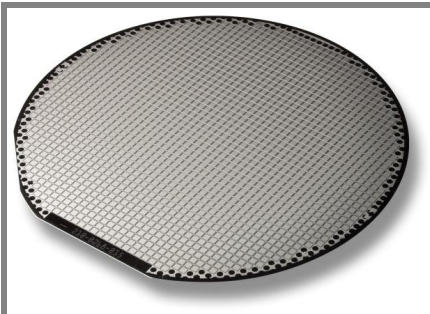


SKCD 47 C 170 I HD



SEMICELL CAL-DIODE

SKCD 47 C 170 I HD

$I_F = 75 \text{ A}$

$V_{RRM} = 1700 \text{ V}$

Size: 6,8 mm X 6,8 mm

Package: wafer frame

Features

- 600V, 1200V and 1700V
- optimal for high current density
- easy paralleling due to a small forward voltage spread
- positive temperature coefficient
- 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
- optimal for frequencies < 8 kHz

Absolute Maximum Ratings

Symbol	Conditions	Values	Units
V_{RRM}	$T_{vj} = 25 \text{ }^\circ\text{C}$, $I_R = 0,1 \text{ mA}$	1700	V
$I_{F(AV)}$	$T_h = 80 \text{ }^\circ\text{C}$, $T_{vjmax} = 150 \text{ }^\circ\text{C}$	50	A
I_{FSM}	$T_{vj} = 25 \text{ }^\circ\text{C}$, 10 ms, half sine wave	680	A
	$T_{vjmax} = 150 \text{ }^\circ\text{C}$, 10 ms, half sine wave	650	A
T_{vjmax}		+ 150	$^\circ\text{C}$

Electrical Characteristics

Symbol	Conditions	min.	typ.	max.	Units
I^2t	T_{vjmax} , 10 ms, half sine wave			2100	A^2s
I_R	$T_{vj} = 25 \text{ }^\circ\text{C}$, V_{RRM}			0,1	mA
	$T_{vj} = 125 \text{ }^\circ\text{C}$, V_{RRM}				mA
V_F	$T_{vj} = 25 \text{ }^\circ\text{C}$, $I_F = 75 \text{ A}$		1,73	2,02	V
	$T_{vj} = 125 \text{ }^\circ\text{C}$, $I_F = 75 \text{ A}$		1,78	2,05	V
$V_{(TO)}$	$T_{vj} = 125 \text{ }^\circ\text{C}$		1,03		V
r_T	$T_{vj} = 125 \text{ }^\circ\text{C}$		10,1		$\text{m}\Omega$

Dynamic Characteristics

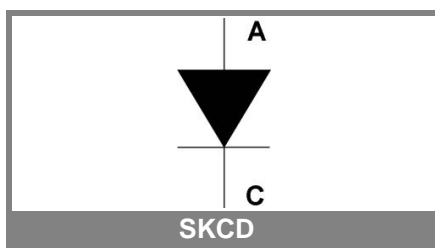
Symbol	Conditions	min.	typ.	max.	Units
t_{rr}	$T_{vj} = 25 \text{ }^\circ\text{C}$, 50 A, 1200 V, 800 A/ μs				ns
	$T_{vj} = 125 \text{ }^\circ\text{C}$, 50 A, 1200 V, 800 A/ μs				ns
Q_{rr}	$T_{vj} = 25 \text{ }^\circ\text{C}$, 50 A, 1200 V, 800 A/ μs				μC
	$T_{vj} = 125 \text{ }^\circ\text{C}$, 50 A, 1200 V, 800 A/ μs		19		μC
I_{rrm}	$T_{vj} = 25 \text{ }^\circ\text{C}$, 50 A, 1200 V, 800 A/ μs				A
	$T_{vj} = 125 \text{ }^\circ\text{C}$, 50 A, 1200 V, 800 A/ μs		55		A

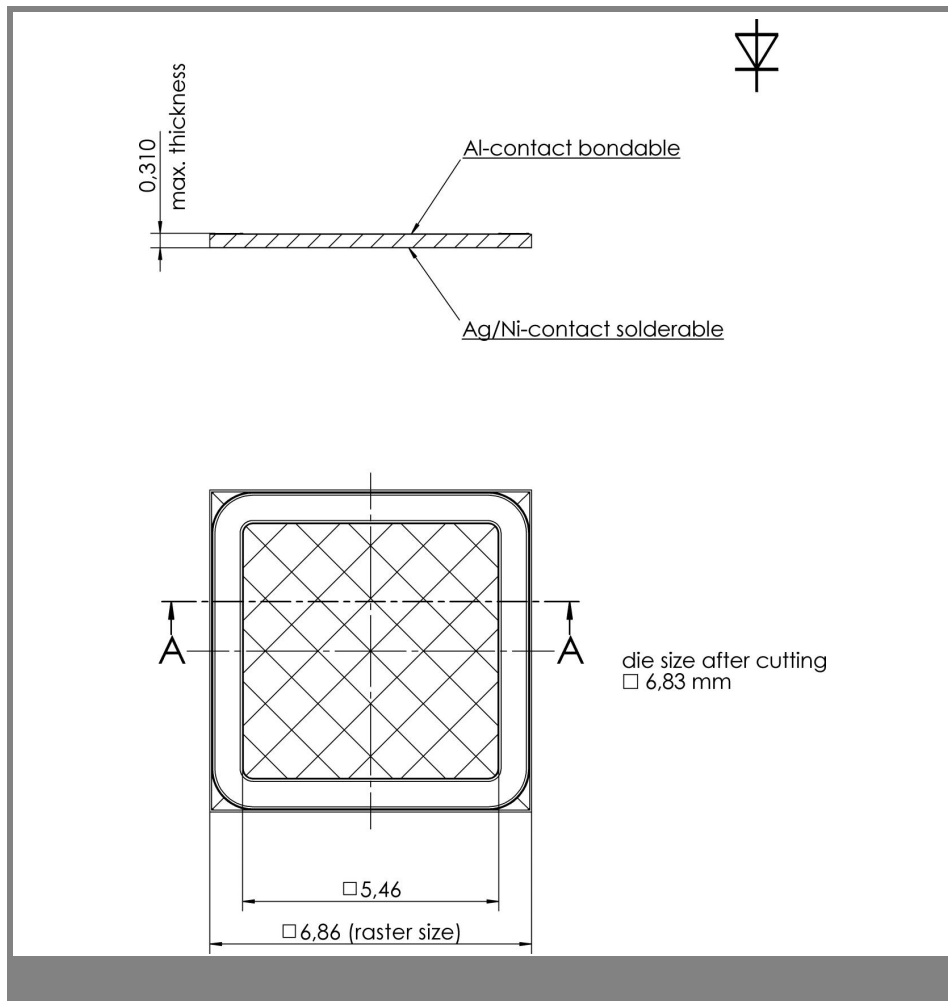
Thermal Characteristics

Symbol	Conditions	min.	typ.	max.	Units
T_{vj}		- 40		+ 150	$^\circ\text{C}$
T_{stg}		- 40		+ 150	$^\circ\text{C}$
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.		0,7		K / W

Mechanical Characteristics

Parameter	Units
raster size	6,8 x 6,8 mm
Area total	47 mm^2
Chips / wafer	208 pcs
Anode metallisation	bondable (Al)
Cathode metallisation	solderable (Ag / Ni)
wire bond	Al, diameter $\leq 500 \text{ }\mu\text{m}$





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