BAS86

Schottky barrier single diode

25 July 2012 Product data sheet

1. Product profile

1.1 General description

Planar Schottky barrier diode with an integrated guard ring for stress protection, 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
$I_{F(AV)}$	average forward current		[1]	-	-	200	mA
V_R	reverse voltage			-	-	50	V
V_F	forward voltage	I_F = 100 mA; T_{amb} = 25 °C		-	-	900	mV

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

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2. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	 **LLDS; MiniMelf (SOD80C)**	 *aaa-003679*
2	A	anode		

[1] The marking band indicates the cathode.

3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BAS86	LLDS; MiniMelf	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; $T_{j(init)} = 25$ °C		-	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

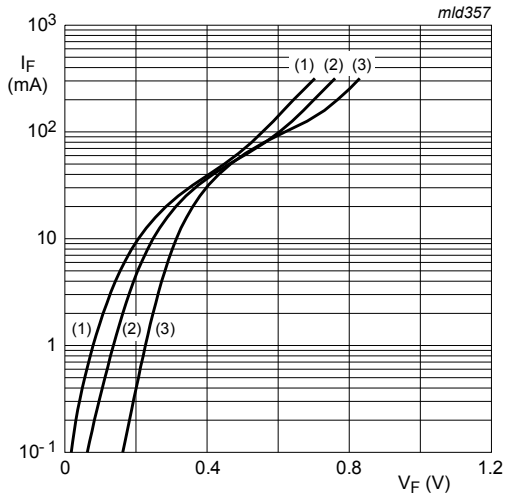
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	-	320	K/W

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

7. Characteristics

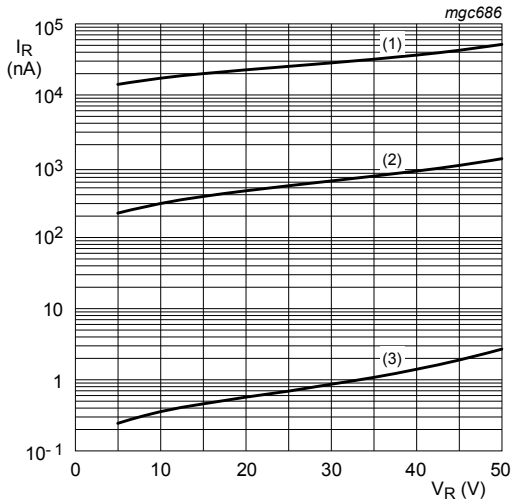
Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	forward voltage	I_F = 0.1 mA; T_{amb} = 25 °C		-	-	300	mV
		I_F = 1 mA; T_{amb} = 25 °C		-	-	380	mV
		I_F = 10 mA; T_{amb} = 25 °C		-	-	450	mV
		I_F = 30 mA; T_{amb} = 25 °C		-	-	600	mV
		I_F = 100 mA; T_{amb} = 25 °C		-	-	900	mV
I_R	reverse current	V_R = 40 V; T_{amb} = 25 °C; pulsed; $t_p \leq 300$ µs; $\delta \leq 0.02$		-	-	5	µA
C_d	diode capacitance	f = 1 MHz; T_{amb} = 25 °C; V_R = 1 V		-	-	8	pF
t_{rr}	reverse recovery time	I_F = 10 mA; I_R = 10 mA; R_L = 100 Ω; $I_{R(meas)}$ = 1 mA; T_{amb} = 25 °C		-	-	4	ns



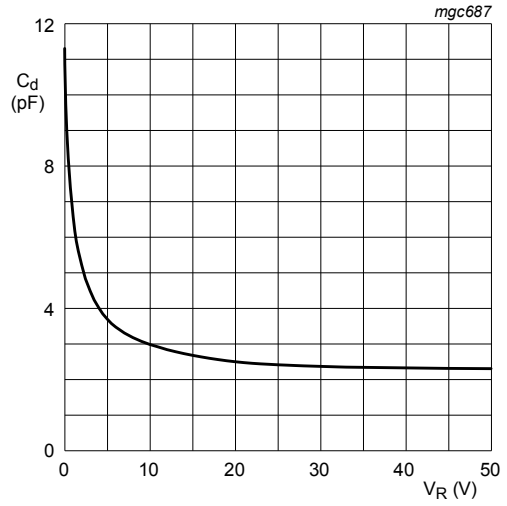
(1) T_{amb} = 125 °C
(2) T_{amb} = 85 °C
(3) T_{amb} = 25 °C

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



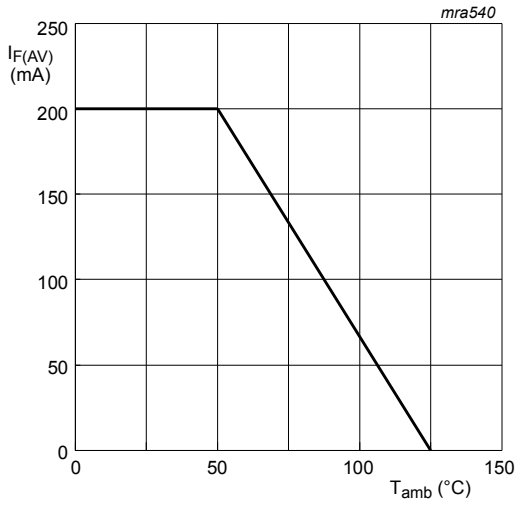
(1) T_{amb} = 85 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = −40 °C

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



FR4 PCB, standard footprint

Fig. 4. Average forward current as a function of ambient temperature; derating curve

8. Test information

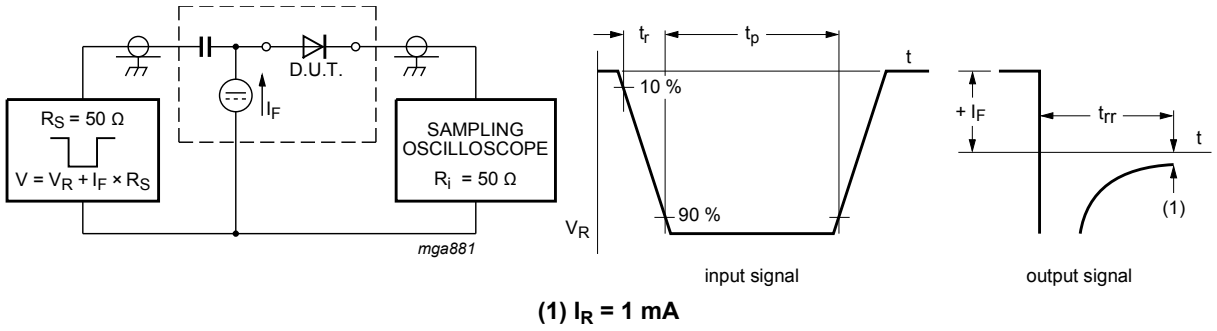


Fig. 5. Reverse recovery time test circuit and waveforms

9. Package outline

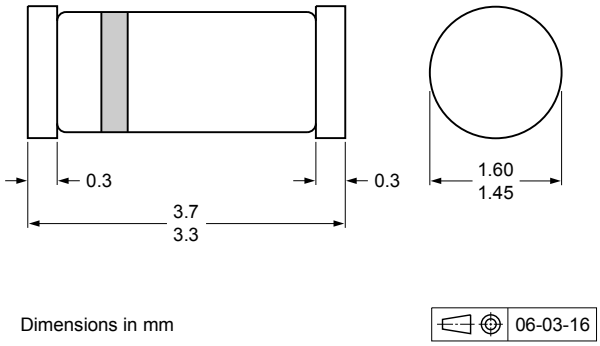


Fig. 6. LLDS; MiniMelf (SOD80C)

10. Soldering

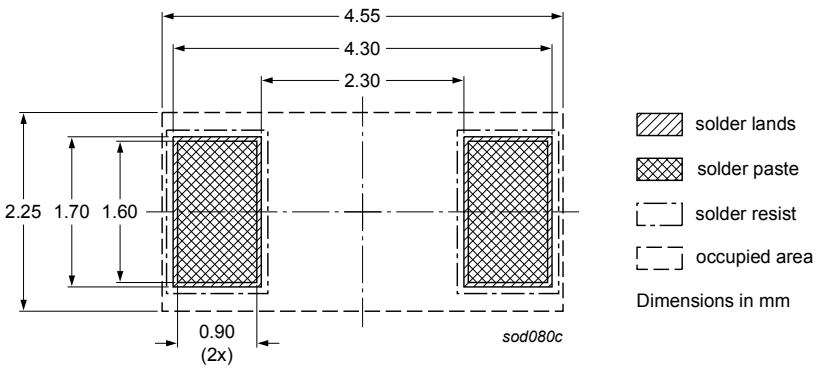


Fig. 7. Reflow soldering footprint for SOD80C (LLDS; MiniMelf)

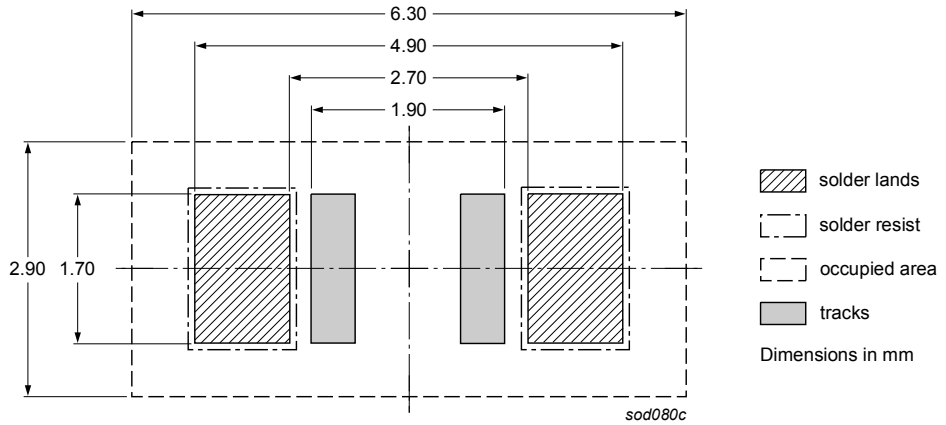


Fig. 8. Wave soldering footprint for SOD80C (LLDS; MiniMelf)

11. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAS86 v.5	20120725	Product data sheet	-	BAS86 v.4
Modifications:	• Editorial update			
BAS86 v.4	20100908	Product data sheet	-	BAS86 v.3
BAS86 v.3	20000525	Product specification	-	BAS86 v.2
BAS86 v.2	19961001	Product specification	-	BAS86 v.1
BAS86 v.1	19960320	Product specification	-	-

12. Legal information

12.1 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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