

# SIDC42D120E6

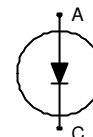
Fast switching diode chip in EMCON-Technology

**FEATURES:**

- 1200V EMCON technology 130  $\mu\text{m}$  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 <sub>R</sub>	I <sub>F</sub>	Die Size	Package	Ordering Code
SIDC42D120E6	1200V	50A	6.5 x 6.5 mm <sup>2</sup>	sawn on foil	Q67050-A4126-A001

**MECHANICAL PARAMETER:**

Raster size	6.5 x 6.5	mm <sup>2</sup>
Area total / active	42.25 / 33.99	
Anode pad size	5.78 x 5.78	
Thickness	130	$\mu\text{m}$
Wafer size	150	mm
Flat position	180	deg
Max. possible chips per wafer	334 pcs	
Passivation frontside	Photoimide	
Anode metallisation	3200 nm AlSiCu	
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	$I_R$	$V_R=1200\text{V}$	$T_j=25^\circ\text{C}$			27	$\mu\text{A}$
Cathode-Anode breakdown Voltage	$V_{Br}$	$I_R=4\text{mA}$	$T_j=25^\circ\text{C}$	1200			V
Forward voltage drop	$V_F$	$I_F=50\text{A}$	$T_j=25^\circ\text{C}$		1.9		V

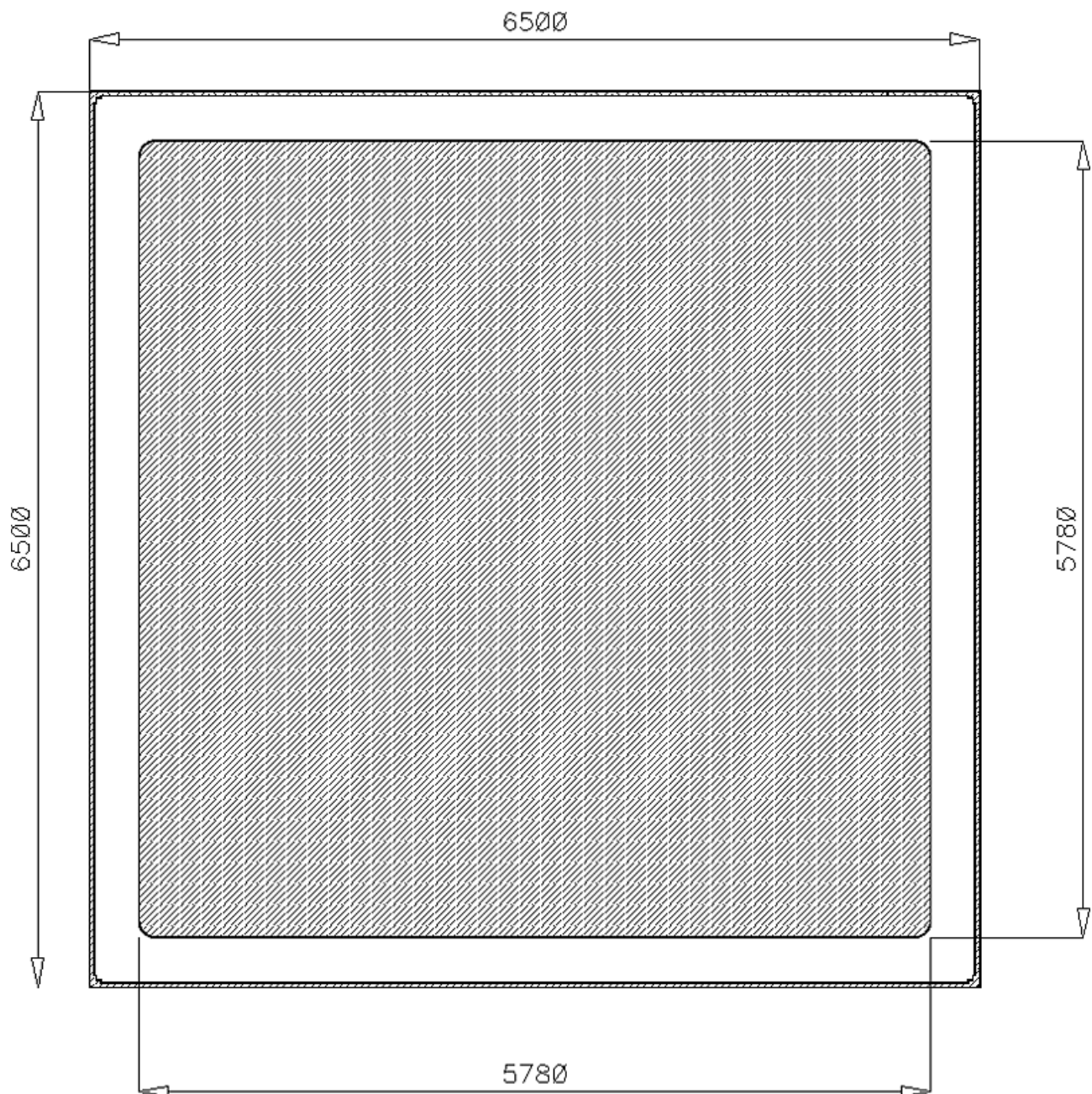
## Dynamic Electrical Characteristics, at $T_j = 25^\circ\text{C}$ , unless otherwise specified, tested at component


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
	$t_{rr2}$	$di/dt=1300\text{A}/\mu\text{s}$ $V_R=600\text{V}$	$T_j = 125^\circ\text{C}$				
Peak recovery current	$I_{RRM1}$	$I_F=50\text{A}$	$T_j = 25^\circ\text{C}$		56.2		A
	$I_{RRM2}$	$di/dt=1300\text{A}/\mu\text{s}$ $V_R= 600\text{V}$	$T_j = 125^\circ\text{C}$		70.2		
Reverse recovery charge	$Q_{rr1}$	$I_F=50\text{A}$	$T_j=25^\circ\text{C}$		5.62		$\mu\text{C}$
	$Q_{rr2}$	$di/dt=1300\text{A}/\mu\text{s}$ $V_R= 600\text{V}$	$T_j=125^\circ\text{C}$		10.93		
Peak rate of fall of reverse recovery current	$di_{rr1}/dt$	$I_F=50\text{A}$	$T_j= 25^\circ\text{C}$		tbd		A/ $\mu\text{s}$
	$di_{rr2}/dt$	$di/dt=1300\text{A}/\mu\text{s}$ $V_R= 600\text{V}$	$T_j=125^\circ\text{C}$				
Softness	S1	$I_F=50\text{A}$	$T_j=25^\circ\text{C}$		tbd		1
	S2	$di/dt=1300\text{A}/\mu\text{s}$ $V_R= 600\text{V}$	$T_j=125^\circ\text{C}$				

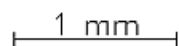
CHIP DRAWING:

## L419B1 mm<sup>2</sup>

Die-Size 6500 um x 6500 um



 imide

 1 mm



Flat





Preliminary

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**FURTHER ELECTRICAL CHARACTERISTICS:**

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This chip data sheet refers to the device data sheet

INFINEON TECHNOLOGIES /  
EUPEC

tbd

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**Description:**

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AQL 0,65 for visual inspection according to failure catalog

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Electrostatic Discharge Sensitive Device according to MIL-STD 883

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Test-Normen Villach/Prüffeld

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