

preliminary

Schottky Diode Gen ²

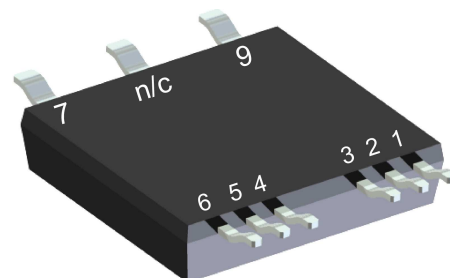
$$\begin{aligned}
 V_{RRM} &= 200 \text{ V} \\
 I_{FAV} &= 2 \times 65 \text{ A} \\
 V_F &= 0.82 \text{ V}
 \end{aligned}$$

High Performance Schottky Diode
 Low Loss and Soft Recovery
 Parallel legs

Part number

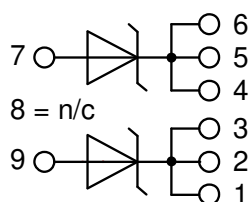
DSA120X200LB

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

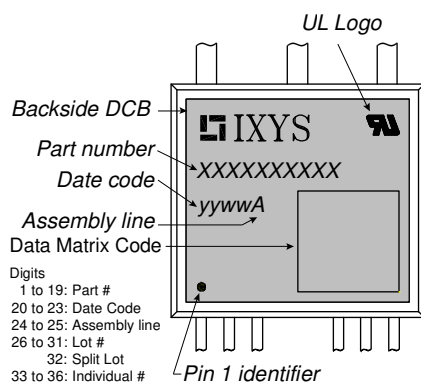
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Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				200	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				200	V
I_R	reverse current, drain current	$V_R = 200\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			1	mA
		$V_R = 200\text{ V}$	$T_{VJ} = 125^{\circ}\text{C}$			5	mA
V_F	forward voltage drop	$I_F = 60\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			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	$T_C = 130^{\circ}\text{C}$	$T_{VJ} = 175^{\circ}\text{C}$			65	A
		rectangular $d = 0.5$					
V_{F0}	threshold voltage	} for power loss calculation only		$T_{VJ} = 175^{\circ}\text{C}$		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

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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
Weight				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



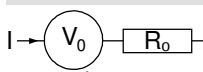
Part description

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

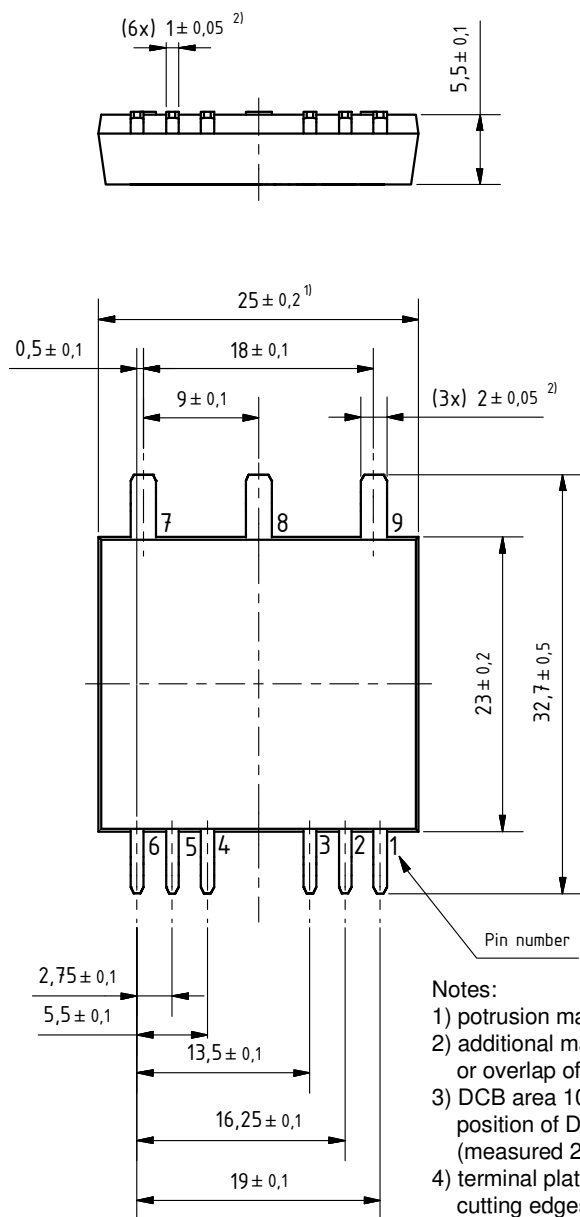
* on die level

 $T_{VJ} = 175\text{ °C}$


Schottky

 $V_{0\max}$ threshold voltage 0.51 V

 $R_{0\max}$ slope resistance * 2.7 mΩ

Outlines SMPD
A (8 : 1)

Notes:

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

