BB207

FM variable capacitance double diode

Rev. 3 — 7 September 2011 Product data sheet

1. Product profile

1.1 General description

The BB207 is a variable capacitance double diode with a common cathode, fabricated in silicon planar technology, and encapsulated in the SOT23 small plastic SMD package.

1.2 Features and benefits

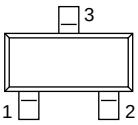
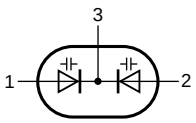
- Excellent linearity
- $C_{d(1V)}$: 81 pF; $C_{d(7.5V)}$: 27.6 pF
- $C_{d(1V)}$ to $C_{d(7.5V)}$ ratio: min. 2.6
- Very low series resistance
- Small plastic SMD package.

1.3 Applications

- Electronic tuning in FM-radio.

2. Pinning information

Table 1. Discrete pinning

Pin	Description	Simplified outline	Symbol
1	anode 1		
2	anode 2		
3	common cathode		

sym032

3. Ordering information

Table 2. Ordering information

Type number	Package		
	Name	Description	Version
BB207	-	plastic surface mounted package; 3 leads	SOT23

4. Marking

Table 3. Marking

Type number	Marking code[1]
BB207	*13

[1] * = p: made in Hong Kong.
* = w: made in China.

5. Limiting values

Table 4. Limiting values

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

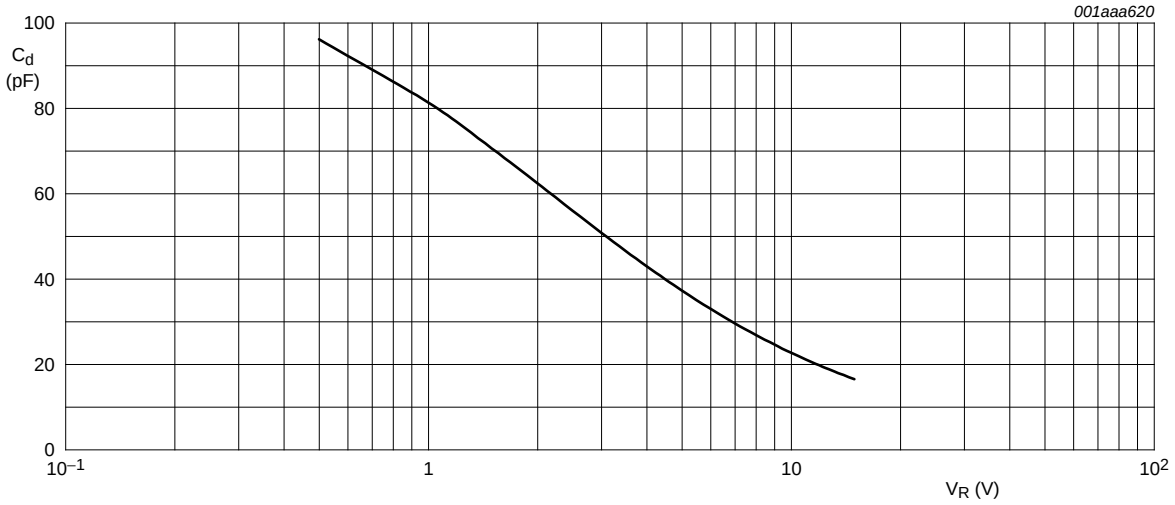
Symbol	Parameter	Conditions	Min	Max	Unit
Per diode					
V_R	continuous reverse voltage		-	15	V
I_F	continuous forward current		-	20	mA
T_{stg}	storage temperature		–55	+150	°C
T_j	junction temperature		–55	+125	°C

6. Characteristics

Table 5. Electrical Characteristics

T_j = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per diode						
I_R	reverse current	V_R = 15 V; see Figure 2	–	–	10	nA
		V_R = 15 V; T_j = 85 °C; see Figure 2	–	–	200	nA
r_s	diode series resistance	f = 100 MHz; V_R = 3 V	–	0.2	0.4	Ω
C_d	diode capacitance	V_R = 1 V; f = 1 MHz; see Figure 1	76	81	86	pF
		V_R = 3 V; f = 1 MHz; see Figure 1	–	50.5	–	pF
		V_R = 7.5 V; f = 1 MHz; see Figure 1	25.5	27.6	29.7	pF
		V_R = 8 V; f = 1 MHz; see Figure 1	–	26.3	–	pF
$\frac{C_{d(1V)}}{C_{d(7.5V)}}$	capacitance ratio	f = 1 MHz	2.6	–	3.3	



f = 1 MHz; T_j = 25 °C.

Fig 1. Diode capacitance as a function of reverse voltage; typical values.

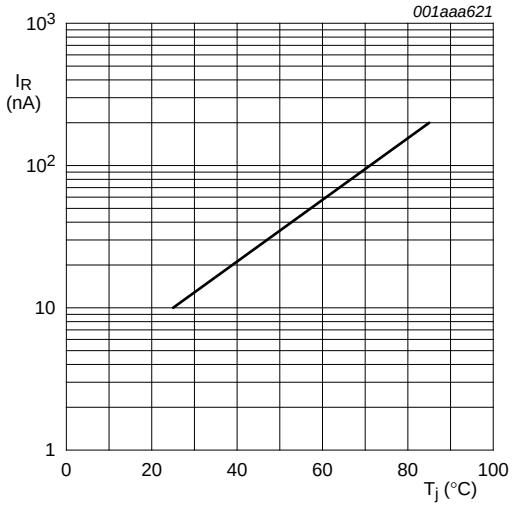


Fig 2. Reverse current as a function of junction temperature; maximum values.

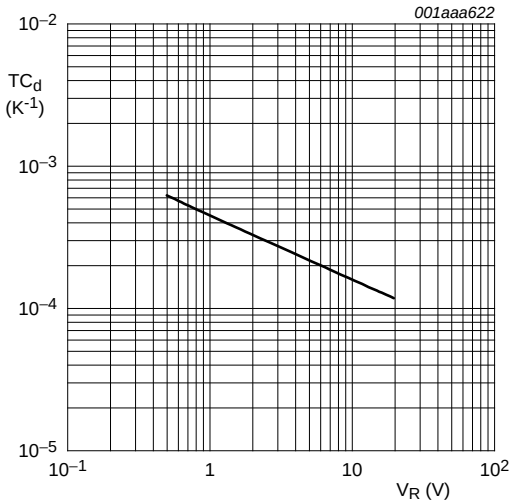
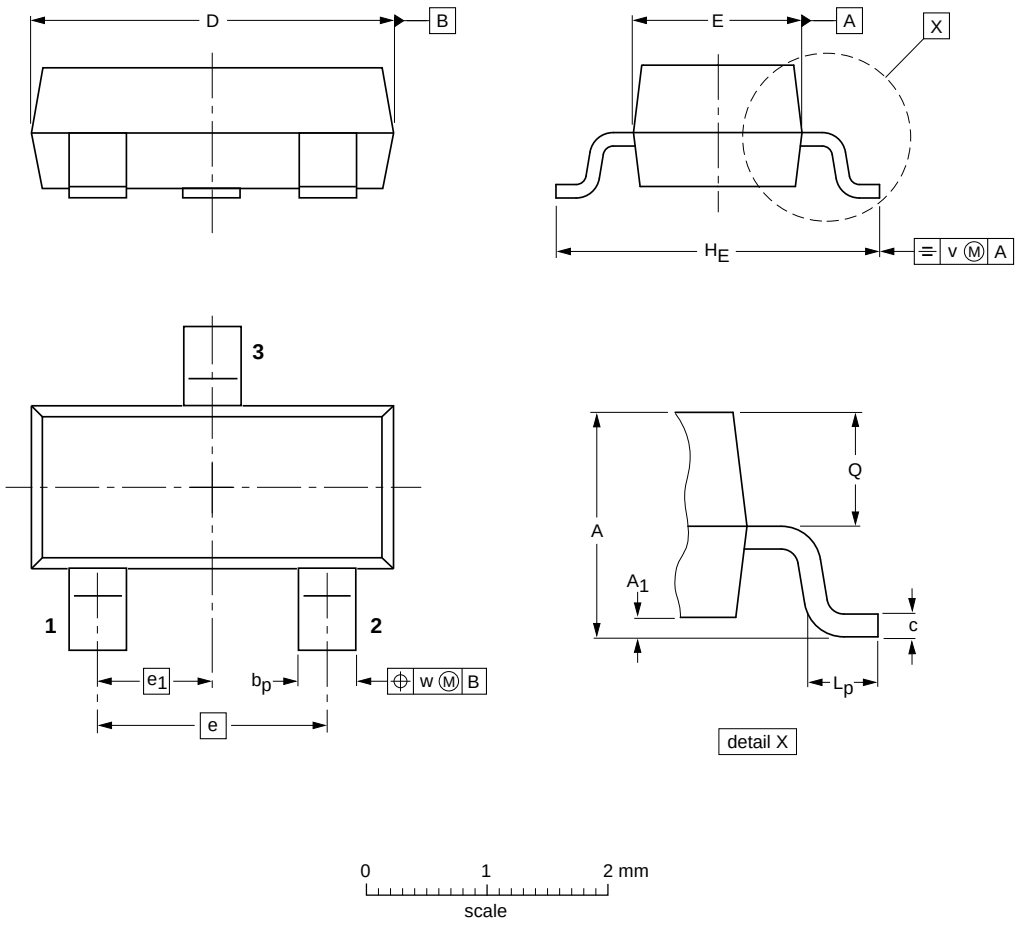


Fig 3. Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.

7. Package outline

Plastic surface-mounted package; 3 leads **SOT23**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max.	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT23		TO-236AB				~~04-11-04~~ 06-03-16

Fig 4. Package outline.

8. Revision history

Table 6. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BB207 v.3	20110907	Product data sheet	-	BB207 v.2
Modifications:	• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. • Legal texts have been adapted to the new company name where appropriate. • Package outline drawings have been updated to the latest version.			
BB207 v.2 (9397 750 13003)	20040427	Product data	-	BB207_N v.1
BB207_N v.1 (9397 750 12695)	20031117	Preliminary data	-	-

9. Legal information

9.1 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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