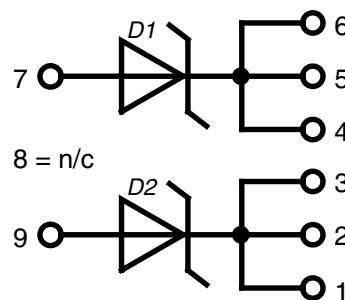
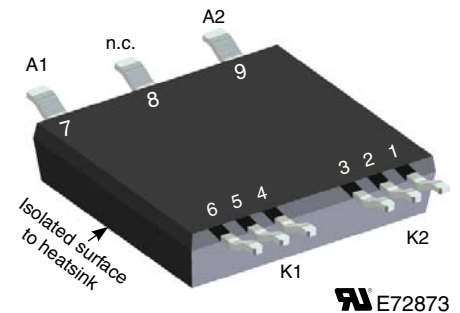


Schottky Diode Gen²

High Performance Schottky Diode
Low Loss and Soft Recovery
Parallel Legs

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

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:

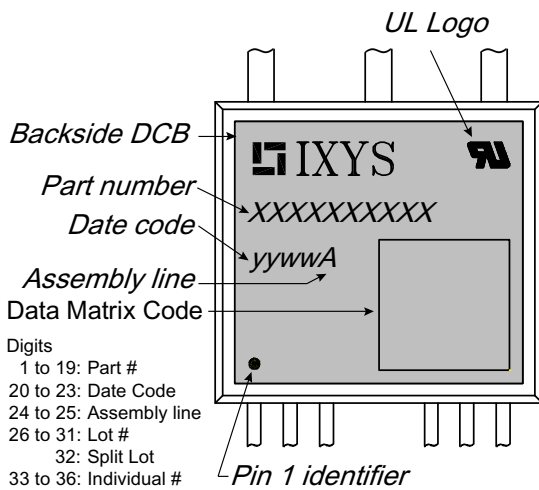
- Rectifiers in switch mode power supplies (SMPS)
- Free wheeling diode in low voltage converters

Package: SMPD

- Isolation Voltage: 3000 V~ ($t = 1s$)
- 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	$T_{VJ} = 25^{\circ}\text{C}$				150	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				150	V
I_R	reverse current, drain current	$V_R = 150\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$			1 5	mA 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
		$I_F = 60\text{ A}$	$T_{VJ} = 150^{\circ}\text{C}$			0.74	V
		$I_F = 120\text{ A}$				0.95	V
I_{FAV}	average forward current	rectangular; $d = 0.5$	$T_C = 135^{\circ}\text{C}$			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	m Ω
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	$T_C = 25^{\circ}\text{C}$				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		$V_R = 24\text{ V}; f = 1\text{ MHz}$	$T_{VJ} = 25^{\circ}\text{C}$		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
Weight				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

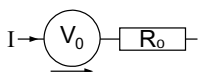
D = Diode
S = Schottky Diode
A = low V_F
120 = Current Rating [A]
X = Parallel legs
150 = Reverse Voltage [V]
LB = SMPD-B

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

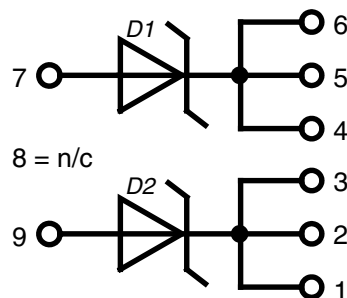
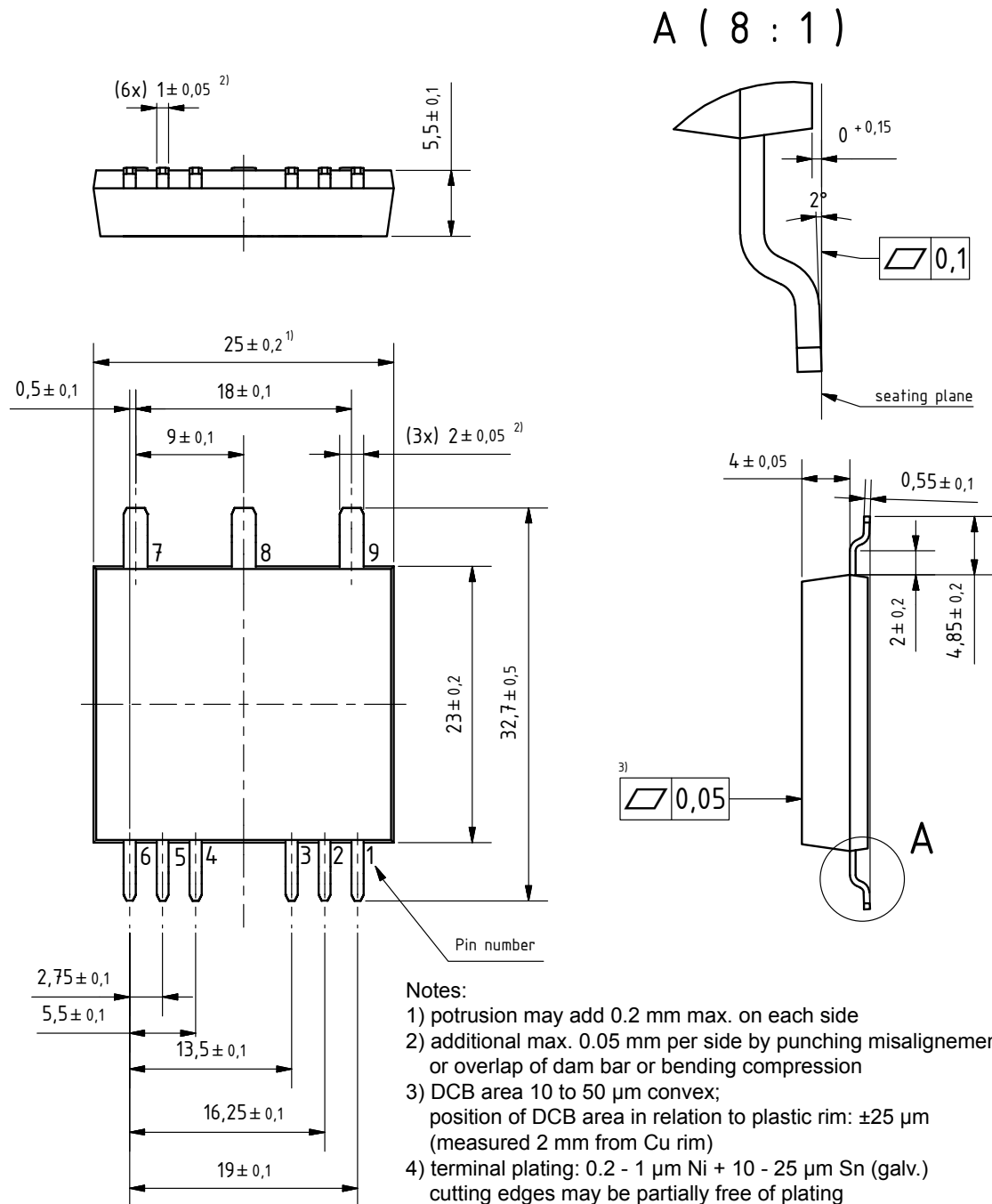
$T_{VJ} = 175^\circ\text{C}$



Schottky

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

Outlines SMPD



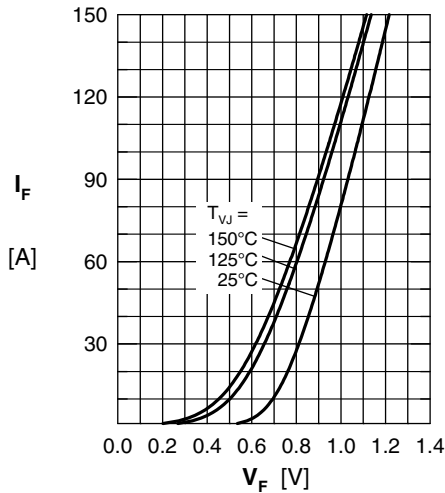


Fig. 1 Maximum forward voltage drop characteristics

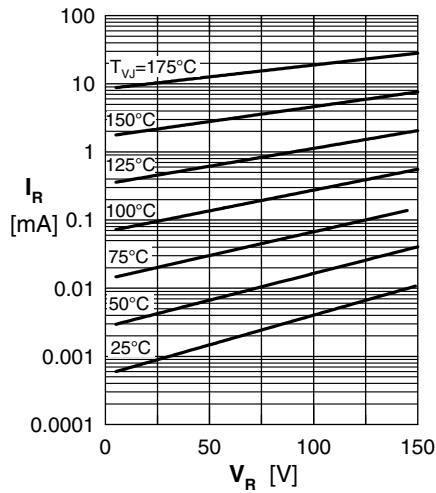


Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

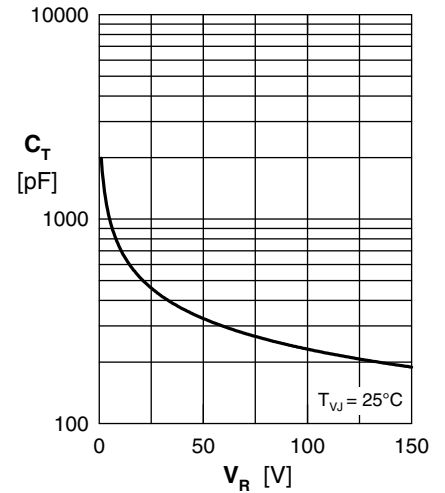


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

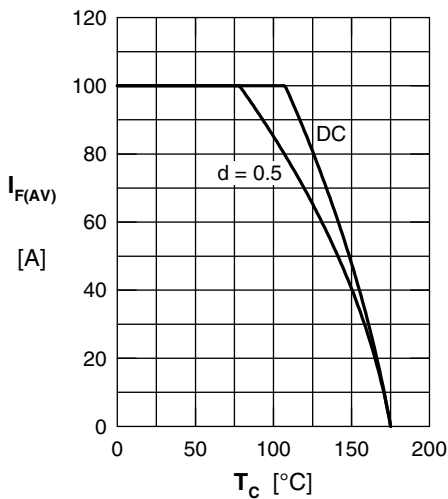


Fig. 4 Average forward current $I_{F(AV)}$ vs. case temperature T_C

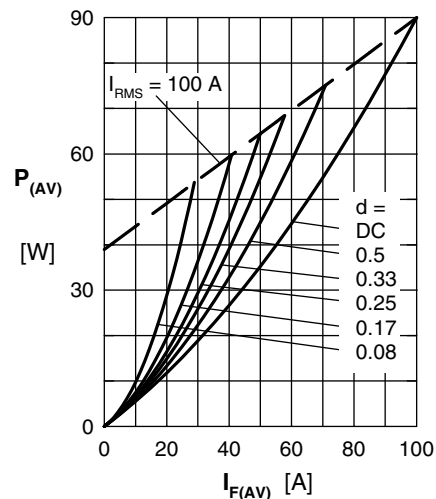


Fig. 5 Forward power loss @ $T_J = 175^\circ\text{C}$

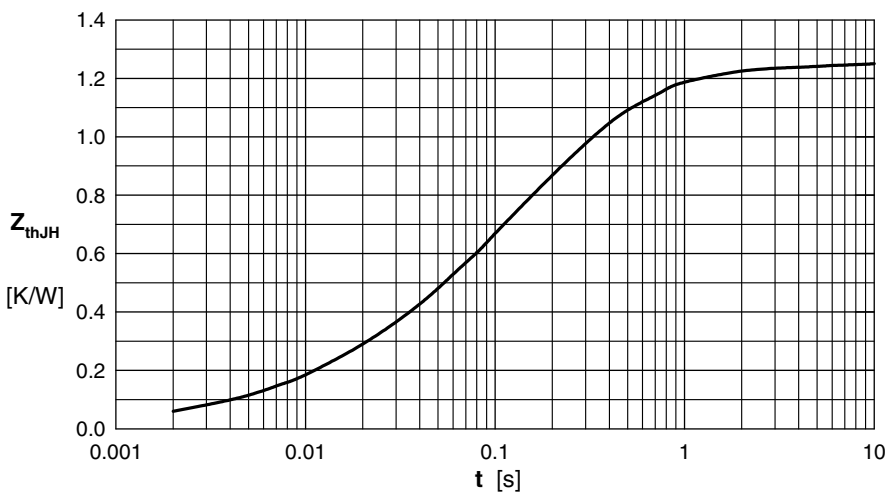


Fig. 6 Transient thermal impedance junction

Note: All curves are per diode

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