

# Fast switching diode chip in Emitter Controlled -Technology

### Features:

- 1700V technology, Emitter Controlled
- soft, fast switching
- low reverse recovery charge
- small temperature coefficient

#### This chip is used for:

• power modules and discrete devices



#### **Applications:**

 SMPS, resonant applications, drives

Chip Type	V <sub>R</sub>	I <sub>F</sub>	Die Size	Package
SIDC42D170E6	1700V	50A	6.5 x 6.5 mm <sup>2</sup>	sawn on foil

### Mechanical Parameter

Mechanical Parameter			
Raster size	6.5 x 6.5		
Area total	42.25	mm <sup>2</sup>	
Anode pad size	4.48 x 4.48		
Thickness	200	μm	
Wafersize	150	mm	
Max. possible chips per wafer	339		
Passivation frontside	Photoimide		
Pad metal	3200 nm AlSiCu		
Backside metal	Ni Ag –system suitable for epoxy and soft solder die bonding		
Die bond	Electrically conductive glue or solder		
Wire bond	Al, ≤500μm		
Reject ink dot size	Ø 0.65mm; max 1.2mm		
Recommended storage environment	Store in original container, in dry nitrogen, in dark environment, < 6 month at an ambient temperature of 23°C		



### **Maximum Ratings**

Parameter	Symbol	Symbol Condition		Unit	
Repetitive peak reverse voltage	V <sub>RRM</sub>	<i>T</i> <sub>vj</sub> = 25 °C	1700	V	
Continuous forward current	I <sub>F</sub>	<i>T</i> <sub>vj</sub> < 150°C	1)	Α	
Maximum repetitive forward current	I <sub>FRM</sub>	<i>T</i> <sub>vj</sub> < 150°C	100	7	
Junction temperature range	T <sub>vj</sub>		-40+175	°C	
Operating junction temperature	T <sub>vj</sub>		-40+150	°C	
Dynamic ruggedness <sup>2)</sup>	P <sub>max</sub>	$I_{\rm Fmax} = 100 {\rm A}, \ V_{\rm Rmax} = 1700 {\rm V}$ $T_{\rm vj} \le 150 {\rm ^{\circ}C}$	tbd	kW	

<sup>1)</sup> depending on thermal properties of assembly

<sup>2)</sup> not subject to production test - verified by design/characterisation

## Static Characteristic (tested on wafer), $T_{vj} = 25 \text{ °C}$

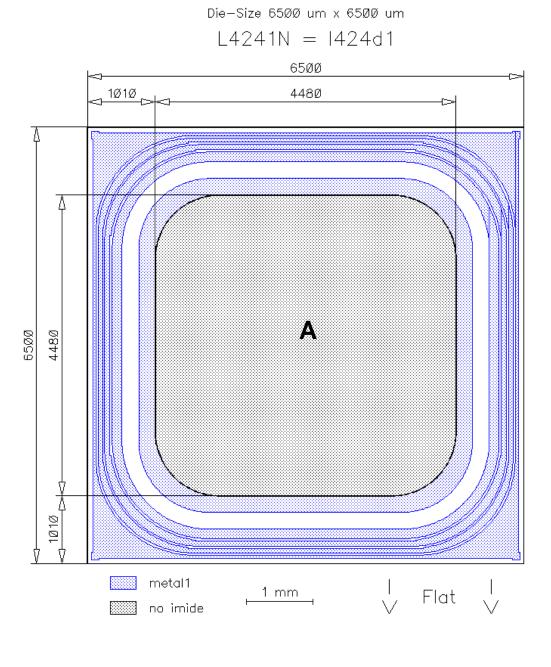
Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	Onne
Reverse leakage current	I <sub>R</sub>	V <sub>R</sub> =1700V			27	μA
Cathode - Anode breakdown Voltage	V <sub>BR</sub>	/ <sub>R</sub> =4m A	1700			V
Diode forward voltage	V <sub>F</sub>	I <sub>F</sub> =50A		2.15		V

### **Further Electrical Characteristic**

Switching characteristics and thermal properties are depending strongly on module design and mounting technology and can therefore not be specified for a bare die.



**Chip Drawing** 



# A: Anode pad

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Downloaded from Arrow.com.



#### Description

AQL 0.65 for visual inspection according to failure catalogue

Electrostatic Discharge Sensitive Device according to MIL-STD 883

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