

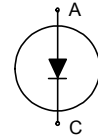
## 2<sup>nd</sup> generation thinQ!<sup>TM</sup> SiC Schottky Diode

### 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 <sub>BR</sub>	I <sub>F</sub>	Die Size	Package
IDC05S60CE	600V	5A	1.45 x 1.162 mm <sup>2</sup>	sawn on foil

### Mechanical Parameter

Raster size	1.45x 1.162	mm <sup>2</sup>
Anode pad size	1.213 x 0.925	
Area total	1.68	
Thickness	355	µm
Wafer size	100	mm
Max. possible chips per wafer	4051	
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	Ø ≥ 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	

## Maximum Ratings

Parameter	Symbol	Condition	Value	Unit
Repetitive peak reverse voltage	$V_{RRM}$	$T_{vj} = 25\text{ °C}$	600	V
DC blocking voltage	$V_{DC}$		600	
Continuous forward current limited by $T_{vjmax}$	$I_F$	$T_{vj} < 150\text{ °C}$	5	A
Surge non repetitive forward current sine halfwave	$I_{F,SM}$	$T_C = 25\text{ °C}, t_p = 10\text{ ms}$	42	
Repetitive peak forward current limited by $T_{vjmax}$	$I_{F,RM}$	$T_C = 100\text{ °C}, T_{vj} = 150\text{ °C}, D = 0.1$	21	
Non-repetitive peak forward current	$I_{F,max}$	$T_C = 25\text{ °C}, t_p = 10\text{ }\mu\text{s}$	180	
Operating junction and storage temperature	$T_{vj}, T_{stg}$		-55...+175	°C

## Static Characteristics (tested on wafer)

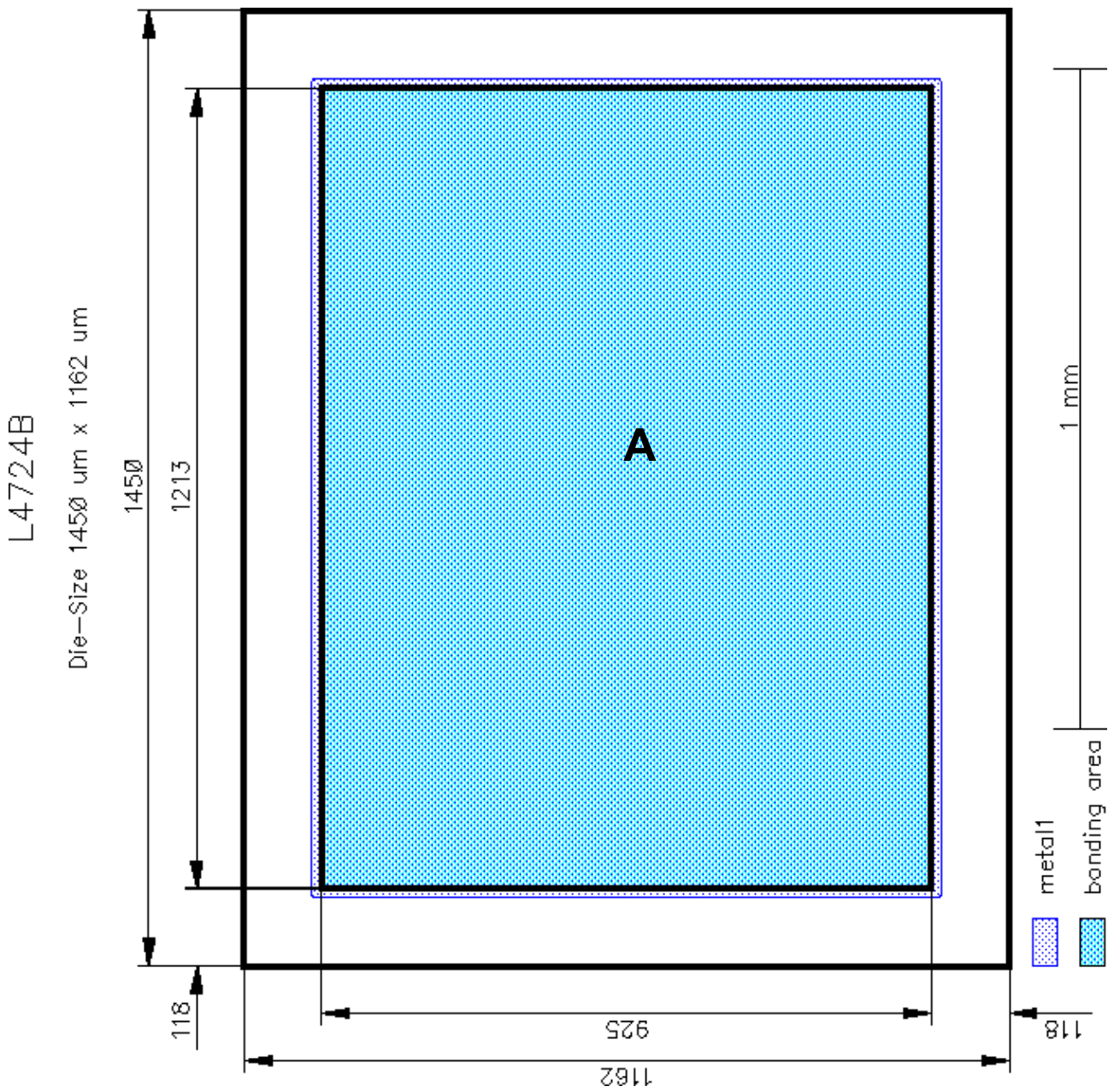
Parameter	Symbol	Conditions		Value			Unit
				min.	Typ.	max.	
Reverse current	$I_R$	$V_R = 600\text{ V}$	$T_{vj} = 25\text{ °C}$		0.6	70	$\mu\text{A}$
Diode forward voltage	$V_F$	$I_F = 5\text{ A}$	$T_{vj} = 25\text{ °C}$		1.5	1.7	V

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

Parameter	Symbol	Conditions		Value			Unit
				min.	Typ.	max.	
Total capacitive charge	$Q_C$	$I_F \leq I_{F,max}$ $di/dt = 200\text{ A}/\mu\text{s}$ $V_R = 400\text{ V}$	$T_{vj} = 150\text{ °C}$		12		nC
Switching time <sup>1)</sup>	$t_c$		$T_{vj} = 150\text{ °C}$			<10	ns
Total capacitance	C	$f = 1\text{ MHz}$	$V_R = 1\text{ V}$		240		pF
			$V_R = 300\text{ V}$		30		
			$V_R = 600\text{ V}$		30		

<sup>1)</sup>  $t_c$  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



# IDC05S60CE

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## Description

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AQL 0,65 for visual inspection according to failure catalog

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Electrostatic Discharge Sensitive Device according to MIL-STD 883

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