Product data sheet

1. Product profile

1.1 General description

Planar PIN diode in a SOD882D leadless ultra small plastic SMD package.

1.2 Features and benefits

- Low diode capacitance
- Low diode forward resistance
- For applications up to 3 GHz

1.3 Applications

General RF applications

2. Pinning information

Table 1. Discrete pinning

Pin	Description	Simplified outline Symbol
1	cathode	[1]
2	anode	
		Transparent sym006 top view

^[1] The marking bar indicates the cathode.

3. Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
BAP50LX	DFN1006D-2	leadless ultra small plastic package; 2 terminals; body 1 \times 0.6 \times 0.4 mm	SOD882D



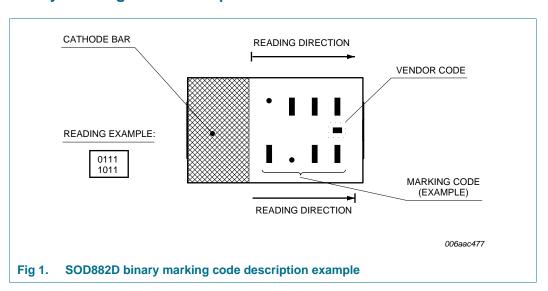
4. Marking

Table 3. Marking codes

Type number	Marking code ^[1]
BAP50LX	1001
	0011

^[1] For SOD882D binary marking code description, see Figure 1.

4.1 Binary marking code description



5. Limiting values

Table 4. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

		0 , ,	,		
Symbol	Parameter	Conditions	Min	Max	Unit
V_R	reverse voltage	continuous	-	50	V
I _F	forward current	continuous	-	50	mA
P _{tot}	total power dissipation	T _{sp} = 90 °C	-	150	mW
T _{stg}	storage temperature		-65	+150	°C
Tj	junction temperature		-65	+150	°C

6. Thermal characteristics

Table 5. Thermal characteristics

Symbol	Parameter	Conditions	Тур	Unit
$R_{th(j-sp)}$	thermal resistance from junction to solder point		53	K/W

7. Characteristics

Table 6. Characteristics

 $T_{amb} = 25$ °C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
V_{F}	forward voltage	$I_F = 50 \text{ mA}$	-	0.95	1.1	V
V_R	reverse voltage	$I_R = 10 \mu A$	50	-	-	V
I_R	reverse current	$V_{R} = 50 \text{ V}$	-	-	100	nA
C_d	diode capacitance	see Figure 2; f = 1 MHz;				
		$V_R = 0 V$	-	0.40	-	pF
		$V_R = 1 V$	-	0.28	0.55	pF
		$V_R = 5 V$	-	0.19	0.35	pF
r_D	diode forward resistance	see Figure 3; f = 100 MHz;				
		$I_F = 0.5 \text{ mA}$	-	26	40	Ω
		$I_F = 1 \text{ mA}$	-	14	25	Ω
		$I_F = 10 \text{ mA}$	-	3	5	Ω
ISL	isolation	see Figure 4; $V_R = 0 V$;				
		f = 900 MHz	-	20.3	-	dB
		f = 1800 MHz	-	17.9	-	dB
		f = 2450 MHz	-	16.5	-	dB
L _{ins}	insertion loss	see Figure 5; $I_F = 0.5 \text{ mA}$;				
		f = 900 MHz	-	1.82	-	dB
		f = 1800 MHz	-	1.80	-	dB
		f = 2450 MHz	-	1.81	-	dB
L _{ins}	insertion loss	see Figure 5; I _F = 1 mA;				
		f = 900 MHz	-	1.07	-	dB
		f = 1800 MHz	-	1.06	-	dB
		f = 2450 MHz	-	1.08	-	dB
L _{ins}	insertion loss	see Figure 5; $I_F = 10 \text{ mA}$;				
		f = 900 MHz	-	0.25	-	dB
		f = 1800 MHz	-	0.26	-	dB
		f = 2450 MHz	-	0.27	-	dB
τ∟	charge carrier life time	when switched from I _F = 10 mA to I _R = 6 mA; R _L = 100 Ω ; measured at I _R = 3 mA	-	1.0	-	μЅ
L _S	series inductance	I _F = 100 mA; f = 100 MHz	-	0.4	-	nΗ

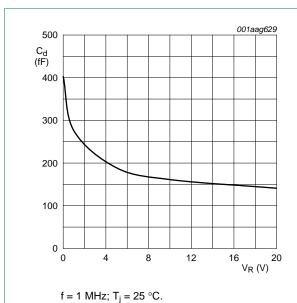
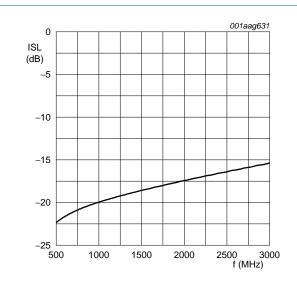


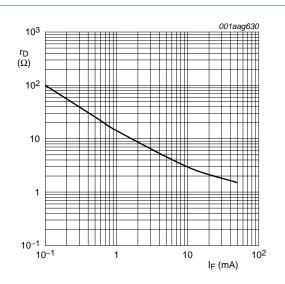
Fig 2. Diode capacitance as a function of reverse voltage; typical values



T_{amb} = 25 °C

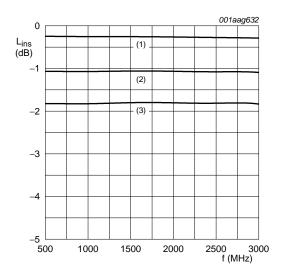
Diode zero biased and inserted in series with a 50 Ω stripline circuit.





f = 100 MHz; $T_i = 25 \,^{\circ}\text{C}$.

Fig 3. Forward resistance as a function of forward current; typical values



T_{amb} = 25 °C

- (1) $I_F = 10 \text{ mA}$
- (2) $I_F = 1 \text{ mA}$
- (3) $I_F = 0.5 \text{ mA}$

Diode inserted in series with a 50 Ω stripline circuit and biased via the analyzer Tee network.

Fig 5. Insertion loss of the diode as a function of frequency; typical values

8. Package outline

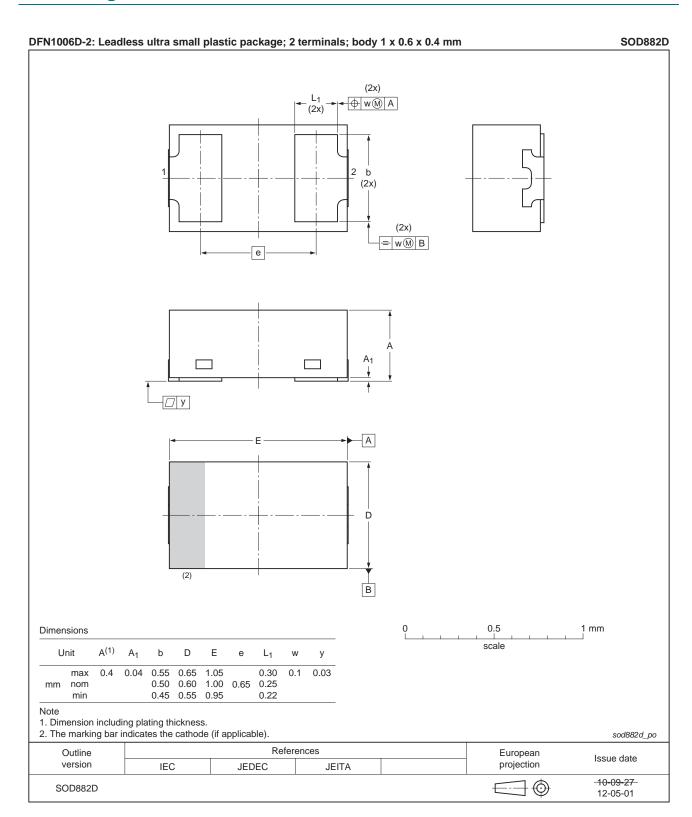


Fig 6. Package outline SOD882D (DFN1006D-2)

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9. Abbreviations

Table 7. Abbreviations

Acronym	Description
PIN	P-type, Intrinsic, N-type
SMD	Surface Mounted Device
RF	Radio Frequency

10. Revision history

Table 8. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes		
BAP50LX v.2	20130807	Product data sheet	-	BAP50LX v.1		
Modifications:	 <u>Section 1.1 on page 1</u>: Changed package to SOD882D Table 1 on page 1: Changed simplified outline to SOD882D 					
	Table 2 on page 1: Changed package to SOD882D					
		<u>n page 2</u> : Update 'Marking' <mark>n page 5</mark> : Changed packag				
BAP50LX v.1	20070717	Product data sheet	-	-		

11. Legal information

11.1 Data sheet status

Document status[1][2]	Product status[3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions"
- [3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

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