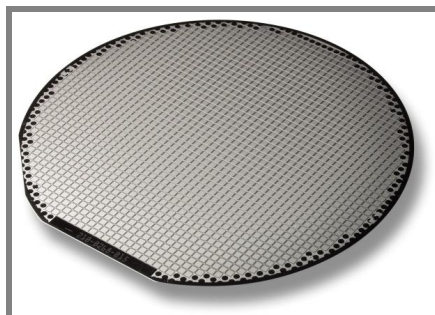


# SKCD 81 C 120 I HD



**SEMICELL CAL-DIODE**

## SKCD 81 C 120 I HD

$I_F = 160 \text{ A}$

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

Size: 9 mm X 9 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 at frequencies < 8 kHz

Absolute Maximum Ratings			
Symbol	Conditions	Values	Units
$V_{RRM}$	$T_{vj} = 25 \text{ }^\circ\text{C}$ , $I_R = 0,3 \text{ mA}$	1200	V
$I_{F(AV)}$	$T_h = 80 \text{ }^\circ\text{C}$ , $T_{vjmax} = 150 \text{ }^\circ\text{C}$	90	A
$I_{FSM}$	$T_{vj} = 25 \text{ }^\circ\text{C}$ , 10 ms, half sine wave	1300	A
	$T_{vjmax} = 150 \text{ }^\circ\text{C}$ , 10 ms, half sine wave	1100	A
$T_{vjmax}$		+ 150	$^\circ\text{C}$

Electrical Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
$I^2t$	$T_{vjmax}$ , 10 ms, half sine wave			6050	$\text{A}^2\text{s}$
$I_R$	$T_{vj} = 25 \text{ }^\circ\text{C}$ , $V_{RRM}$			0,3	mA
	$T_{vj} = 125 \text{ }^\circ\text{C}$ , $V_{RRM}$			8	mA
$V_F$	$T_{vj} = 25 \text{ }^\circ\text{C}$ , $I_F = 130 \text{ A}$		1,5	1,77	V
	$T_{vj} = 125 \text{ }^\circ\text{C}$ , $I_F = 130 \text{ A}$		1,5	1,77	V
$V_{(TO)}$	$T_{vj} = 125 \text{ }^\circ\text{C}$		0,92		V
$r_T$	$T_{vj} = 125 \text{ }^\circ\text{C}$		4,4		$\text{m}\Omega$

Dynamic Characteristics					
Symbol	Conditions	min.	typ.	max.	Units
$t_{rr}$	$T_{vj} = 25 \text{ }^\circ\text{C}$ , 100 A, 600 V, 1000 A/ $\mu\text{s}$				ns
	$T_{vj} = 125 \text{ }^\circ\text{C}$ , 100 A, 600 V, 1000 A/ $\mu\text{s}$				ns
$Q_{rr}$	$T_{vj} = 25 \text{ }^\circ\text{C}$ , 100 A, 600 V, 1000 A/ $\mu\text{s}$				$\mu\text{C}$
	$T_{vj} = 125 \text{ }^\circ\text{C}$ , 100 A, 600 V, 1000 A/ $\mu\text{s}$		23		$\mu\text{C}$
$I_{rrm}$	$T_{vj} = 25 \text{ }^\circ\text{C}$ , 100 A, 600 V, 1000 A/ $\mu\text{s}$				A
	$T_{vj} = 125 \text{ }^\circ\text{C}$ , 100 A, 600 V, 1000 A/ $\mu\text{s}$		68		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.		0,4		K / W

Mechanical Characteristics		
Parameter		Units
raster size	9 x 9	mm
Area total	81	$\text{mm}^2$
Chips / wafer	116	pcs
Anode metallisation	bondable (Al)	
Cathode metallisation	solderable (Ag / Ni)	
wire bond	Al, diameter $\leq 500 \text{ }\mu\text{m}$	

