

BAS86

Schottky barrier diode

Rev. 4 — 8 September 2010

Product data sheet

1. Product profile

1.1 General description

Planar Schottky barrier diode with an integrated guard ring against static discharges. This surface-mounted device is encapsulated in a small hermetically sealed SOD80C glass Surface-Mounted Device (SMD) package with tin-plated metal discs at each end. It is suitable for “automatic placement” and as such it can withstand immersion soldering.

1.2 Features and benefits

- Low forward voltage
- High breakdown voltage
- Guard-ring protected
- Hermetically sealed glass SMD package

1.3 Applications

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes

1.4 Quick reference data



Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_F	forward current		-	-	200	mA
V_R	reverse voltage		-	-	50	V
V_F	forward voltage	$I_F = 100\text{ mA}$	-	-	900	mV



2. Pinning information

Table 2. Pinning

Pin	Description	Simplified outline	Graphic symbol
1	cathode ^[1]		 sym001
2	anode		

[1] The marking band indicates the cathode.

3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BAS86	-	hermetically sealed glass surface-mounted package; 2 connectors	SOD80C

4. Marking

Table 4. Marking codes

Type number	Marking code
BAS86	marking band

5. Limiting values

Table 5. Limiting values

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

Symbol	Parameter	Conditions	Min	Max	Unit
V_R	reverse voltage		-	50	V
I_F	forward current		-	200	mA
$I_{F(AV)}$	average forward current	^[1]	-	200	mA
I_{FRM}	repetitive peak forward current	$t_p \leq 1$ s; $\delta \leq 0.5$	-	500	mA
I_{FSM}	non-repetitive peak forward current	$t_p = 10$ ms	-	5	A
T_j	junction temperature		-	125	°C
T_{amb}	ambient temperature		-65	+125	°C
T_{stg}	storage temperature		-65	+150	°C

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

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]	-	320	K/W

[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

7. Characteristics

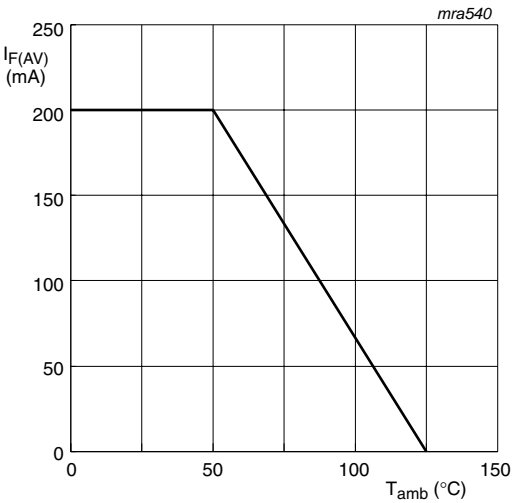
Table 7. Characteristics

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 0.1\text{ mA}$	-	-	300	mV
		$I_F = 1\text{ mA}$	-	-	380	mV
		$I_F = 10\text{ mA}$	-	-	450	mV
		$I_F = 30\text{ mA}$	-	-	600	mV
		$I_F = 100\text{ mA}$	-	-	900	mV
I_R	reverse current	$V_R = 40\text{ V}$	[1]	-	5	μA
t_{rr}	reverse recovery time		[2]	-	4	ns
C_d	diode capacitance	$V_R = 1\text{ V}; f = 1\text{ MHz}$	-	-	8	pF

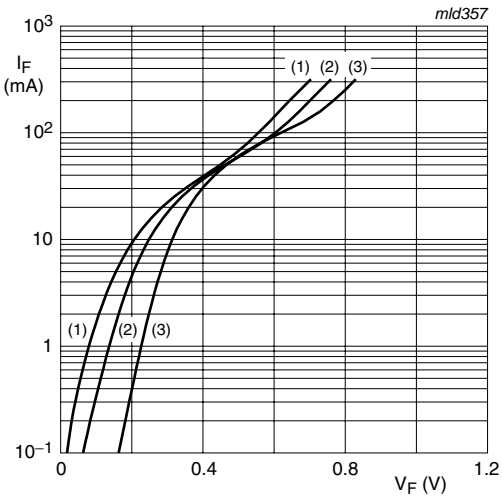
[1] Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$.

[2] When switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$; $R_L = 100\text{ }\Omega$; measured at $I_R = 1\text{ mA}$.



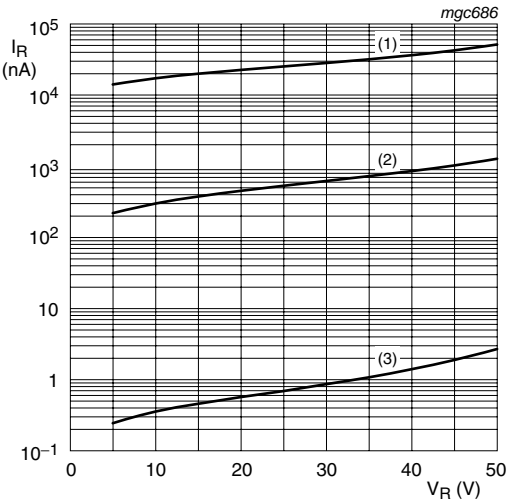
FR4 PCB, standard footprint

Fig 1. Average forward current as a function of ambient temperature; derating curve



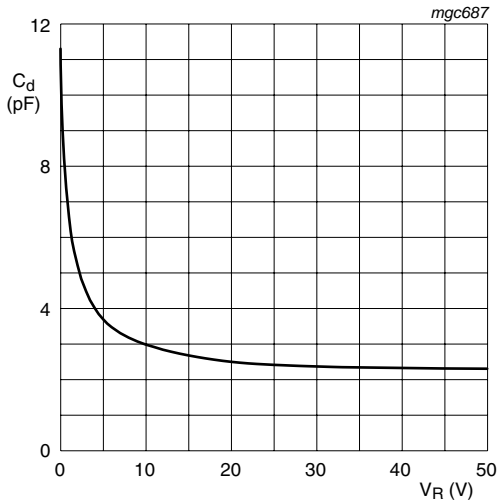
- (1) $T_{amb} = 125\text{ °C}$
- (2) $T_{amb} = 85\text{ °C}$
- (3) $T_{amb} = 25\text{ °C}$

Fig 2. Forward current as a function of forward voltage; typical values



- (1) $T_{amb} = 85\text{ °C}$
- (2) $T_{amb} = 25\text{ °C}$
- (3) $T_{amb} = -40\text{ °C}$

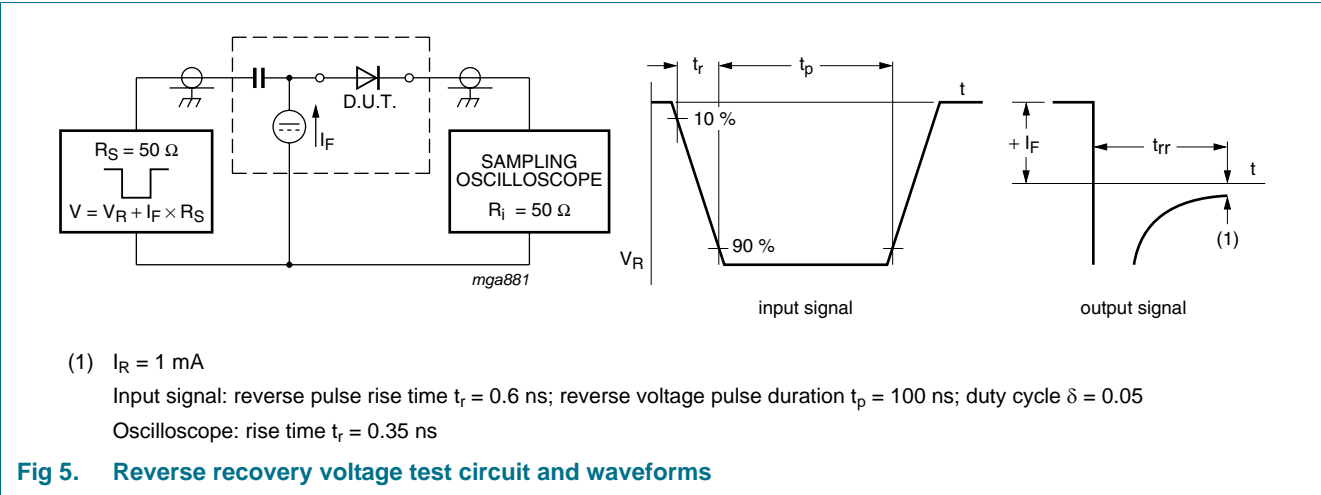
Fig 3. Reverse current as a function of reverse voltage; typical values



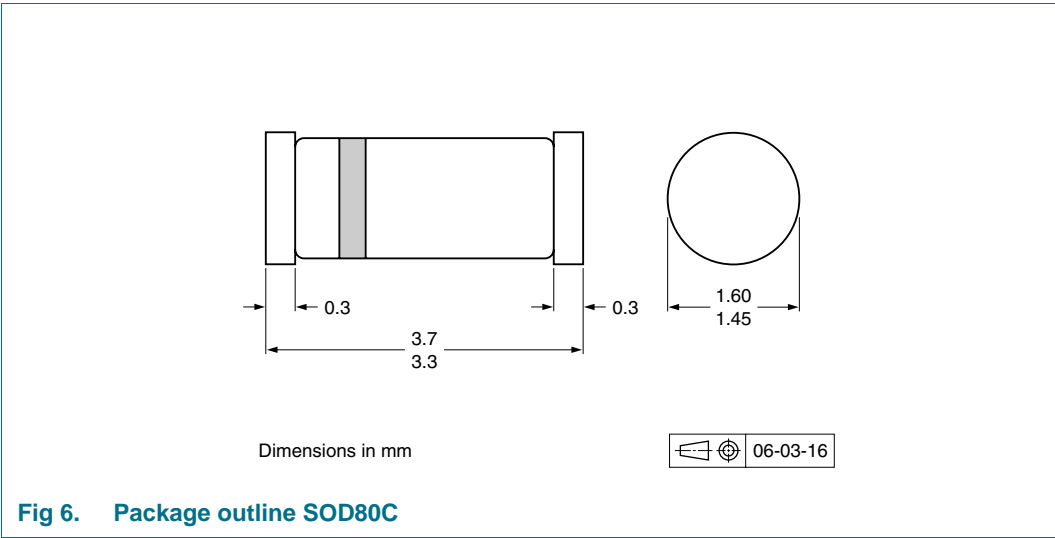
$f = 1\text{ MHz}$; $T_{amb} = 25\text{ °C}$

Fig 4. Diode capacitance as a function of reverse voltage; typical values

8. Test information



9. Package outline



10. 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	
			2500	10000
BAS86	SOD80C	4 mm pitch, 8 mm tape and reel	-115	-135

[1] For further information and the availability of packing methods, see [Section 14](#).

11. Soldering

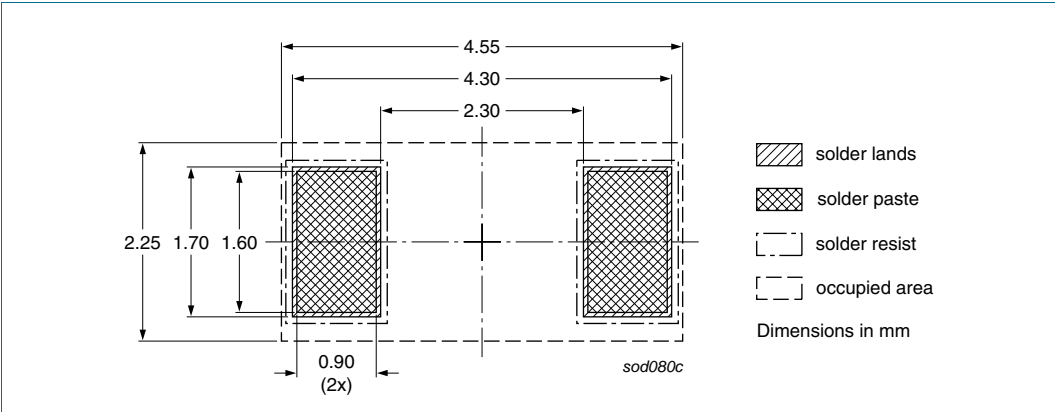


Fig 7. Reflow soldering footprint SOD80C

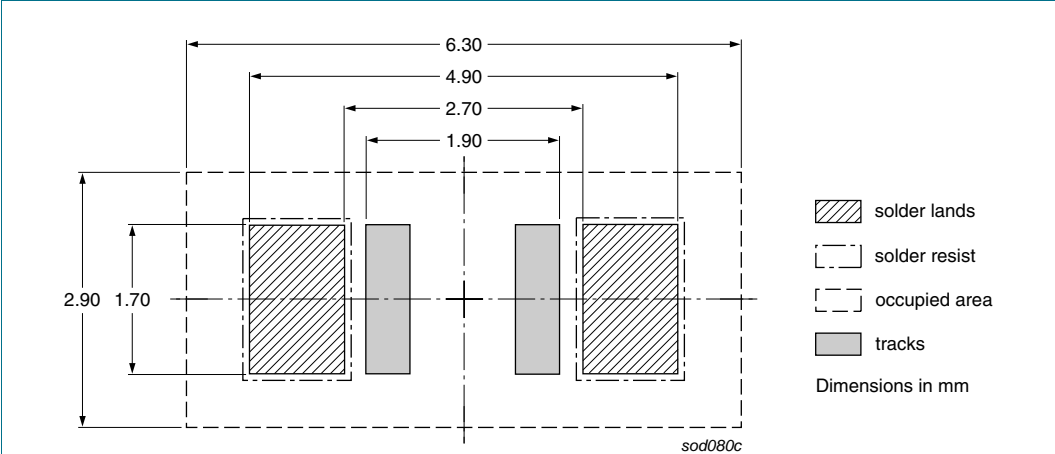


Fig 8. Wave soldering footprint SOD80C

12. Revision history

Table 9. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BAS86_4	20100908	Product data sheet	-	BAS86_3
Modifications:	<ul style="list-style-type: none">• Table 1 “Quick reference data”: added• Section 4 “Marking”: updated• Figure 6: superseded by minimized package outline drawing• Section 10 “Packing information”: added• Section 11 “Soldering”: added• Section 13 “Legal information”: updated			
BAS86_3	20000525	Product specification	-	BAS86_2
BAS86_2	19961001	Product specification	-	BAS86_1
BAS86_1	19960320	Product specification	-	-

13. Legal information

13.1 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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Date of release: 8 September 2010

Document identifier: BAS86