

preliminary

# Schottky Diode Gen<sup>2</sup>

$$V_{RRM} = 200\text{ V}$$

$$I_{FAV} = 2 \times 65\text{ A}$$

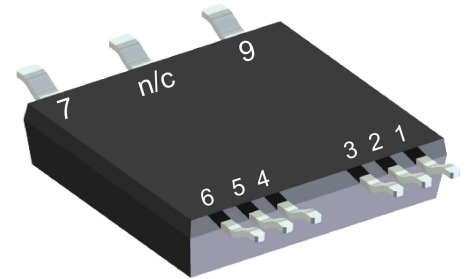
$$V_F = 0.82\text{ V}$$

High Performance Schottky Diode  
 Low Loss and Soft Recovery  
 Parallel legs

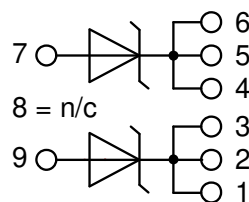
Part number

**DSA120X200LB**

Marking on Product: *DSA120X200LB*



Backside: isolated

 E72873


### Features / Advantages:

- Very low  $V_f$
- Extremely low switching losses
- Low  $I_{rm}$  values
- Improved thermal behaviour
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching

### Applications:

- Rectifiers in switch mode power supplies (SMPS)
- Free wheeling diode in low voltage converters

### Package: SMPD

- Isolation Voltage: 3000 V~
- Industry convenient outline
- RoHS compliant
- Epoxy meets UL 94V-0
- Soldering pins for PCB mounting
- Backside: DCB ceramic
- Reduced weight
- Advanced power cycling

### Disclaimer Notice

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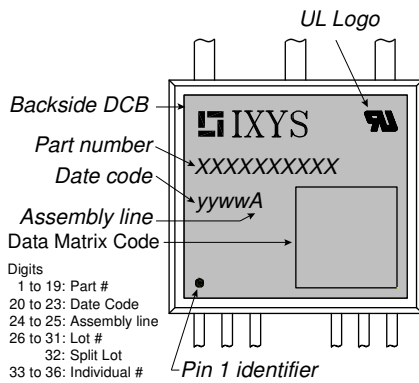


Schottky				Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit	
$V_{RSM}$	max. non-repetitive reverse blocking voltage				200	V	
$V_{RRM}$	max. repetitive reverse blocking voltage				200	V	
$I_R$	reverse current, drain current	$V_R = 200\text{ V}$			1	mA	
		$V_R = 200\text{ V}$			5	mA	
$V_F$	forward voltage drop	$I_F = 60\text{ A}$			0.98	V	
		$I_F = 120\text{ A}$			1.22	V	
		$I_F = 60\text{ A}$	$T_{VJ} = 150^\circ\text{C}$			0.82	V
		$I_F = 120\text{ A}$				1.10	V
$I_{FAV}$	average forward current	$T_C = 130^\circ\text{C}$ rectangular $d = 0.5$			65	A	
$V_{F0}$	threshold voltage	} for power loss calculation only			0.51	V	
$r_F$	slope resistance				2.7	mΩ	
$R_{thJC}$	thermal resistance junction to case				0.8	K/W	
$R_{thCH}$	thermal resistance case to heatsink			0.40		K/W	
$P_{tot}$	total power dissipation		$T_C = 25^\circ\text{C}$		185	W	
$I_{FSM}$	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$	$T_{VJ} = 45^\circ\text{C}$		700	A	
$C_J$	junction capacitance	$V_R = 24\text{ V}$ $f = 1\text{ MHz}$	$T_{VJ} = 25^\circ\text{C}$		394	pF	



preliminary

Package SMPD		Ratings				
Symbol	Definition	Conditions	min.	typ.	max.	Unit
$I_{RMS}$	RMS current	per terminal			100	A
$T_{VJ}$	virtual junction temperature		-55		175	°C
$T_{op}$	operation temperature		-55		150	°C
$T_{stg}$	storage temperature		-55		150	°C
<b>Weight</b>				8.5		g
$F_C$	mounting force with clip		40		130	N
$d_{Spp/ App}$	creepage distance on surface / striking distance through air	terminal to terminal	1.6			mm
$d_{Spb/ Apb}$		terminal to backside	4.0			mm
$V_{ISOL}$	isolation voltage	t = 1 second	3000			V
		t = 1 minute	2500			V



**Part description**

- D = Diode
- S = Schottky Diode
- A = low VF
- 120 = Current Rating [A]
- X = Parallel legs
- 200 = Reverse Voltage [V]
- LB = SMPD-B

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA120X200LB-TUB	DSA120X200LB	Tube	20	524773
Alternative	DSA120X200LB-TRR	DSA120X200LB	Tape & Reel	200	523115

**Equivalent Circuits for Simulation**

\* on die level

$T_{VJ} = 175\text{ °C}$



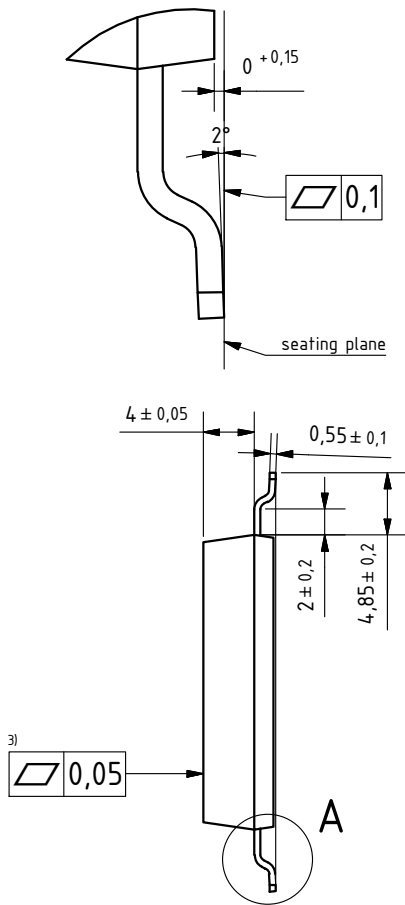
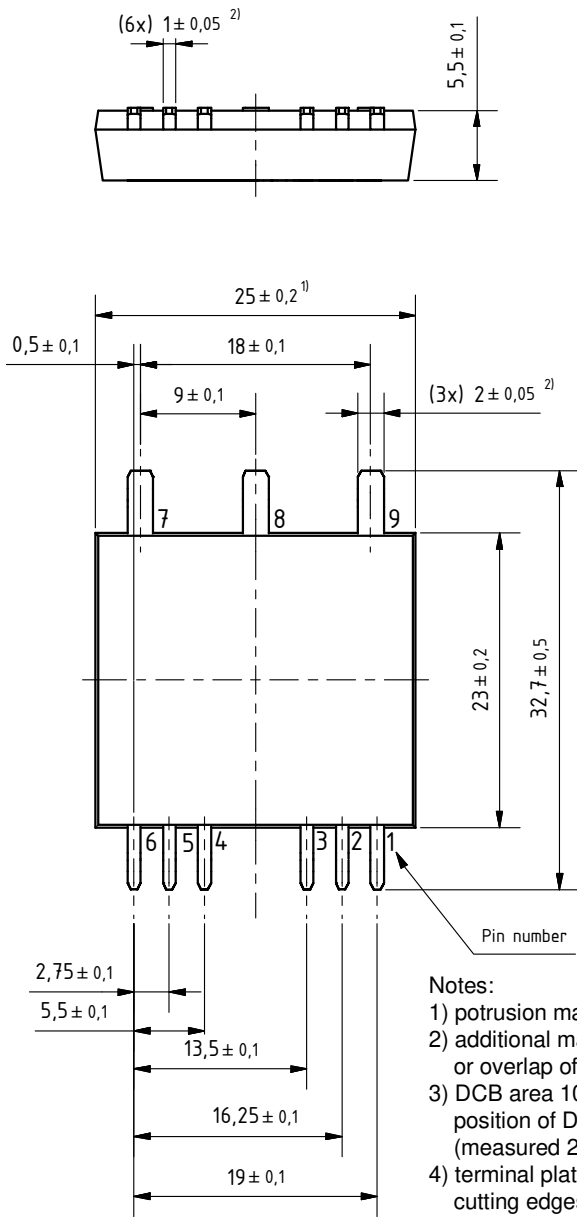
Schottky

$V_{0\ max}$	threshold voltage	0.51	V
$R_{0\ max}$	slope resistance *	2.7	mΩ



**Outlines SMPD**

**A ( 8 : 1 )**



- Notes:
- 1) protrusion may add 0.2 mm max. on each side
  - 2) additional max. 0.05 mm per side by punching misalignment or overlap of dam bar or bending compression
  - 3) DCB area 10 to 50  $\mu$ m convex; position of DCB area in relation to plastic rim:  $\pm 25$   $\mu$ m (measured 2 mm from Cu rim)
  - 4) terminal plating: 0.2 - 1  $\mu$ m Ni + 10 - 25  $\mu$ m Sn (gal v.) cutting edges may be partially free of plating

