IDC04S60CE

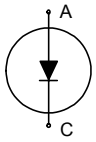
2nd generation thinQ!™ SiC Schottky Diode

Features:

- Revolutionary semiconductor material - Silicon Carbide
- Switching behavior benchmark
- No reverse recovery
- No temperature influence on the switching behavior
- No forward recovery
- High surge current capability

Applications:

- SMPS, PFC, snubber



Chip Type	V_{BR}	I_F	Die Size	Package
IDC04S60CE	600V	4A	1.146 x 0.968 mm^2	sawn on foil

Mechanical Parameter

Raster size	1.146x 0.968	mm^2
Anode pad size	0.909 x 0.731	
Area total	1.11	
Thickness	355	µm
Wafer size	100	mm
Max. possible chips per wafer	6190	
Passivation frontside	Photoimide	
Anode metal	3200 nm Al	
Cathode metal	Ni Ag –system suitable for epoxy and soft solder die bonding	
Die bond	Electrically conductive glue or solder	
Wire bond	Al, ≤ 350µm	
Reject ink dot size	∅ ≥ 0.3 mm	
Recommended storage environment	Store in original container, in dry nitrogen, in dark environment, < 6 month at an ambient temperature of 23°C	

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Maximum Ratings

Parameter	Symbol	Condition	Value	Unit
Repetitive peak reverse voltage	V_{RRM}	T_{vj} = 25 °C	600	V
DC blocking voltage	V_{DC}		600	
Continuous forward current limited by T_{vjmax}	I_F	T_{vj} < 150°C	4	A
Surge non repetitive forward current sine halfwave	$I_{F,SM}$	T_C =25°C, t_P =10 ms	32	
Repetitive peak forward current limited by T_{vjmax}	$I_{F,RM}$	T_C = 100°C, T_{vj} =150°C, D=0.1	18	
Non-repetitive peak forward current	$I_{F,max}$	T_C =25°C, t_p=10µs	132	
Operating junction and storage temperature	T_{vj} , T_{stg}		-55...+175	°C

Static Characteristics (tested on wafer)

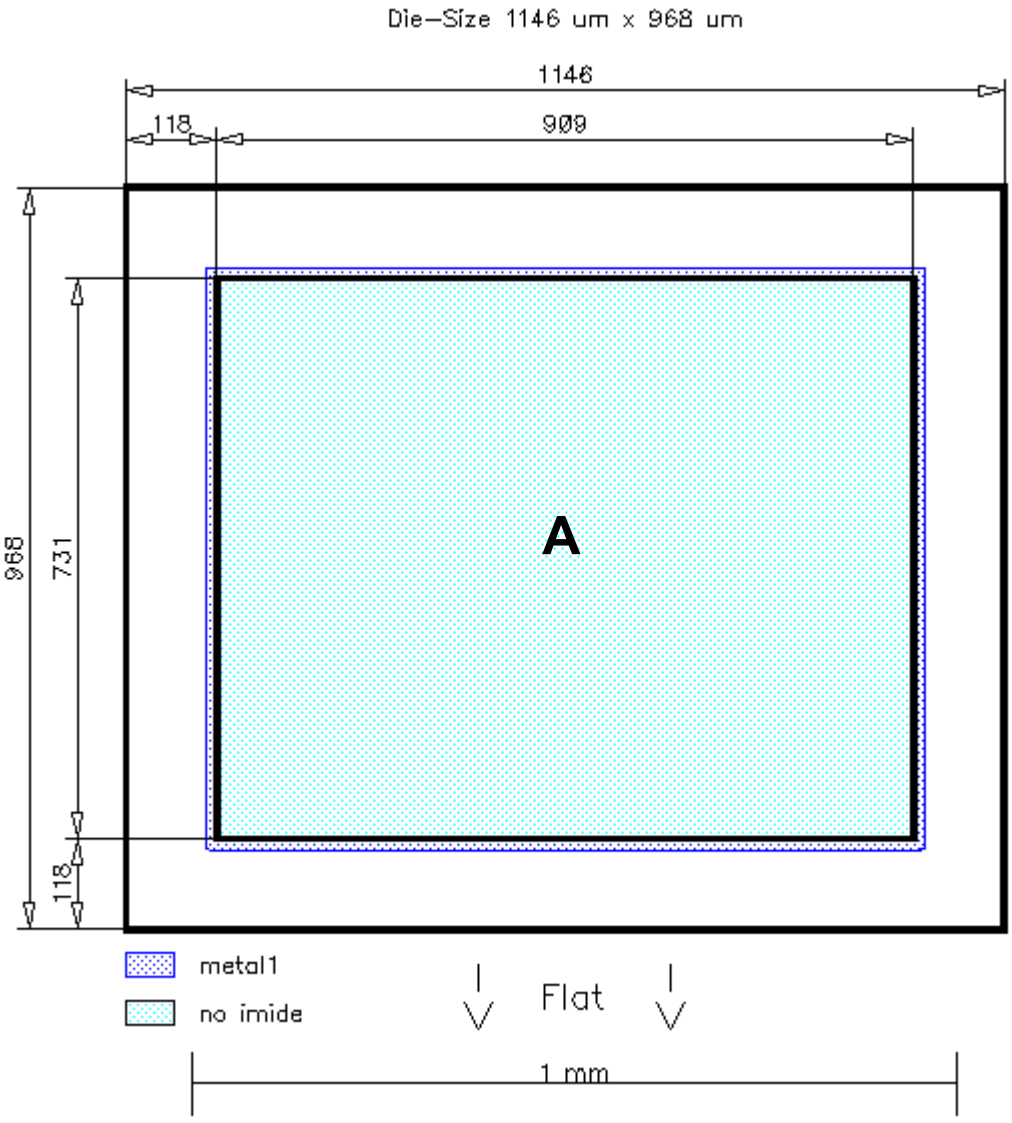
Parameter	Symbol	Conditions		Value			Unit
				min.	Typ.	max.	
Reverse current	I_R	V_R=600V	T_{vj} = 25 °C		0.5	50	µA
Diode forward voltage	V_F	I_F=4A	T_{vj} = 25 °C		1.7	1.9	V

Dynamic Characteristics, at T_{vj} = 25 °C, unless otherwise specified, tested at component

Parameter	Symbol	Conditions		Value			Unit
				min.	Typ.	max.	
Total capacitive charge	Q_C	I_F <=$I_{F,max}$ di/dt=200A/µs V_R=400V	T_{vj} = 150 °C		8		nC
Switching time [1]	t_c		T_{vj} = 150 °C			<10	ns
Total capacitance	C	f=1MHz	V_R=1V		130		pF
			V_R=300V		20		
			V_R=600V		20		

[1] t_c is the time constant for the capacitive displacement current waveform (independent from T_{vj}, I_{LOAD} and di/dt), different from t_{rr} which is dependent on T_{vj}, I_{LOAD} and di/dt. No reverse recovery time constant t_{rr} due to absence of minority carrier injection

Chip drawing



A: Anode pad

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Description

AQL 0,65 for visual inspection according to failure catalog

Electrostatic Discharge Sensitive Device according to MIL-STD 883

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