

Fast switching diode chip in EMCON-Technology

FEATURES:

- 1200V EMCON technology 120 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
SIDC53D120H6	1200V	100A	7.3 x 7.3 mm ²	sawn on foil	Q67050-A4100

MECHANICAL PARAMETER:

Raster size	7.3 x 7.3	mm ²
Area total / active	53.29 / 44.22	
Anode pad size	6.58 x 6.58	
Thickness	120	µm
Wafer size	150	mm
Flat position	180	deg
Max. possible chips per wafer	304 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, ≤500µm	
Reject Ink Dot Size	Ø 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		100	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}		200	
Operating junction and storage temperature	T_j, T_{stg}		-55...+150	°C

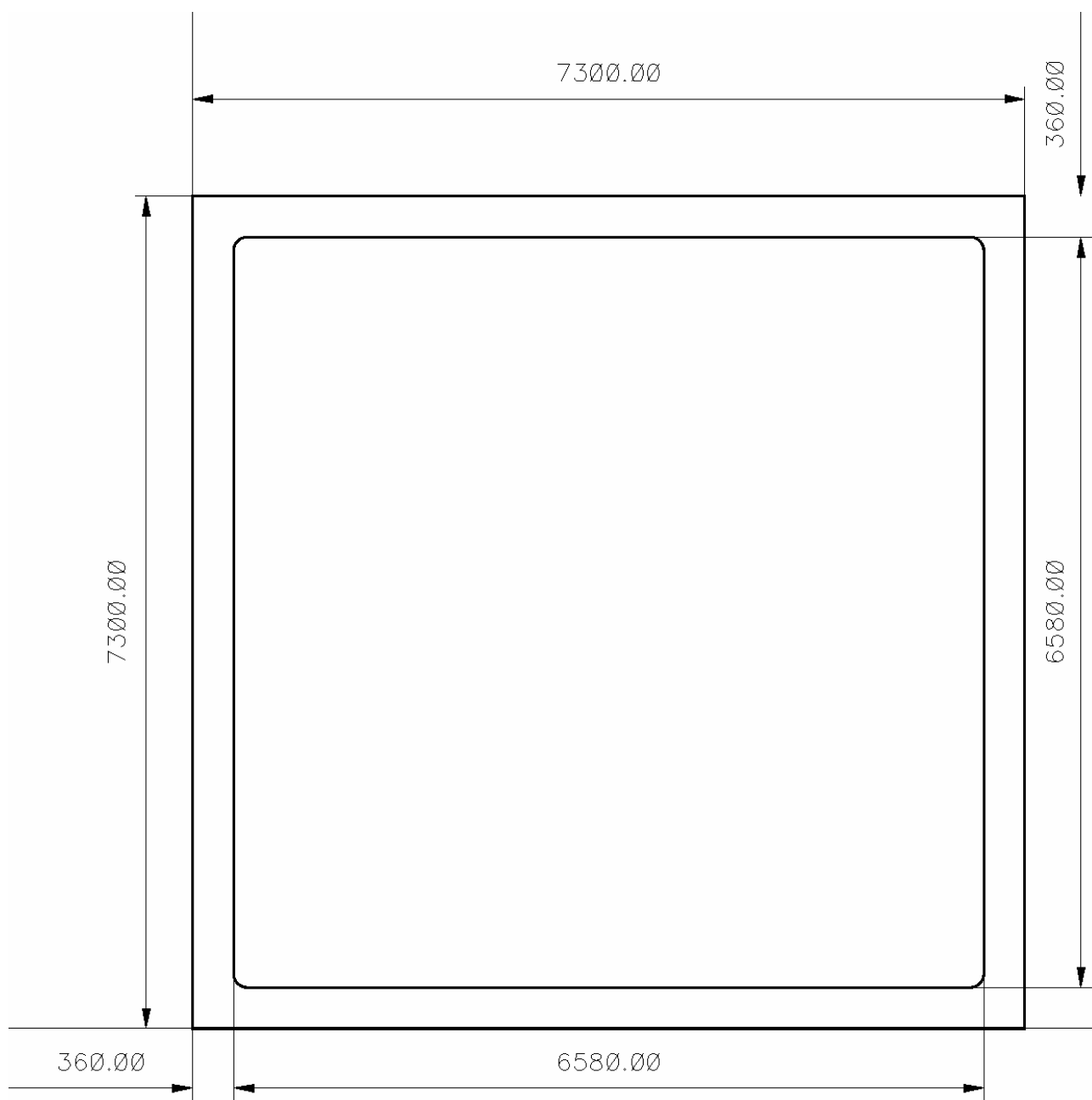
Static Electrical Characteristics (tested on chip), $T_j=25\text{ °C}$, unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			min.	Typ.	max.	
Reverse leakage current	I_R	$V_R=1200V$ $T_j=25\text{ °C}$			250	µA
Cathode-Anode breakdown Voltage	V_{Br}	$I_R=4mA$ $T_j=25\text{ °C}$	1200			V
Forward voltage drop	V_F	$I_F=100A$ $T_j=25\text{ °C}$		1.6		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}	$I_F=100A$ $T_j = 25\text{ °C}$		tbd		ns
	t_{rr2}	$di/dt=1100A/ms$ $V_R=600V$ $T_j = 125\text{ °C}$				
Peak recovery current	I_{RRM1}	$I_F=100A$ $T_j = 25\text{ °C}$		119.8		A
	I_{RRM2}	$di/dt=1100A/ms$ $V_R= 600V$ $T_j = 125\text{ °C}$		127.5		
Reverse recovery charge	Q_{rr1}	$I_F=100A$ $T_j=25\text{ °C}$		10		µC
	Q_{rr2}	$di/dt=1100A/ms$ $V_R= 600V$ $T_j=125\text{ °C}$		18		
Peak rate of fall of reverse recovery current	di_{rr1}/dt	$I_F=100A$ $T_j=25\text{ °C}$		tbd		A/µs
	di_{rr2}/dt	$di/dt=1100A/ms$ $V_R= 600V$ $T_j=125\text{ °C}$				
Softness	S1	$I_F=100A$ $T_j=25\text{ °C}$		tbd		1
	S2	$di/dt=1100A/ms$ $V_R= 600V$ $T_j=125\text{ °C}$				

CHIP DRAWING:





Preliminary

SIDC53D120H6

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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