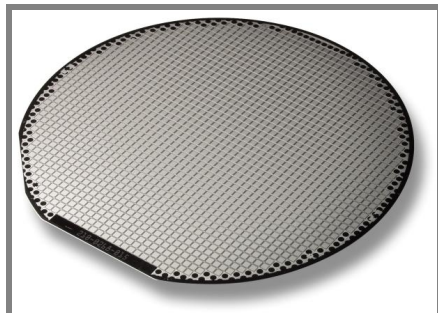


SKCD 31 C 120 I HD



SEMICELL CAL-DIODE

SKCD 31 C 120 I HD

$I_F = 55 \text{ A}$

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

Size: 5,6 mm X 5,6 mm

Package: wafer frame

Features

- 600V, 1200V and 1700V
- optimized 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 at frequencies < 8 kHz

Absolute Maximum Ratings

Symbol	Conditions	Values	Units
V_{RRM}	$T_{vj} = 25^\circ\text{C}$, $I_R = 0,1 \text{ mA}$	1200	V
$I_{F(AV)}$	$T_h = 80^\circ\text{C}$, $T_{vjmax} = 150^\circ\text{C}$	35	A
I_{FSM}	$T_{vj} = 25^\circ\text{C}$, 10 ms, half sine wave	540	A
	$T_{vjmax} = 150^\circ\text{C}$, 10 ms, half sine wave	480	A
T_{vjmax}		+ 150	$^\circ\text{C}$

Electrical Characteristics

Symbol	Conditions	min.	typ.	max.	Units
I^2t	T_{vjmax} , 10 ms, half sine wave			1150	A^2s
I_R	$T_{vj} = 25^\circ\text{C}$, V_{RRM}			0,1	mA
	$T_{vj} = 125^\circ\text{C}$, V_{RRM}			4	mA
V_F	$T_{vj} = 25^\circ\text{C}$, $I_F = 45 \text{ A}$		1,5	1,77	V
	$T_{vj} = 125^\circ\text{C}$, $I_F = 45 \text{ A}$		1,5	1,77	V
$V_{(TO)}$	$T_{vj} = 125^\circ\text{C}$		0,92		V
r_T	$T_{vj} = 125^\circ\text{C}$		13,4		$\text{m}\Omega$

Dynamic Characteristics

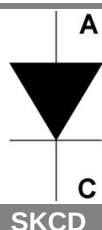
Symbol	Conditions	min.	typ.	max.	Units
t_{rr}	$T_{vj} = 25^\circ\text{C}$, 50 A, 600 V, 500 A/ μs				ns
	$T_{vj} = 125^\circ\text{C}$, 50 A, 600 V, 500 A/ μs				ns
Q_{rr}	$T_{vj} = 25^\circ\text{C}$, 50 A, 600 V, 500 A/ μs				μC
	$T_{vj} = 125^\circ\text{C}$, 50 A, 600 V, 500 A/ μs		10		μC
I_{rrm}	$T_{vj} = 25^\circ\text{C}$, 50 A, 600 V, 500 A/ μs				A
	$T_{vj} = 125^\circ\text{C}$, 50 A, 600 V, 500 A/ μs		30		A

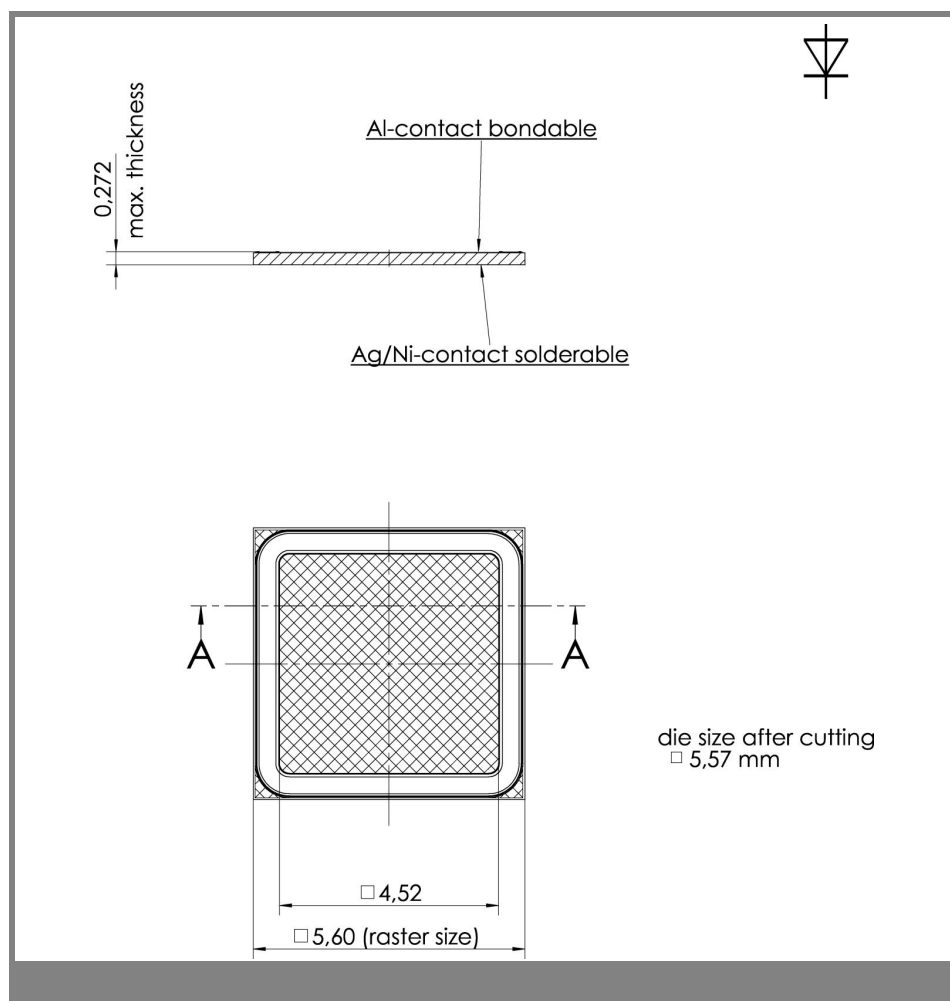
Thermal Characteristics

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.		1		K / W

Mechanical Characteristics

Parameter	Units
raster size	5,6 x 5,6 mm
Area total	31,36 mm^2
Chips / wafer	314 pcs
Anode metallisation	bondable (Al)
Cathode metallisation	solderable (Ag / Ni)
wire bond	Al, diameter $\leq 500 \mu\text{m}$





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