

## Fast switching diode chip in EMCON-Technology

### FEATURES:

- 600V EMCON technology 70 µm chip
- soft , fast switching
- low reverse recovery charge
- small temperature coefficient

### This chip is used for:

- EUPEC power modules and discrete devices



### Applications:

- SMPS, resonant applications, drives

| Chip Type   | V <sub>R</sub> | I <sub>F</sub> | Die Size              | Package      | Ordering Code     |
|-------------|----------------|----------------|-----------------------|--------------|-------------------|
| SIDC09D60F6 | 600V           | 30A            | 3 x 3 mm <sup>2</sup> | sawn on foil | Q67050-A4121-A001 |

### MECHANICAL PARAMETER:

|                                 |  |                 |
|---------------------------------|--|-----------------|
| Raster size                     | 3 x 3  | mm <sup>2</sup> |
| Area total / active             | 9 / 6.7  |                 |
| Anode pad size                  | 2.51 x 2.51  |                 |
| Thickness                       | 70   | µm              |
| Wafer size                      | 150  | mm              |
| Flat position                   | 180  | deg             |
| Max. possible chips per wafer   | 1667 pcs   |                 |
| Passivation frontside           | Photoimide   |                 |
| Anode metallisation             | 3200 nm AlSiCu   |                 |
| Cathode metallisation           | 1400 nm Ni Ag –system<br>suitable for epoxy and soft solder die bonding                      |                 |
| Die bond                        | electrically conductive glue or solder   |                 |
| Wire bond                       | Al, ≤500µm   |                 |
| Reject Ink Dot Size             | Ø 0.65mm ; max 1.2mm   |                 |
| Recommended Storage Environment | store in original container, in dry nitrogen,<br>< 6 month at an ambient temperature of 23°C |                 |

## Maximum Ratings

| Parameter  | Symbol         | Condition                       | Value      | Unit |
|--|----------------|---------------------------------|------------|------|
| Repetitive peak reverse voltage  | $V_{RRM}$      |                                 | 600        | V    |
| Continuous forward current limited by $T_{jmax}$   | $I_F$          |                                 | 30         | A    |
| Single pulse forward current<br>(depending on wire bond configuration)                             | $I_{FSM}$      | $t_P = 10\text{ ms sinusoidal}$ | tbd        |      |
| Maximum repetitive forward current limited by $T_{jmax}$<br>(depending on wire bond configuration) | $I_{FRM}$      |                                 | 60         |      |
| Operating junction and storage temperature   | $T_j, T_{stg}$ |                                 | -55...+150 | °C   |

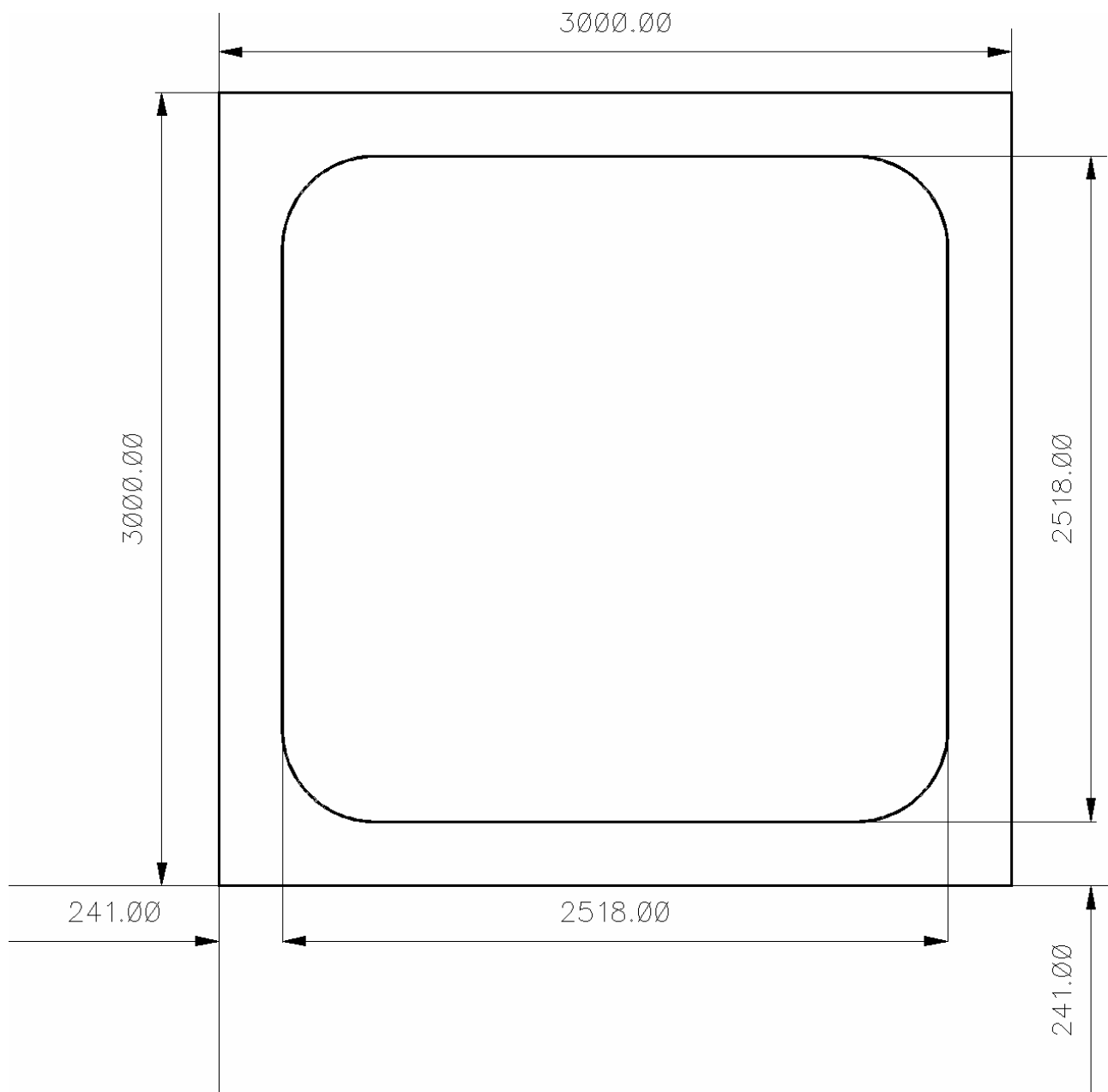
## Static Electrical Characteristics (tested on chip), $T_j=25\text{ °C}$ , unless otherwise specified

| Parameter                       | Symbol   | Conditions  |                    | Value |      |      | Unit |
|---------------------------------|----------|-------------|--------------------|-------|------|------|------|
|                                 |          |             |                    | min.  | Typ. | max. |      |
| Reverse leakage current         | $I_R$    | $V_R=600V$  | $T_j=25\text{ °C}$ |       |      | 27   | µA   |
| Cathode-Anode breakdown Voltage | $V_{Br}$ | $I_R=1.5mA$ | $T_j=25\text{ °C}$ | 600   |      |      | V    |
| Forward voltage drop            | $V_F$    | $I_F=30A$   | $T_j=25\text{ °C}$ |       | 1.45 |      | V    |

## Dynamic Electrical Characteristics, at $T_j = 25\text{ °C}$ , unless otherwise specified, tested at component

| Parameter                                     | Symbol        | Conditions                      |                       | Value |      |      | Unit |
|---|---------------|---------------------------------|-----------------------|-------|------|------|------|
|   |               |                                 |                       | min.  | Typ. | max. |      |
| Reverse recovery time                         | $t_{rr1}$     | $I_F=30A$                       | $T_j = 25\text{ °C}$  |       | 126  |      | ns   |
|   | $t_{rr2}$     | $di/dt=1000A/ms$<br>$V_R=400V$  | $T_j = 150\text{ °C}$ |       | 178  |      |      |
| Peak recovery current                         | $I_{RRM1}$    | $I_F=30A$                       | $T_j = 25\text{ °C}$  |       | 19   |      | A    |
|   | $I_{RRM2}$    | $di/dt=1000A/ms$<br>$V_R= 400V$ | $T_j = 150\text{ °C}$ |       | 24   |      |      |
| Reverse recovery charge                       | $Q_{rr1}$     | $I_F=30A$                       | $T_j=25\text{ °C}$    |       | 1100 |      | nC   |
|   | $Q_{rr2}$     | $di/dt=1000A/ms$<br>$V_R= 400V$ | $T_j=150\text{ °C}$   |       | 2150 |      |      |
| Peak rate of fall of reverse recovery current | $di_{rr1}/dt$ | $I_F=30A$                       | $T_j = 25\text{ °C}$  |       |      |      | A/µs |
|   | $di_{rr2}/dt$ | $di/dt=1000A/ms$<br>$V_R= 400V$ | $T_j=150\text{ °C}$   |       |      |      |      |
| Softness                                      | S1            | $I_F=30A$                       | $T_j=25\text{ °C}$    |       | 4    |      | 1    |
|   | S2            | $di/dt=1000A/ms$<br>$V_R= 400V$ | $T_j=150\text{ °C}$   |       | 4.8  |      |      |

CHIP DRAWING:





Preliminary

# SIDC09D60F6

---

**FURTHER ELECTRICAL CHARACTERISTICS:**

---

This chip data sheet refers to the device data sheet

INFINEON TECHNOLOGIES /  
EUPEC

tbd

---

**Description:**

---

AQL 0,65 for visual inspection according to failure catalog

---

Electrostatic Discharge Sensitive Device according to MIL-STD 883

---

Test-Normen Villach/Prüffeld

---

**Published by**  
**Infineon Technologies AG**  
**Bereich Kommunikation**  
**St.-Martin-Strasse 53**  
**D-81541 München**  
**© Infineon Technologies AG 2000**  
**All Rights Reserved.**

**Attention please!**

The information herein is given to describe certain components and shall not be considered as warranted characteristics.

Terms of delivery and rights to technical change reserved.

We hereby disclaim any and all warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

Infineon Technologies is an approved CECC manufacturer.

**Information**

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office in Germany or our Infineon Technologies Representatives world-wide (see address list).

**Warnings**

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

Infineon Technologies components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and / or maintain and sustain and / or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.