

Schottky Diode Gen ²

$$V_{RRM} = 150\text{ V}$$

$$I_{FAV} = 2 \times 75\text{ A}$$

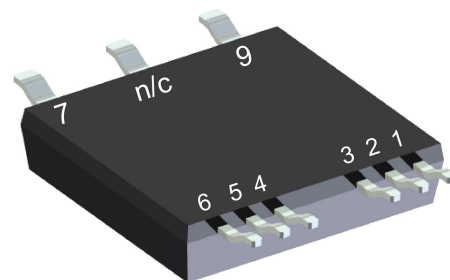
$$V_F = 0.74\text{ V}$$

High Performance Schottky Diode
 Low Loss and Soft Recovery
 Parallel legs

Part number

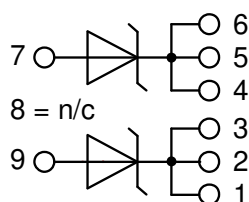
DSA120X150LB

Marking on Product: DSA120X150LB



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

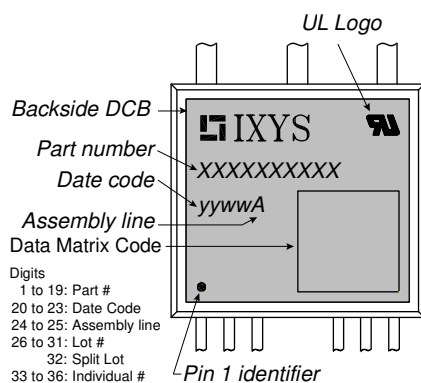
- Isolation Voltage: 3000 V~
- Industry convenient outline
- RoHS compliant
- Epoxy meets UL 94V-0
- Soldering pins for PCB mounting
- Backside: DCB ceramic
- Reduced weight
- Advanced power cycling

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Schottky				Ratings					
Symbol	Definition	Conditions		min.	typ.	max.	Unit		
V _{RSM}	max. non-repetitive reverse blocking voltage	T _{VJ} = 25°C				150	V		
V _{RRM}	max. repetitive reverse blocking voltage	T _{VJ} = 25°C				150	V		
I _R	reverse current, drain current	V _R = 150 V	T _{VJ} = 25°C			1	mA		
		V _R = 150 V	T _{VJ} = 125°C			5	mA		
V _F	forward voltage drop	I _F = 60 A	T _{VJ} = 25°C			0.93	V		
		I _F = 120 A					1.13	V	
		I _F = 60 A	T _{VJ} = 125°C					0.74	V
		I _F = 120 A						0.95	V
I _{FAV}	average forward current	T _C = 135°C rectangular d = 0.5	T _{VJ} = 175°C			75	A		
V _{F0}	threshold voltage	} for power loss calculation only				0.51	V		
r _F	slope resistance						1.3	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°C				185	W		
I _{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine; V _R = 0 V		T _{VJ} = 45°C		700	A		
C _J	junction capacitance	V _R = 24 V f = 1 MHz		T _{VJ} = 25°C		481	pF		

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

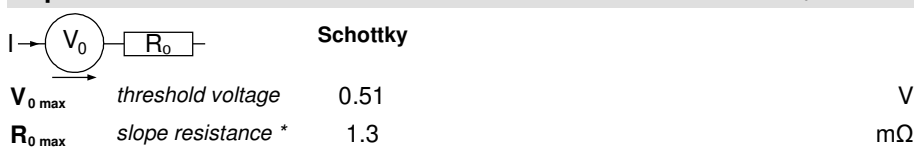
D = Diode
 S = Schottky Diode
 A = low VF
 120 = Current Rating [A]
 X = Parallel legs
 150 = Reverse Voltage [V]
 LB = SMPD-B

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA120X150LB-TUB	DSA120X150LB	Tube	20	524766
Alternative	DSA120X150LB-TRR	DSA120X150LB	Tape & Reel	200	517173

Equivalent Circuits for Simulation

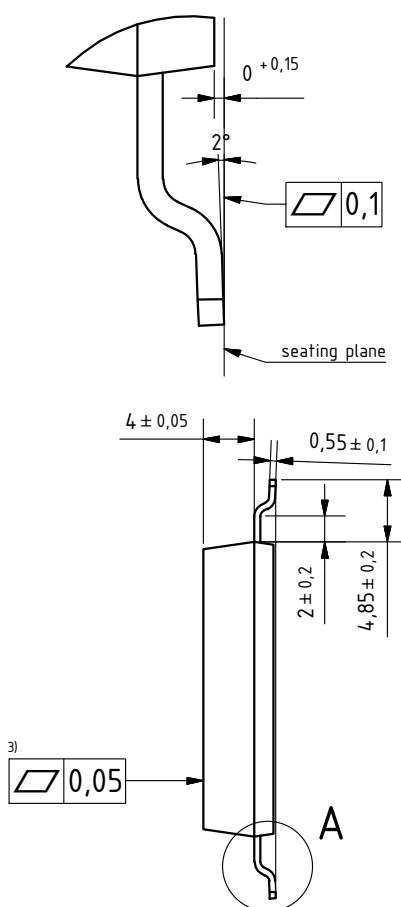
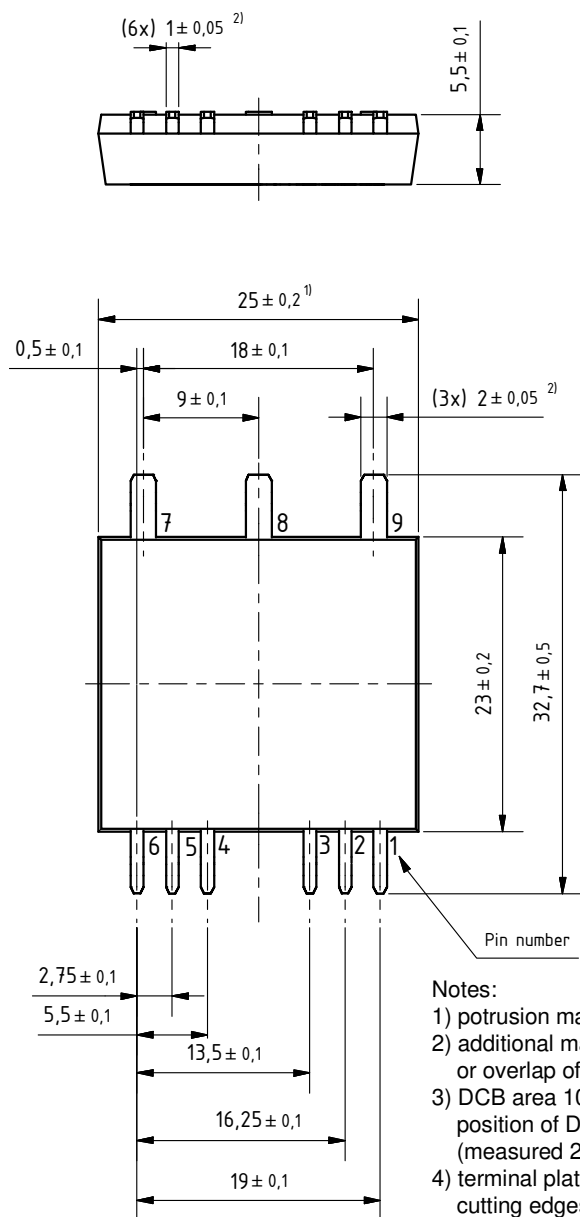
* on die level

$T_{VJ} = 175\text{ °C}$



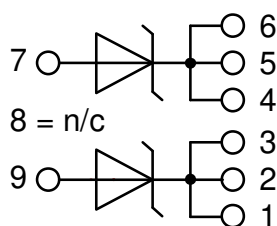
Outlines SMPD

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 misalignment 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



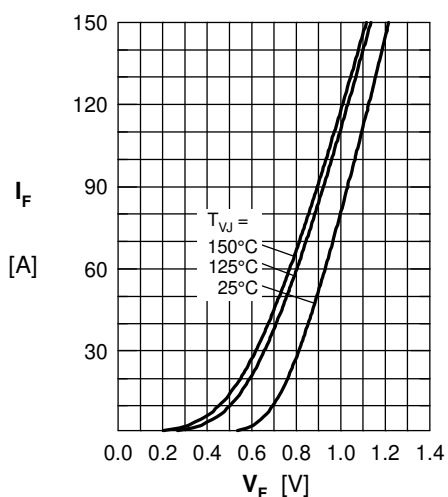
Schottky


Fig. 1 Maximum forward voltage drop characteristics

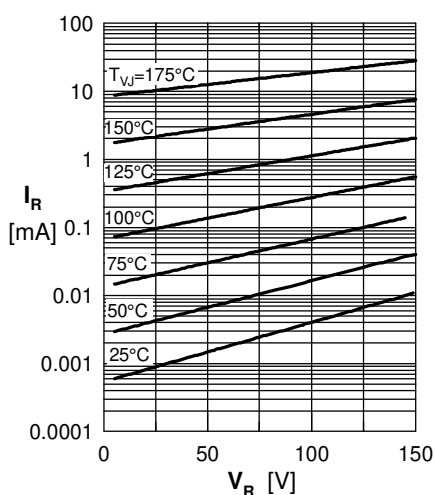


Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

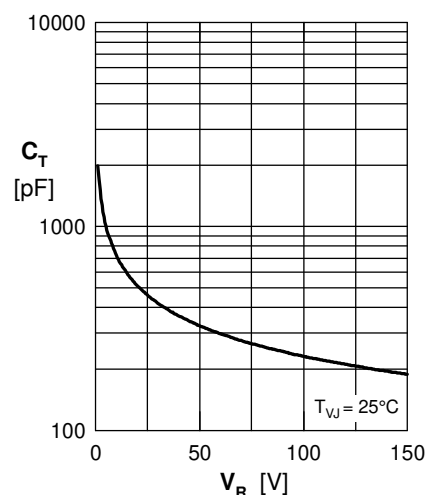


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

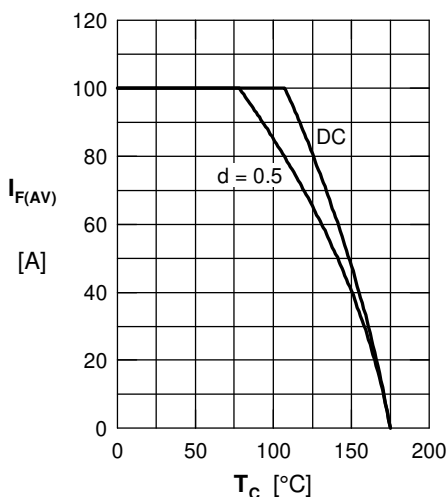


Fig. 4 Average forward current $I_{F(AV)}$ vs. case temperature T_C

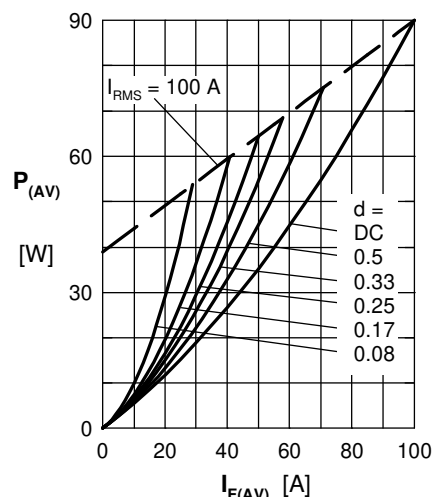


Fig. 5 Forward power loss @ $T_J = 175^\circ\text{C}$

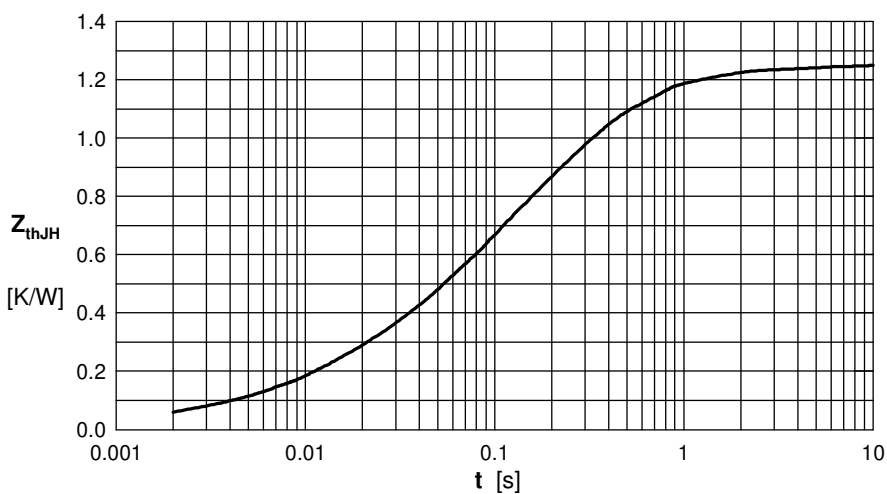


Fig. 6 Transient thermal impedance junction

Note: All curves are per diode