



RB751S40

Schottky barrier diode

5 February 2024

Product data sheet

1. General description

Planar Schottky barrier diode with an integrated guard ring for stress protection, in an ultra small, flat lead SOD523 (SC-79) Surface-Mounted Device (SMD) plastic package.

2. Features and benefits

- Low forward voltage
- Low capacitance

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	$I_F = 1 \text{ mA}; \text{ pulsed}; t_p \leq 300 \mu\text{s}; \delta \leq 0.02; T_{amb} = 25^\circ\text{C}$	-	-	370	mV

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode ^[1]		
2	A	anode		

[1] The marking bar indicates the cathode.

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6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
RB751S40	SC-79	plastic, surface-mounted package; 2 leads; 1.2 mm x 0.8 mm x 0.6 mm body	SOD523

7. Marking

Table 4. Marking codes

Type number	Marking code
RB751S40	G4

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	$T_j = 25^\circ\text{C}$		-	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; $T_{j(\text{init})} = 25^\circ\text{C}$		-	200	mA
P_{tot}	total power dissipation	$T_{\text{amb}} \leq 25^\circ\text{C}$	[1] [2]	-	280	mW
T_j	junction temperature			-	150	°C
T_{amb}	ambient temperature			-65	150	°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.

[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]	-	-	450	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

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

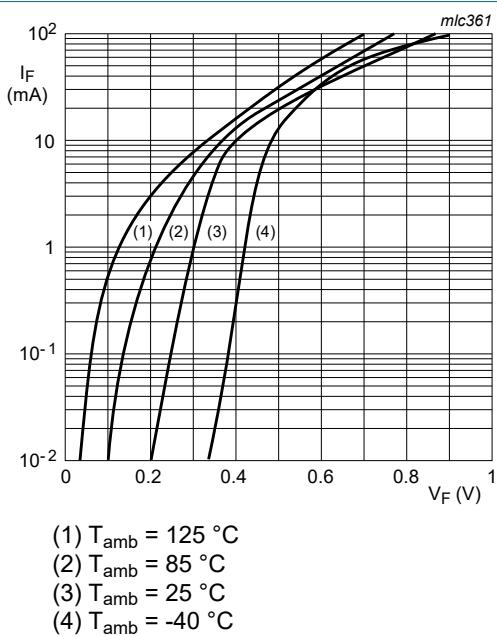


Fig. 1. Forward current as a function of forward voltage; typical values

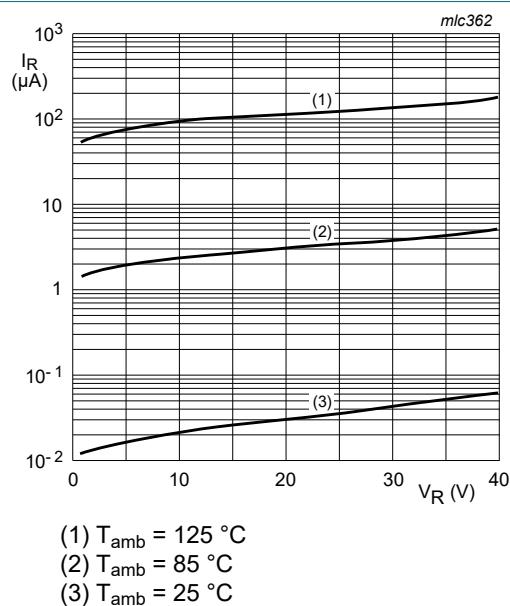
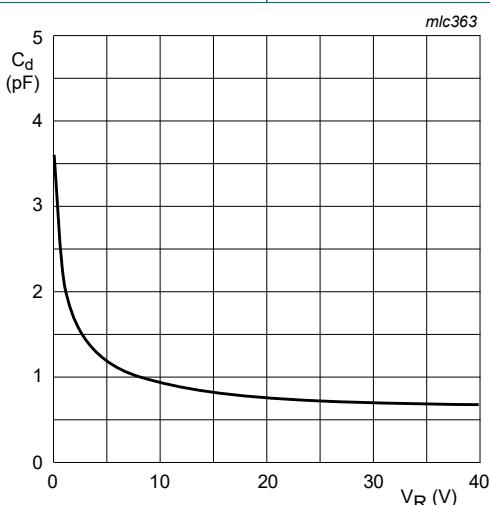


Fig. 2. Reverse current as a function of reverse voltage; typical values



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

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

11. Package outline

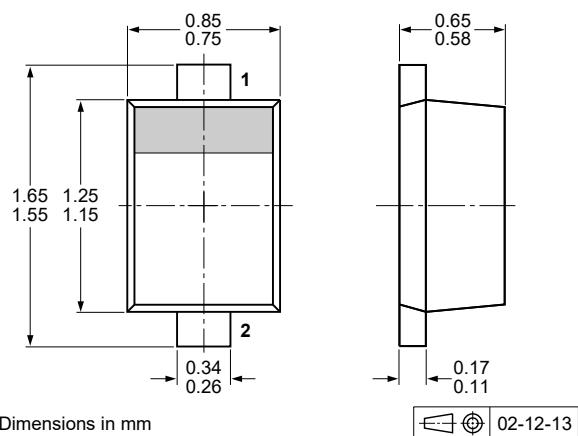


Fig. 4. Package outline SC-79 (SOD523)

12. Soldering

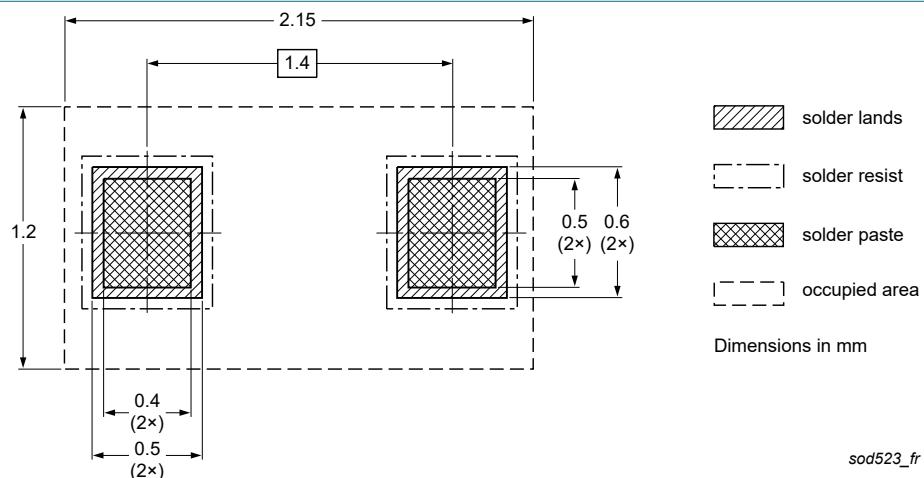


Fig. 5. Reflow soldering footprint for SC-79 (SOD523)

13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
RB751S40 v.3	20240205	Product data sheet	-	RB751S40 v.2
Modifications:	<ul style="list-style-type: none">Product(s) changed to non-automotive qualification. Please refer to nexperia.com for automotive (-Q) product alternative(s).			
RB751S40 v.2	20210407	Product data sheet	-	RB751_SER v.1
RB751_SER v.1	20070521	Product data sheet	-	-

14. 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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Contents

1. General description.....	1
2. Features and benefits.....	1
3. Applications.....	1
4. Quick reference data.....	1
5. Pinning information.....	1
6. Ordering information.....	2
7. Marking.....	2
8. Limiting values.....	2
9. Thermal characteristics.....	2
10. Characteristics.....	3
11. Package outline.....	4
12. Soldering.....	4
13. Revision history.....	5
14. Legal information.....	6

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