | $V_R$ = 1200 V | | | 27 | µA |
| Cathode-anode breakdown voltage | $V_{BR}$ | $I_R$ = 0.25 mA | 1200 | | | V |

*Note: 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.*

*For "Maximum ratings": Not subject to production test, specified by design.*

# 3 Chip drawing

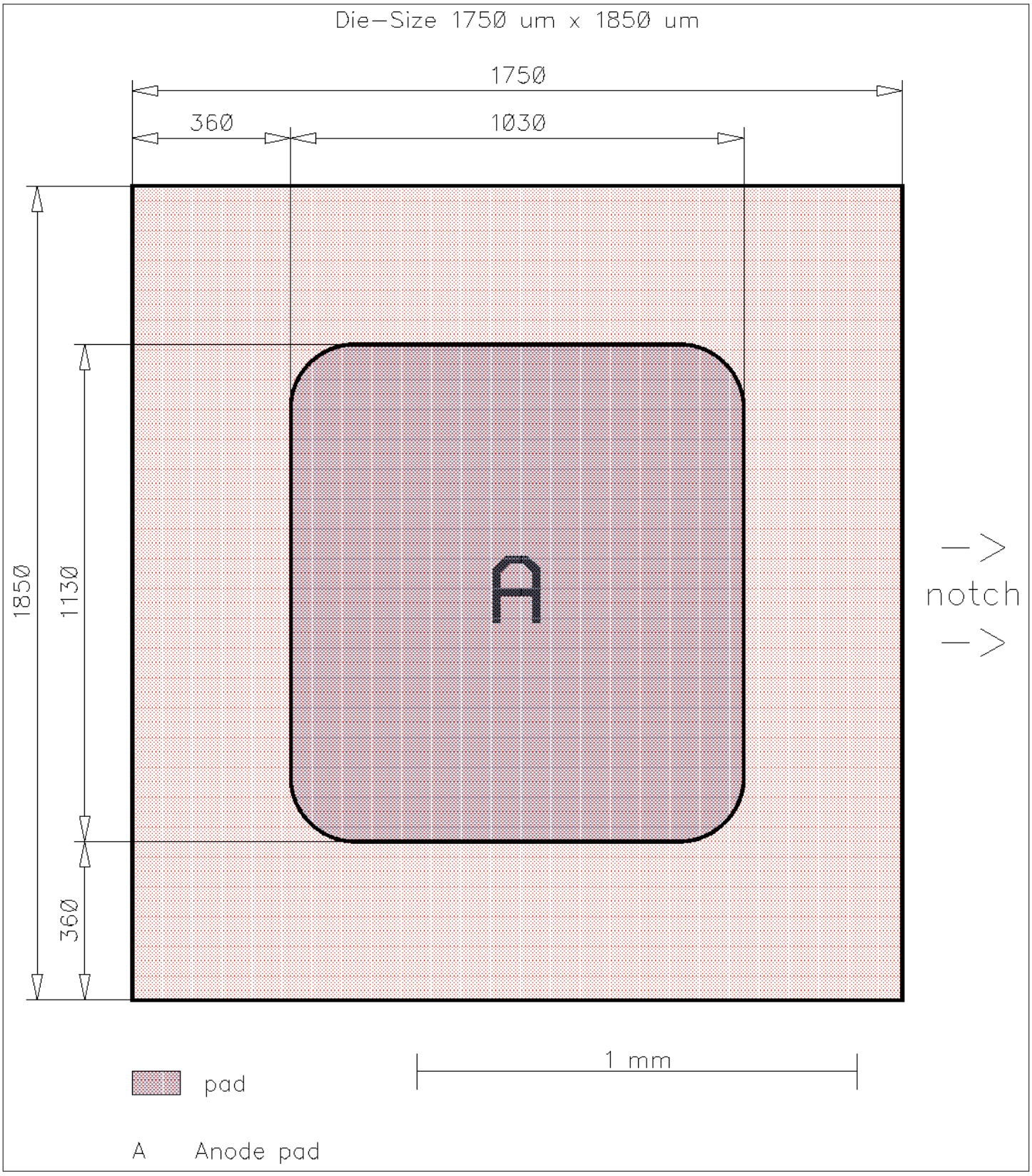


**Figure 1**

# 4 Bare die product specifics

- Switching characteristics and thermal properties are dependent on module design and mounting technology and can therefore not be specified for a bare die.
- 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.
- AQL 0.65 for visual inspection according to failure catalogue
- Electrostatic discharge sensitive device according to MIL-STD 883
- Example application:

## Revision history

| Document revision | Date of release | Description of changes |
|---|---|---|
| 1.00 | 2022-03-23 | Datasheet migrated to a new system<br>***Legacy Revisions***<br>2.0 Final data sheet 30.12.2014<br>2.1 Editorial changes 14.10.2015<br>2.2 $I_F$ + $I_{FRM}$ conditions changed, $T_{vj}$ increased to 175°C,<br>editorial changes 23.12.2021 |
| 1.10 | 2022-04-01 | $T_{vj}$ and $T_{vjop}$ updated |

**Trademarks**

All referenced product or service names and trademarks are the property of their respective owners.

**Edition 2022-04-01**

**Published by**

**Infineon Technologies AG**

**81726 Munich, Germany**



**Do you have a question about any aspect of this document?**

**Email: erratum@infineon.com**

**Document reference**
**IFX-ABC099-002**

**IMPORTANT NOTICE**

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenheitsgarantie").

With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

In addition, any information given in this document is subject to customer's compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer's products and any use of the product of Infineon Technologies in customer's applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer's technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

Please note that this product is not qualified according to the AEC Q100 or AEC Q101 documents of the Automotive Electronics Council.

**WARNINGS**

Due to technical requirements products may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by Infineon Technologies in a written document signed by authorized representatives of Infineon Technologies, Infineon Technologies' products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.