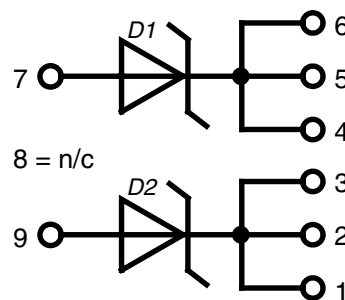
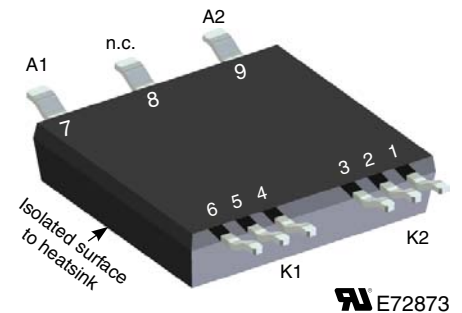


# Schottky Diode Gen<sup>2</sup>

$V_{RRM} = 150\text{ V}$   
 $I_{DAV} = 2 \times 75\text{ A}$   
 $V_F = 0.80\text{ V}$

High Performance Schottky Diode  
 Low Loss and Soft Recovery  
 Parallel Legs

**Part number**  
 DSA120X150LB



### Features / Advantages:

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

### Applications:

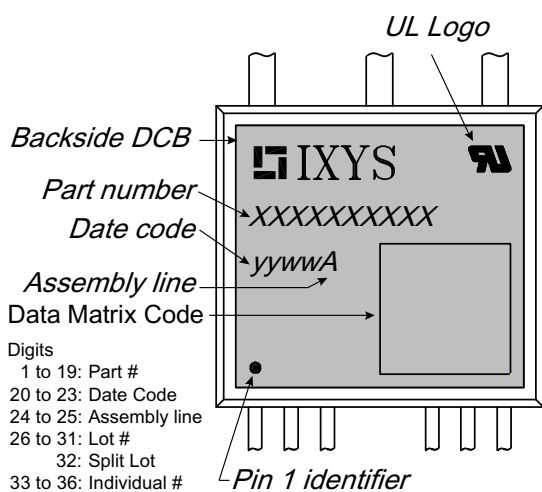
- Rectifiers in switch mode power supplies (SMPS)
- Free wheeling diode in low voltage converters

### Package: SMPD

- Isolation Voltage: 3000 V~ ( $t = 1\text{ s}$ )
- Industry convenient outline
- RoHS compliant
- Soldering pins for PCB mounting
- Backside: DCB ceramic
- Reduced weight
- Advanced power cycling

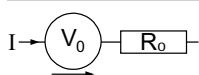
Schottky				Ratings		
Symbol	Definitions	Conditions	min.	typ.	max.	
$V_{RSM}$	max. non-repetitive rev. blocking voltage	$T_{VJ} = 25^{\circ}C$			150	V
$V_{RRM}$	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}C$			150	V
$I_R$	reverse current, drain current	$V_R = 150 V$			1 5	mA mA
$V_F$	forward voltage drop	$I_F = 60 A$	$T_{VJ} = 25^{\circ}C$		0.93	V
		$I_F = 120 A$	$T_{VJ} = 25^{\circ}C$		1.13	V
		$I_F = 60 A$	$T_{VJ} = 150^{\circ}C$		0.74	V
		$I_F = 120 A$	$T_{VJ} = 150^{\circ}C$		0.95	V
$I_{FAV}$	average forward current	rectangular; $d = 0.5$	$T_C = 135^{\circ}C$		75	A
$V_{F0}$	threshold voltage	} for power loss calculation only	$T_{VJ} = 175^{\circ}C$		0.51	V
$r_F$	slope resistance				1.3	m $\Omega$
$R_{thJC}$	thermal resistance junction to case				0.8	K/W
$R_{thJH}$	thermal resistance case to heatsink	with thermal transfer paste (IXYS test setup)		1.05	0.25	K/W
$P_{tot}$	total power dissipation		$T_C = 25^{\circ}C$		185	W
$I_{FSM}$	max. forward surge current	$t = 10 ms$ ; (50 Hz), sine; $V_R = 0 V$	$T_{VJ} = 45^{\circ}C$		700	A
$C_J$		$V_R = 24 V$ ; $f = 1 MHz$	$T_{VJ} = 25^{\circ}C$		480	pF

Package SMPD				Ratings		
Symbol	Definitions	Conditions	min.	typ.	max.	
$I_{RMS}$	RMS current	wide pin standard pin			100 60	A A
$T_{stg}$	storage temperature		-55		150	°C
$T_{op}$	operation temperature		-55		150	°C
$T_{vJ}$	virtual junction temperature		-55		175	°C
<b>Weight</b>					8.5	g
$F_C$	mounting force with clip		40		130	N
$d_{Spp/App}$	creepage distance on surface /	terminal to terminal	1.6			mm
$d_{Spb/Apb}$	striking distance through air	terminal to backside	4.0			mm
$V_{ISOL}$	isolation voltage	$t = 1$ second $t = 1$ minute		3000 2500		V V
						50/60 Hz; RMS; $I_{ISOL} < 1$ mA


**Part number**

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

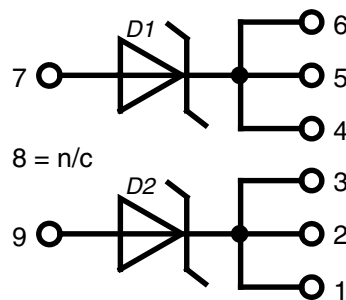
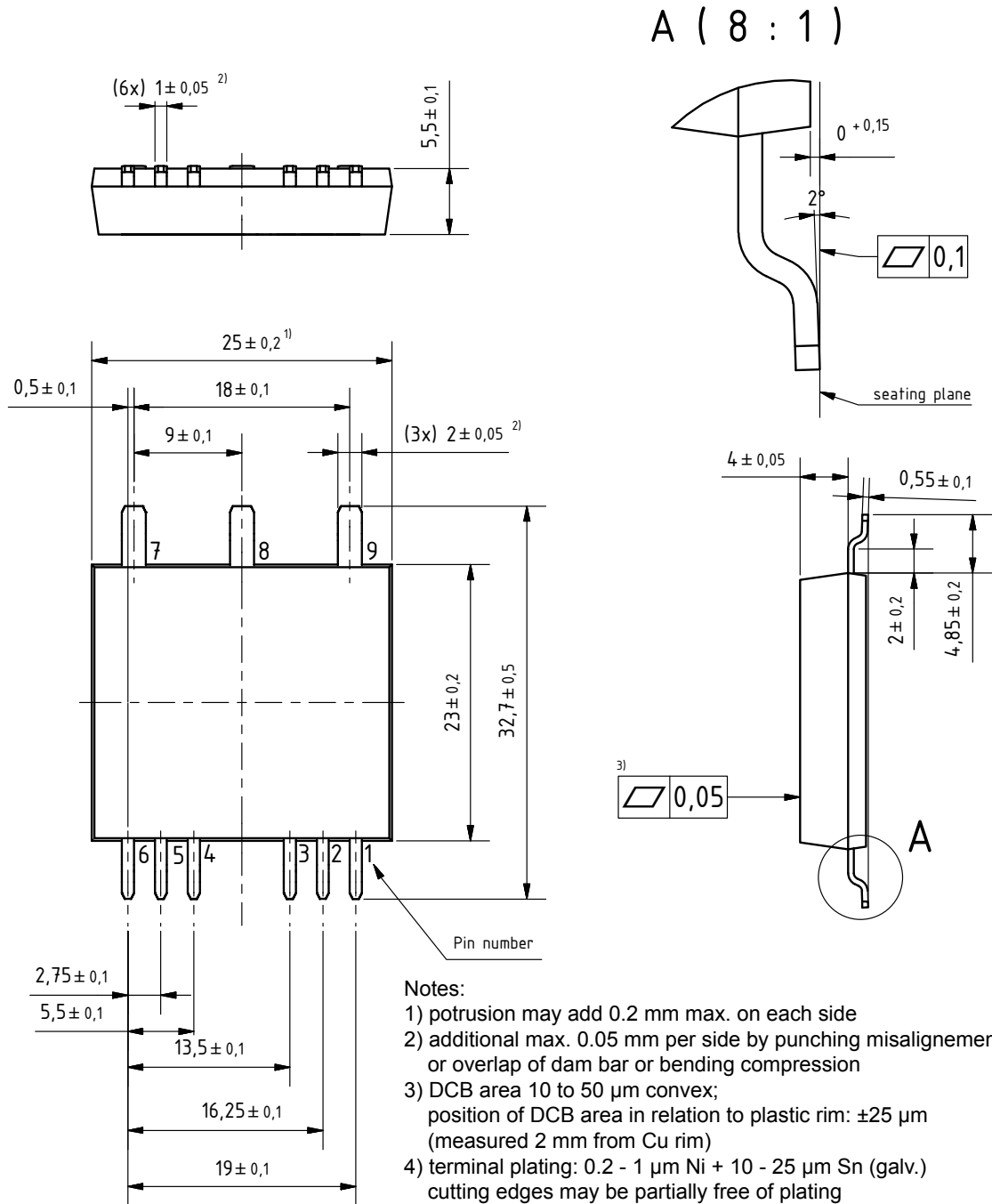
Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Ordering Code
Standard	DSA120X150LB-TRR	DSA120X150LB-TRR	Tape&Reel	200	510493
	DSA120X150LB	DSA120X150LB	Blister	45	510238

**Equivalent Circuits for Simulation** \*on die level  $T_{vJ} = 175^\circ\text{C}$ 


Schottky

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

## Outlines SMPD



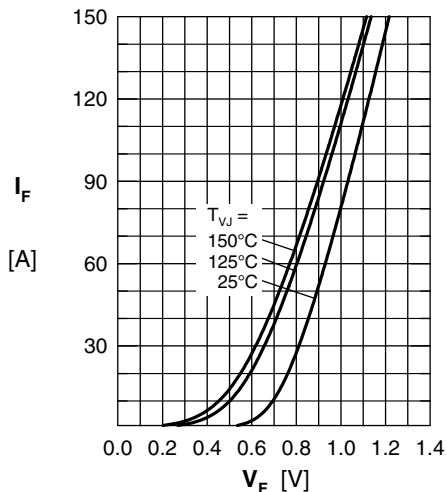


Fig. 1 Maximum forward voltage drop characteristics

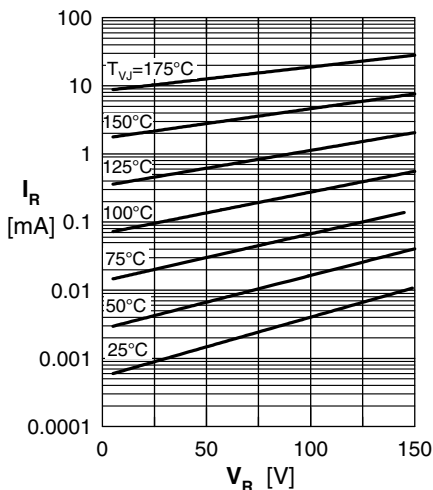


Fig. 2 Typ. reverse current  $I_R$  vs. reverse voltage  $V_R$

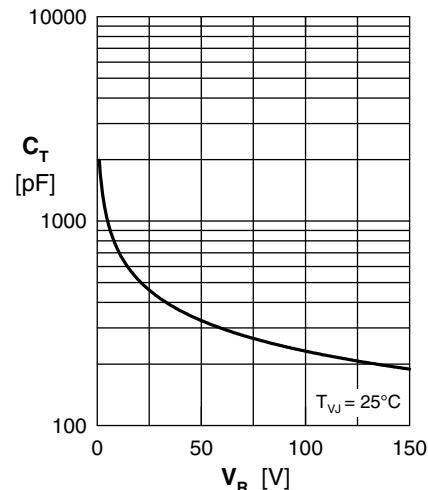


Fig. 3 Typ. junction capacitance  $C_T$  vs. reverse voltage  $V_R$

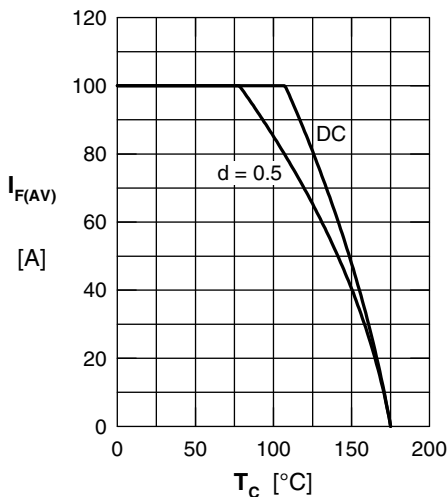


Fig. 4 Average forward current  $I_{F(AV)}$  vs. case temperature  $T_C$

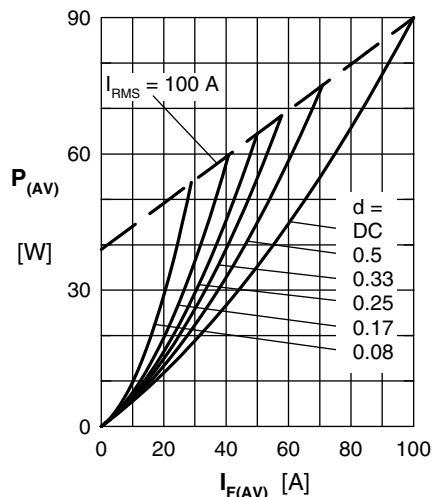


Fig. 5 Forward power loss @  $T_J = 175^\circ\text{C}$

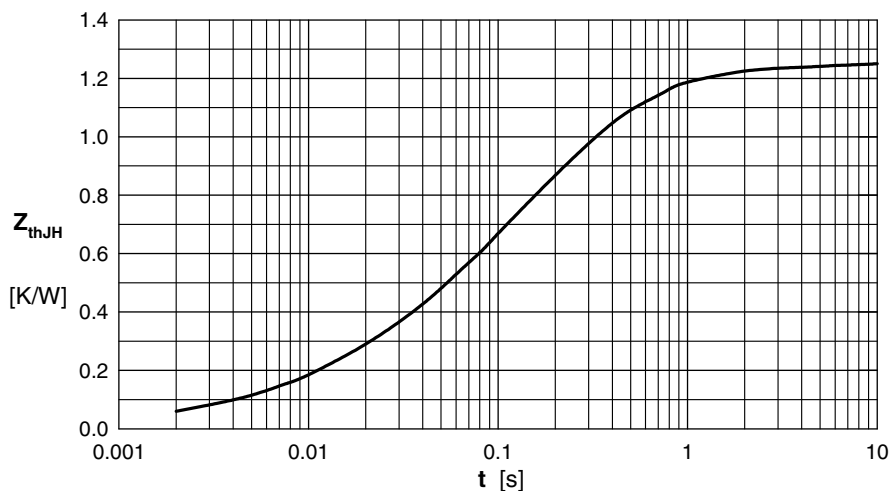


Fig. 6 Transient thermal impedance junction

Note: All curves are per diode

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