

BAP50LX

Silicon PIN diode

Rev. 01 — 17 July 2007

Product data sheet

1. Product profile

1.1 General description

General purpose PIN diode in a SOD882T leadless ultra small plastic SMD package.

1.2 Features


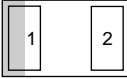
- Low diode capacitance
- Low diode forward resistance
- For applications up to 3 GHz

1.3 Applications

- General RF applications

2. Pinning information

Table 1. Discrete pinning

Pin	Description	Simplified outline	Symbol
1	cathode	[1]	 <i>sym006</i>
2	anode	 Transparent top view	

[1] The marking bar indicates the cathode.

3. Ordering information

Table 2. Ordering information

Type number	Package		Version
	Name	Description	
BAP50LX	-	leadless ultra small plastic package; 2 terminals; body 1.0 × 0.6 × 0.4 mm	SOD882T

4. Marking

Table 3. Marking

Type number	Marking code
BAP50LX	LB

5. Limiting values

Table 4. Limiting values

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

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	$T_{sp} = 90\text{ °C}$	-	150	mW
T_{stg}	storage temperature		-65	+150	°C
T_j	junction temperature		-65	+150	°C

6. Thermal characteristics

Table 5. Thermal characteristics

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

7. Characteristics

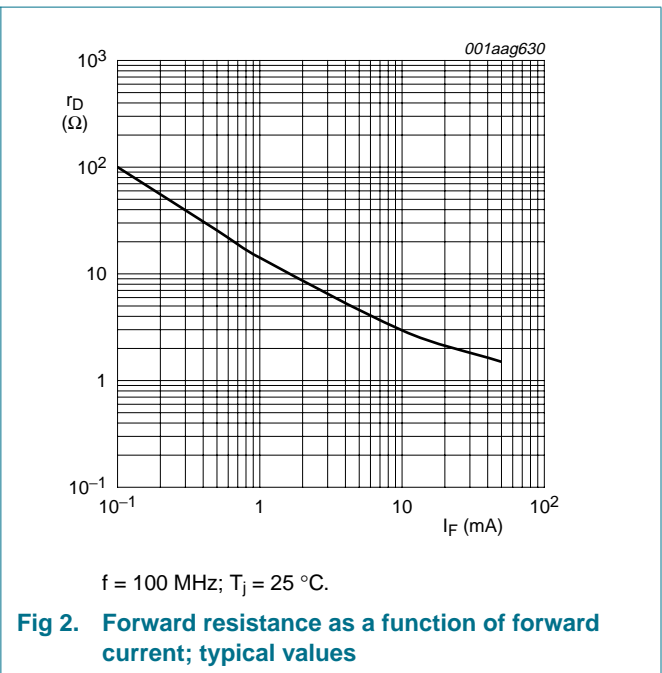
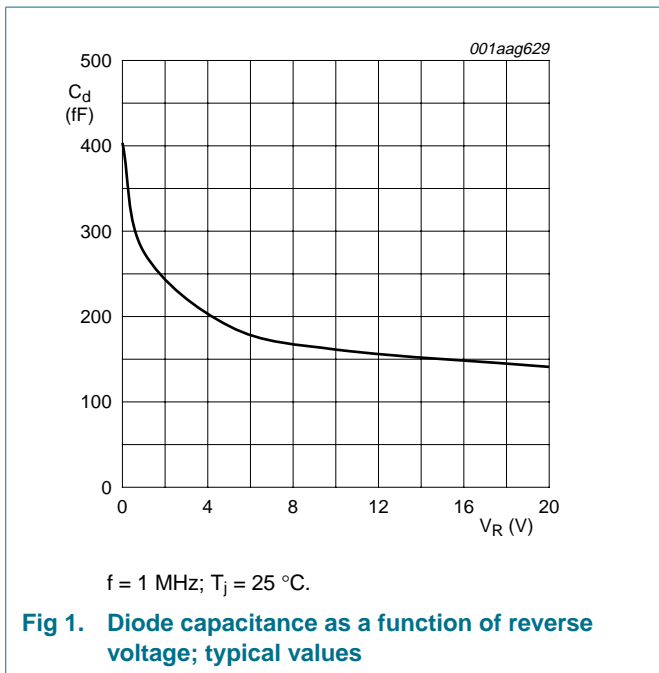
Table 6. Characteristics

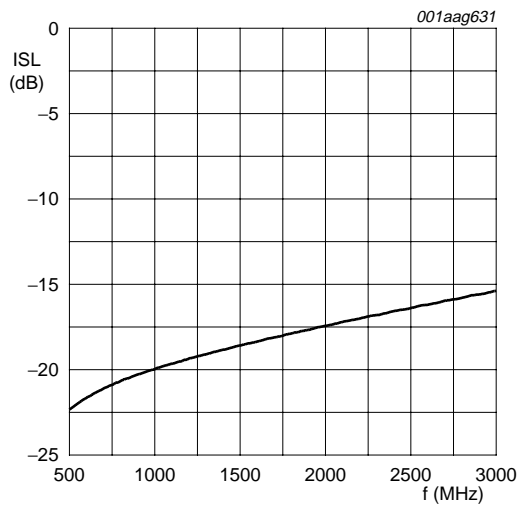
$T_{amb} = 25\text{ °C}$ unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 50\text{ mA}$	-	0.95	1.1	V
V_R	reverse voltage	$I_R = 10\text{ }\mu\text{A}$	50	-	-	V
I_R	reverse current	$V_R = 50\text{ V}$	-	-	100	nA
C_d	diode capacitance	see Figure 1 ; $f = 1\text{ MHz}$;				
		$V_R = 0\text{ V}$	-	0.40	-	pF
		$V_R = 1\text{ V}$	-	0.28	0.55	pF
		$V_R = 5\text{ V}$	-	0.19	0.35	pF
r_D	diode forward resistance	see Figure 2 ; $f = 100\text{ MHz}$;				
		$I_F = 0.5\text{ mA}$	-	26	40	Ω
		$I_F = 1\text{ mA}$	-	14	25	Ω
		$I_F = 10\text{ mA}$	-	3	5	Ω
ISL	isolation	see Figure 3 ; $V_R = 0\text{ V}$;				
		$f = 900\text{ MHz}$	-	20.3	-	dB
		$f = 1800\text{ MHz}$	-	17.9	-	dB
		$f = 2450\text{ MHz}$	-	16.5	-	dB

Table 6. Characteristics ...continued
 $T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

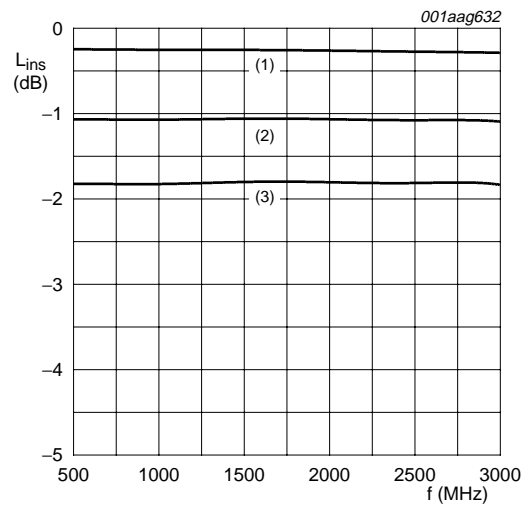
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
L_{ins}	insertion loss	see Figure 4 ; $I_F = 0.5\text{ mA}$;				
		$f = 900\text{ MHz}$	-	1.82	-	dB
		$f = 1800\text{ MHz}$	-	1.80	-	dB
L_{ins}	insertion loss	see Figure 4 ; $I_F = 1\text{ mA}$;				
		$f = 900\text{ MHz}$	-	1.07	-	dB
		$f = 1800\text{ MHz}$	-	1.06	-	dB
L_{ins}	insertion loss	see Figure 4 ; $I_F = 10\text{ mA}$;				
		$f = 900\text{ MHz}$	-	0.25	-	dB
		$f = 1800\text{ MHz}$	-	0.26	-	dB
τ_L	charge carrier life time	when switched from $I_F = 10\text{ mA}$ to $I_R = 6\text{ mA}$; $R_L = 100\text{ }\Omega$; measured at $I_R = 3\text{ mA}$	-	1.0	-	μs
		$f = 900\text{ MHz}$	-	0.25	-	dB
		$f = 1800\text{ MHz}$	-	0.26	-	dB
L_S	series inductance	$I_F = 100\text{ mA}$; $f = 100\text{ MHz}$	-	0.4	-	nH





$T_{amb} = 25\text{ }^{\circ}\text{C}$
 Diode zero biased and inserted in series with a 50 Ω stripline circuit.

Fig 3. Isolation of the diode in off-state as a function of frequency; typical values



$T_{amb} = 25\text{ }^{\circ}\text{C}$
 (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 4. Insertion loss of the diode as a function of frequency; typical values

8. Package outline

Leadless ultra small plastic package; 2 terminals; body 1 x 0.6 x 0.4 mm

SOD882T

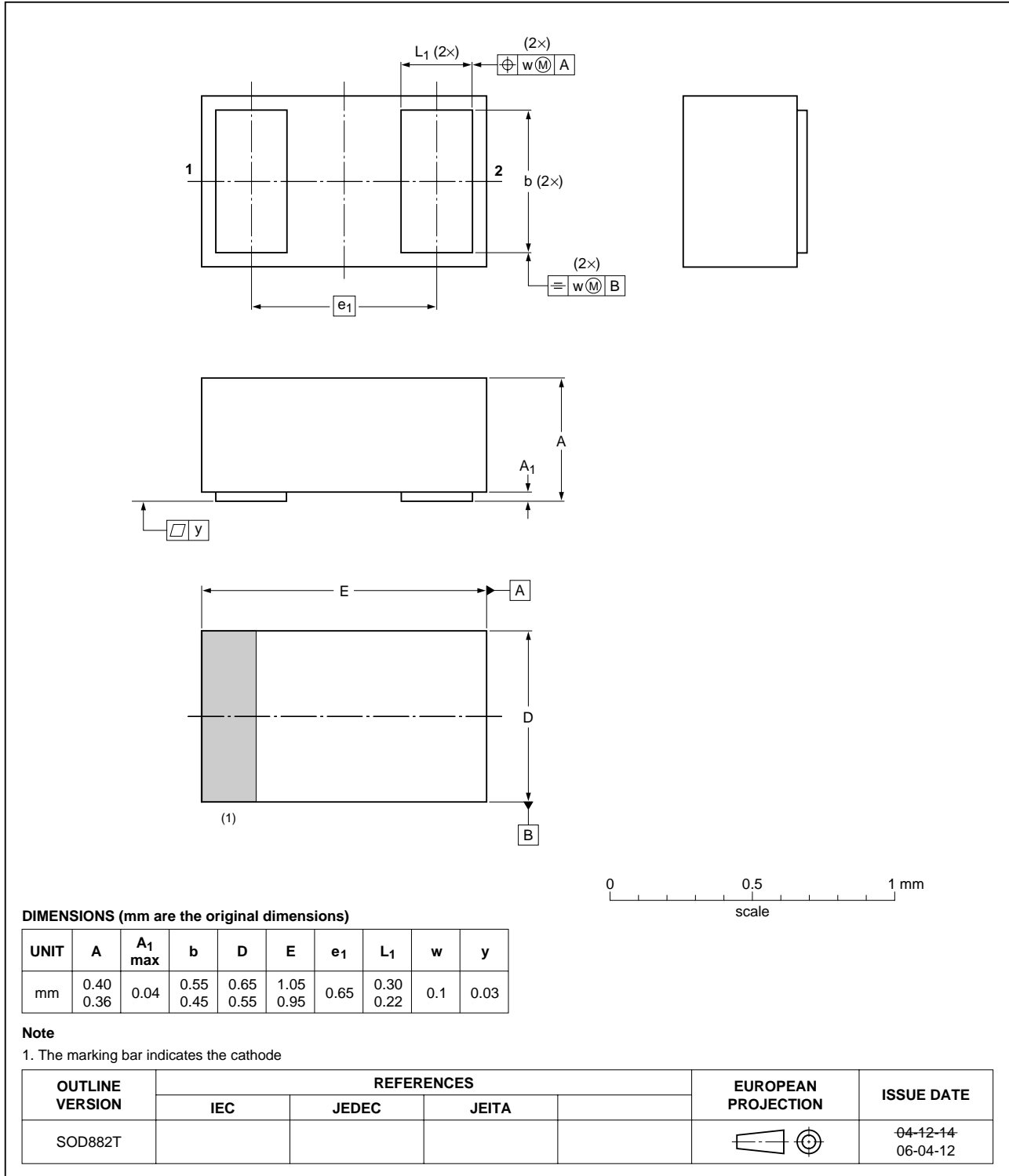


Fig 5. Package outline SOD882T

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_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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