



BBY42

VHF variable capacitance diode

Rev. 02 — 1 October 2004

Product data sheet

1. Product profile

1.1 General description

The BBY42 is a variable capacitance diode, fabricated in planar technology, and encapsulated in the SOT23 small plastic SMD package.

1.2 Features

- Excellent linearity
- Small plastic SMD package
- $C_{d(28\text{ V})}$: 2.7 pF; ratio: 14.

1.3 Applications

- Electronic tuning in VHF television tuners, band B up to 460 MHz
- VCO.

2. Pinning information

Table 1: Discrete pinning

Pin	Description	Simplified outline	Symbol
1	anode	 SOT23	 sym047
2	n.c.		
3	cathode		

3. Ordering information

Table 2: Ordering information

Type number	Package		
	Name	Description	Version
BBY42	-	plastic surface mounted package; 3 leads	SOT23

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4. Marking

Table 3: Marking table

Type number	Marking code
BBY42	19* [1]

[1] * = p: Made in Hong Kong.
 * = t: Made in Malaysia.
 * = W: Made in China.

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	continuous reverse voltage		-	30	V
I_F	continuous forward current		-	20	mA
T_{stg}	storage temperature		-55	+150	°C
T_j	operating junction temperature		-55	+125	°C

6. Characteristics

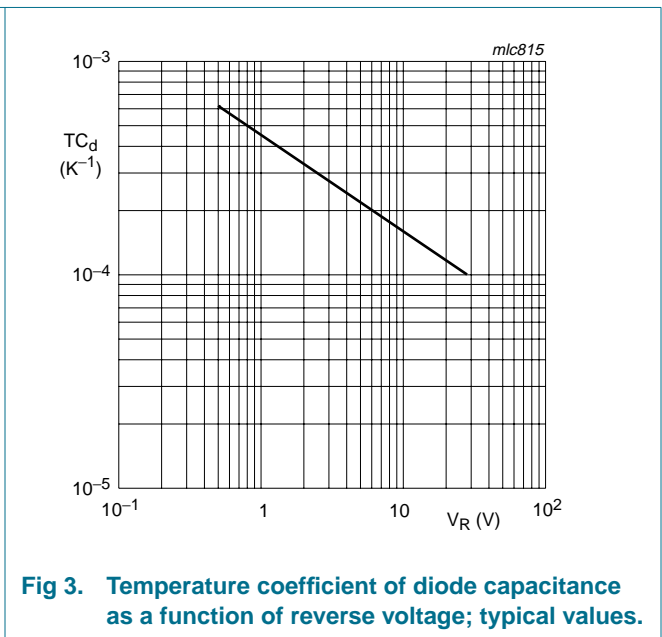
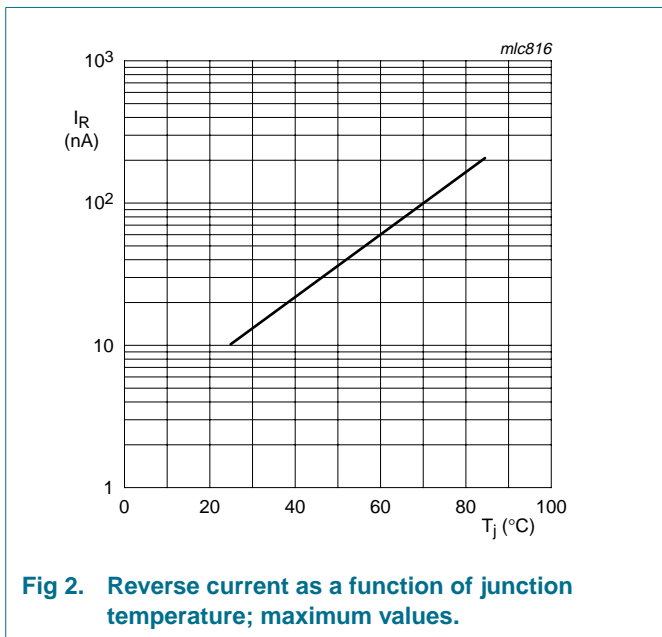
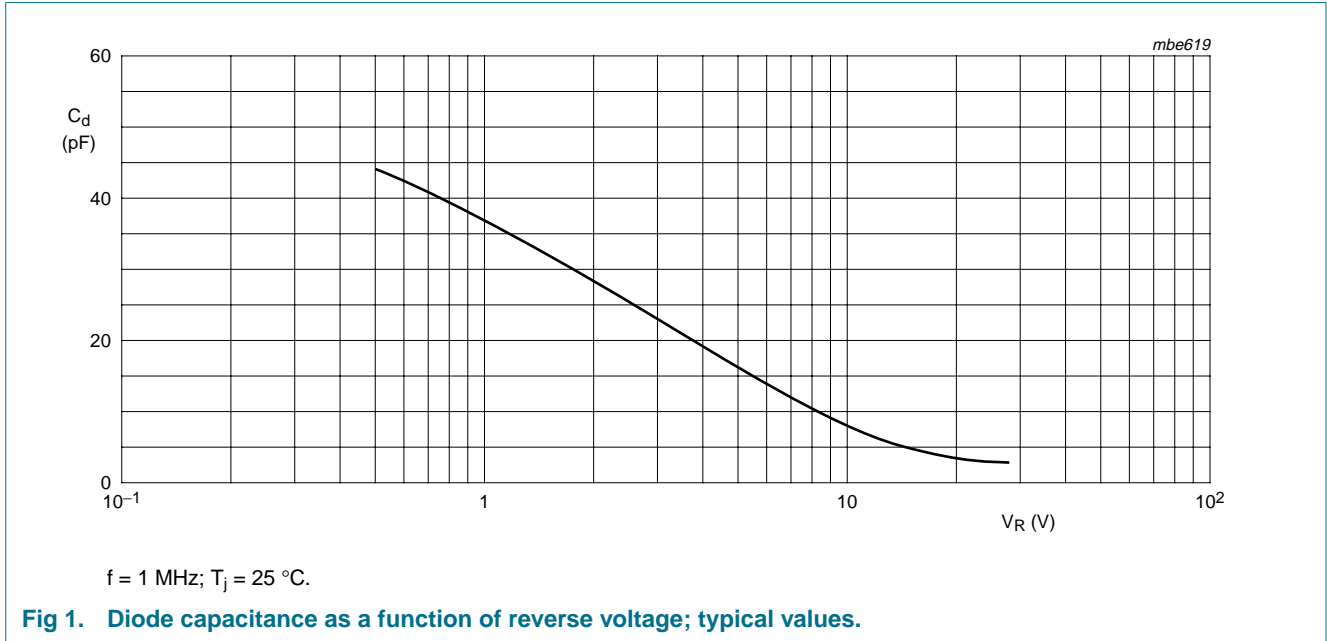
Table 5: Characteristics

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_R	reverse current	see Figure 2				
		$V_R = 28\text{ V}$	-	-	10	nA
		$V_R = 28\text{ V}; T_j = 85\text{ °C}$	-	-	200	nA
r_s	diode series resistance	$f = 100\text{ MHz}$	[1]	-	1	Ω
C_d	diode capacitance	see Figure 1 and 3				
		$V_R = 1\text{ V}; f = 1\text{ MHz}$	31	-	-	pF
		$V_R = 3\text{ V}; f = 1\text{ MHz}$	-	24	-	pF
		$V_R = 28\text{ V}; f = 1\text{ MHz}$	2.4	2.7	3	pF
$\frac{C_{d(1V)}}{C_{d(28V)}}$	capacitance ratio	$f = 1\text{ MHz}$	12	14	16	

[1] V_R is the value at which $C_d = 30\text{ pF}$.

7. Graphical data



8. Package outline

Plastic surface mounted package; 3 leads

SOT23

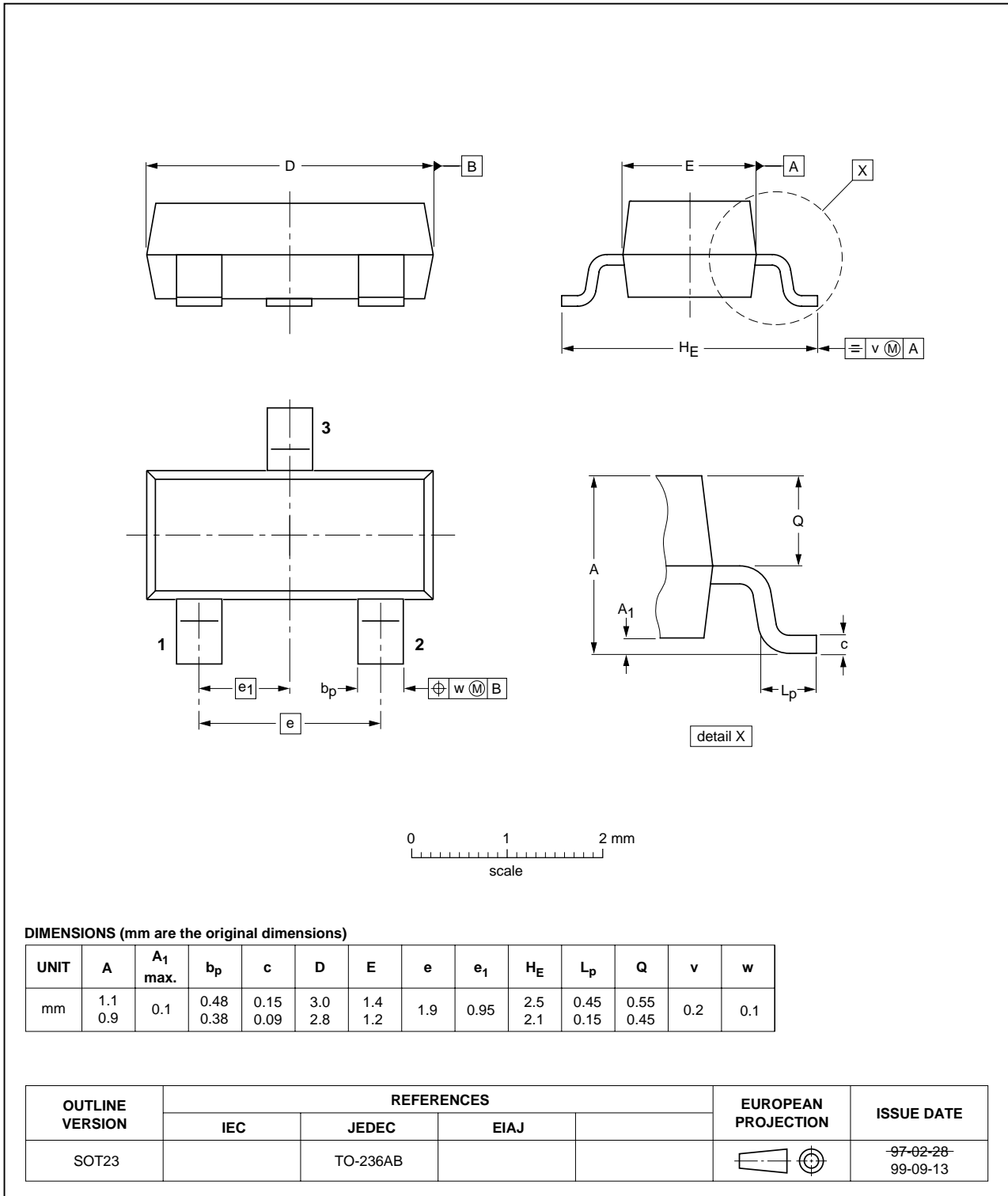


Fig 4. Package outline.

9. Revision history

Table 6: Revision history

Document ID	Release date	Data sheet status	Change notice	Order number	Supersedes
BBY42_2	20041001	Product data sheet	-	9397 750 13388	BBY42_1
Modifications:	<ul style="list-style-type: none">• Converted to TDM format.• Adding Ordering information and Marking.				
BBY42_1	19960503	Product Specification	-	-	-

10. Data sheet status

Level	Data sheet status ^[1]	Product status ^[2] ^[3]	Definition
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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[3] For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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