

# SKCD 47 C 120 I3



**CAL-DIODE**

$I_F = 55 \text{ A}$

$V_{RRM} = 1200 \text{ V}$

Size: 6,86 mm x 6,86 mm

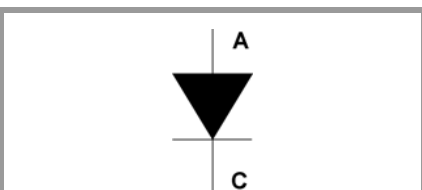
**SKCD 47 C 120 I3**

## Features

- low forward voltage drop combined with a low temperature dependence
- easy paralleling due to a small forward voltage spread
- very soft recovery behavior
- small switching losses
- high ruggedness
- compatible to thick wire bonding
- compatible to all standard solder processes

## Typical Applications\*

- freewheeling diode for IGBT
- particularly suitable for frequencies > 8 kHz



**SKCD**

## Absolute Maximum Ratings

| Symbol      | Conditions                                     | Values                                          | Unit |
|-------------|------------------------------------------------|-------------------------------------------------|------|
| $V_{RRM}$   | $T_j = 25 \text{ °C}$ , $I_R = 0.2 \text{ mA}$ | 1200                                            | V    |
| $I_{F(AV)}$ | $T_s = 80 \text{ °C}$ , $T_j = 150 \text{ °C}$ | 40                                              | A    |
| $I_{FSM}$   | 10 ms                                          | $T_j = 25 \text{ °C}$<br>$T_j = 150 \text{ °C}$ | A    |
|             | sin 180°                                       | 550                                             | A    |
| $T_{jmax}$  |                                                | 150                                             | °C   |

## Electrical Characteristics

| Symbol     | Conditions                                          | min. | typ. | max. | Unit             |
|------------|-----------------------------------------------------|------|------|------|------------------|
| $i^2t$     | $T_j = 150 \text{ °C}$ , 10 ms, sin 180°            |      |      | 1513 | A <sup>2</sup> s |
| $I_R$      | $T_j = 25 \text{ °C}$ , $V_{RRM} = 1200 \text{ V}$  |      |      | 0.20 | mA               |
|            | $T_j = 125 \text{ °C}$ , $V_{RRM} = 1200 \text{ V}$ |      |      | 4.00 | mA               |
| $V_F$      | $T_j = 25 \text{ °C}$ , $I_F = 55 \text{ A}$        |      | 2.00 | 2.50 | V                |
|            | $T_j = 125 \text{ °C}$ , $I_F = 55 \text{ A}$       |      | 1.79 | 2.30 | V                |
| $V_{(TO)}$ | $T_j = 125 \text{ °C}$                              |      | 1.18 |      | V                |
| $r_T$      | $T_j = 125 \text{ °C}$                              |      | 10.9 |      | mΩ               |

## Dynamic Characteristics

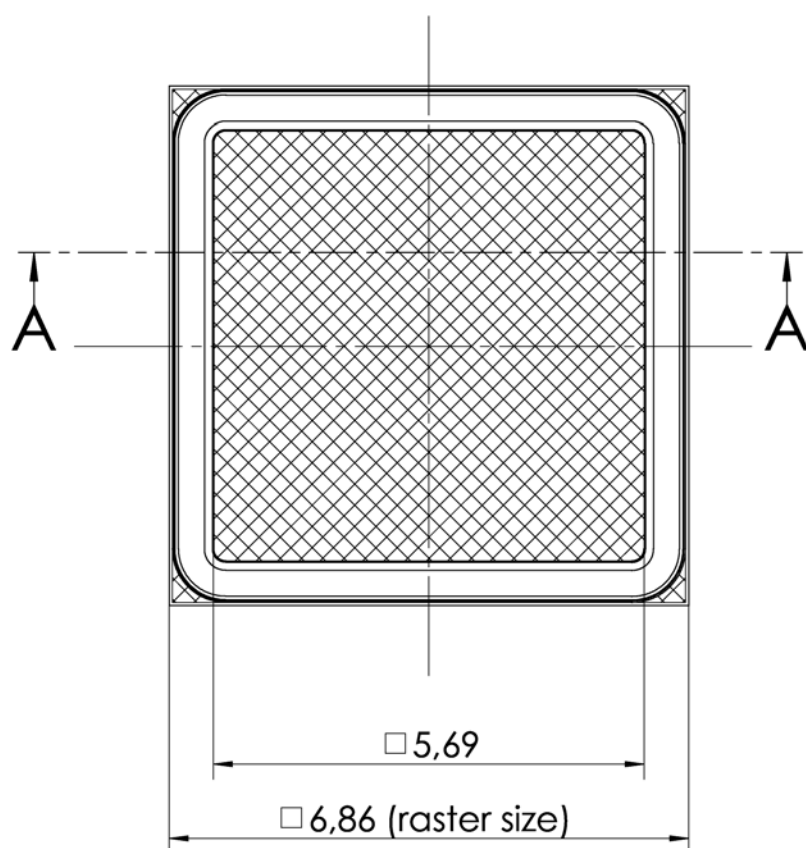
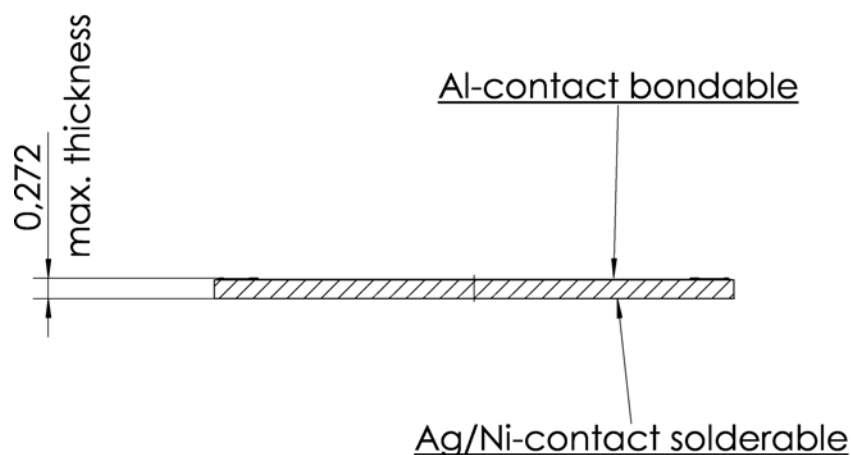
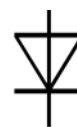
| Symbol    | Conditions                                     | min. | typ. | max. | Unit |
|-----------|------------------------------------------------|------|------|------|------|
| $t_{rr}$  | $T_j = 25 \text{ °C}$ , 50 A, 600 V, 800 A/μs  |      |      |      | μs   |
| $t_{rr}$  | $T_j = 125 \text{ °C}$ , 50 A, 600 V, 800 A/μs |      |      |      | ns   |
| $Q_{rr}$  | $T_j = 25 \text{ °C}$ , 50 A, 600 V, 800 A/μs  |      | 3    |      | μC   |
| $Q_{rr}$  | $T_j = 125 \text{ °C}$ , 50 A, 600 V, 800 A/μs |      | 8    |      | μC   |
| $I_{rrm}$ | $T_j = 25 \text{ °C}$ , 50 A, 600 V, 800 A/μs  |      |      |      | A    |
| $I_{rrm}$ | $T_j = 125 \text{ °C}$ , 50 A, 600 V, 800 A/μs |      | 40   |      | A    |

## Thermal Characteristics

| Symbol        | Conditions                                                                 | min. | typ. | max. | Unit |
|---------------|----------------------------------------------------------------------------|------|------|------|------|
| $T_j$         |                                                                            | -40  |      | 150  | °C   |
| $T_{stg}$     |                                                                            | -40  |      | 150  | °C   |
| $T_{solder}$  | 10 min.                                                                    |      |      | 250  | °C   |
| $T_{solder}$  | 5 min.                                                                     |      |      | 320  | °C   |
| $R_{th(j-s)}$ | sold. on 0,38 mm DCB, reference point on copper heatsink close to the chip |      | 0.7  |      | K/W  |

## Mechanical Characteristics

| Symbol          | Conditions | Values                | Unit            |
|-----------------|------------|-----------------------|-----------------|
| Raster size     |            | 6.86 x 6.86           | mm <sup>2</sup> |
| Area total      |            | 47.06                 | mm <sup>2</sup> |
| Anode           |            | bondable (Al)         |                 |
| Cathode         |            | solderable (Ag/Ni)    |                 |
| Wire bond       |            | Al, diameter ≤ 500 μm |                 |
| Package         |            | wafer frame           |                 |
| Chips / Package |            | 208 (5" Wafer)        | pcs             |



die size after cutting  
□ 6,83 mm

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX

\* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our personal.