

Fast switching diode chip in EMCON-Technology

FEATURES:

- 1200V EMCON technology 130 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
SIDC42D120E6	1200V	50A	6.5 x 6.5 mm ²	sawn on foil	Q67050-A4126-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	130	μm
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	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	$I_F=50\text{A}$	$T_J=25^\circ\text{C}$		1.9		V

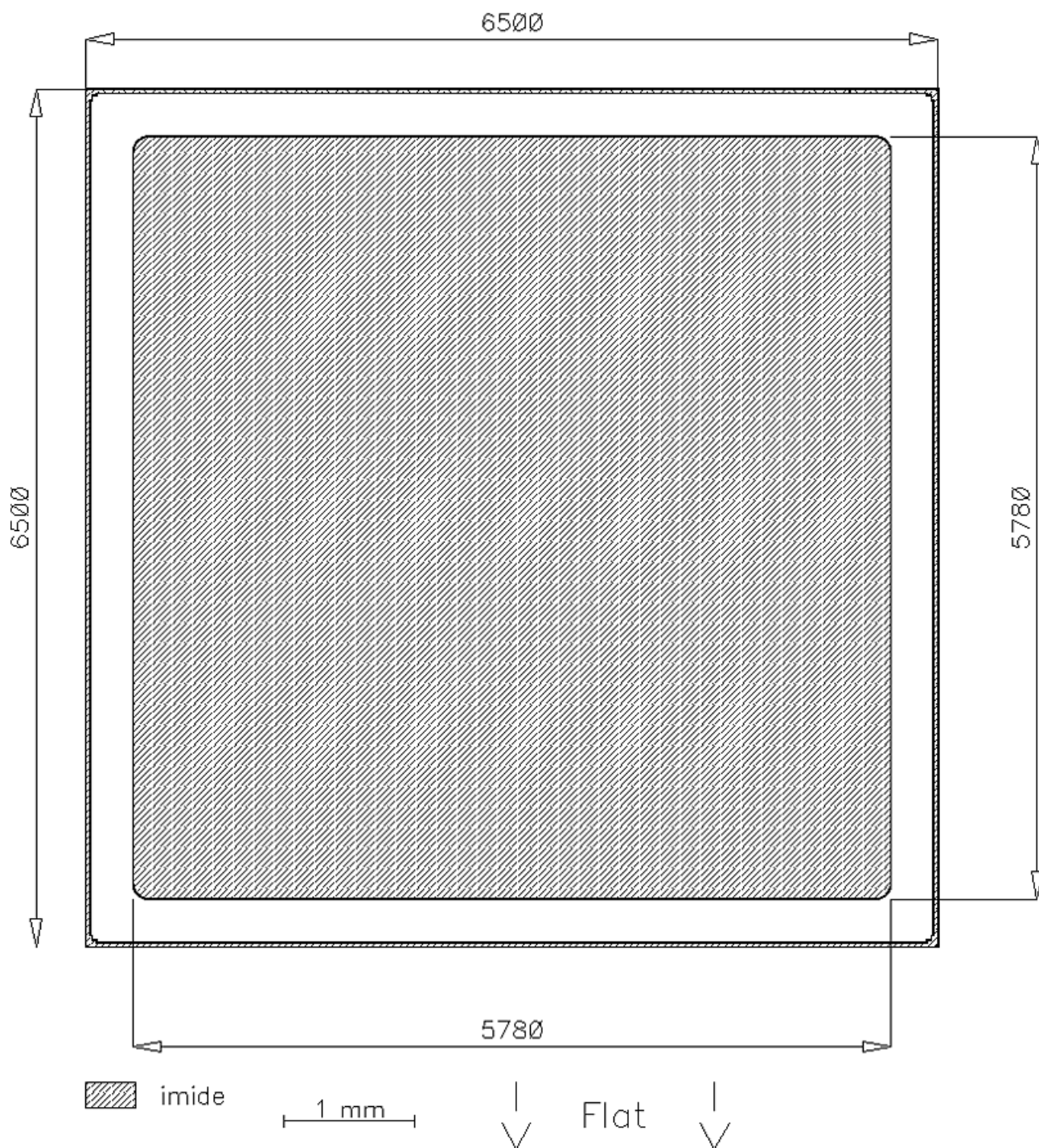
Dynamic Electrical Characteristics, at $T_J = 25^\circ\text{C}$, unless otherwise specified, tested at component

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}	$di/dt=1300\text{A/ms}$ $V_R=600\text{V}$	$T_J=125^\circ\text{C}$				
Peak recovery current	I_{RRM1}	$I_F=50\text{A}$	$T_J=25^\circ\text{C}$		56.2		A
	I_{RRM2}	$di/dt=1300\text{A/ms}$ $V_R=600\text{V}$	$T_J=125^\circ\text{C}$		70.2		
Reverse recovery charge	Q_{rr1}	$I_F=50\text{A}$	$T_J=25^\circ\text{C}$		5.62		μC
	Q_{rr2}	$di/dt=1300\text{A/ms}$ $V_R=600\text{V}$	$T_J=125^\circ\text{C}$		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/ μs
	di_{rr2}/dt	$di/dt=1300\text{A/ms}$ $V_R=600\text{V}$	$T_J=125^\circ\text{C}$				
Softness	S1	$I_F=50\text{A}$	$T_J=25^\circ\text{C}$		tbd		1
	S2	$di/dt=1300\text{A/ms}$ $V_R=600\text{V}$	$T_J=125^\circ\text{C}$				

CHIP DRAWING:

L419B1 mm²

Die-Size 6500 µm x 6500 µm



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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