

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

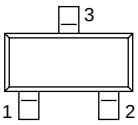
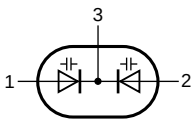
- Excellent linearity
- $C_{d(1V)}$: 81 pF; $C_{d(7.5V)}$: 27.6 pF
- $C_{d(1V)}$ to $C_{d(7.5V)}$ ratio: min. 2.6
- Very low series resistance
- Small plastic SMD package.

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

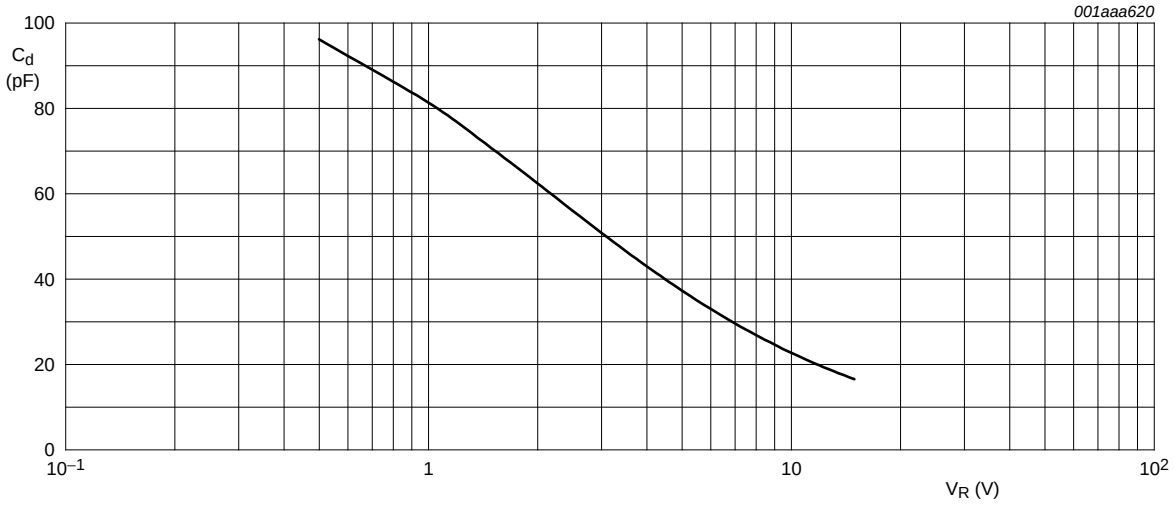
Table 5. Electrical Characteristics

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	

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f = 1 MHz; T_j = 25 °C.

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

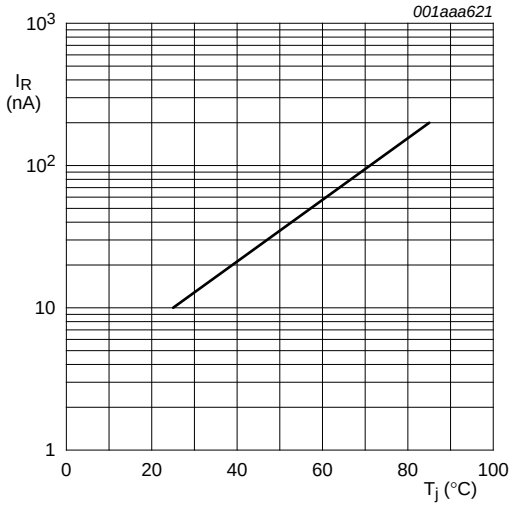


Fig 2. Reverse current as a function of junction temperature; maximum values.

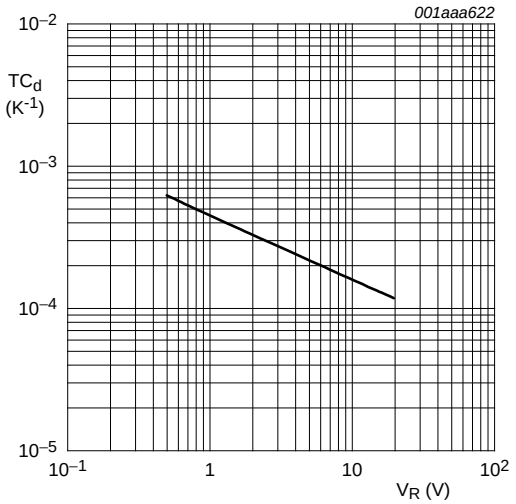


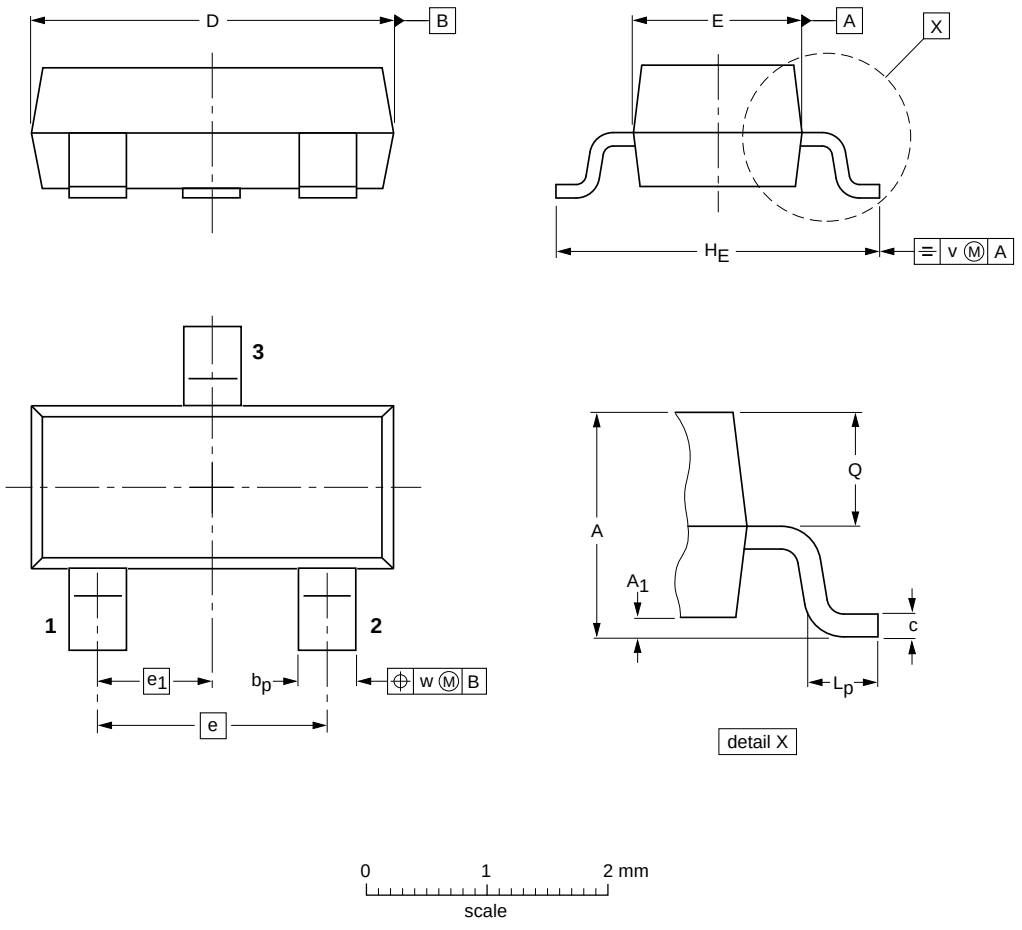
Fig 3. Temperature coefficient of diode capacitance as a function of reverse voltage; typical values.

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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.

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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	-	-

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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".

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