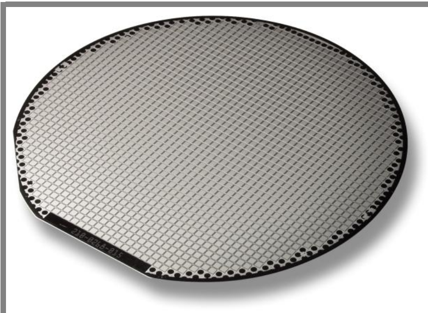
SKCD 31 C 060 I3

SEMIKRON, leading manufacturer of diode thyristor power semiconductor modules



SEMICELL CAL-DIODE

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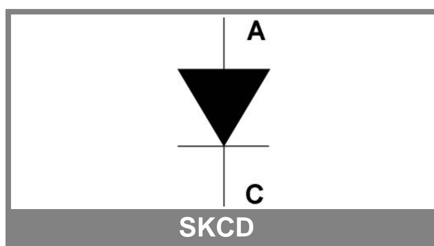
I_F = 50 A
V_{RRM} = 600 V
Size: 5,6 mm X 5,6 mm
Package: wafer frame

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 °C, I_R = 0,1 mA	600	V
$I_{F(AV)}$	T_h = 80 °C, T_{vjmax} = 150 °C	40	A
I_{FSM}	T_{vj} = 25 °C, 10 ms, half sine wave		A
	T_{vjmax} = 150 °C, 10 ms, half sine wave	440	A
T_{vjmax}		+ 150	°C

Electrical Characteristics

Symbol	Conditions	min.	typ.	max.	Units
I^2t	T_{vjmax}, 10 ms, half sine wave			970	A^2s
I_R	T_{vj} = 25 °C, V_{RRM}			0,1	mA
	T_{vj} = 125 °C, V_{RRM}			4	mA
V_F	T_{vj} = 25 °C, I_F = 50 A		1,35	1,6	V
	T_{vj} = 125 °C, I_F = 50 A		1,35	1,6	V
$V_{(TO)}$	T_{vj} = 125 °C		0,9		V
r_T	T_{vj} = 125 °C		8,3		mΩ

Dynamic Characteristics

Symbol	Conditions	min.	typ.	max.	Units
t_{rr}	T_{vj} = 25 °C, 50 A ,300 V, 800 A/µs				ns
	T_{vj} = 125 °C, 50 A ,300 V, 800 A/µs				ns
Q_{rr}	T_{vj} = 25 °C, 50 A, 300 V, 800 A/µs				µC
	T_{vj} = 125 °C, 50 A, 300 V, 800 A/µs		3,3		µC
I_{rrm}	T_{vj} = 25 °C, 50 A, 300 V, 800 A/µs				A
	T_{vj} = 125 °C, 50 A, 300 V, 800 A/µs		30		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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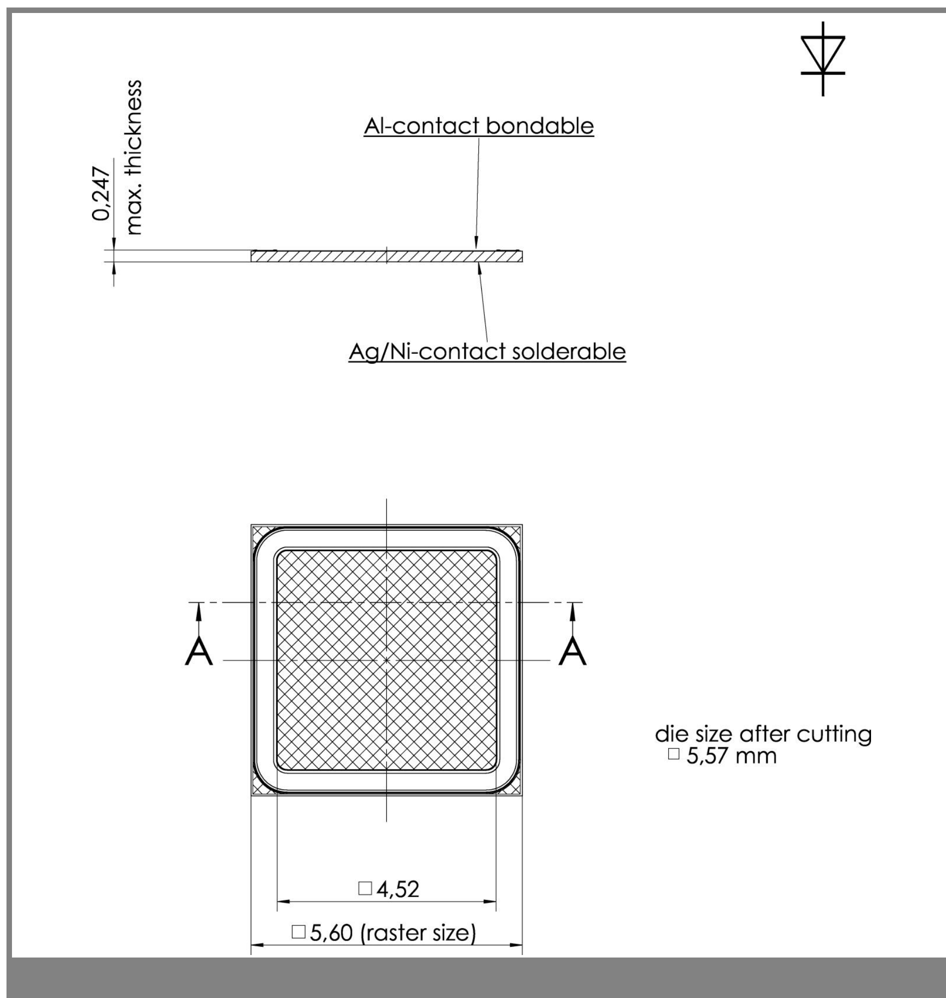

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