

Fast switching diode chip in EMCON-Technology

FEATURES:

- 1700V EMCON technology 200 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
SIDC56D170E6	1700V	75A	7.5 x 7.5mm ²	sawn on foil	Q67050-A4120-A001

MECHANICAL PARAMETER:

Raster size	7.5 x 7.5	mm ²
Area total / active	56.25 / 40.07	
Anode pad size	5.48 x 5.48	
Thickness	200	μm
Wafer size	150	mm
Flat position	180	deg
Max. possible chips per wafer	248 pcs	
Passivation frontside	Photoimide	
Anode metalization	3200 nm Al Si Cu	
Cathode metalization	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	$\varnothing 0.65\text{mm}$	
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}		1700	V
Continuous forward current limited by T_{jmax}	I_F		75	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}		150	
Operating junction and storage temperature	T_j, T_{stg}		-55...+150	°C

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

Parameter	Symbol	Conditions		Value			Unit
				min.	Typ.	max.	
Reverse leakage current	I_R	$V_R=1700\text{ V}$	$T_j=25\text{ °C}$			375	µA
Cathode-Anode breakdown Voltage	V_{Br}	$I_R=5\text{ mA}$	$T_j=25\text{ °C}$	1700			V
Forward voltage drop	V_F	$I_F=75\text{ A}$	$T_j=25\text{ °C}$		2.15		V

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

Parameter	Symbol	Conditions		Value			Unit
				min.	Typ.	max.	
Reverse recovery time	t_{rr1}	$I_F=75\text{ A}$	$T_j = 25\text{ °C}$		tbd		ns
	t_{rr2}	$di/dt=1100\text{ A/ms}$ $V_R=900\text{ V}$	$T_j = 150\text{ °C}$				
Peak recovery current	I_{RRM1}	$I_F=75\text{ A}$	$T_j = 25\text{ °C}$		55		A
	I_{RRM2}	$di/dt=1100\text{ A/ms}$ $V_R=900\text{ V}$	$T_j = 150\text{ °C}$		85		
Reverse recovery charge	Q_{rr1}	$I_F=75\text{ A}$	$T_j=25\text{ °C}$		9		µC
	Q_{rr2}	$di/dt=1100\text{ A/ms}$ $V_R=900\text{ V}$	$T_j=150\text{ °C}$		19		
Peak rate of fall of reverse recovery current	di_{rr1}/dt	$I_F=75\text{ A}$	$T_j=25\text{ °C}$		tbd		A/µs
	di_{rr2}/dt	$di/dt=1100\text{ A/ms}$ $V_R=900\text{ V}$	$T_j=150\text{ °C}$				
Softness	S1	$I_F=75\text{ A}$	$T_j=25\text{ °C}$		tbd		1
	S2	$di/dt=1100\text{ A/ms}$ $V_R=900\text{ V}$	$T_j=150\text{ °C}$				

CHIP DRAWING:

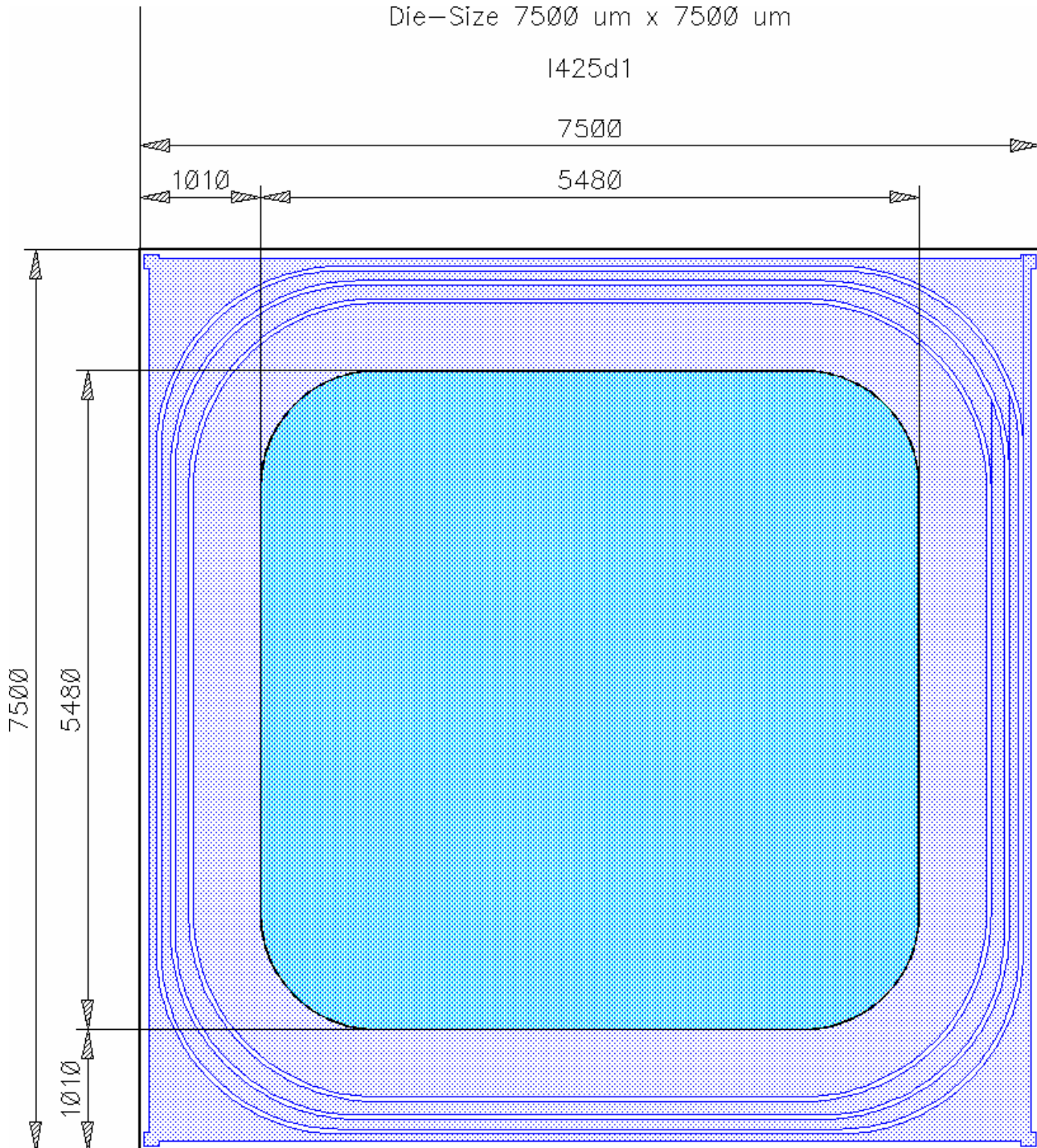
Die-Size 7500 um x 7500 um

l425d1

7500

5480

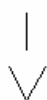
1010



metal1

imide

1 mm



Flat





Preliminary

SIDC56D170E6

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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