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	Тур	Max	Unit
V_R	continuous reverse voltage		-	-	30	V
I _F	continuous forward current		-	-	200	mA

2. Pinning information

Table 2. Pinning

Table 2.	rinning		
Pin	Description	Simplified outline	Symbol
1	anode (diode 1)	□• □• □·	
2	anode (diode 2)	6 5 4	6 5 4
3	anode (diode 3)		
4	cathode (diode 3)		1 2 3
5	cathode (diode 2)	0	sym046
6	cathode (diode 1)	123 SOT666	





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	$t_p \le 1 \text{ s; } \delta \le 0.5$		-	300	mA
I _{FSM}	non-repetitive peak forward current	$t_p < 10 \text{ ms}$		-	600	mA
P _{tot}	total power dissipation	$T_{amb} \le 25 ^{\circ}C$	[1][2]	-	170	mW
Tj	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.

6. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Тур	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] Single diode loaded.

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

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7. Characteristics

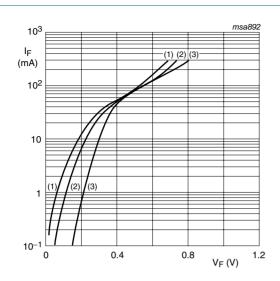
Table 7. Characteristics

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

	<u> </u>					
Symbol	Parameter	Conditions	Min	Тур	Max	Unit
Per diode						
V _F	forward voltage	see <u>Figure 1</u> ;	<u>[1]</u>			
		$I_F = 0.1 \text{ mA}$	-	-	240	mV
		$I_F = 1 \text{ mA}$	-	-	320	mV
		I _F = 10 mA	-	-	400	mV
		$I_F = 30 \text{ mA}$	-	-	500	mV
		I _F = 100 mA	-	-	800	mV
I _R	reverse current	V _R = 25 V; see Figure 2	-	-	2	μΑ
C _d	diode capacitance	$V_R = 1 \text{ V; } f = 1 \text{ MHz;}$ see Figure 3	-	-	10	pF

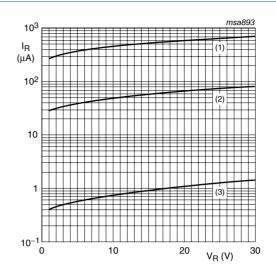
^[1] Pulse test: $t_p \le 300~\mu s;~\delta \le 0.02.$





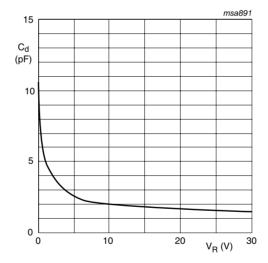
- (1) $T_{amb} = 125 \, ^{\circ}C$
- (2) $T_{amb} = 85 \, ^{\circ}C$
- (3) $T_{amb} = 25 \, ^{\circ}C$

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



- (1) $T_{amb} = 125 \, ^{\circ}C$
- (2) $T_{amb} = 85 \, ^{\circ}C$
- (3) $T_{amb} = 25 \, ^{\circ}C$

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



 $T_{amb} = 25 \, ^{\circ}C; f = 1 \, MHz$

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

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8. Package outline

Plastic surface-mounted package; 6 leads

SOT666

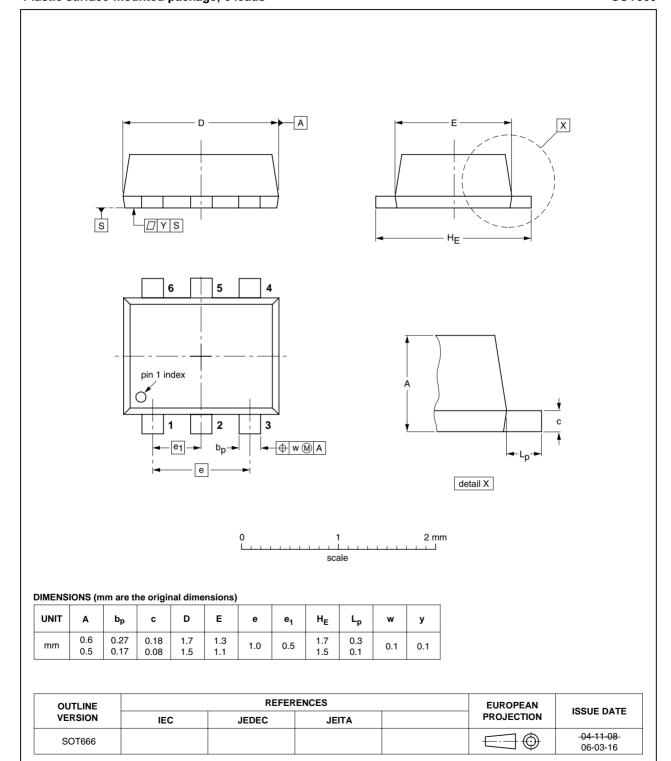


Fig 4. Package outline SOT666.



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 Semiconductor including new legal definitions and disclaimers. No changes were made to the technicontent. 			
	 Table 2 "Pini 	ning": updated		
	Figure 4 "Pa	ckage outline SOT666.": ur	odated	
BAT54VV_1	20040914	Product data sheet	-	-

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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"
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