

SKCD 81 C 120 I4 HD



CAL-DIODE

$I_F = 150\text{ A}$
 $V_{RRM} = 1200\text{ V}$
 Size: $9 \times 9\text{ mm}^2$

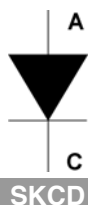
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Features

- high current density
- very low forward voltage drop
- easy paralleling due to a small forward voltage spread
- positive temperature coefficient
- very soft recovery behavior
- max. junction: 175°C

Typical Applications*

- freewheeling diode for IGBT
- particularly suitable for frequencies $< 8\text{ kHz}$



Absolute Maximum Ratings			
Symbol	Conditions	Values	Unit
V_{RRM}	$T_j = 25^\circ\text{C}$, $I_R = 0.18\text{ mA}$	1200	V
$I_{F(AV)}$	$T_s = 80^\circ\text{C}$, $T_j = 175^\circ\text{C}$, $F_i = PI/2$	108	A
I_{FSM}	10 ms	$T_j = 25^\circ\text{C}$	A
	sin 180°	$T_j = 150^\circ\text{C}$	A
i^2t	$T_j = 150^\circ\text{C}$, sin 180° , 10 ms	4050	A^2s
T_{jmax}		175	$^\circ\text{C}$

Electrical Characteristics					
Symbol	Conditions	min.	typ.	max.	Unit
I_R	$T_j = 25^\circ\text{C}$, $V_{RRM} = 1200\text{ V}$			0.18	mA
	$T_j = 150^\circ\text{C}$, $V_{RRM} = 1200\text{ V}$		14.00	28.00	mA
V_F	$T_j = 25^\circ\text{C}$, $I_F = 150\text{ A}$		1.72	2.03	V
	$T_j = 150^\circ\text{C}$, $I_F = 150\text{ A}$		1.72	2.08	V
	$T_j = 175^\circ\text{C}$, $I_F = 150\text{ A}$		1.66	1.98	V
$V_{(TO)}$	$T_j = 150^\circ\text{C}$		0.97	1.10	V
r_T	$T_j = 150^\circ\text{C}$		5.00	6.53	$\text{m}\Omega$
$V_{(TO)}$	$T_j = 175^\circ\text{C}$		0.88	1.00	V
	$T_j = 175^\circ\text{C}$		5.20	6.53	$\text{m}\Omega$

Dynamic Characteristics					
Symbol	Conditions	min.	typ.	max.	Unit
E_{rr}	$T_j = 25^\circ\text{C}$, 150 A, 600 V, 3200 A/ μs		5.6		mJ
E_{rr}	$T_j = 150^\circ\text{C}$, 150 A, 600 V, 3200 A/ μs		13.4		mJ
I_{rrm}	$T_j = 25^\circ\text{C}$, 150 A, 600 V, 3200 A/ μs		128		A
I_{rrm}	$T_j = 150^\circ\text{C}$, 150 A, 600 V, 3200 A/ μs		175		A
Q_{rr}	$T_j = 25^\circ\text{C}$, 150 A, 600 V, 3200 A/ μs		15.8		μC
Q_{rr}	$T_j = 150^\circ\text{C}$, 150 A, 600 V, 3200 A/ μs		35.3		μC

Thermal Characteristics					
Symbol	Conditions	min.	typ.	max.	Unit
T_j		-40		175	$^\circ\text{C}$
T_{stg}		-40		175	$^\circ\text{C}$
T_{solder}	10 min.			250	$^\circ\text{C}$
T_{solder}	5 min.			320	$^\circ\text{C}$
$R_{th(j-c)}$	Semitrans Assembly		0.32		K/W

Mechanical Characteristics			
Symbol	Conditions	Values	Unit
Raster size		9×9	mm^2
Area total		81	mm^2
Anode	Metallization	bondable (Al)	
Cathode	Metallization	solderable (Ag/Ni)	
Wire bond		Al, typ. diameter = $300\text{ }\mu\text{m}$	
Package		150 mm wafer frame	
Chips / Package		179	pcs

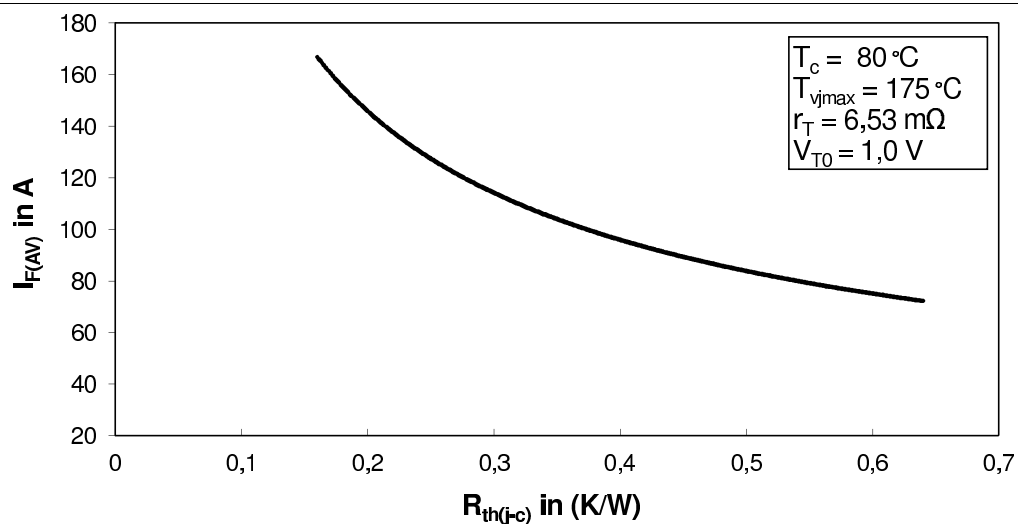
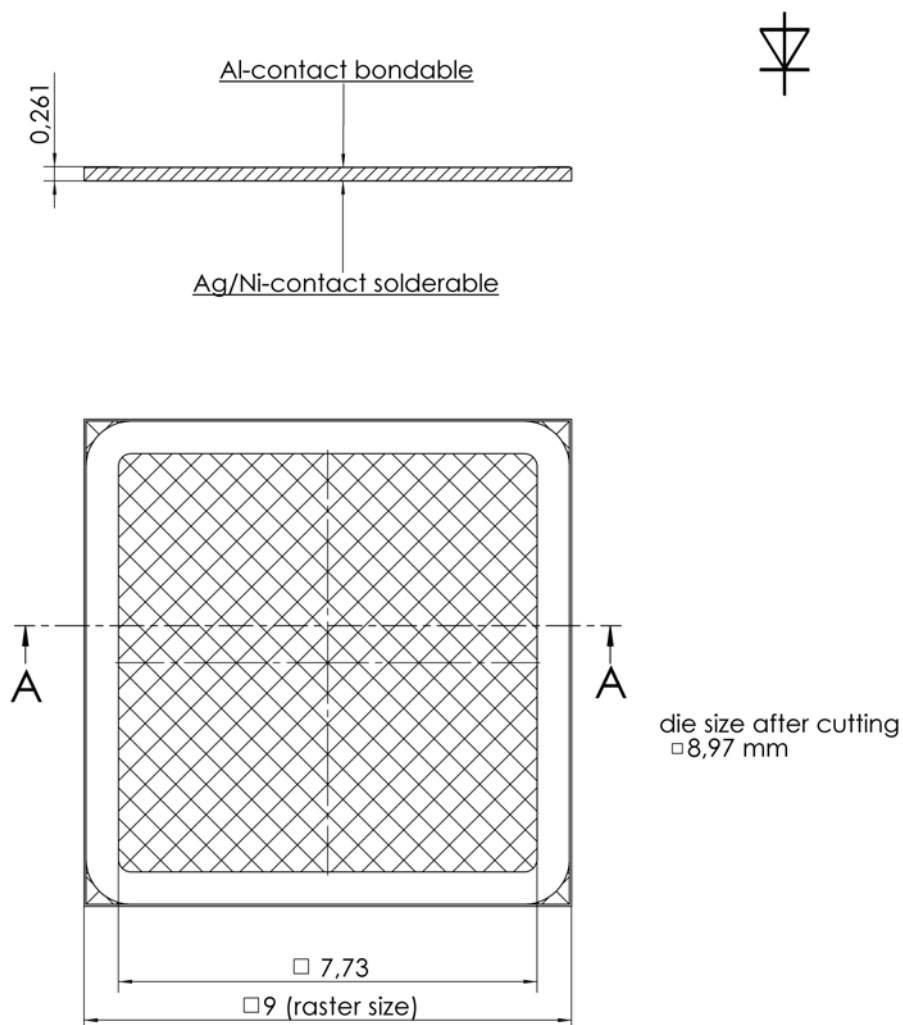


Fig. 1: Rated current vs. thermal resistance



This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX

* The specifications of our components may not be considered as an assurance of component characteristics. Components have to be tested for the respective application. Adjustments may be necessary. The use of SEMIKRON products in life support appliances and systems is subject to prior specification and written approval by SEMIKRON. We therefore strongly recommend prior consultation of our staff.