



# BAS40H

## General-purpose Schottky diode

8 October 2024

Product data sheet

### 1. General description

General-purpose Schottky diode in a small and flat lead SOD123F Surface-Mounted Device (SMD) plastic package.

### 2. Features and benefits

- High switching speed
- Low leakage current
- High breakdown voltage
- Low capacitance

### 3. Applications

- Ultra high-speed switching
- Voltage clamping



### 4. Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$I_F$	forward current		-	-	120	mA
$V_F$	forward voltage	$I_F = 1 \text{ mA}$ ; pulsed; $t_p \leq 300 \text{ } \mu\text{s}$ ; $\delta \leq 0.02$ ; $T_{\text{amb}} = 25 \text{ } ^\circ\text{C}$	-	-	380	mV
$V_R$	reverse voltage	$T_j = 25 \text{ } ^\circ\text{C}$	-	-	40	V

### 5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	K	cathode[1]	 SOD123F	 aaa-003679
2	A	anode		

[1] The marking bar indicates the cathode.

## 6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
<a href="#">BAS40H</a>	SOD123F	plastic, surface-mounted package; 2 leads; 2.6 mm x 1.6 mm x 1.1 mm body	<a href="#">SOD123F</a>

## 7. Marking

Table 4. Marking codes

Type number	Marking code
BAS40H	AJ

## 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	$T_j = 25\text{ }^{\circ}\text{C}$		-	40	V
$I_F$	forward current			-	120	mA
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1\text{ s}$ ; $\delta \leq 0.5$		-	120	mA
$I_{FSM}$	non-repetitive peak forward current	$t_p \leq 10\text{ ms}$ ; $T_{j(\text{init})} = 25\text{ }^{\circ}\text{C}$		-	200	mA
$T_j$	junction temperature			-	150	$^{\circ}\text{C}$
$T_{\text{amb}}$	ambient temperature			-65	150	$^{\circ}\text{C}$
$T_{\text{stg}}$	storage temperature			-65	150	$^{\circ}\text{C}$

## 9. Thermal characteristics

Table 6. Thermal characteristics

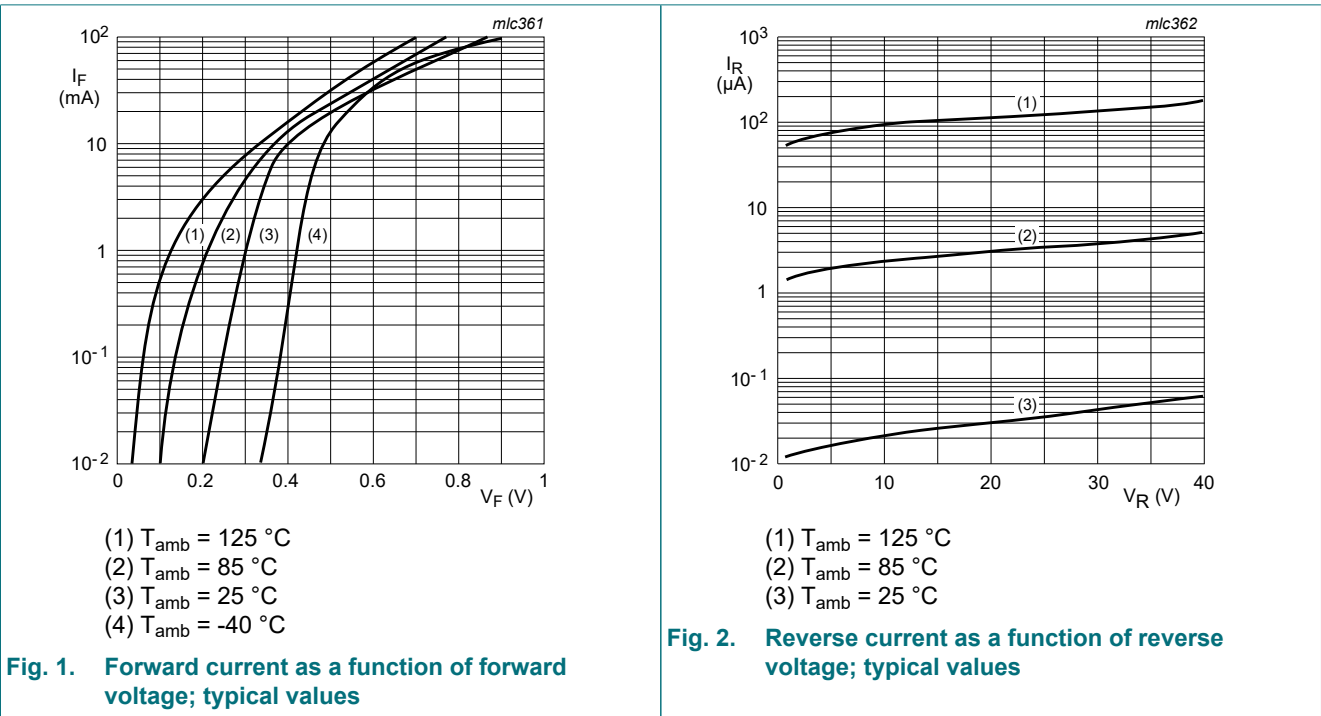
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
$R_{\text{th}(j-a)}$	thermal resistance from junction to ambient	in free air	<a href="#">[1]</a>	-	-	330	K/W

[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 <sub>F</sub>	forward voltage	I <sub>F</sub> = 1 mA; pulsed; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; T <sub>amb</sub> = 25 °C		-	-	380	mV
		I <sub>F</sub> = 10 mA; pulsed; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; T <sub>amb</sub> = 25 °C		-	-	500	mV
		I <sub>F</sub> = 40 mA; pulsed; t <sub>p</sub> ≤ 300 μs; δ ≤ 0.02; T <sub>amb</sub> = 25 °C		-	-	1	V
I <sub>R</sub>	reverse current	V <sub>R</sub> = 30 V; T <sub>amb</sub> = 25 °C		-	-	1	μA
		V <sub>R</sub> = 40 V; T <sub>amb</sub> = 25 °C		-	-	10	μA
C <sub>d</sub>	diode capacitance	V <sub>R</sub> = 0 V; f = 1 MHz; T <sub>amb</sub> = 25 °C		-	-	5	pF



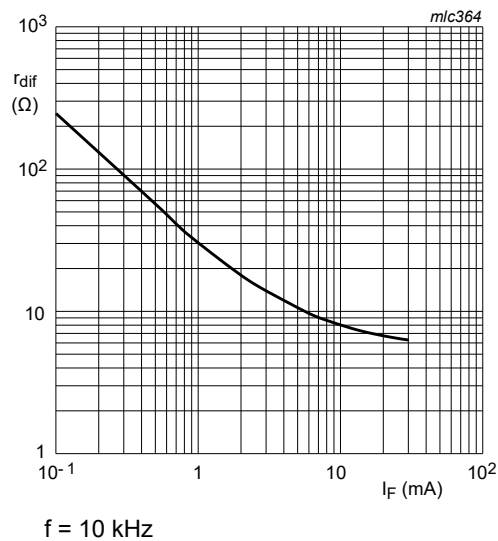


Fig. 3. Differential resistance as a function of forward current; typical values

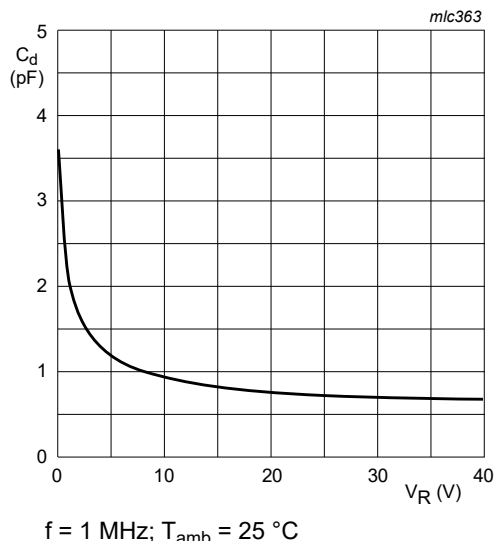


Fig. 4. Diode capacitance as a function of reverse voltage; typical values

11. Package outline

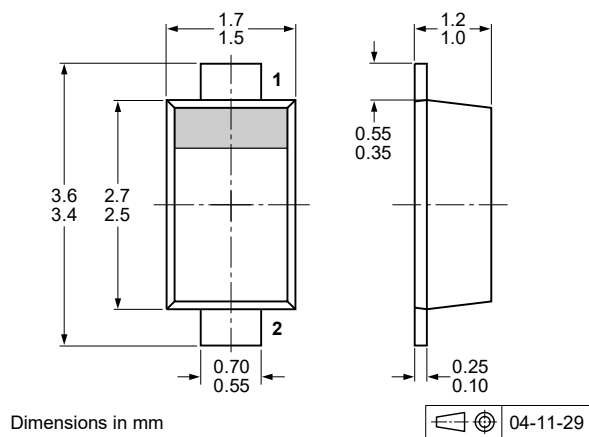
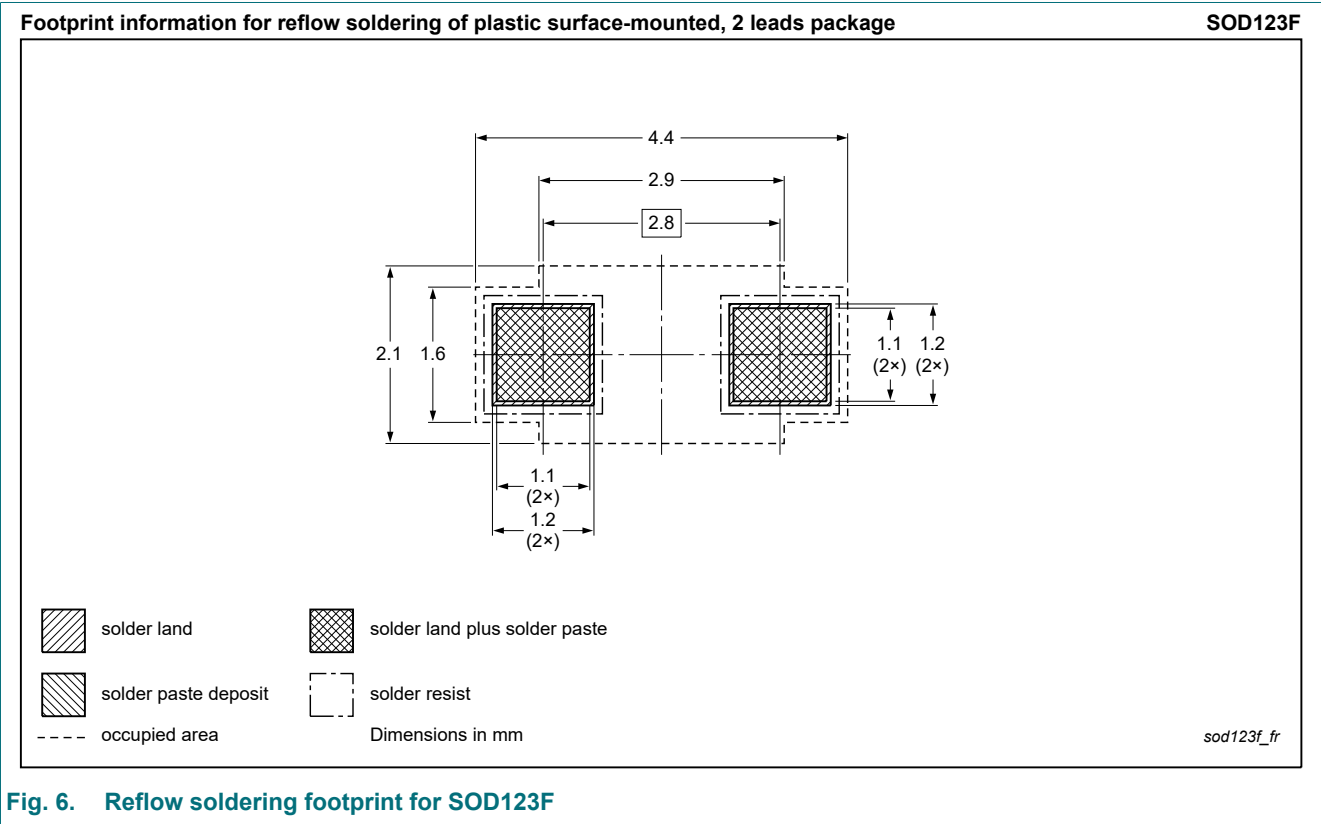


Fig. 5. Package outline SOD123F

12. Soldering



13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAS40H v.13	20241008	Product data sheet	-	BAS40H v.12
Modifications:	<ul style="list-style-type: none"><li>Limiting values: <math>I_{FSM}</math> unit corrected to mA</li><li>Product(s) changed to non-automotive qualification. Please refer to <a href="https://www.nexperia.com">nexperia.com</a> for automotive (-Q) product alternative(s).</li></ul>			
BAS40H v.12	20230302	Product data sheet	-	BAS40H v.11
BAS40H v.11	20220307	Product data sheet	-	BAS40_1PSXXSB4X_SER_10
BAS40_1PSXXSB4X_SER_10	20210407	Product data sheet	-	BAS40_1PSXXSB4X_SER_9
BAS40_1PSXXSB4X_SER_9	20150318	Product data sheet	-	BAS40_1PSXXSB4X_SER_8
BAS40_1PSXXSB4X_SER_8	20100113	Product data sheet	-	BAS40_1PSXXSB4X_SER_7
BAS40_1PSXXSB4X_SER_7	20060512	Product data sheet	-	BAS40_1PSXXSB4X_SER_6
BAS40_1PSXXSB4X_SER_6	20050809	Product data sheet	-	1PS70SB40_3 1PS75SB45_2 1PS76SB40_3 1PS79SB40_2 1PS88SB48_3 BAS40H_1 BAS40L_1 BAS40-05V_1 BAS40-07V_1 BAS40W_3 BAS40_SERIES_5
1PS70SB40_3	19990426	Product specification	-	1PS70SB40_2
1PS75SB45_2	19990426	Product specification	-	1PS75SB45_1
1PS76SB40_3	20040126	Product specification	-	1PS76SB40_2
1PS79SB40_2	19990426	Product specification	-	1PS79SB40_1
1PS88SB48_3	20021107	Product specification	-	1PS88SB48_2
BAS40H_1	20050425	Product data sheet	-	-
BAS40L_1	20030520	Product specification	-	-
BAS40-05V_1	20021121	Product specification	-	-
BAS40-07V_1	20020327	Product specification	-	-
BAS40W_3	19990426	Product specification	-	BAS40W_2
BAS40_SERIES_5	20011010	Product specification	-	BAS40_4

## 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.

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- [2] The term 'short data sheet' is explained in section "Definitions".
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