

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

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

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

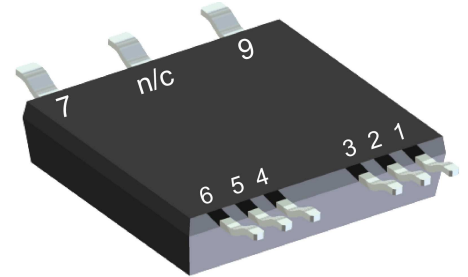
$$V_F = 0.74\text{ V}$$

High Performance Schottky Diode  
 Low Loss and Soft Recovery  
 Parallel legs


Part number

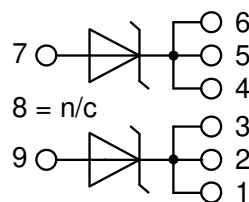
**DSA120X150LB**

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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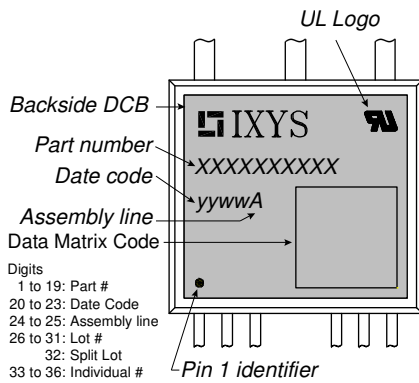
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Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
$V_{RSM}$	max. non-repetitive reverse blocking voltage					150	V
$V_{RRM}$	max. repetitive reverse blocking voltage					150	V
$I_R$	reverse current, drain current	$V_R = 150\text{ V}$		$T_{VJ} = 25^\circ\text{C}$		1	mA
		$V_R = 150\text{ V}$		$T_{VJ} = 125^\circ\text{C}$		5	mA
$V_F$	forward voltage drop	$I_F = 60\text{ A}$		$T_{VJ} = 25^\circ\text{C}$		0.93	V
		$I_F = 120\text{ A}$				1.13	V
		$I_F = 60\text{ A}$		$T_{VJ} = 125^\circ\text{C}$		0.74	V
		$I_F = 120\text{ A}$				0.95	V
$I_{FAV}$	average forward current	$T_C = 135^\circ\text{C}$	rectangular	$T_{VJ} = 175^\circ\text{C}$		75	A
$V_{F0}$	threshold voltage	} for power loss calculation only		$T_{VJ} = 175^\circ\text{C}$		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			$T_C = 25^\circ\text{C}$		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	$V_R = 24\text{ V}$	$f = 1\text{ MHz}$	$T_{VJ} = 25^\circ\text{C}$		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
<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**

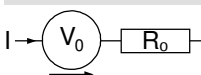
- D = Diode
- S = Schottky Diode
- A = low VF
- 120 = Current Rating [A]
- X = Parallel legs
- 150 = Reverse Voltage [V]
- LB = SMPD-B

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

$T_{VJ} = 175\text{ °C}$



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$V_{0\ max}$	threshold voltage	0.51	V
$R_{0\ max}$	slope resistance *	1.3	mΩ





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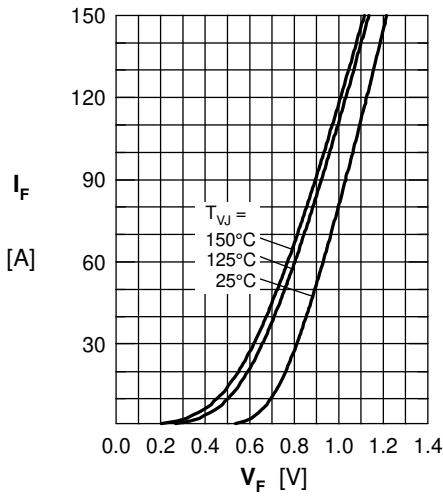


Fig. 1 Maximum forward voltage drop characteristics

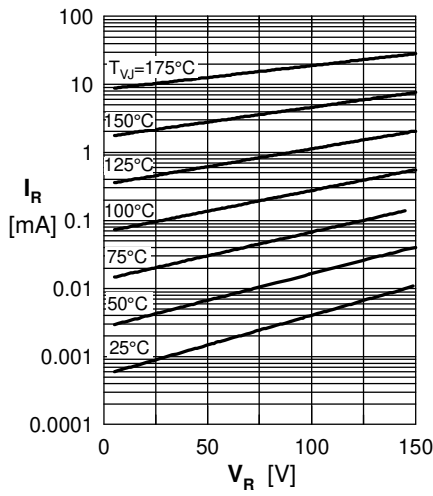


Fig. 2 Typ. reverse current  $I_R$  vs. reverse voltage  $V_R$

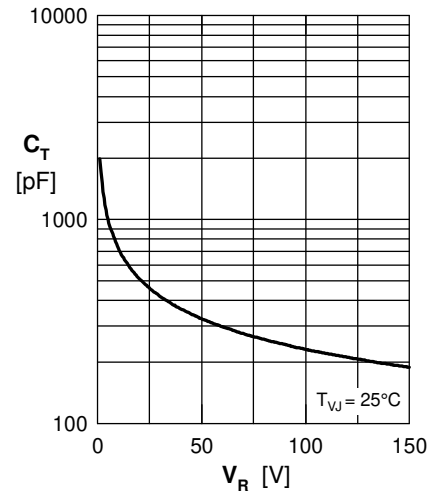


Fig. 3 Typ. junction capacitance  $C_T$  vs. reverse voltage  $V_R$

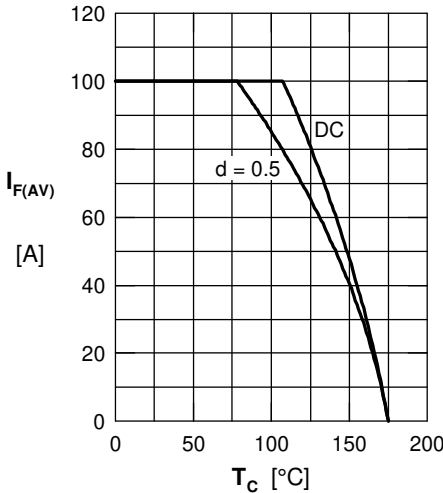


Fig. 4 Average forward current  $I_{F(AV)}$  vs. case temperature  $T_C$

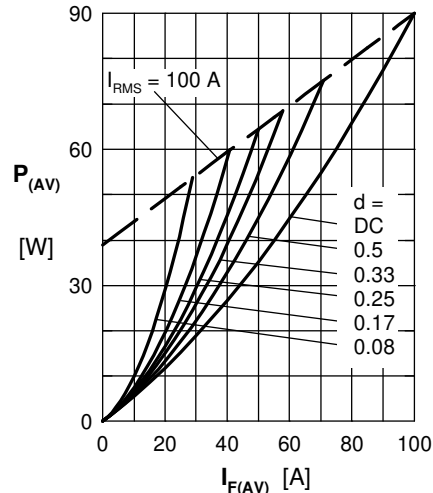


Fig. 5 Forward power loss @  $T_J = 175^\circ\text{C}$

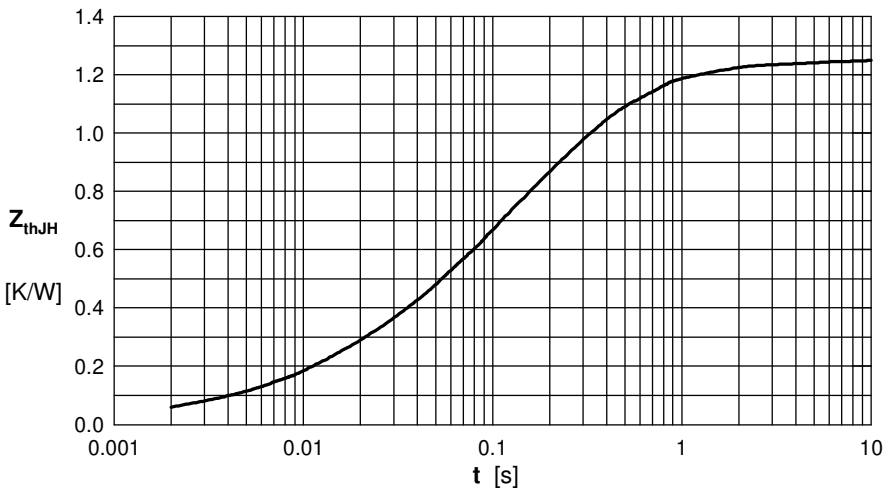


Fig. 6 Transient thermal impedance junction

Note: All curves are per diode

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