

SIDC42D120F6

Fast switching diode chip in EMCON-Technology

FEATURES:

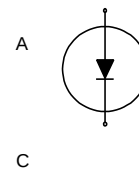
- 1200V EMCON technology 120 μm chip
- soft, fast switching
- low reverse recovery charge
- small temperature coefficient

This chip is used for:

- EUPEC power modules and discrete devices

Applications:

- SMPS, resonant applications, drives



Chip Type	V_R	I_F	Die Size	Package	Ordering Code
SIDC42D120F6	1200V	50A	6.5 x 6.5 mm ²	sawn on foil	Q67050-A4185-A001

MECHANICAL PARAMETER:

Raster size	6.5 x 6.5	mm ²
Area total / active	42.25 / 33.99	
Anode pad size	5.78 x 5.78	
Thickness	120	μm
Wafer size	150	mm
Flat position	180	deg
Max. possible chips per wafer	334 pcs	
Passivation frontside	Photoimide	
Anode metallisation	3200 nm Al Si 1%	
Cathode metallisation	1400 nm Ni Ag –system suitable for epoxy and soft solder die bonding	
Die bond	electrically conductive glue or solder	
Wire bond	Al, $\leq 500\mu\text{m}$	
Reject Ink Dot Size	$\varnothing$ 0.65mm ; max 1.2mm	
Recommended Storage Environment	store in original container, in dry nitrogen, < 6 month at an ambient temperature of 23°C	

Maximum Ratings

Parameter	Symbol	Condition	Value	Unit
Repetitive peak reverse voltage	V_{RRM}		1200	V
Continuous forward current limited by T_{jmax}	I_F		50	A
Single pulse forward current (depending on wire bond configuration)	I_{FSM}	$t_p = 10\text{ ms sinusoidal}$	tbd	
Maximum repetitive forward current limited by T_{jmax}	I_{FRM}		100	
Operating junction and storage temperature	T_j, T_{stg}		-55...+150	°C

Static Electrical Characteristics (tested on chip), $T_j=25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions		Value			Unit
				min.	Typ.	max.	
Reverse leakage current	I_R	$V_R=1200\text{V}$	$T_j=25^\circ\text{C}$			250	μA
Cathode-Anode breakdown Voltage	V_{BR}	$I_R=4\text{mA}$	$T_j=25^\circ\text{C}$	1200			V
Forward voltage drop	V_F	$I_F=50\text{A}$	$T_j=25^\circ\text{C}$		2.1		V

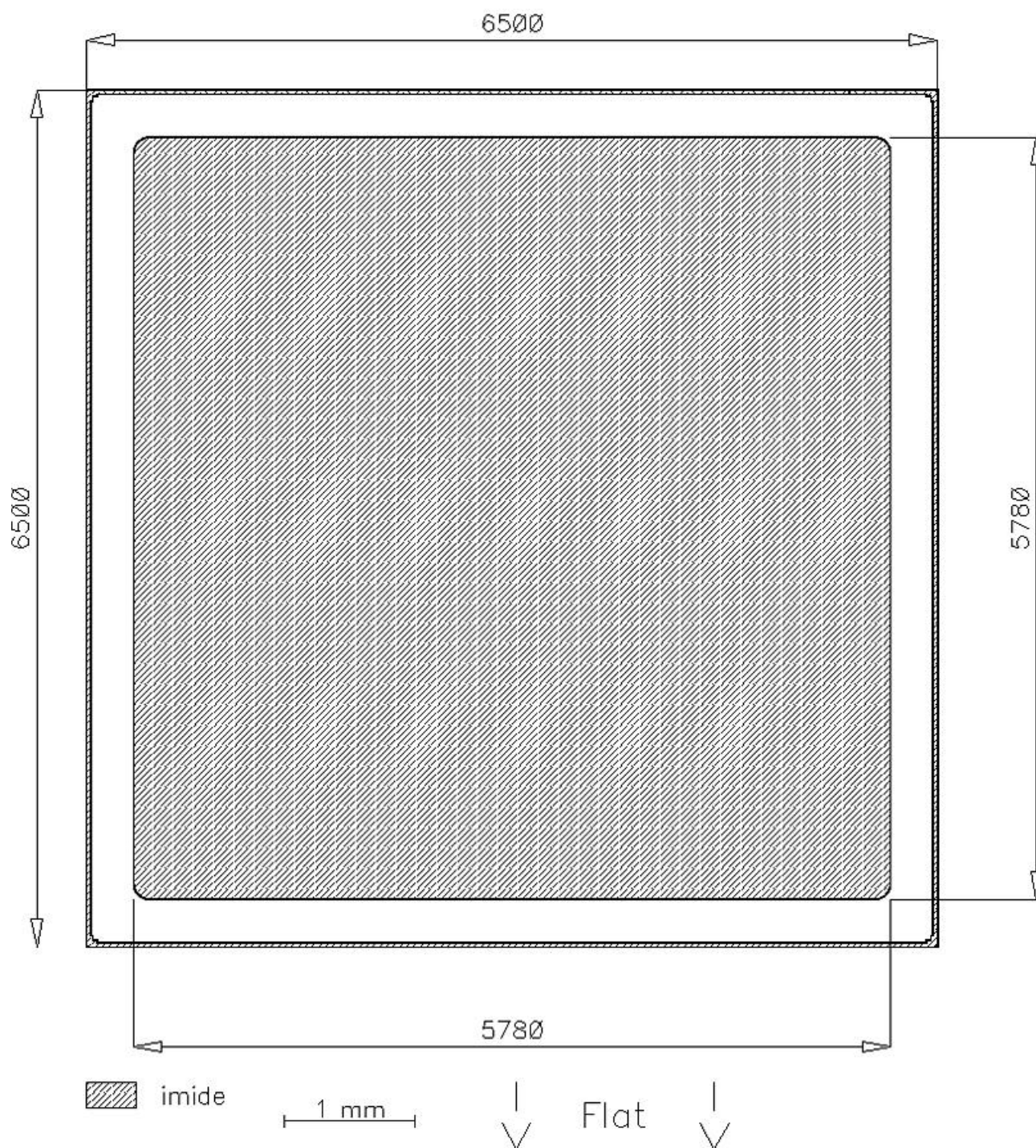
Dynamic Electrical Characteristics, at $T_j = 25^\circ\text{C}$, unless otherwise specified, tested at component

Parameter	Symbol	Conditions		Value			Unit
				min.	Typ.	max.	
Reverse recovery time	t_{rr1}	$I_F=50\text{A}$	$T_j = 25^\circ\text{C}$		tbd		ns
	t_{rr2}	$di/dt=A/ms$ $V_R=600\text{V}$	$T_j = 150^\circ\text{C}$				
Peak recovery current	I_{RRM1}	$I_F=50\text{A}$	$T_j = 25^\circ\text{C}$		tbd		A
	I_{RRM2}	$di/dt= A/ms$ $V_R= 600\text{V}$	$T_j = 150^\circ\text{C}$				
Reverse recovery charge	Q_{rr1}	$I_F=50\text{A}$	$T_j=25^\circ\text{C}$		tbd		nC
	Q_{rr2}	$di/dt= A/ms$ $V_R= 600\text{V}$	$T_j=150^\circ\text{C}$				
Peak rate of fall of reverse recovery current	di_{rr1}/dt	$I_F=50\text{A}$	$T_j=25^\circ\text{C}$		tbd		A/ μs
	di_{rr2}/dt	$di/dt=A/ms$ $V_R= 600\text{V}$	$T_j=150^\circ\text{C}$				
Softness	S1	$I_F=50\text{A}$	$T_j=25^\circ\text{C}$		tbd		1
	S2	$di/dt= A/ms$ $V_R= 600\text{V}$	$T_j=150^\circ\text{C}$				

CHIP DRAWING:

L419B1 mm²

Die-Size 6500 um x 6500 um





Preliminary

SIDC42D120F6

FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet

INFINEON TECHNOLOGIES /
EUPEC

tbd

Description:

AQL 0,65 for visual inspection according to failure catalog

Electrostatic Discharge Sensitive Device according to MIL-STD 883

Test-Normen Villach/Prüffeld

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