



BAT54L-Q

Schottky barrier diode

12 February 2025

Product data sheet

1. General description

Planar Schottky barrier diode encapsulated in a SOD882 leadless ultra small plastic package.

2. Features and benefits

- Low forward voltage
- Leadless ultra small plastic package (1 mm x 0.6 mm x 0.5 mm)
- Boardspace 1.17 mm² (approx. 10pct of SOT23)
- Power dissipation comparable to SOT23
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Mobile communication, digital (still) cameras, PDAs and PCMCIA cards



4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_R	reverse voltage		-	-	30	V

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	 Transparent top view DFN1006-2 (SOD882)	 <i>aaa-003679</i>
2	A	anode		

[1] The marking bar indicates the cathode

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BAT54L-Q	DFN1006-2	plastic, leadless ultra small package; 2 terminals; 0.65 mm pitch; 1 mm x 0.6 mm x 0.48 mm body	SOD882

7. Marking

Table 4. Marking codes

Type number	Marking code
BAT54L-Q	S3

8. 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		-	30	V
I_F	forward current		-	200	mA
I_{FRM}	repetitive peak forward current	$t_p \leq 1 \text{ s}$; $\delta \leq 0.5$	-	300	mA
I_{FSM}	non-repetitive peak forward current	$t_p < 10 \text{ ms}$; $T_{j(\text{init})} = 25 \text{ }^\circ\text{C}$	-	600	mA
P_{tot}	total power dissipation	$T_{\text{amb}} \leq 25 \text{ }^\circ\text{C}$	[1]	250	mW
T_j	junction temperature		-	150	$^\circ\text{C}$
T_{amb}	ambient temperature		-55	150	$^\circ\text{C}$
T_{stg}	storage temperature		-65	150	$^\circ\text{C}$

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

9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{\text{th}(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	500	K/W

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

10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 0.1 \text{ mA}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	240	mV
		$I_F = 1 \text{ mA}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	320	mV
		$I_F = 10 \text{ mA}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	400	mV
		$I_F = 30 \text{ mA}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	500	mV
		$I_F = 100 \text{ mA}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	800	mV
I_R	reverse current	$V_R = 25 \text{ V}; \text{ pulsed}; t_p = 300 \text{ } \mu\text{s}; \delta = 0.02; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	2	μA
C_d	diode capacitance	$V_R = 1 \text{ V}; f = 1 \text{ MHz}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	10	pF

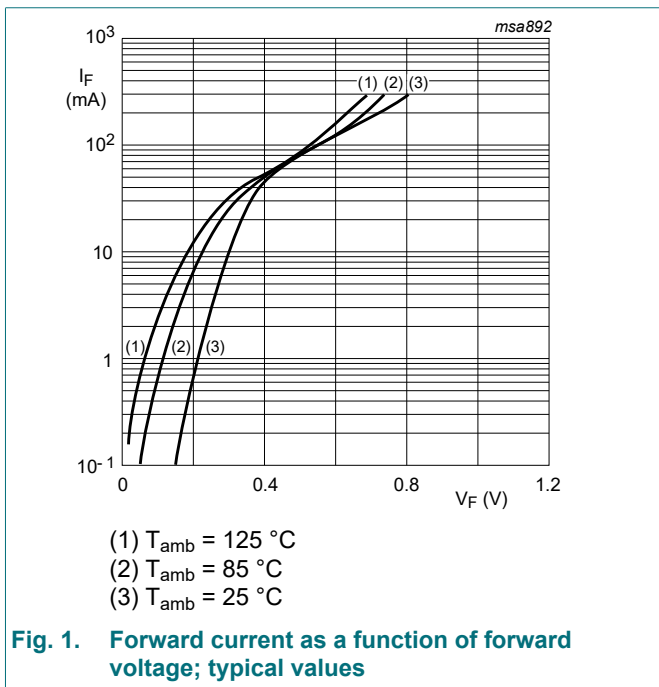


Fig. 1. Forward current as a function of forward voltage; typical values

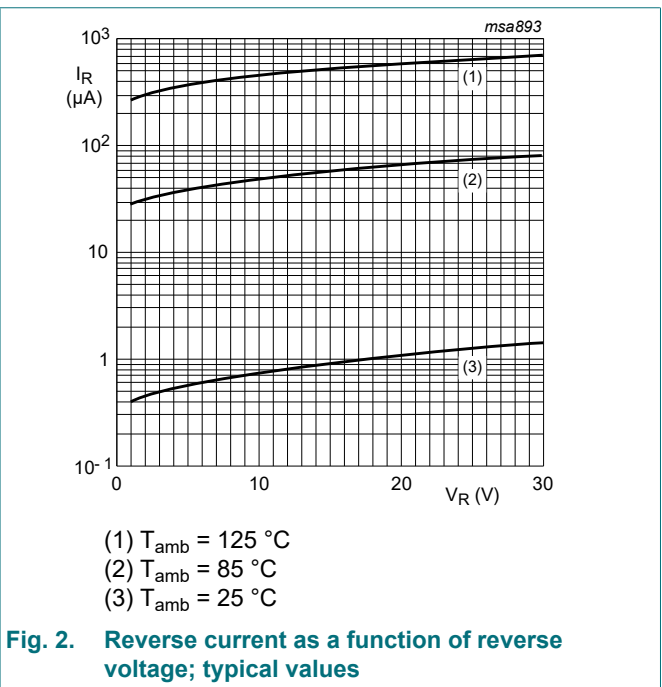


Fig. 2. Reverse current as a function of reverse voltage; typical values

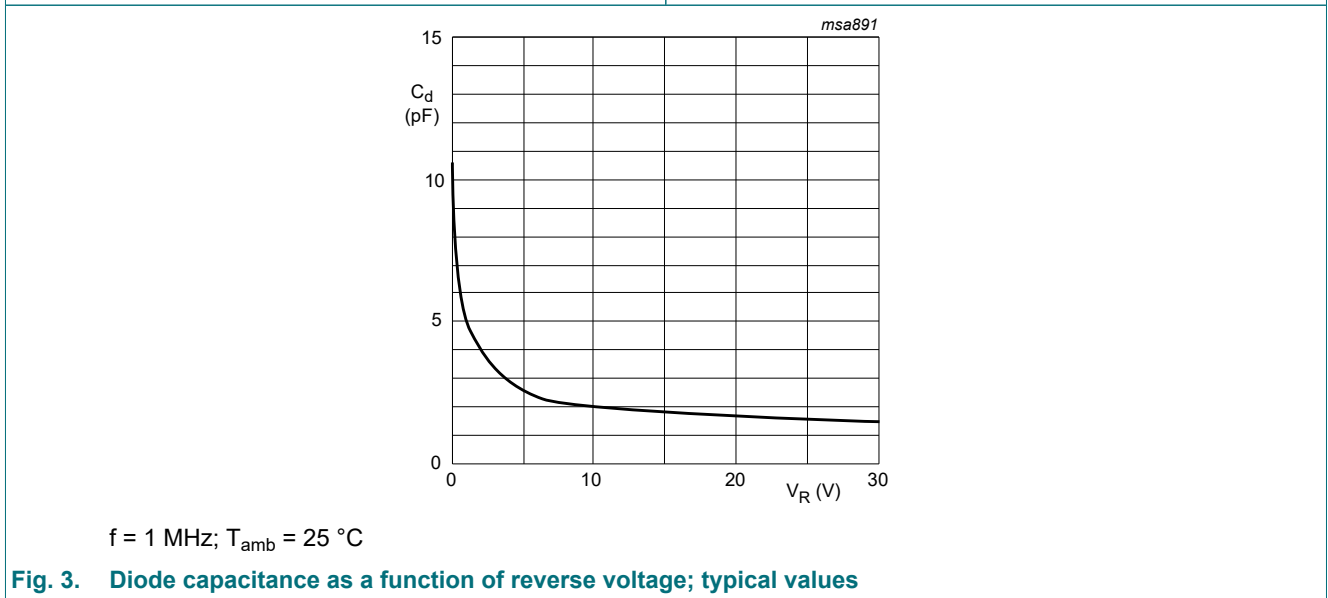


Fig. 3. Diode capacitance as a function of reverse voltage; typical values

11. Test information

Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - *Stress test qualification for discrete semiconductors*, and is suitable for use in automotive applications.

12. Package outline

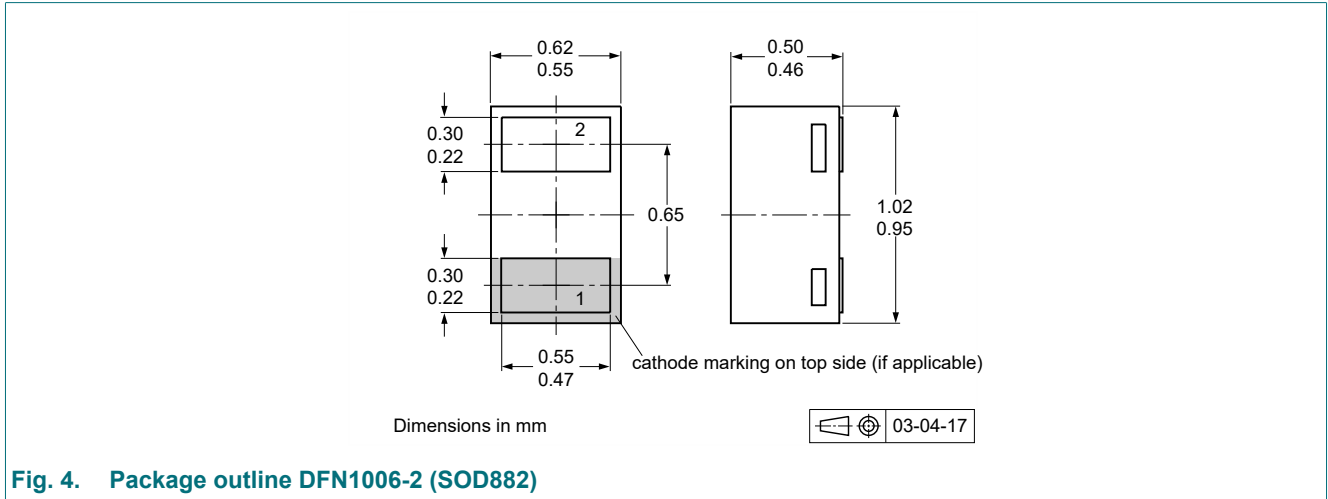


Fig. 4. Package outline DFN1006-2 (SOD882)

13. Soldering

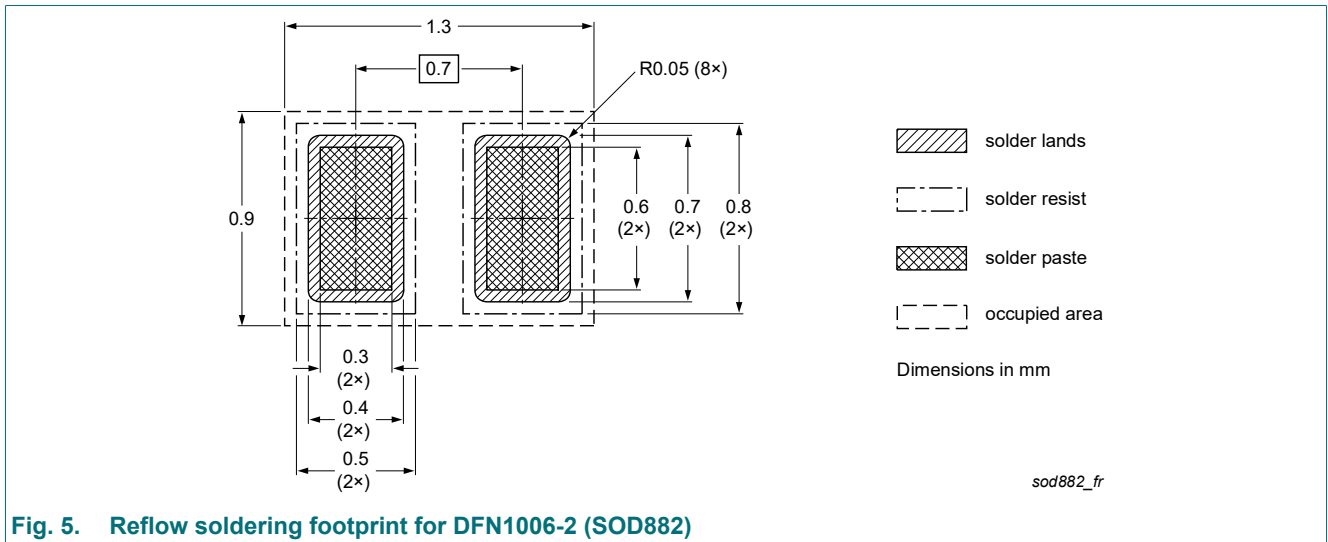


Fig. 5. Reflow soldering footprint for DFN1006-2 (SOD882)

14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAT54L-Q v.1	20250212	Product data sheet	-	-

15. Legal information

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.

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