

## Fast switching diode chip in EMCON 3-Technology

### FEATURES:

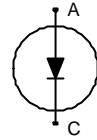
- 600V EMCON 3 technology 70  $\mu\text{m}$  chip
- soft, fast switching
- low reverse recovery charge
- small temperature coefficient

### This chip is used for:

- power module
- discrete components

### Applications:

- drives
- white goods
- resonant applications



Chip Type	$V_R$	$I_F$	Die Size	Package
SIDC06D60C6	600V	20A	2.34 x 2.42 $\text{mm}^2$	sawn on foil

### MECHANICAL PARAMETER:

Raster size	2.34 x 2.42	$\text{mm}^2$
Area total / active	5.66 / 3.85	
Anode pad size	1.92 x 2	
Thickness	70	$\mu\text{m}$
Wafer size	150	mm
Flat position	180	deg
Max. possible chips per wafer	2581 pcs	
Passivation frontside	Photoimide	
Anode metallization	3200 nm AlSiCu	
Cathode metallization	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	$V_{RRM}$		600	V
Continuous forward current limited by $T_{jmax}$	$I_F$		1)	A
Maximum repetitive forward current limited by $T_{jmax}$	$I_{FRM}$		40	
Operating junction and storage temperature	$T_j, T_{stg}$		-40...+175	°C

1) depending on thermal properties of assembly

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	$I_R$	$V_R=600V$	$T_j=25\text{ °C}$			27	µA
Cathode-Anode breakdown Voltage	$V_{Br}$	$I_R=0.25mA$	$T_j=25\text{ °C}$	600			V
Forward voltage drop	$V_F$	$I_F=20A$	$T_j=25\text{ °C}$	1.25	1.6	1.95	V

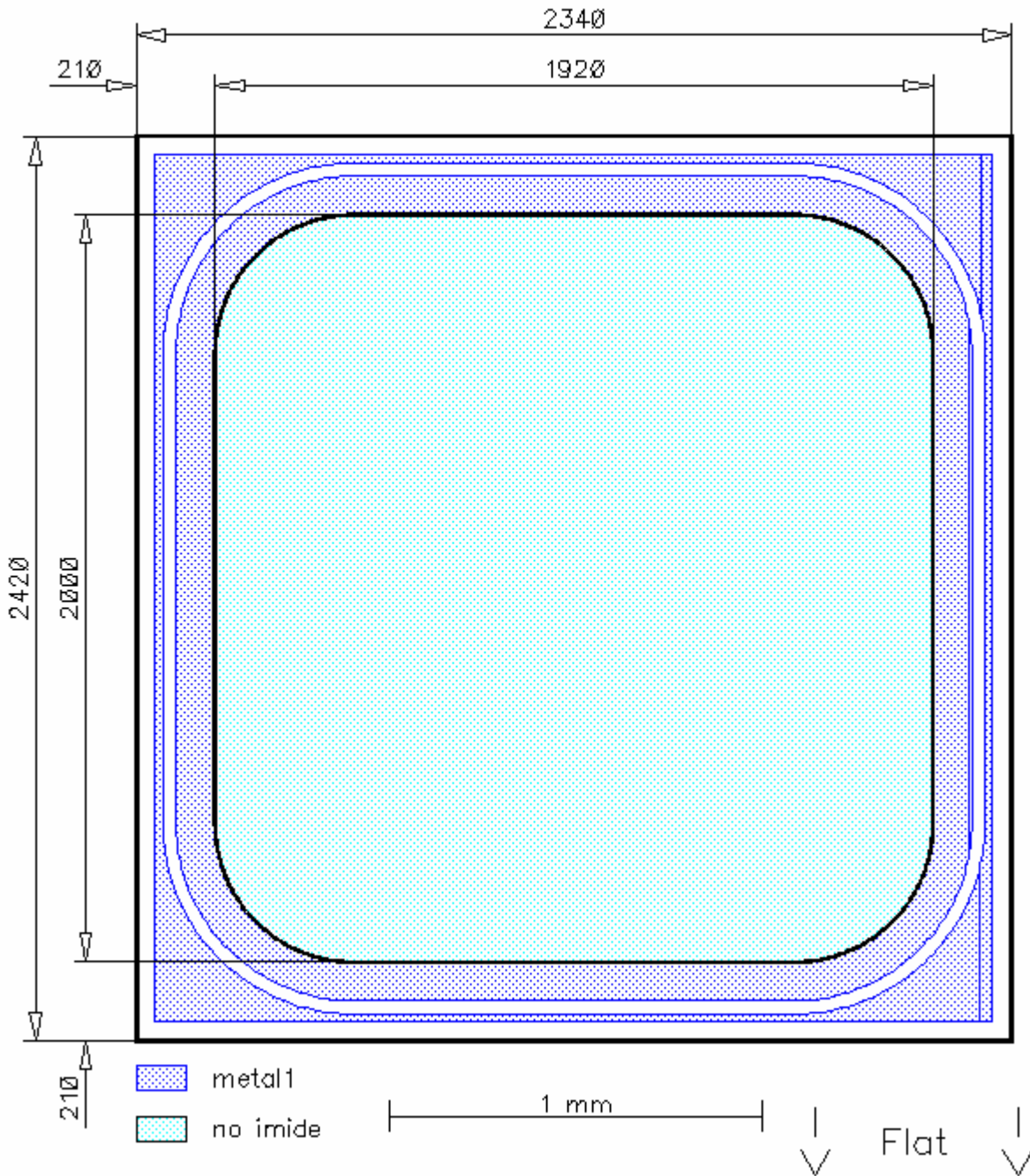
Dynamic Electrical Characteristics (verified by design/characterization), inductive load

Parameter	Symbol	Conditions		Value <sup>2)</sup>			Unit
				min.	Typ.	max.	
Peak reverse recovery current	$I_{RM}$	$I_F=20A$ $di/dt=1800A/ms$ $V_R=300V$ $V_{GE}=-15V$	$T_j = 25\text{ °C}$ $T_j = 125\text{ °C}$ $T_j = 150\text{ °C}$		30.0 32.0 34.0		A
Recovered charge	$Q_r$	$I_F=20A$ $di/dt=1800A/ms$ $V_R=300V$ $V_{GE}=-15V$	$T_j = 25\text{ °C}$ $T_j = 125\text{ °C}$ $T_j = 150\text{ °C}$		1.00 1.75 2.20		µC
Reverse recovery energy	$E_{rec}$	$I_F=20A$ $di/dt=1800A/ms$ $V_R=300V$ $V_{GE}=-15V$	$T_j = 25\text{ °C}$ $T_j = 125\text{ °C}$ $T_j = 150\text{ °C}$		0.21 0.37 0.47		mJ

<sup>2)</sup> values also influenced by parasitic L- and C- in measurement and package.

**CHIP DRAWING:**

Die-Size 2340  $\mu\text{m}$  x 2420  $\mu\text{m}$   
 20A Modul , active area 3,85mm<sup>2</sup>





# SIDC06D60C6

## FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet

FS20R06VE3

## 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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