

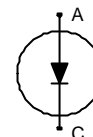
Fast switching diode chip in EMCON-Technology

**FEATURES:**

- 1200V EMCON technology 130  $\mu\text{m}$  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    | $V_R$ | $I_F$ | Die Size                  | Package      | Ordering Code     |
|--------------|-------|-------|---------------------------|--------------|-------------------|
| SIDC14D120E6 | 1200V | 15A   | 3.8 x 3.8 mm <sup>2</sup> | sawn on foil | Q67050-A4123-A001 |

**MECHANICAL PARAMETER:**

|                                 |  |                 |
|---------------------------------|--|-----------------|
| Raster size                     | 3.8 x 3.8  | mm <sup>2</sup> |
| Area total / active             | 14.44 / 9.8  |                 |
| Anode pad size                  | 3.08 x 3.08  |                 |
| Thickness                       | 130  | $\mu\text{m}$   |
| Wafer size                      | 150  | mm              |
| Flat position                   | 180  | deg             |
| Max. possible chips per wafer   | 1018 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, $\leq 500\mu\text{m}$  |                 |
| Reject Ink Dot Size             | $\varnothing$ 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  | $V_{RRM}$      |                                 | 1200       | V    |
| Continuous forward current limited by $T_{jmax}$                       | $I_F$          |                                 | 15         | 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 $T_{jmax}$               | $I_{FRM}$      |                                 | 30         |      |
| Operating junction and storage temperature                             | $T_j, T_{stg}$ |                                 | -55...+150 | °C   |

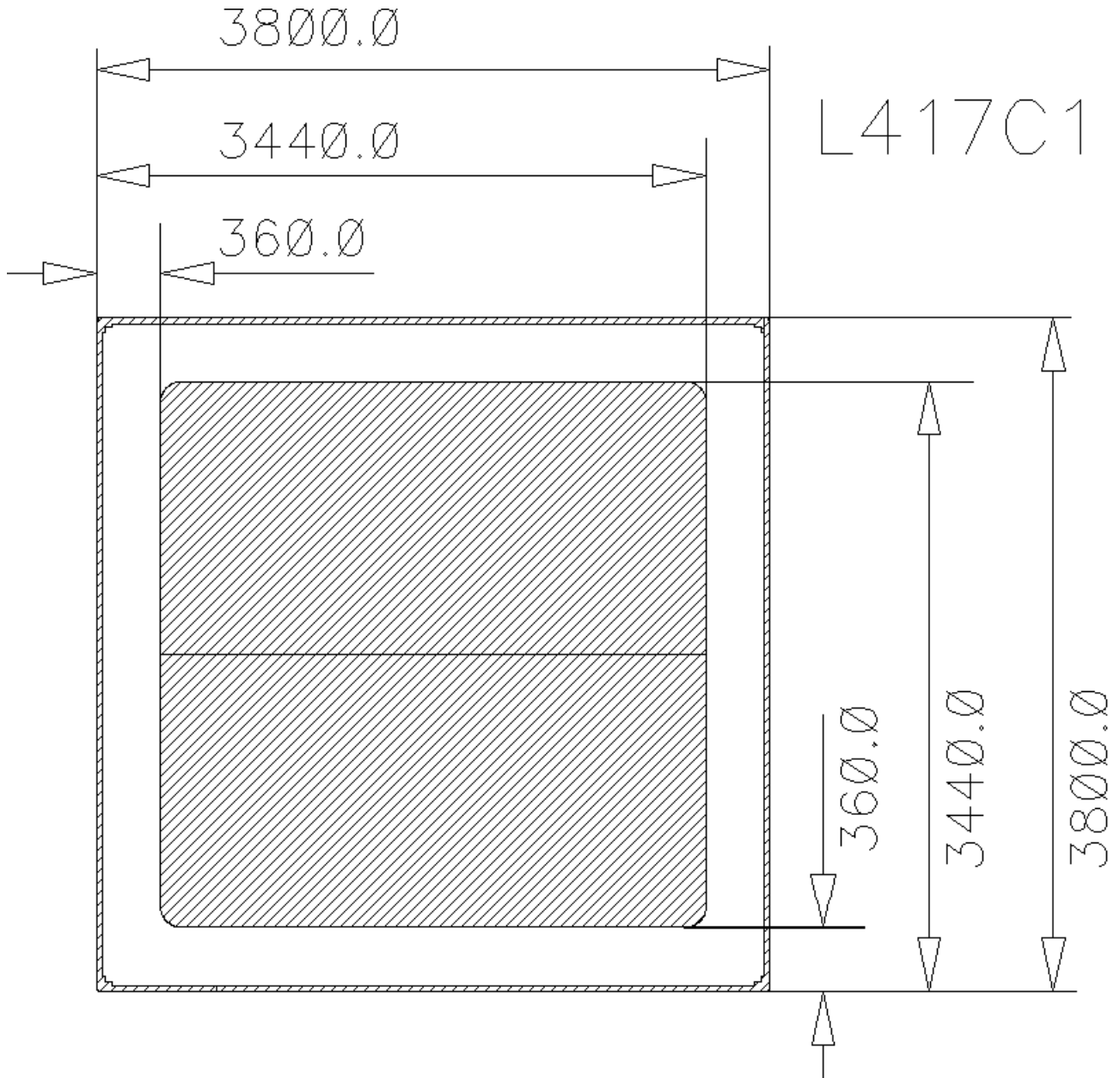
## Static Electrical Characteristics (tested on chip), $T_j=25\text{ °C}$ , unless otherwise specified

| Parameter                       | Symbol   | Conditions          |                    | Value |      |      | Unit |
|---------------------------------|----------|---------------------|--------------------|-------|------|------|------|
|                                 |          |                     |                    | min.  | Typ. | max. |      |
| Reverse leakage current         | $I_R$    | $V_R=1200\text{ V}$ | $T_j=25\text{ °C}$ |       |      | 27   | µA   |
| Cathode-Anode breakdown Voltage | $V_{Br}$ | $I_R=1\text{ mA}$   | $T_j=25\text{ °C}$ | 1200  |      |      | V    |
| Forward voltage drop            | $V_F$    | $I_F=15\text{ A}$   | $T_j=25\text{ °C}$ |       | 1.9  |      | V    |

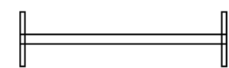
## Dynamic Electrical Characteristics, at $T_j = 25\text{ °C}$ , unless otherwise specified, tested at component

| Parameter                                     | Symbol        | Conditions                                     |                       | Value |      |      | Unit |
|---|---------------|--|-----------------------|-------|------|------|------|
|   |               |  |                       | min.  | Typ. | max. |      |
| Reverse recovery time                         | $t_{rr1}$     | $I_F=15\text{ A}$                              | $T_j = 25\text{ °C}$  |       | tbd  |      | ns   |
|   | $t_{rr2}$     | $di/dt=390\text{ A/ms}$<br>$V_R=600\text{ V}$  | $T_j = 125\text{ °C}$ |       |      |      |      |
| Peak recovery current                         | $I_{RRM1}$    | $I_F=15\text{ A}$                              | $T_j = 25\text{ °C}$  |       | 10.9 |      | A    |
|   | $I_{RRM2}$    | $di/dt=390\text{ A/ms}$<br>$V_R= 600\text{ V}$ | $T_j = 125\text{ °C}$ |       | 14.5 |      |      |
| Reverse recovery charge                       | $Q_{rr1}$     | $I_F=15\text{ A}$                              | $T_j=25\text{ °C}$    |       | 1.45 |      | µC   |
|   | $Q_{rr2}$     | $di/dt=390\text{ A/ms}$<br>$V_R= 600\text{ V}$ | $T_j=125\text{ °C}$   |       | 3.23 |      |      |
| Peak rate of fall of reverse recovery current | $di_{rr1}/dt$ | $I_F=15\text{ A}$                              | $T_j = 25\text{ °C}$  |       | tbd  |      | A/µs |
|   | $di_{rr2}/dt$ | $di/dt=390\text{ A/ms}$<br>$V_R= 600\text{ V}$ | $T_j=125\text{ °C}$   |       |      |      |      |
| Softness                                      | S1            | $I_F=15\text{ A}$                              | $T_j=25\text{ °C}$    |       | tbd  |      | 1    |
|   | S2            | $di/dt=390\text{ A/ms}$<br>$V_R= 600\text{ V}$ | $T_j=125\text{ °C}$   |       |      |      |      |

CHIP DRAWING:



Flatside



1 mm

all measurements in μm



Preliminary

SIDC14D120E6

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**FURTHER ELECTRICAL CHARACTERISTICS:**

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This chip data sheet refers to the device data sheet

INFINEON TECHNOLOGIES /  
EUPEC

tbd

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**Description:**

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AQL 0,65 for visual inspection according to failure catalog

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Electrostatic Discharge Sensitive Device according to MIL-STD 883

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Test-Normen Villach/Prüffeld

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