



# BAS70VY-Q

## General-purpose triple Schottky diode

20 April 2023

Product data sheet

### 1. General description

General-purpose, electrically isolated triple Schottky diode, encapsulated in an ultra small and flat lead SOT363 Surface-Mounted Device (SMD) plastic package.

### 2. Features and benefits

- High switching speed
- Low leakage current
- High breakdown voltage
- Low capacitance
- Qualified according to AEC-Q101 and recommended for use in automotive applications

### 3. Applications

- Ultra high-speed switching
- Voltage clamping

### 4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>Per diode</b>						
$I_F$	forward current		[1] [2]	-	70	mA
$V_F$	forward voltage	$I_F = 1 \text{ mA}$ ; pulsed; $t_p \leq 300 \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	410	mV
$V_R$	reverse voltage	$T_j = 25 \text{ }^\circ\text{C}$	-	-	70	V

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

[2] Single diode loaded.

### 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A1	anode (diode 1)	<p>TSSOP6 (SOT363)</p>	<p>aaa-005704</p>
2	A2	anode (diode 2)		
3	A3	anode (diode 3)		
4	K3	cathode (diode 3)		
5	K2	cathode (diode 2)		
6	K1	cathode (diode 1)		

## 6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
<a href="#">BAS70VY-Q</a>	TSSOP6	plastic, surface-mounted package; 6 leads; 0.65 mm pitch; 2.1 mm x 1.25 mm x 0.95 mm body	<a href="#">SOT363</a>

## 7. Marking

Table 4. Marking codes

Type number	Marking code[1]
BAS70VY-Q	2M%

[1] % = placeholder for manufacturing site code

## 8. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions		Min	Max	Unit
<b>Per diode</b>						
$V_R$	reverse voltage	$T_j = 25\text{ °C}$		-	70	V
$I_F$	forward current		[1] [2]	-	70	mA
$I_{FRM}$	repetitive peak forward current	$t_p \leq 10\text{ ms}$ ; $\delta \leq 0.5$		-	850	mA
$I_{FSM}$	non-repetitive peak forward current	$t_p = 50\text{ }\mu\text{s}$ ; square wave; $T_{j(\text{init})} = 25\text{ °C}$		-	5	A
		$t_p = 10\text{ ms}$ ; square wave; $T_{j(\text{init})} = 25\text{ °C}$		-	1.2	A
$T_j$	junction temperature			-	150	°C
$T_{\text{amb}}$	ambient temperature			-55	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] Single diode loaded.

## 9. 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]	-	-	520	K/W
			[2]	-	-	450	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point		[3]	-	-	160	K/W

- [1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.
- [2] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm<sup>2</sup>.
- [3] Soldering points at pins 4, 5 and 6.

## 10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
<b>Per diode</b>							
$V_F$	forward voltage	$I_F = 1 \text{ mA}$ ; pulsed; $t_p \leq 300 \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	-	410	mV
		$I_F = 10 \text{ mA}$ ; pulsed; $t_p \leq 300 \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	-	750	mV
		$I_F = 15 \text{ mA}$ ; pulsed; $t_p \leq 300 \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	-	1	V
$I_R$	reverse current	$V_R = 50 \text{ V}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	-	100	nA
		$V_R = 70 \text{ V}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	-	10	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 0 \text{ V}$ ; $f = 1 \text{ MHz}$ ; $T_{amb} = 25 \text{ }^\circ\text{C}$		-	-	2	pF

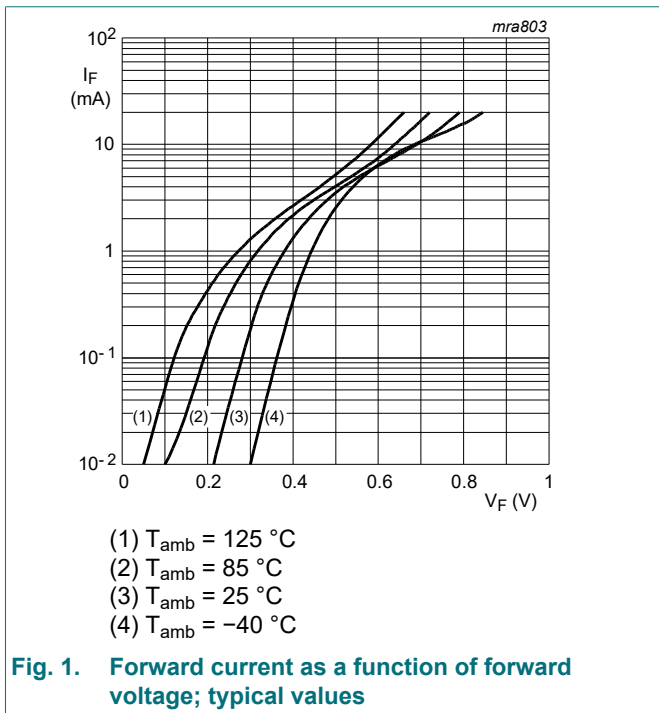


Fig. 1. Forward current as a function of forward voltage; typical values

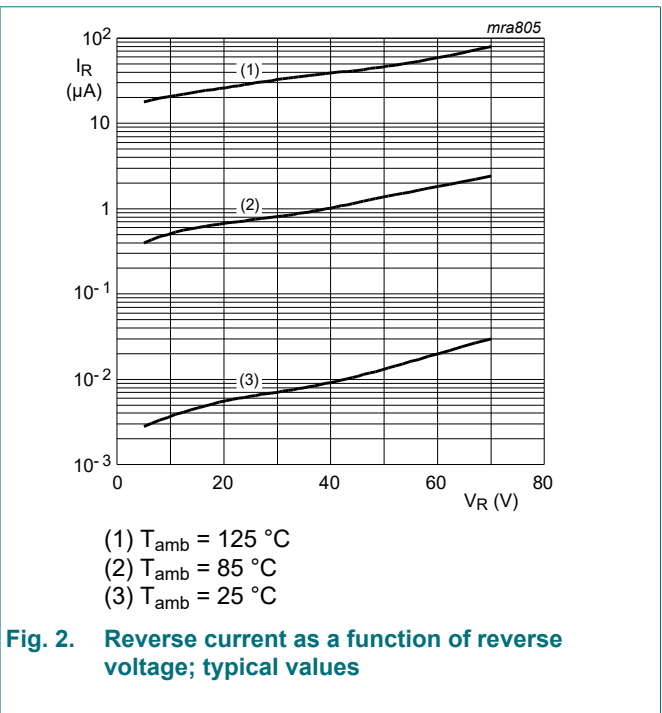
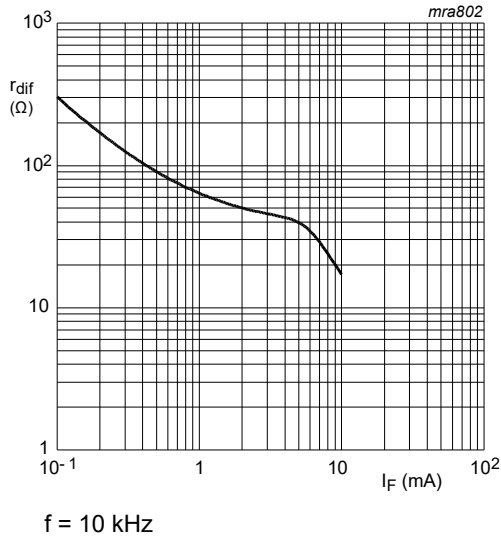
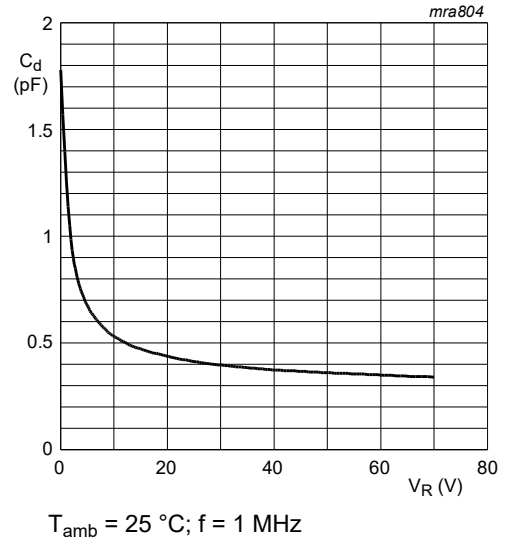


Fig. 2. Reverse current as a function of reverse voltage; typical values



**Fig. 3. Differential forward resistance as a function of forward current; typical values**



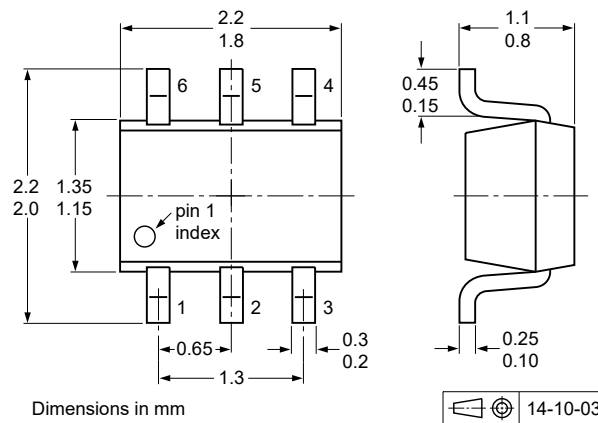
**Fig. 4. Diode capacitance as a function of reverse voltage; typical values**

## 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. 5. Package outline TSSOP6 (SOT363)**

### 13. Soldering

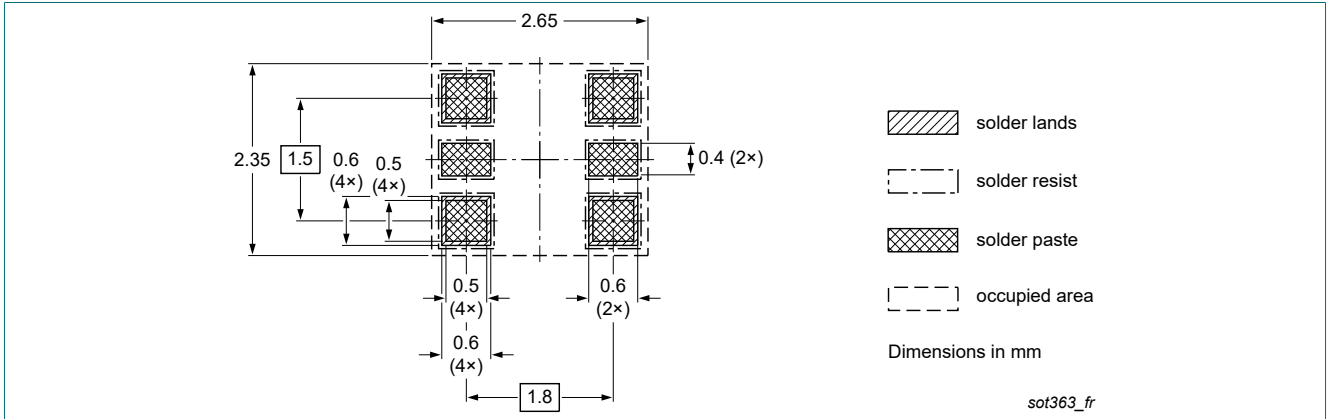


Fig. 6. Reflow soldering footprint for TSSOP6 (SOT363)

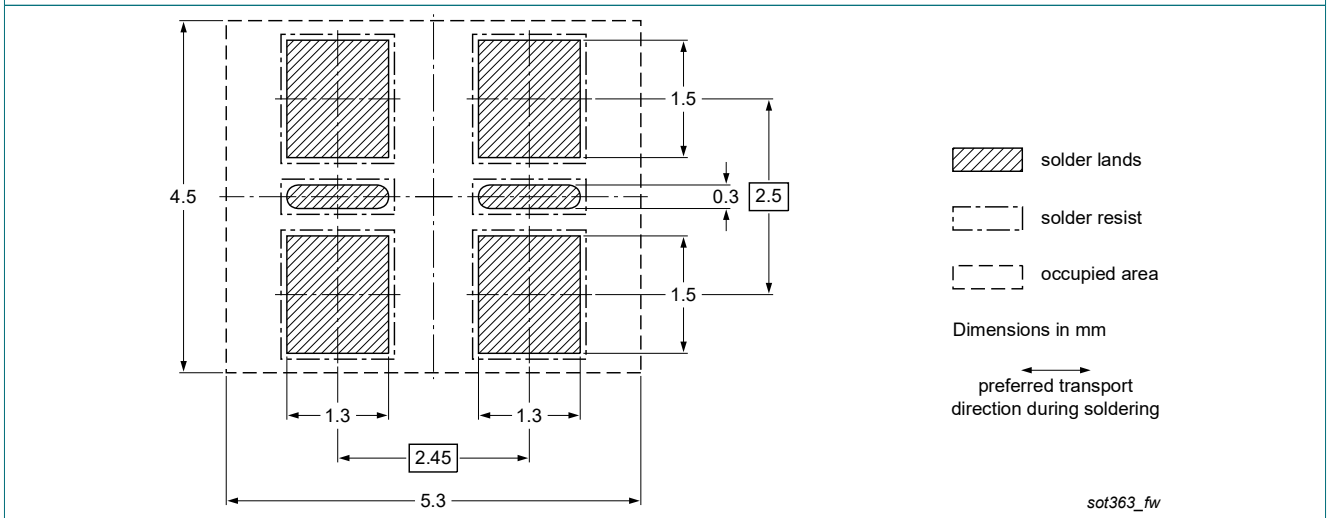


Fig. 7. Wave soldering footprint for TSSOP6 (SOT363)

## 14. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAS70VY-Q v.1	20230404	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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## Contents

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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.....	3
10. Characteristics.....	3
11. Test information.....	4
12. Package outline.....	4
13. Soldering.....	5
14. Revision history.....	6
15. Legal information.....	7

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