SKCD 42 C 065 I4F



CAL-DIODE

I_F = 100 A [1)]
V_{RRM} = 650 V
Size: 6,48 x 6,48 mm²

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Features

- low forward voltage drop combined with a low temperature dependence
- easy paralleling due to a small forward voltage spread
- very soft recovery behavior
- small switching losses
- high ruggedness

Typical Applications*

- freewheeling diode for IGBT

Footnotes

[1)] Nominal IGBT I_F rating, verified by design and characterization



SKCD

Absolute Maximum Ratings

Symbol	Conditions		Values	Unit
V_{RRM}	T_j = 25 °C, I_R = 0.09 mA		650	V
I_{FSM}	10 ms sin 180°	T_j = 25 °C	820	A
		T_j = 150 °C	680	A
i^2t	T_j = 150 °C, t_p = 10 ms, sin 180°		2312	A^2s
T_{jmax}			175	°C

Electrical Characteristics

Symbol	Conditions	min.	typ.	max.	Unit
$I_{F(AV)}$	T_c = 80 °C, T_j = 175 °C, F_i=PI/2, Semitrans Assembly; $R_{th(j-c)}$ = 0.78 K/W		70		A
I_R	T_j = 25 °C, V_{RRM} = 650 V			0.09	mA
	T_j = 150 °C, V_{RRM} = 650 V			26.00	mA
V_F	T_j = 25 °C, I_F = 73 A		1.30	1.62	V
	T_j = 150 °C, I_F = 73 A		1.24	1.56	V
	T_j = 175 °C, I_F = 73 A		1.18	1.49	V
$V_{(TO)}$	T_j = 150 °C		0.85	0.99	V
r_T	T_j = 150 °C		5.39	7.81	mΩ
$V_{(TO)}$	T_j = 175 °C		0.78	0.95	V
r_T	T_j = 175 °C		5.48	7.40	mΩ

Dynamic Characteristics

Symbol	Conditions	min.	typ.	max.	Unit
E_{rr}	T_j = 25 °C, 100 A, 400 V, 1500 A/µs		0.8		mJ
E_{rr}	T_j = 150 °C, 100 A, 400 V, 1500 A/µs		2.2		mJ
Q_{rr}	T_j = 25 °C, 100 A, 400 V, 1500 A/µs		3.9		µC
Q_{rr}	T_j = 150 °C, 100 A, 400, 1500 A/µs		10		µC
I_{rrm}	T_j = 25 °C, 100 A, 400 V, 1500 A/µs		57		A
I_{rrm}	T_j = 150 °C, 100 A, 400, 1500 A/µs		84		A

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

Mechanical Characteristics

Symbol	Conditions	Values	Unit
Raster size		6,48 x 6,48	mm²
Area total		41,99	mm²
Anode	Metallization	bondable (Al)	
Cathode	Metallization	solderable (Ag/Ni)	
Wire bond		Al, typ. diameter = 300 µm	
Package		150 mm wafer frame	
Chips / Package		343	pcs

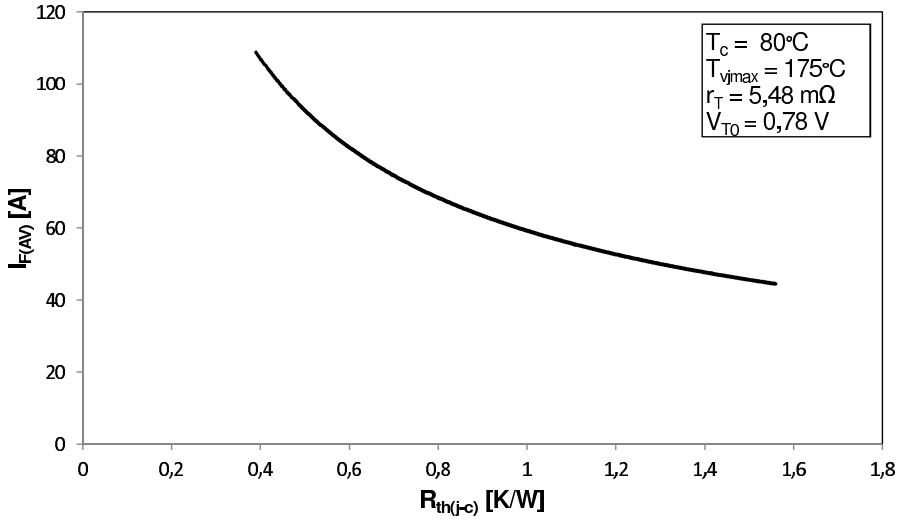
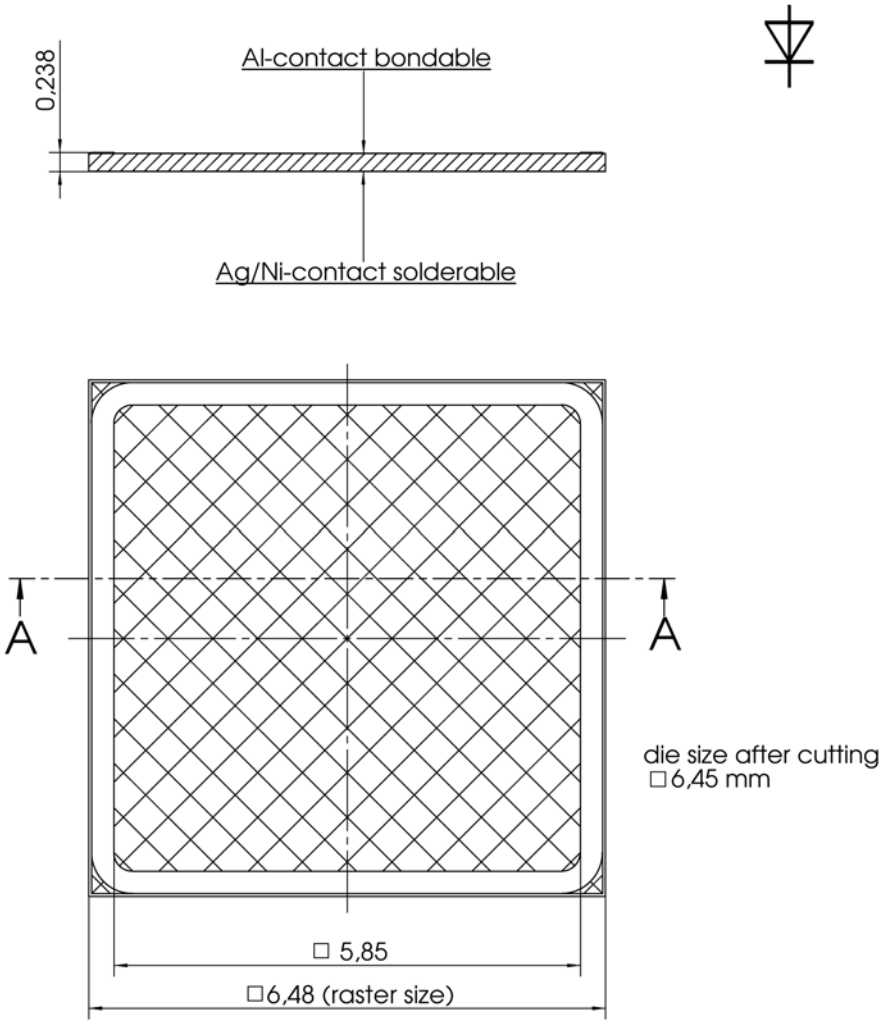


Fig. 1: Rated current vs. thermal resistance



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.