



# 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

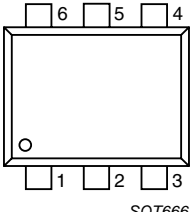
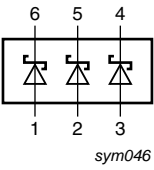
### 1.4 Quick reference data

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)	 SOT666	 sym046
2	anode (diode 2)		
3	anode (diode 3)		
4	cathode (diode 3)		
5	cathode (diode 2)		
6	cathode (diode 1)		

### 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
<b>Per diode</b>					
$V_R$	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.

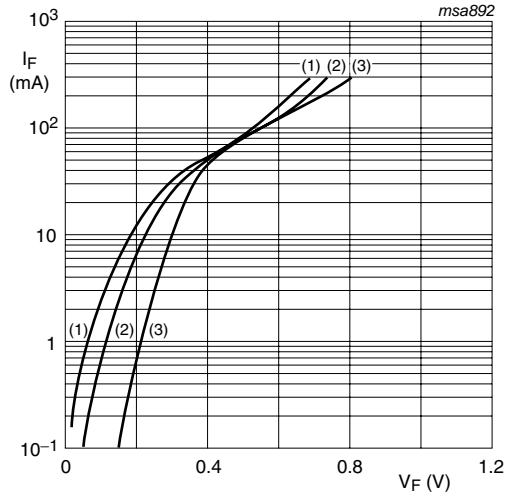
## 7. Characteristics

**Table 7. Characteristics**

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

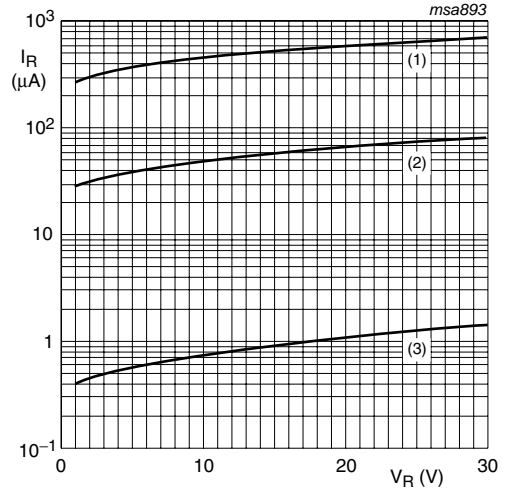
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Per diode</b>						
$V_F$	forward voltage	see <a href="#">Figure 1</a> ;	<a href="#">[1]</a>			
		$I_F = 0.1\text{ mA}$	-	-	240	mV
		$I_F = 1\text{ mA}$	-	-	320	mV
		$I_F = 10\text{ mA}$	-	-	400	mV
		$I_F = 30\text{ mA}$	-	-	500	mV
		$I_F = 100\text{ mA}$	-	-	800	mV
$I_R$	reverse current	$V_R = 25\text{ V}$ ; see <a href="#">Figure 2</a>	-	-	2	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 1\text{ V}$ ; $f = 1\text{ MHz}$ ; see <a href="#">Figure 3</a>	-	-	10	pF

[1] Pulse test:  $t_p \leq 300\text{ }\mu\text{s}$ ;  $\delta \leq 0.02$ .



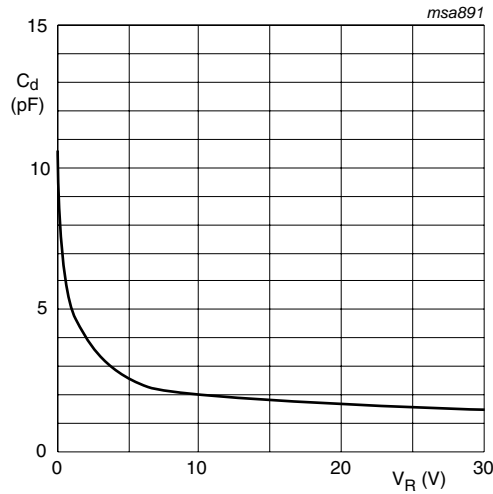
- (1)  $T_{amb} = 125\text{ °C}$
- (2)  $T_{amb} = 85\text{ °C}$
- (3)  $T_{amb} = 25\text{ °C}$

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



- (1)  $T_{amb} = 125\text{ °C}$
- (2)  $T_{amb} = 85\text{ °C}$
- (3)  $T_{amb} = 25\text{ °C}$

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



$T_{amb} = 25\text{ °C}; f = 1\text{ MHz}$

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

## 8. Package outline

Plastic surface-mounted package; 6 leads

SOT666

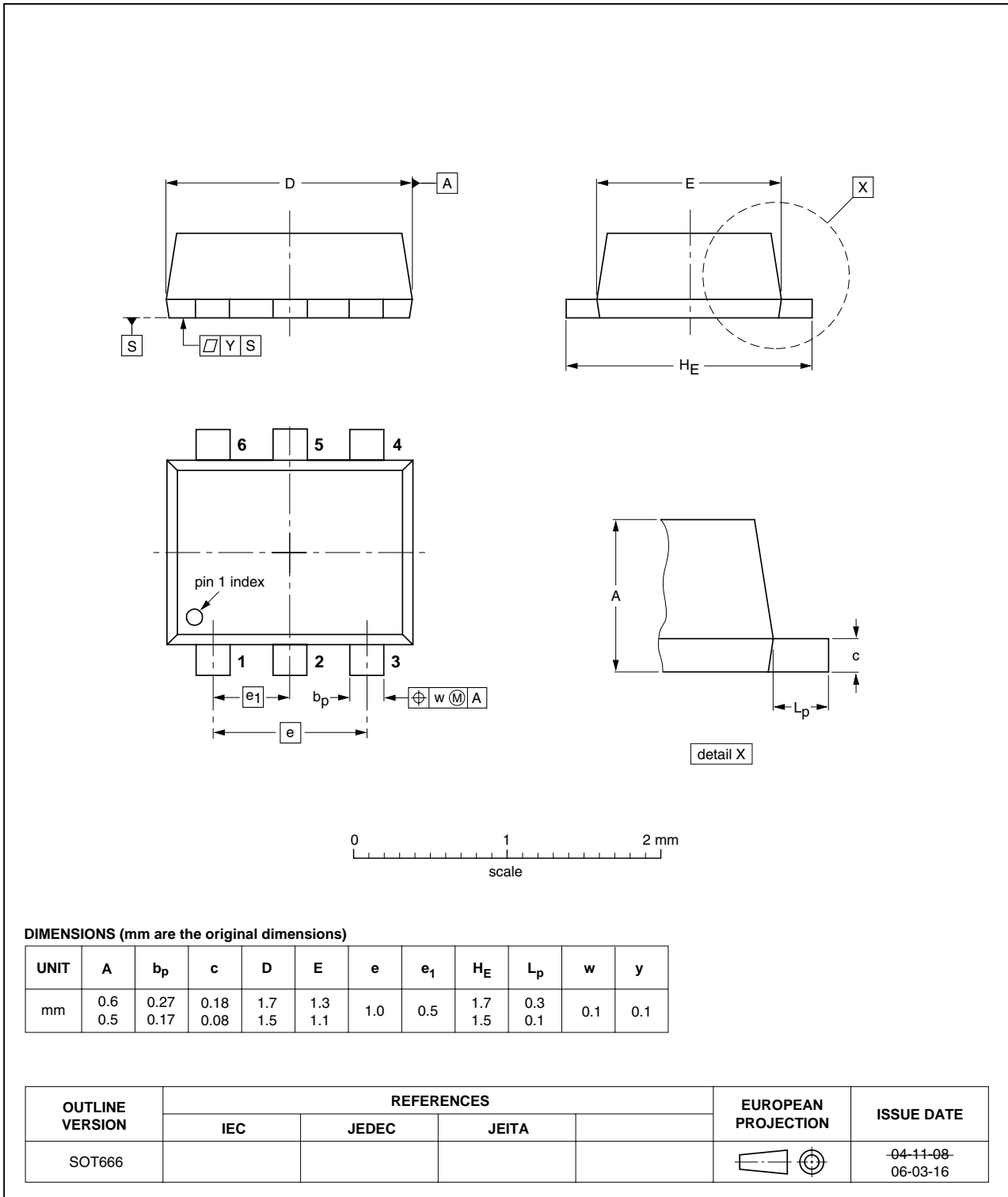


Fig 4. Package outline SOT666.

## 9. Packing information

**Table 8. Packing methods**

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

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:		<ul style="list-style-type: none"><li>• This data sheet was changed to reflect the new company name NXP, including new legal definitions and disclaimers. No changes were made to the technical content.</li><li>• <a href="#">Table 2 “Pinning”</a>: updated</li><li>• <a href="#">Figure 4 “Package outline SOT666.”</a>: updated</li></ul>		
BAT54VV_1	20040914	Product data sheet	-	-

## 11. Legal information

### 11.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	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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