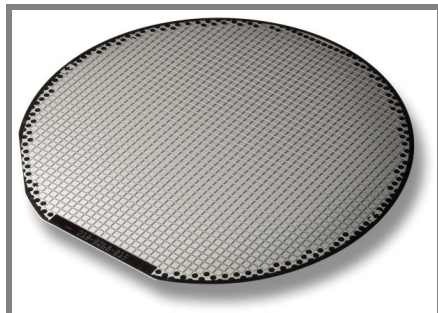


# SKCD 42 C 060 I HD



SEMICELL CAL-DIODE

## SKCD 42 C 060 I HD

$I_F = 100 \text{ A}$

$V_{RRM} = 600 \text{ V}$

Size: 6,48 mm X 6,48 mm

Package: wafer frame

### Features

- high current density
- easy paralleling due to a small forward voltage spread and a positive temperature coefficient
- very soft recovery behavior
- small switching losses
- high ruggedness
- compatible to thick wire bonding
- compatible to standard solder processes

### Typical Applications

- freewheeling diode for 600V IGBT

### Absolute Maximum Ratings

| Symbol      | Conditions                                           | Values | Units            |
|-------------|------------------------------------------------------|--------|------------------|
| $V_{RRM}$   | $T_{vj} = 25^\circ\text{C}$ , $I_R = 0,2 \text{ mA}$ | 600    | V                |
| $I_{F(AV)}$ | $80^\circ\text{C}$ , $T_{vjmax} = 175^\circ\text{C}$ | 75     | A                |
| $I_{FSM}$   | $T_{vj} = 25^\circ\text{C}$ , 10 ms, half sine wave  | 985    | A                |
|             | $T_{vj} = 150^\circ\text{C}$ , 10 ms, half sine wave | 810    | A                |
| $T_{vjmax}$ |                                                      | + 175  | $^\circ\text{C}$ |

### Electrical Characteristics

| Symbol     | Conditions                                           | min. | typ. | max. | Units                |
|------------|------------------------------------------------------|------|------|------|----------------------|
| $I^2t$     | $T_{vj} = 150^\circ\text{C}$ , 10 ms, half sine wave |      |      | 3280 | $\text{A}^2\text{s}$ |
| $I_R$      | $T_{vj} = 25^\circ\text{C}$ , $V_{RRM}$              |      |      | 0,2  | mA                   |
|            | $T_{vj} = 150^\circ\text{C}$ , $V_{RRM}$             |      |      |      | mA                   |
| $V_F$      | $T_{vj} = 25^\circ\text{C}$ , $I_F = 110 \text{ A}$  |      | 1,35 |      | V                    |
|            | $T_{vj} = 150^\circ\text{C}$ , $I_F = 110 \text{ A}$ |      | 1,31 |      | V                    |
| $V_{(TO)}$ | $T_{vj} = 150^\circ\text{C}$                         |      | 0,85 |      | V                    |
| $r_T$      | $T_{vj} = 150^\circ\text{C}$                         |      | 4,2  |      | $\text{m}\Omega$     |

### Dynamic Characteristics

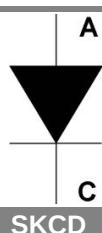
| Symbol    | Conditions                                                         | min. | typ. | max. | Units         |
|-----------|--------------------------------------------------------------------|------|------|------|---------------|
| $t_{rr}$  | $T_{vj} = 25^\circ\text{C}$ , 100 A, 300 V, 1300 A/ $\mu\text{s}$  |      |      |      | ns            |
|           | $T_{vj} = 150^\circ\text{C}$ , 100 A, 300 V, 1300 A/ $\mu\text{s}$ |      |      |      | ns            |
| $Q_{rr}$  | $T_{vj} = 25^\circ\text{C}$ , 100 A, 300 V, 1300 A/ $\mu\text{s}$  |      |      |      | $\mu\text{C}$ |
|           | $T_{vj} = 150^\circ\text{C}$ , 100 A, 300 V, 1300 A/ $\mu\text{s}$ |      | 14   |      | $\mu\text{C}$ |
| $I_{rrm}$ | $T_{vj} = 25^\circ\text{C}$ , 100 A, 300 V, 1300 A/ $\mu\text{s}$  |      |      |      | A             |
|           | $T_{vj} = 150^\circ\text{C}$ , 100 A, 300 V, 1300 A/ $\mu\text{s}$ |      | 67   |      | A             |

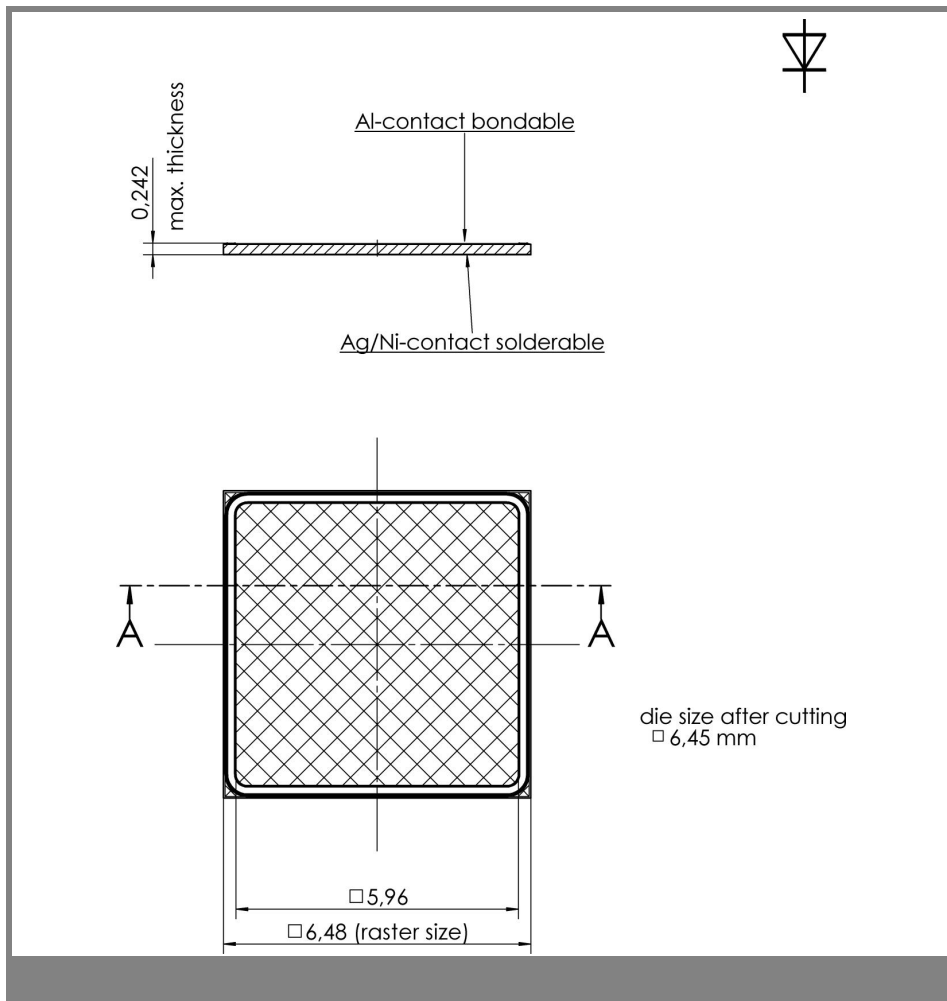
### Thermal Characteristics

| Symbol        | Conditions                                                                     | min. | typ. | max.  | Units            |
|---------------|--------------------------------------------------------------------------------|------|------|-------|------------------|
| $T_{vj}$      |                                                                                | - 40 |      | + 175 | $^\circ\text{C}$ |
| $T_{stg}$     |                                                                                | - 40 |      | + 175 | $^\circ\text{C}$ |
| $T_{solder}$  | 10 min                                                                         |      |      | + 250 | $^\circ\text{C}$ |
| $T_{solder}$  | 5 min                                                                          |      |      | + 320 | $^\circ\text{C}$ |
| $R_{th(j-h)}$ | soldered on 0,38 mm DCB, reference point on copper heatsink close to the chip. |      | 0,78 |       | K / W            |

### Mechanical Characteristics

| Parameter             | Units                               |
|-----------------------|-------------------------------------|
| raster size           | 6,48 x 6,48 mm                      |
| Area total            | 41,99 $\text{mm}^2$                 |
| Chips / wafer         | 234 pcs                             |
| Anode metallisation   | bondable (Al)                       |
| Cathode metallisation | solderable (Ag / Ni)                |
| wire bond             | Al, diameter $\leq 500 \mu\text{m}$ |





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