# IDC05S60C

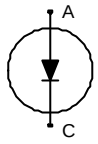
## 2nd generation thinQ!™ SiC Schottky Diode

**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 | $V_{BR}$ | $I_F$ | Die Size | Package |
|---|---|---|---|---|
| IDC05S60C | 600V | 5A | 1.45 x 1.162 mm$^2$ | sawn on foil |

**MECHANICAL PARAMETER:**

| | | |
|---|---|---|
| Raster size | 1.45x 1.162 | mm |
| Anode pad size | 1.213 x 0.925 | |
| Area total / active | 1.68 / 1.22 | mm$^2$ |
| Thickness | 355 | µm |
| Wafer size | 75 | mm |
| Flat position | 0 | deg |
| Max. possible chips per wafer | 2182 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 | |

## 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 $T_{jmax}$ | $I_F$ | | 5 | A |
| Surge non repetitive forward current sine halfwave | $I_{F,SM}$ | $T_C$ =25°C, $t_P$ =10 ms | 42 | |
| Repetitive peak forward current limited by $T_{jmax}$ | $I_{F,RM}$ | $T_C$ = 100°C, $T_j$=150°C, D=0.1 | 21 | |
| Non-repetitive peak forward current | $I_{F,max}$ | $T_C$ =25°C, tp=10µs | 180 | |
| Operating junction and storage temperature | $T_j$ , $T_{stg}$ | | -55...+175 | °C |

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

| Parameter | Symbol | Conditions | | Value | | | Unit |
|---|---|---|---|---|---|---|---|
| | | | | min. | Typ. | max. | |
| Reverse current | $I_R$ | $V_R$=600V | $T_j$=25°C | | 0.6 | 70 | µA |
| Diode forward voltage | $V_F$ | $I_F$=5A | $T_j$=25°C | | 1.5 | 1.7 | V |

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

| Parameter | Symbol | Conditions | | Value | | | Unit |
|---|---|---|---|---|---|---|---|
| | | | | min. | Typ. | max. | |
| Total capacitive charge | $Q_C$ | $I_F$ <=$I_{F,max}$ di/dt=200A/ms $V_R$=400V | $T_j$ = 150 °C | | 12 | | nC |
| Switching time [1] | $t_c$ | | $T_j$ = 150 °C | | | <10 | ns |
| Total capacitance | C | f=1MHz | $V_R$=1V | | 240 | | pF |
| | | | $V_R$=300V | | 30 | | |
| | | | $V_R$=600V | | 30 | | |

[1] $t_c$ 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

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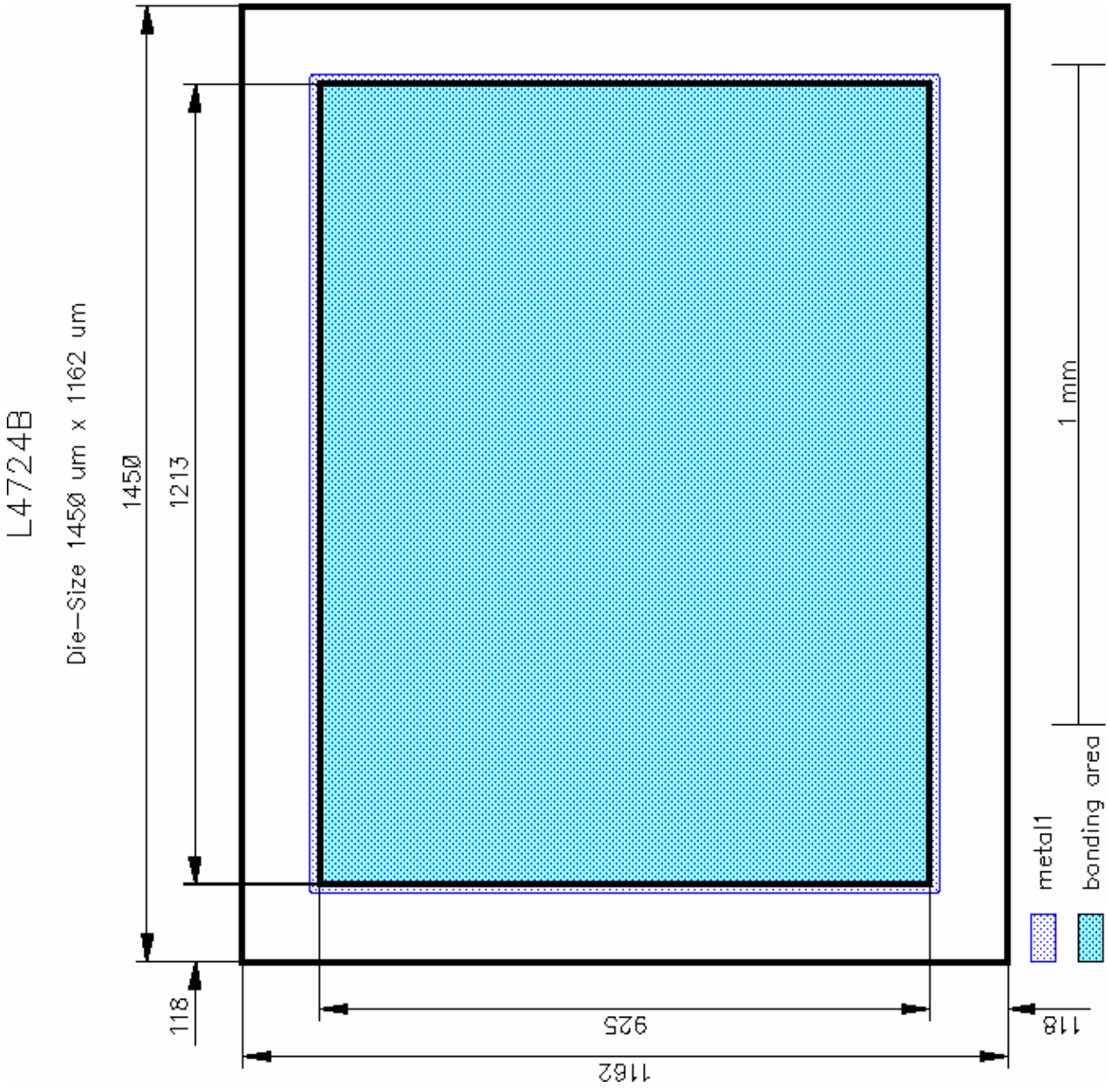
**CHIP DRAWING:**



# IDC05S60C

**FURTHER ELECTRICAL CHARACTERISTICS:**

| | | |
|---|---|---|
| This chip data sheet refers to the device data sheet | INFINEON TECHNOLOGIES | IDT05S60C |

**Description:**

AQL 0,65 for visual inspection according to failure catalog

Electrostatic Discharge Sensitive Device according to MIL-STD 883

Test-Normen Villach/Prüffeld

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