WB45SD160AL

Standard diode - Bare die

Rev.01 - 19 November 2020 **Product data sheet**

1. General description

Standard power diode (Unsawn wafer).

2. Features and benefits

- Low forward voltage drop
- Low leakage current
- High voltage capability
- High inrush current capability
- Bare die

3. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_{RRM}*	repetitive peak reverse voltage			-	-	1600	V
$I_{F(AV)}$**	average forward current	δ = 0.5; square-wave pulse		-	-	45	A
Static characteristics							
V_F**	forward voltage	I_F = 45 A; T_j = 25 °C		-	1.2	1.4	V

4. Ordering information

Table 2. Ordering information

Product type	Orderable part number	Description	Packing method
WB45SD160AL	WB45SD160ALZ	Bare die on wafer	Unsawn wafer, Vacuum packing

5. Limiting values

Table 3. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions		Min	Max	Unit
V_{RRM}*	repetitive peak reverse voltage			-	1600	V
V_{RWM}*	crest working reverse voltage			-	1600	V
V_R*	reverse voltage	DC		-	1600	V
$I_{F(AV)}$**	average forward current	δ = 0.5; square-wave pulse		-	45	A
I_{FRM}**	repetitive peak forward current	δ = 0.5; t_p = 25 µs; square-wave pulse		-	90	A
I_{FSM}**	non-repetitive peak forward current	t_p = 10 ms; $T_{j(init)}$ = 25 °C; sine-wave pulse		-	530	A
		t_p = 8.3 ms; $T_{j(init)}$ = 25 °C; sine-wave pulse		-	582	A
T_{stg}**	storage temperature			-40	150	°C
T_j**	junction temperature				150	°C

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6. Characteristics

Table 4. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Static characteristics							
V_F**	forward voltage	I_F = 45 A; T_j = 25 °C		-	1.2	1.4	V
V_F**	forward voltage	I_F = 45 A; T_j = 150 °C		-	1.1	1.3	V
I_R*	reverse current	V_R = 1600 V; T_j = 25 °C		-	-	50	µA
I_R**	reverse current	V_R = 1600 V; T_j = 150 °C		-	-	1.5	mA

Notes:

(1) * mean that parameter are 100% test at T_{amb} = 25°C

(2) ** means that the guaranteed ratings and parameter limits will depend on the assembled structure. When correctly assembled with suitable die bonding and wire bonding, the device will have ratings and characteristics guaranteed in this data sheet, similar to the assembled devices WND45P16W.

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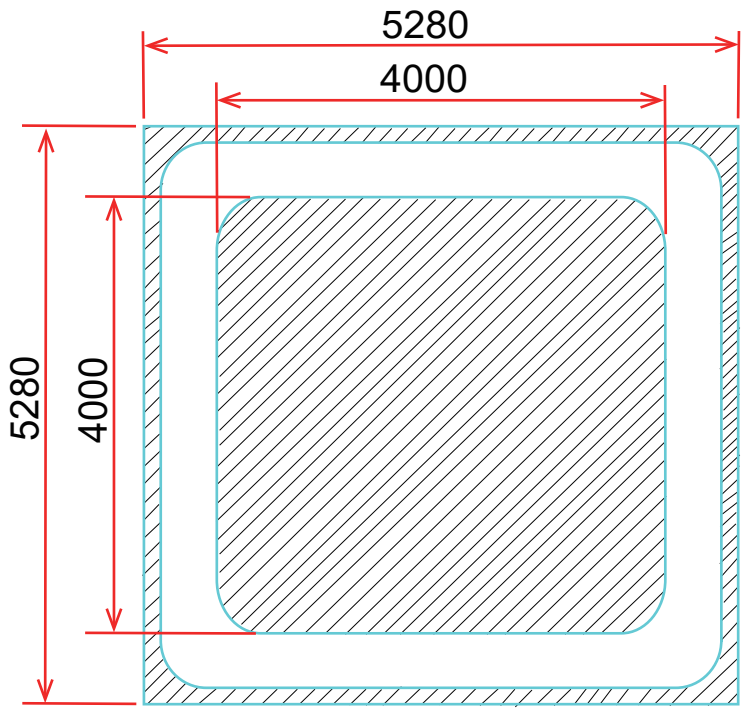
MECHANICAL PARAMETER		
Chip size	5.28 x 5.28	mm^2
Anode pad size	4.0 x 4.0	mm^2
Area total /active	27.88 / 16.00	mm^2
Thickness	300	µm
Separation lane	60	µm
Wafer size	125	mm
Max possible chips per wafer	379	pcs
Passivation	Planar	
Front metal	Al	
Back metal	Ti Ni Ag	

CHIP LAYOUT



Die size: 5280µm x 5280µm
Bond pad size: 4000µm x 4000µm

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7. Legal information

Data sheet status

Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.
[2] The term 'short data sheet' is explained in section "Definitions".
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