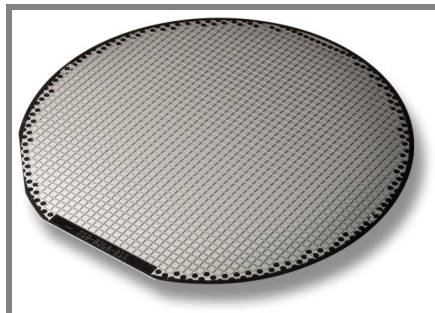




SEMICELL CAL-DIODE

SKCD 31 C 120 I3

$I_F = 40\text{ A}$

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

Size: 5,6 mm X 5,6 mm

Package: wafer frame

Features

- 600V, 1200V and 1700V
- low forward voltage drop
- easy paralleling due to a small forward voltage spread
- low temperature dependence
- 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}	$T_{vj} = 25\text{ °C}$, $I_R = 0,1\text{ mA}$	1200	V
$I_{F(AV)}$	$T_h = 80\text{ °C}$, $T_{vjmax} = 150\text{ °C}$	30	A
I_{FSM}	$T_{vj} = 25\text{ °C}$, 10 ms. half sine wave	410	A
	$T_{vjmax} = 150\text{ °C}$, 10 ms, half sine wave	350	A
T_{vjmax}		+ 150	°C

Electrical Characteristics

Symbol	Conditions	min.	typ.	max.	Units
I^2t	T_{vjmax} , 10 ms, half sine wave			610	A ² s
I_R	$T_{vj} = 25\text{ °C}$, V_{RRM}			0,1	mA
	$T_{vj} = 125\text{ °C}$, V_{RRM}			4	mA
V_F	$T_{vj} = 25\text{ °C}$, $I_F = 35\text{ A}$		2	2,5	V
	$T_{vj} = 125\text{ °C}$, $I_F = 35\text{ A}$		1,79	2,3	V
$V_{(TO)}$	$T_{vj} = 125\text{ °C}$		1,18		V
r_T	$T_{vj} = 125\text{ °C}$		17,8		mΩ

Dynamic Characteristics

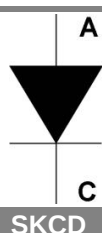
Symbol	Conditions	min.	typ.	max.	Units
t_{rr}	$T_{vj} = 25\text{ °C}$, 25 A, 600 V, 500 A/μs				ns
	$T_{vj} = 125\text{ °C}$, 25 A, 600 V, 500 A/μs				ns
Q_{rr}	$T_{vj} = 25\text{ °C}$, 25 A, 600 V, 500 A/μs		2		μC
	$T_{vj} = 125\text{ °C}$, 25 A, 600 V, 500 A/μs		4,5		μC
I_{rrm}	$T_{vj} = 25\text{ °C}$, 25 A, 600 V, 500 A/μs				A
	$T_{vj} = 125\text{ °C}$, 25 A, 600 V, 500 A/μs		25		A

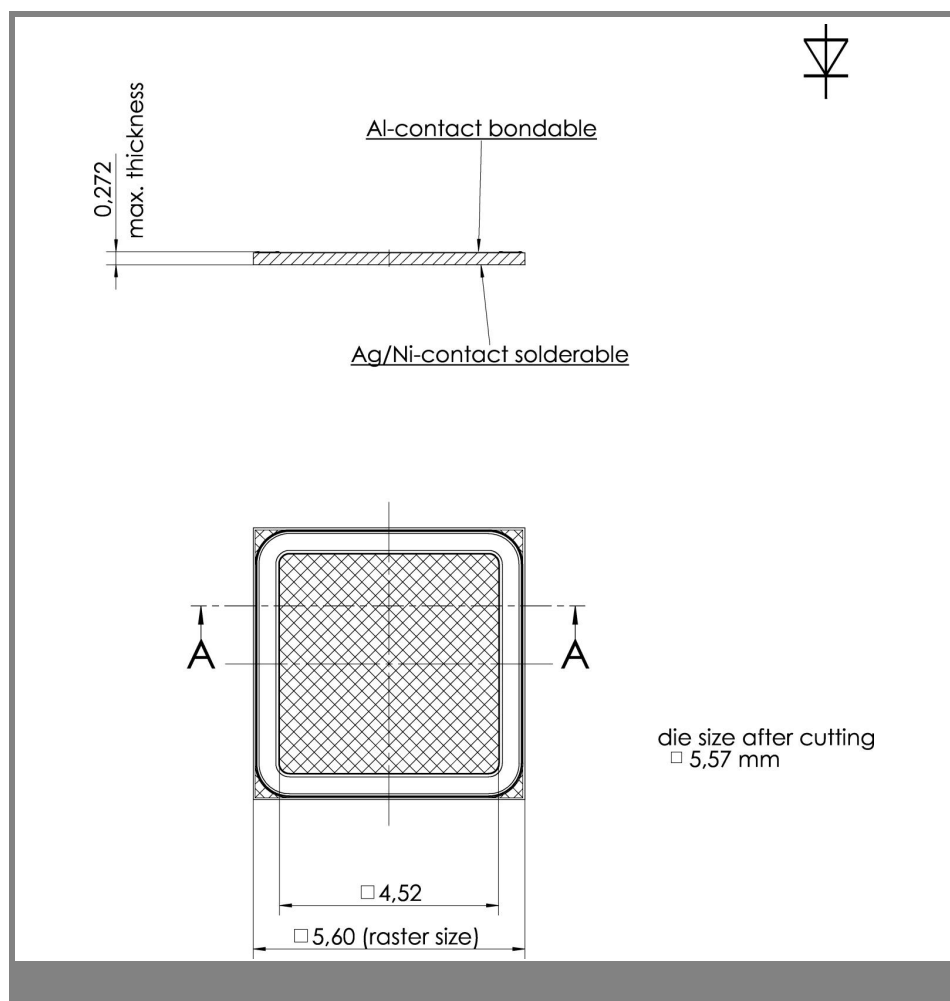
Thermal Characteristics

Symbol	Conditions	min.	typ.	max.	Units
T_{vj}		- 40		+ 150	°C
T_{stg}		- 40		+ 150	°C
T_{solder}	10 min			+ 250	°C
T_{solder}	5 min			+ 320	°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 ≤ 500 μm





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