

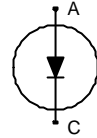
Fast switching diode chip in EMCON 3 -Technology

FEATURES:

- 600V EMCON 3 technology 70 μm chip
- soft, fast switching
- low reverse recovery charge
- small temperature coefficient

This chip is used for:

- power module
- discrete components



Applications:

- drives

Chip Type	V_R	I_F	Die Size	Package	Ordering Code
SIDC14D60C6	600V	50A	4.6 x 3.05 mm ²	sawn on foil	Q67050-A4352-A101

MECHANICAL PARAMETER:

Raster size	4.6 x 3.05	mm ²
Area total / active	14.03 / 11.12	
Anode pad size	3.9 x 2.35	
Thickness	70	μm
Wafer size	150	mm
Flat position	180	deg
Max. possible chips per wafer	1013 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
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}		-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	$V_R=600\text{ V}$	$T_j=25\text{ °C}$			350	µA
Cathode-Anode breakdown Voltage	V_{Br}	$I_R=0.25\text{ mA}$	$T_j=25\text{ °C}$	600			V
Forward voltage drop	V_F	$I_F=50\text{ A}$	$T_j=25\text{ °C}$	1.2	1.6	1.9	V

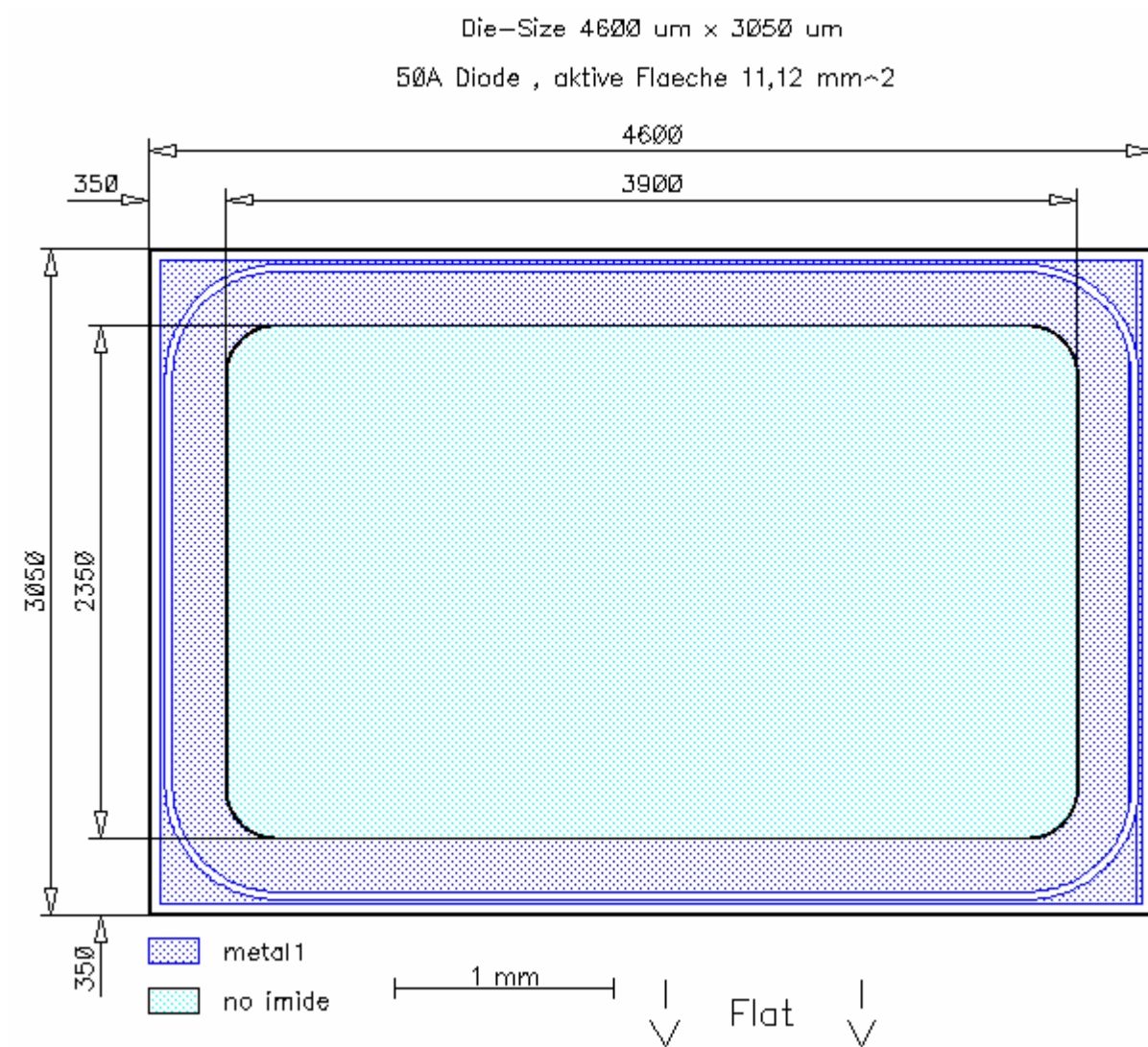
Dynamic Electrical Characteristics (verified by design/characterization), inductive load

$T_j = 25\text{ °C}$, unless otherwise specified

Parameter	Symbol	Conditions		Value ²⁾			Unit
				min.	Typ.	max.	
Reverse recovery time	t_{rr1}	$I_F=50\text{ A}$	$T_j = 25\text{ °C}$		tbd		ns
	t_{rr2}	$di/dt=tbdA/ms$ $V_R=300\text{ V}$	$T_j = 125\text{ °C}$		tbd		
Peak recovery current	I_{RRM1}	$I_F=50\text{ A}$	$T_j = 25\text{ °C}$		tbd		A
	I_{RRM2}	$di/dt=tbdA/ms$ $V_R=300\text{ V}$	$T_j = 125\text{ °C}$		tbd		
Reverse recovery charge	Q_{rr1}	$I_F=50\text{ A}$	$T_j=25\text{ °C}$		tbd		µC
	Q_{rr2}	$di/dt=tbdA/ms$ $V_R=300\text{ V}$	$T_j=125\text{ °C}$		tbd		
Peak rate of fall of reverse recovery current	di_{rr1}/dt	$I_F=50\text{ A}$	$T_j = 25\text{ °C}$		tbd		A/µs
	di_{rr2}/dt	$di/dt=tbdA/ms$ $V_R=300\text{ V}$	$T_j=125\text{ °C}$		tbd		
Softness	S1	$I_F=50\text{ A}$	$T_j=25\text{ °C}$		tbd		1
	S2	$di/dt=tbdA/ms$ $V_R=300\text{ V}$	$T_j=125\text{ °C}$		tbd		

²⁾ values also influenced by parasitic L- and C- in measurement and package.

CHIP DRAWING:



FURTHER ELECTRICAL CHARACTERISTICS:

This chip data sheet refers to the device data sheet	tbd	
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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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