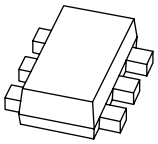


BAT54VV

Schottky barrier triple diode in ultra small SOT666 package

Rev. 02 — 15 January 2010 Product data sheet

1. Product profile

1.1 General description

Planar Schottky barrier triple diode with an integrated guard ring for stress protection. Three electrically isolated Schottky barrier diodes, encapsulated in a SOT666 ultra small SMD plastic package.

1.2 Features

- Low forward voltage
- Ultra small SMD plastic package
- Low capacitance
- Flat leads: excellent coplanarity and improved thermal behavior

1.3 Applications

- Ultra high-speed switching
- Voltage clamping
- Line termination
- Inverse-polarity protection

1.4 Quick reference data

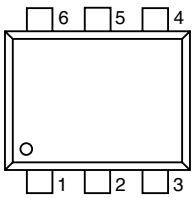
Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_R	continuous reverse voltage		-	-	30	V
I_F	continuous forward current		-	-	200	mA

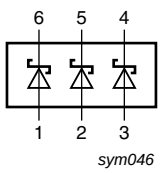
2. Pinning information

Table 2. Pinning

Pin	Description	Simplified outline	Symbol
1	anode (diode 1)		
2	anode (diode 2)		
3	anode (diode 3)		
4	cathode (diode 3)		
5	cathode (diode 2)		
6	cathode (diode 1)		



SOT666



sym046

3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BAT54VV	-	plastic surface mounted package; 6 leads	SOT666

4. Marking

Table 4. Marking codes

Type number	Marking code
BAT54VV	C6

5. Limiting values

Table 5. 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			-	30	V
I_F	continuous forward current			-	200	mA
I_{FRM}	repetitive peak forward current	$t_p \leq 1$ s; $\delta \leq 0.5$		-	300	mA
I_{FSM}	non-repetitive peak forward current	$t_p < 10$ ms		-	600	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	[1][2]	-	170	mW
T_j	junction temperature			-	125	°C
T_{amb}	ambient temperature			−65	+125	°C
T_{stg}	storage temperature			−65	+150	°C

[1] Device mounted on a FR4 printed-circuit board, single-sided copper, tin-plated and standard footprint.

[2] Single diode loaded.

6. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1][2]	-	-	590	K/W

[1] Refer to SOT666 standard mounting conditions.

[2] Reflow soldering is the only recommended soldering method.

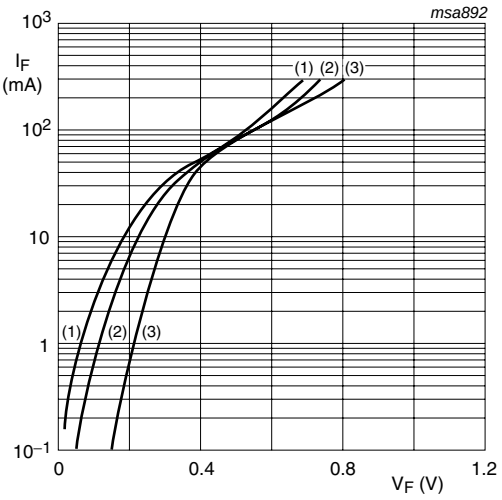
7. Characteristics

Table 7. Characteristics

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

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Per diode							
V_F	forward voltage	see Figure 1;	[1]				
		I_F = 0.1 mA		-	-	240	mV
		I_F = 1 mA		-	-	320	mV
		I_F = 10 mA		-	-	400	mV
		I_F = 30 mA		-	-	500	mV
		I_F = 100 mA		-	-	800	mV
I_R	reverse current	V_R = 25 V; see Figure 2		-	-	2	µA
C_d	diode capacitance	V_R = 1 V; f = 1 MHz; see Figure 3		-	-	10	pF

[1] Pulse test: $t_p \leq 300$ µs; $\delta \leq 0.02$.

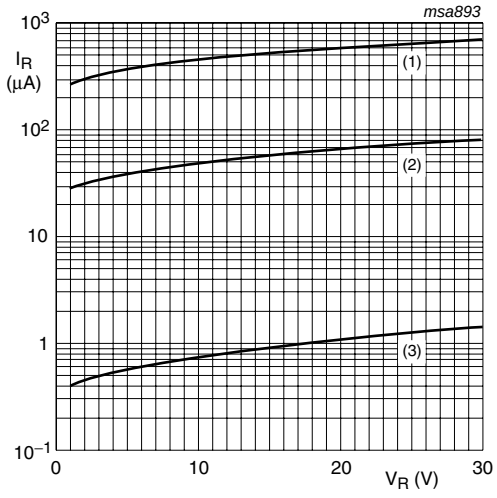


(1) T_{amb} = 125 °C

(2) T_{amb} = 85 °C

(3) T_{amb} = 25 °C

Fig 1. Forward current as a function of forward voltage; typical values

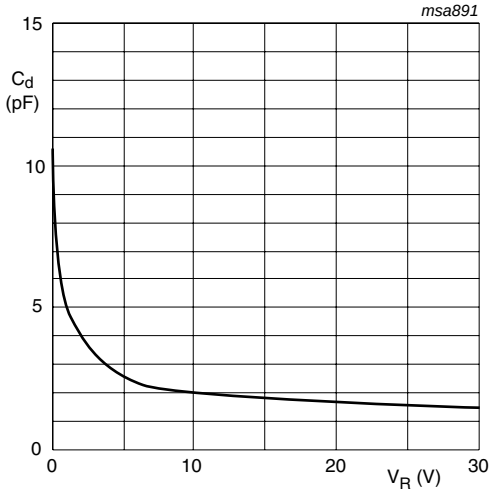


(1) T_{amb} = 125 °C

(2) T_{amb} = 85 °C

(3) T_{amb} = 25 °C

Fig 2. Reverse current as a function of reverse voltage; typical values

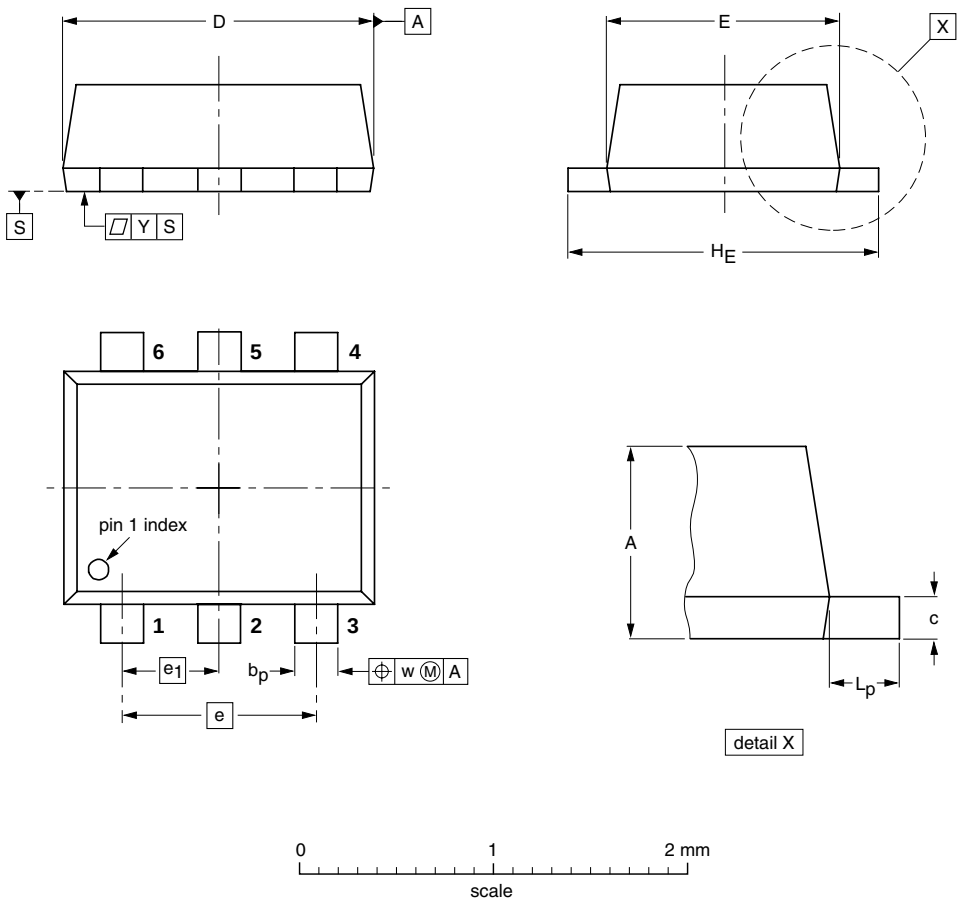


T_{amb} = 25 °C; f = 1 MHz

Fig 3. Diode capacitance as a function of reverse voltage; typical values

8. Package outline

Plastic surface-mounted package; 6 leads **SOT666**



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_p	c	D	E	e	e_1	H_E	L_p	w	y
mm	0.6 0.5	0.27 0.17	0.18 0.08	1.7 1.5	1.3 1.1	1.0	0.5	1.7 1.5	0.3 0.1	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT666						~~04-11-08~~ 06-03-16

Fig 4. Package outline SOT666.

9. Packing information

Table 8. Packing methods

The indicated -xxx are the last three digits of the 12NC ordering code.[1]

Type number	Package	Description	Packing quantity
			4000
BAT54VV	SOT666	4 mm pitch, 8 mm tape and reel	-115

[1] For further information and the availability of packing methods, see Section 12.

10. Revision history

Table 9. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAT54VV_2	20100115	Product data sheet	-	BAT54VV_1
Modifications:	• This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content. • Table 2 “Pinning”: updated • Figure 4 “Package outline SOT666.”: updated			
BAT54VV_1	20040914	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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13. Contents

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