

SKCD 53 C 120 I4 HD



CAL-DIODE

$I_F = 100\text{ A}$
 $V_{RRM} = 1200\text{ V}$
 Size: 7,3 x 7,3 mm²

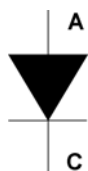
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Features

- 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 kHz



SKCD

Absolute Maximum Ratings

Symbol	Conditions	Values	Unit
V_{RRM}	$T_j = 25\text{ °C}$, $I_R = 0.12\text{ mA}$	1200	V
$I_{F(AV)}$	$T_s = 80\text{ °C}$, $T_j = 175\text{ °C}$, $F_i = PI/2$	66	A
I_{FSM}	10 ms	$T_j = 25\text{ °C}$	A
	sin 180°	$T_j = 150\text{ °C}$	A
i^2t	$T_j = 150\text{ °C}$, sin 180°, 10 ms	1513	A ² s
T_{jmax}		175	°C

Electrical Characteristics

Symbol	Conditions	min.	typ.	max.	Unit
I_R	$T_j = 25\text{ °C}$, $V_{RRM} = 1200\text{ V}$			0.12	mA
	$T_j = 150\text{ °C}$, $V_{RRM} = 1200\text{ V}$		8.80	17.70	mA
V_F	$T_j = 25\text{ °C}$, $I_F = 100\text{ A}$		1.77	2.09	V
	$T_j = 150\text{ °C}$, $I_F = 100\text{ A}$		1.79	2.17	V
	$T_j = 175\text{ °C}$, $I_F = 100\text{ A}$		1.74	2.07	V
$V_{(TO)}$	$T_j = 150\text{ °C}$		0.97	1.10	V
r_T	$T_j = 150\text{ °C}$		8.20	10.70	mΩ
$V_{(TO)}$	$T_j = 175\text{ °C}$		0.88	1.00	V
	$T_j = 175\text{ °C}$		8.60	10.70	mΩ

Dynamic Characteristics

Symbol	Conditions	min.	typ.	max.	Unit
E_{rr}	$T_j = 25\text{ °C}$, 100 A, 600 V, 2000 A/μs		3.8		mJ
E_{rr}	$T_j = 150\text{ °C}$, 100 A, 600 V, 2000 A/μs		8		mJ
I_{rrm}	$T_j = 25\text{ °C}$, 100 A, 600 V, 2000 A/μs		68		A
I_{rrm}	$T_j = 150\text{ °C}$, 100 A, 600 V, 2000 A/μs		97		A
Q_{rr}	$T_j = 25\text{ °C}$, 100 A, 600 V, 2000 A/μs		10.9		μC
Q_{rr}	$T_j = 150\text{ °C}$, 100 A, 600 V, 2000 A/μs		22.1		μC

Thermal Characteristics

Symbol	Conditions	min.	typ.	max.	Unit
T_j		-40		175	°C
T_{stg}		-40		175	°C
T_{solder}	10 min.			250	°C
T_{solder}	5 min.			320	°C
$R_{th(j-c)}$	Semitrans Assembly		0.52		K/W

Mechanical Characteristics

Symbol	Conditions	Values	Unit
Raster size		7,3 x 7,3	mm ²
Area total		53	mm ²
Anode	Metallization	bondable (Al)	
Cathode	Metallization	solderable (Ag/Ni)	
Wire bond		Al, typ. diameter = 300 μm	
Package		150 mm wafer frame	
Chips / Package		270	pcs

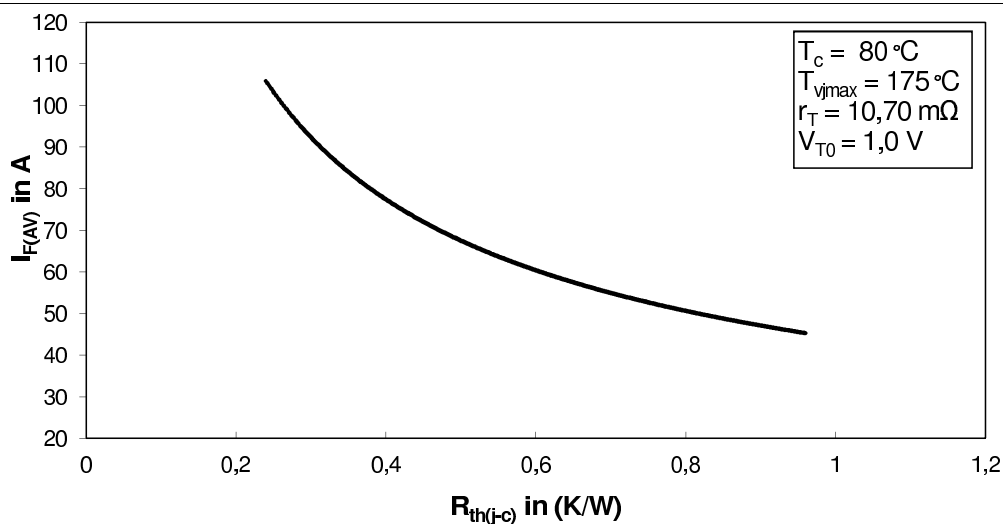
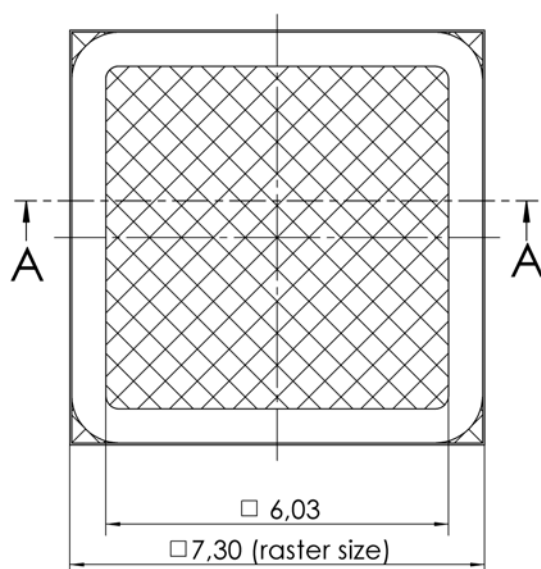
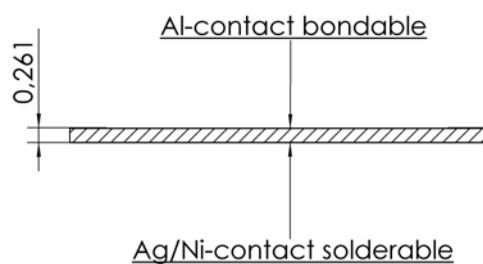


Fig. 1: Rated current vs. thermal resistance



die size after cutting
 $\square 7,27\text{ mm}$

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.