

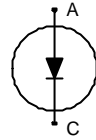
## 2<sup>nd</sup> generation thinQ!<sup>TM</sup> SiC Schottky Diode

### FEATURES:

- Revolutionary semiconductor material - Silicon Carbide
- Switching behavior benchmark
- No reverse recovery
- No temperature influence on the switching behavior
- No forward recovery
- High surge current capability

### Applications:

- SMPS, PFC, snubber



| Chip Type | V <sub>BR</sub> | I <sub>F</sub> | Die Size                      | Package      |
|-----------|-----------------|----------------|-------------------------------|--------------|
| IDC04S60C | 600V            | 4A             | 1.146 x 0.968 mm <sup>2</sup> | sawn on foil |

### MECHANICAL PARAMETER:

|                                 |  |                 |
|---------------------------------|--|-----------------|
| Raster size                     | 1.146x 0.968   | mm              |
| Anode pad size                  | 0.909 x 0.731  |                 |
| Area total / active             | 1.11 / 0.74  | mm <sup>2</sup> |
| Thickness                       | 355  | µm              |
| Wafer size                      | 75   | mm              |
| Flat position                   | 0  | deg             |
| Max. possible chips per wafer   | 3461 pcs   |                 |
| Passivation frontside           | Photoimide   |                 |
| Anode metalization              | 3200 nm Al   |                 |
| Cathode metalization            | 1400 nm Ni Ag –system<br>suitable for epoxy and soft solder die bonding                      |                 |
| Die bond                        | Electrically conductive glue or solder   |                 |
| Wire bond                       | Al, ≤ 350µm  |                 |
| Reject Ink Dot Size             | ∅ ≥ 0.3 mm   |                 |
| Recommended Storage Environment | store in original container, in dry nitrogen,<br>< 6 month at an ambient temperature of 23°C |                 |



# IDC04S60C

## Maximum Ratings

| Parameter   | Symbol         | Condition                                 | Value      | Unit |
|---|----------------|---|------------|------|
| Repetitive peak reverse voltage                       | $V_{RRM}$      |   | 600        | V    |
| DC blocking voltage                                   | $V_{DC}$       |   | 600        |      |
| Continuous forward current limited by $T_{jmax}$      | $I_F$          |   | 4          | A    |
| Surge non repetitive forward current sine halfwave    | $I_{F,SM}$     | $T_C=25^\circ C, t_p=10\text{ ms}$        | 32         |      |
| Repetitive peak forward current limited by $T_{jmax}$ | $I_{F,RM}$     | $T_C=100^\circ C, T_j=150^\circ C, D=0.1$ | 18         |      |
| Non-repetitive peak forward current                   | $I_{F,max}$    | $T_C=25^\circ C, t_p=10\mu s$             | 132        |      |
| Operating junction and storage temperature            | $T_j, T_{stg}$ |   | -55...+175 | °C   |

## Static Electrical Characteristics (tested on chip), $T_j=25^\circ C$ , unless otherwise specified

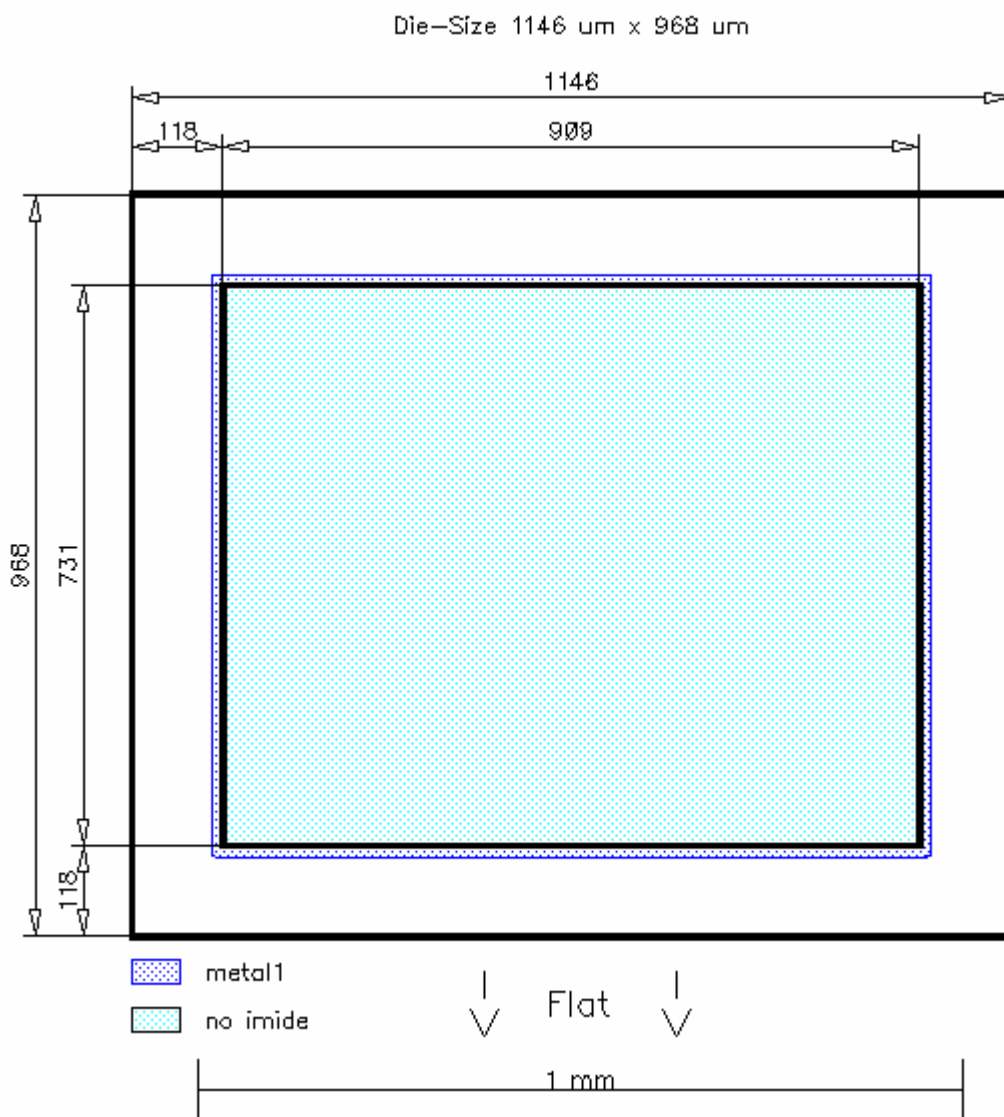
| Parameter             | Symbol | Conditions |                  | Value |      |      | Unit    |
|-----------------------|--------|------------|------------------|-------|------|------|---------|
|                       |        |            |                  | min.  | Typ. | max. |         |
| Reverse current       | $I_R$  | $V_R=600V$ | $T_j=25^\circ C$ |       | 0.5  | 50   | $\mu A$ |
| Diode forward voltage | $V_F$  | $I_F=4A$   | $T_j=25^\circ C$ |       | 1.7  | 1.9  | V       |

## Dynamic Electrical Characteristics, at $T_j=25^\circ C$ , unless otherwise specified, tested at component

| Parameter                    | Symbol | Conditions  |                   | Value |      |      | Unit |
|------------------------------|--------|---|-------------------|-------|------|------|------|
|                              |        |   |                   | min.  | Typ. | max. |      |
| Total capacitive charge      | $Q_C$  | $I_F \leq I_{F,max}$<br>$di/dt=200A/ms$<br>$V_R=400V$ | $T_j=150^\circ C$ |       | 8    |      | nC   |
| Switching time <sup>1)</sup> | $t_c$  |   | $T_j=150^\circ C$ |       |      | <10  | ns   |
| Total capacitance            | C      | $f=1MHz$  | $V_R=1V$          |       | 130  |      | pF   |
|                              |        |   | $V_R=300V$        |       | 20   |      |      |
|                              |        |   | $V_R=600V$        |       | 20   |      |      |

<sup>1)</sup>  $t_c$  is the time constant for the capacitive displacement current waveform (independent from  $T_j$ ,  $I_{LOAD}$  and  $di/dt$ ), different from  $t_{rr}$  which is dependent on  $T_j$ ,  $I_{LOAD}$  and  $di/dt$ . No reverse recovery time constant  $t_{rr}$  due to absence of minority carrier injection

**CHIP DRAWING:**





# IDC04S60C

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**FURTHER ELECTRICAL CHARACTERISTICS:**

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This chip data sheet refers to the device data sheet

INFINEON TECHNOLOGIES

IDT04S60C

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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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