



# RB751CS40

## Schottky barrier diode

7 April 2021

Product data sheet

## 1. General description

Planar Schottky barrier diode with an integrated guard ring for stress protection, in a leadless ultra small DFN1006-2 (SOD882) Surface-Mounted Device (SMD) plastic package.

## 2. Features and benefits

- Low forward voltage
- Low capacitance
- AEC-Q qualified

## 3. Applications

- Ultra high-speed switching
- Voltage clamping
- Line termination
- Reverse polarity protection

## 4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$I_F$	forward current		-	-	120	mA
$V_{RRM}$	repetitive peak reverse voltage		-	-	40	V
$V_F$	forward voltage	$I_F = 1 \text{ mA}$ ; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; pulsed; $T_{amb} = 25 \text{ } ^\circ\text{C}$	-	-	370	mV

## 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	<p>Transparent top view DFN1006-2 (SOD882)</p>	<p>K  A sym001</p>
2	A	anode		

[1] The marking bar indicates the cathode.

## 6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
RB751CS40	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
RB751CS40	F6

## 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	$T_j = 25\text{ °C}$	-	40	V
$V_{RRM}$	repetitive peak reverse voltage		-	40	V
$I_F$	forward current		-	120	mA
$I_{FSM}$	non-repetitive peak forward current	$t_p < 10\text{ ms}$ ; square wave; $T_{j(\text{init})} = 25\text{ °C}$	-	200	mA
$P_{\text{tot}}$	total power dissipation	$T_{\text{amb}} \leq 25\text{ °C}$	[1] [2]	250	mW
$T_j$	junction temperature		-	150	°C
$T_{\text{amb}}$	ambient temperature		-65	150	°C
$T_{\text{stg}}$	storage temperature		-65	150	°C

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

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

## 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] [2]	-	500	K/W

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

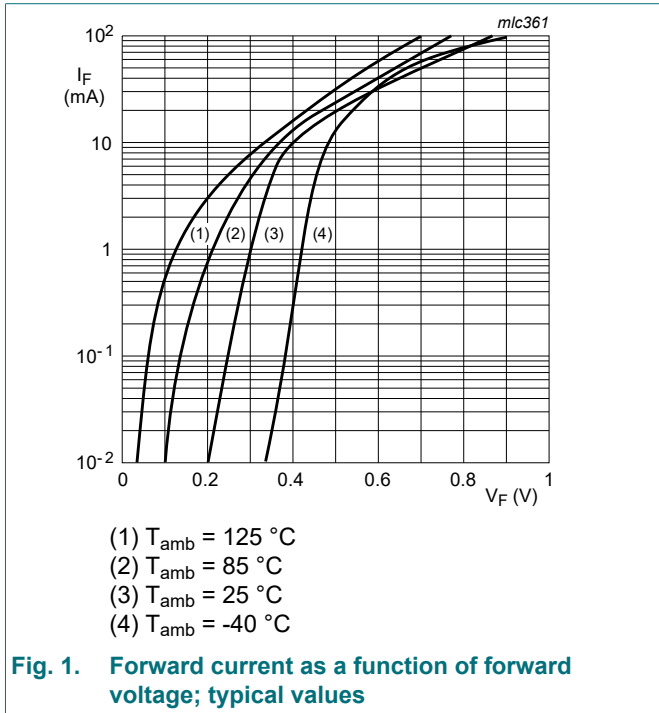
[2] Reflow soldering is the only recommended soldering method.

## 10. Characteristics

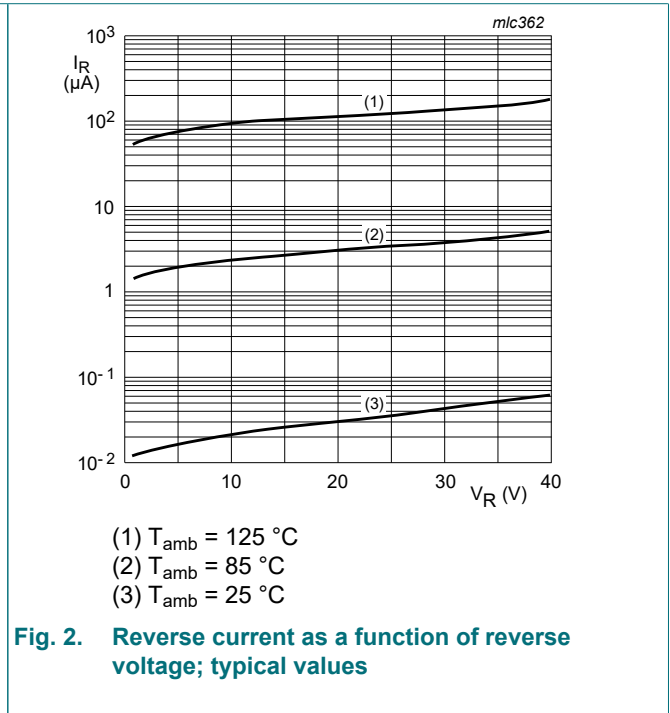
**Table 7. Characteristics**

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

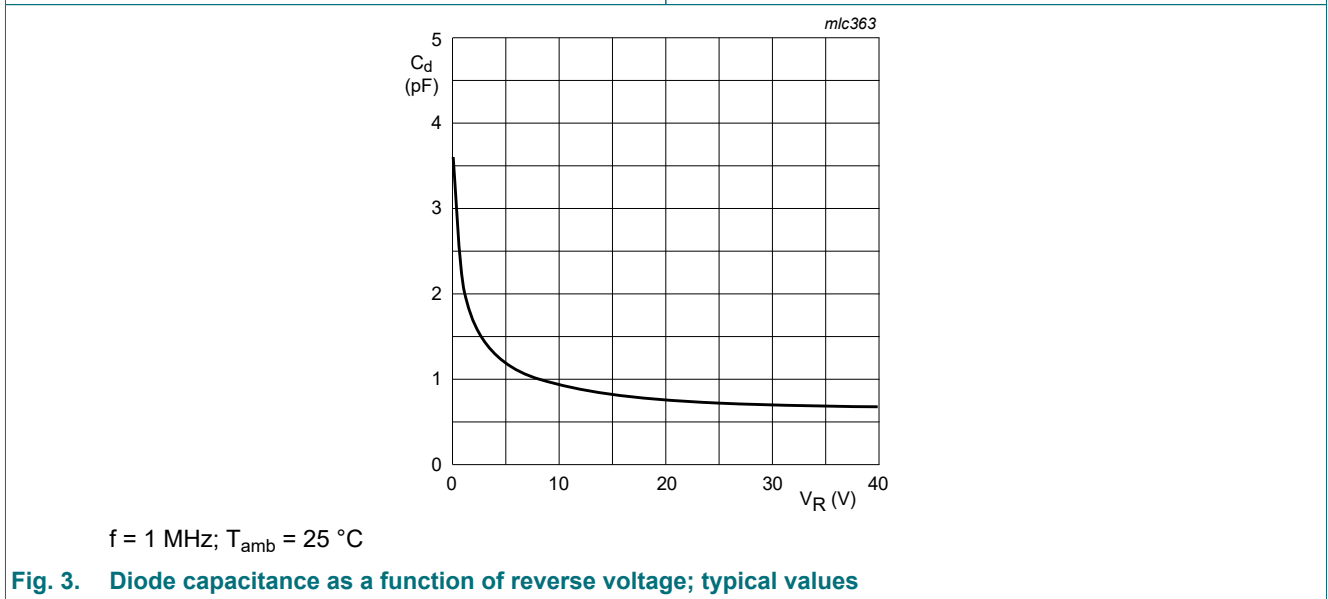
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_F$	forward voltage	$I_F = 1\text{ mA}$ ; $t_p \leq 300\text{ }\mu\text{s}$ ; $\delta \leq 0.02$ ; pulsed; $T_{amb} = 25\text{ °C}$	-	-	370	mV
$I_R$	reverse current	$V_R = 30\text{ V}$	-	-	0.5	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 1\text{ V}$ ; $f = 1\text{ MHz}$	-	2	-	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

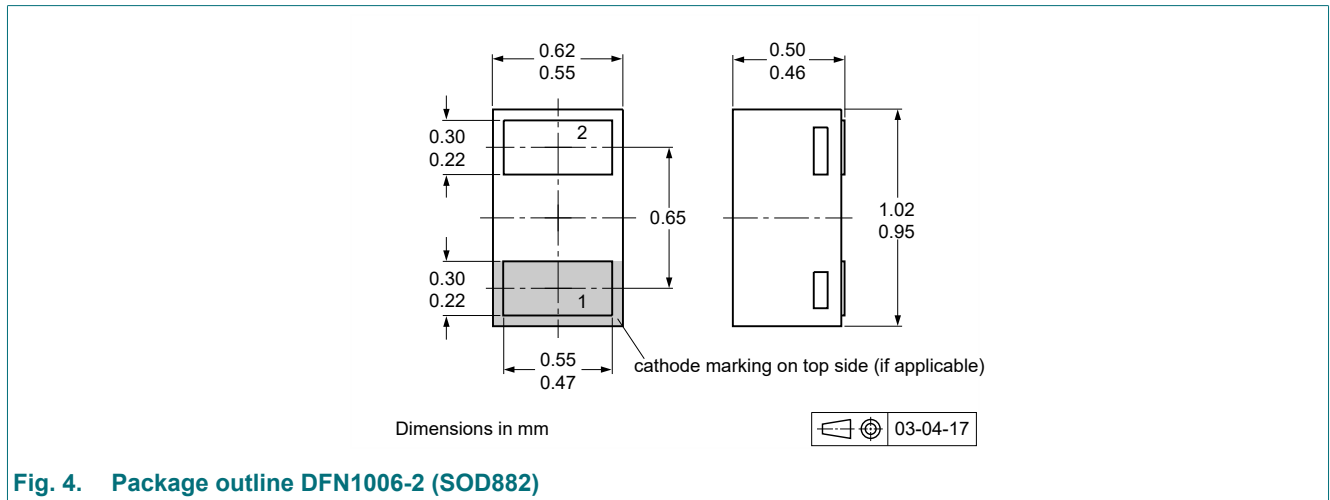


Fig. 4. Package outline DFN1006-2 (SOD882)

## 13. Soldering

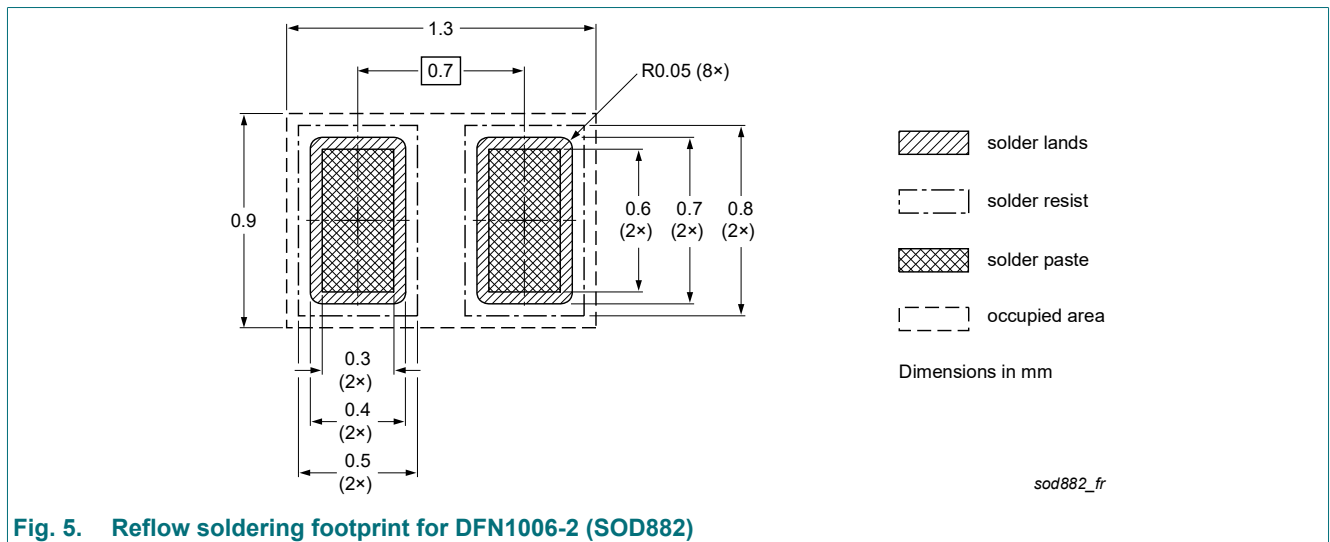


Fig. 5. Reflow soldering footprint for DFN1006-2 (SOD882)

## 14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
RB751CS40 v.2	20210407	Product data sheet	-	RB751_SER v.1
Modifications:	<ul style="list-style-type: none"><li>• Series data sheet separated to single type data sheets</li><li>• AEC-Q101 qualification added</li><li>• Packing information section removed</li></ul>			
RB751_SER v.1	20070521	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.

- [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".
- [3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the internet at <https://www.nexperia.com>.

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