



# RB751V40-Q

## Schottky barrier diode

14 September 2021

Product data sheet

## 1. General description

Planar Schottky barrier diode with an integrated guard ring for stress protection, in a very small SOD323 (SC-76) Surface-Mounted Device (SMD) plastic package.

## 2. Features and benefits

- Low forward voltage
- Low capacitance
- Qualified according to AEC-Q101 and recommended for use in automotive applications

## 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]	 SOD323	 <i>sym001</i>
2	A	anode		

[1] The marking bar indicates the cathode.

## 6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
RB751V40-Q	SOD323	plastic, surface-mounted package; 2 leads; 1.3 mm pitch; 1.7 mm x 1.25 mm x 0.95 mm body	SOD323

## 7. Marking

Table 4. Marking codes

Type number	Marking code
RB751V40-Q	W8

## 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]	280	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.

## 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]	-	450	K/W

[1] Device mounted on an FR4 Printed-Circuit Board (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	$I_F = 1 \text{ mA}$ ; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; pulsed; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	370	mV
$I_R$	reverse current	$V_R = 30 \text{ V}$ ; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	0.5	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 1 \text{ V}$ ; $f = 1 \text{ MHz}$ ; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	2	-	pF

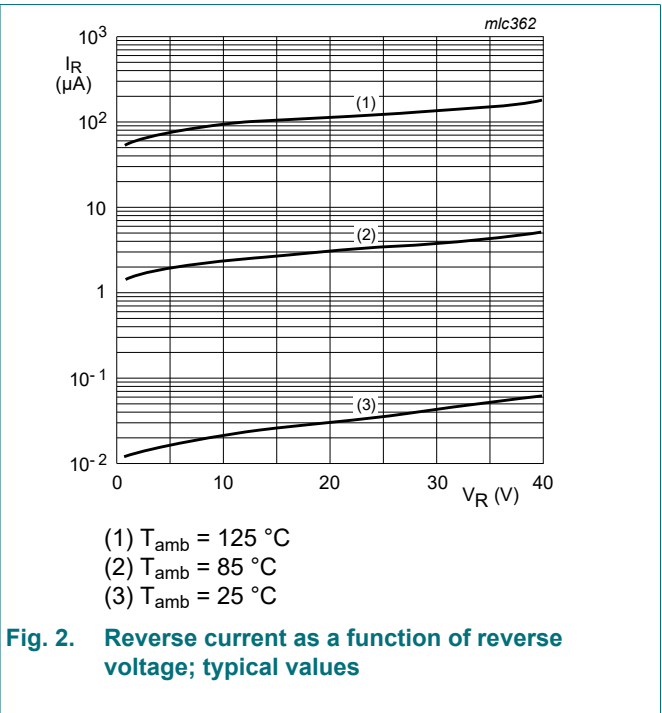
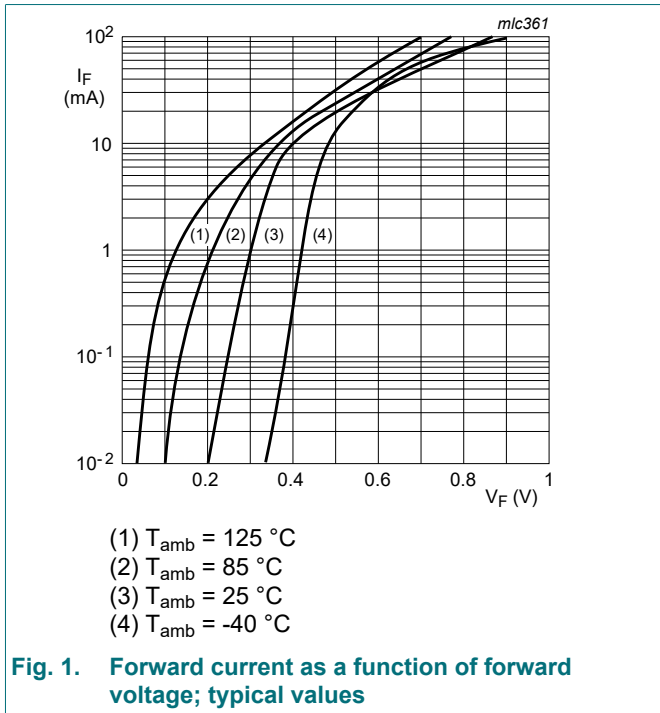
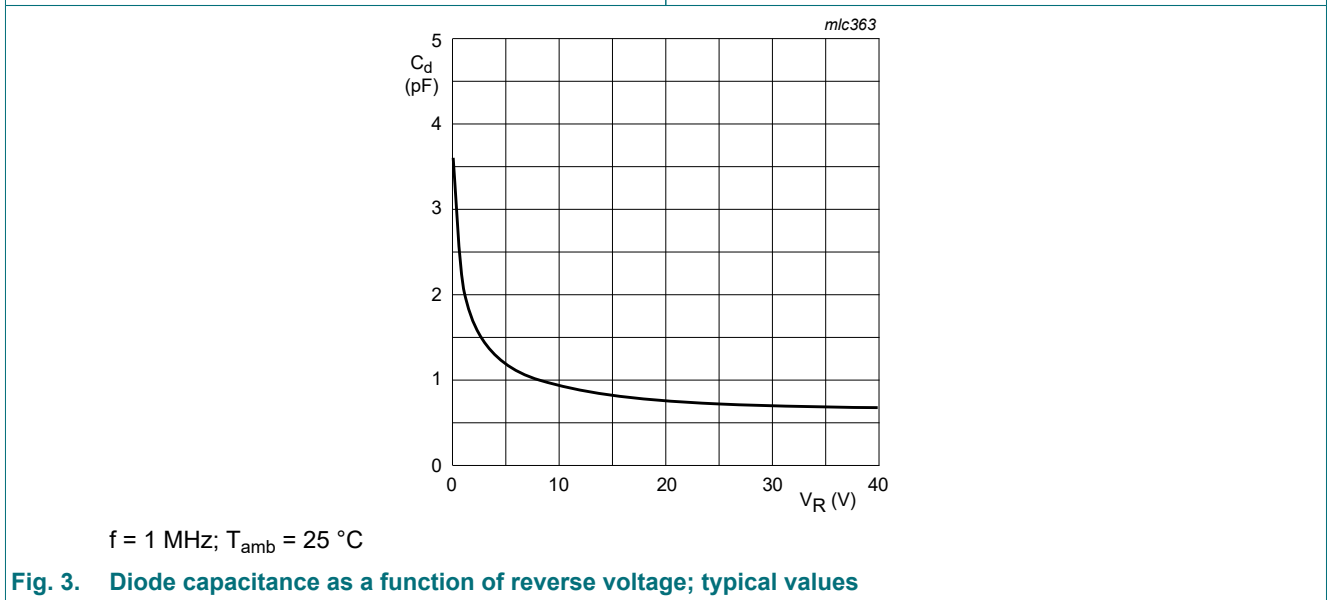


Fig. 1. Forward current as a function of forward voltage; typical values

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



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

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

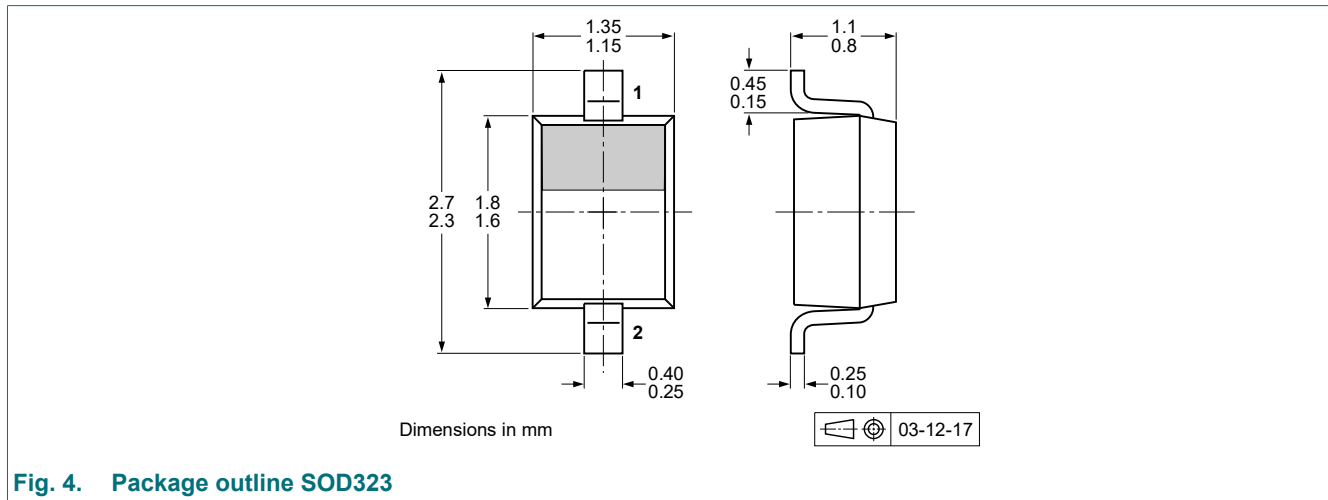


Fig. 4. Package outline SOD323

### 13. Soldering

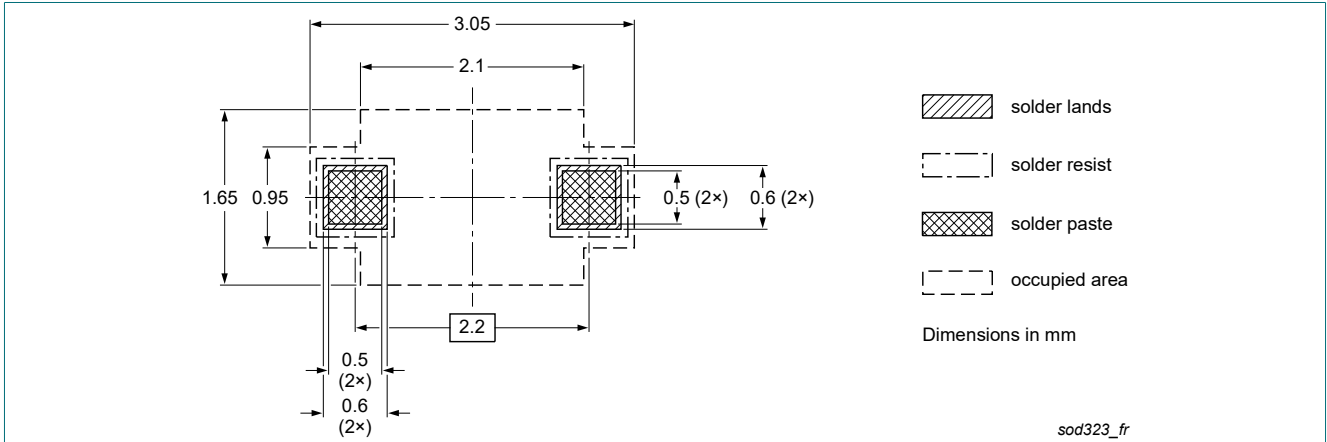


Fig. 5. Reflow soldering footprint for SOD323

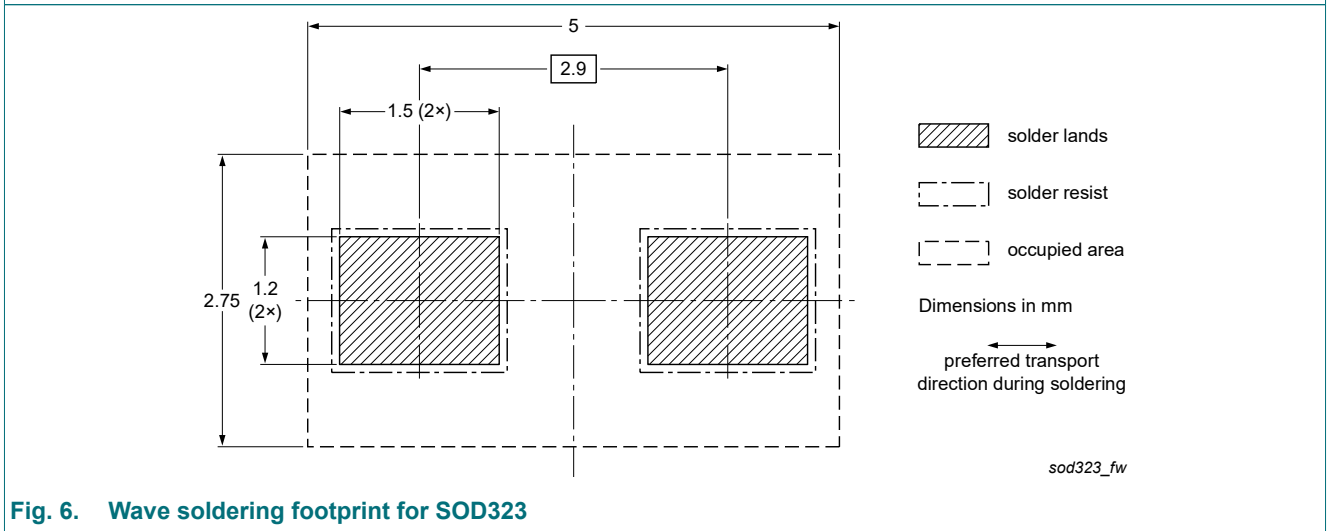


Fig. 6. Wave soldering footprint for SOD323

## 14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
RB751V40-Q v.1	20210914	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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- [2] The term 'short data sheet' is explained in section "Definitions".
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