



BAS40-05V

General-purpose quadruple Schottky diode

27 December 2022

Product data sheet

1. General description

General-purpose quadruple Schottky diode, encapsulated in a SOT666 ultra small and flat lead 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
Per diode						
I_F	forward current		-	-	120	mA
V_F	forward voltage	$I_F = 1 \text{ mA}$; $t_p \leq 300 \text{ } \mu\text{s}$; $\delta \leq 0.02$; pulsed; $T_{\text{amb}} = 25 \text{ } ^\circ\text{C}$	-	-	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	A1	anode (diode 1)	<p>SOT666</p>	<p>006aaa446</p>
2	A2	anode (diode 2)		
3	K3: K4	common cathode (diode 3 and diode 4)		
4	A3	anode (diode 3)		
5	A4	anode (diode 4)		
6	K1: K2	common cathode (diode 1 and diode 2)		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BAS40-05V	SOT666	plastic, surface-mounted package; 6 leads; 0.5 mm pitch; 1.6 mm x 1.2 mm x 0.55 mm body	SOT666

7. Marking

Table 4. Marking codes

Type number	Marking code
BAS40-05V	65

8. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC60134).

Symbol	Parameter	Conditions	Min	Max	Unit
Per diode					
V_R	reverse voltage	$T_j = 25\text{ °C}$	-	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	$t_p \leq 10\text{ ms}; T_{j(\text{init})} = 25\text{ °C}$	-	200	mA
T_j	junction temperature		-	150	°C
T_{amb}	ambient temperature		-55	150	°C
T_{stg}	storage temperature		-65	150	°C

9. Thermal characteristics

Table 6. Thermal characteristics

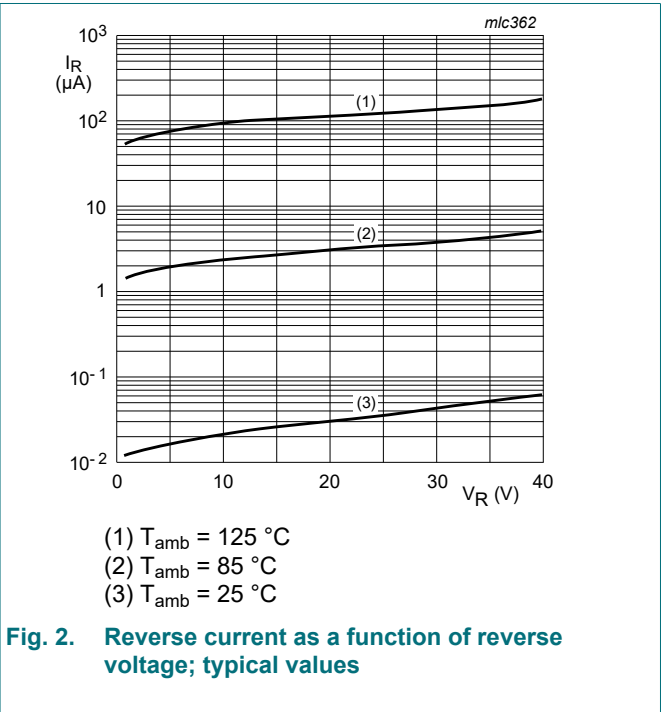
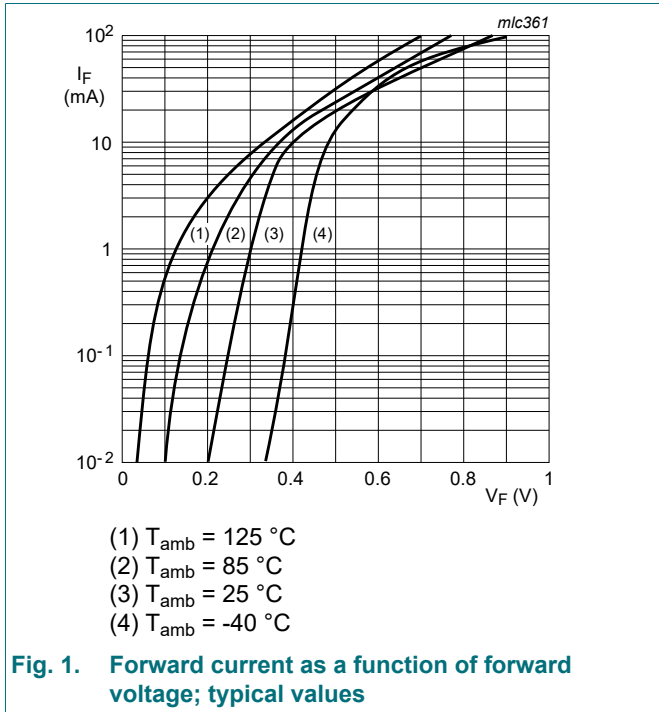
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per device						
$R_{\text{th}(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	225	K/W

[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
Per diode						
V_F	forward voltage	$I_F = 1 \text{ mA}; t_p \leq 300 \text{ }\mu\text{s}; \delta \leq 0.02;$ pulsed; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	380	mV
		$I_F = 10 \text{ mA}; t_p \leq 300 \text{ }\mu\text{s}; \delta \leq 0.02;$ pulsed; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	500	mV
		$I_F = 40 \text{ mA}; t_p \leq 300 \text{ }\mu\text{s}; \delta \leq 0.02;$ pulsed; $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	1	V
I_R	reverse current	$V_R = 30 \text{ V}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	1	μA
		$V_R = 40 \text{ V}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	10	μA
C_d	diode capacitance	$V_R = 0 \text{ V}; f = 1 \text{ MHz}; T_{\text{amb}} = 25 \text{ }^\circ\text{C}$	-	-	5	pF



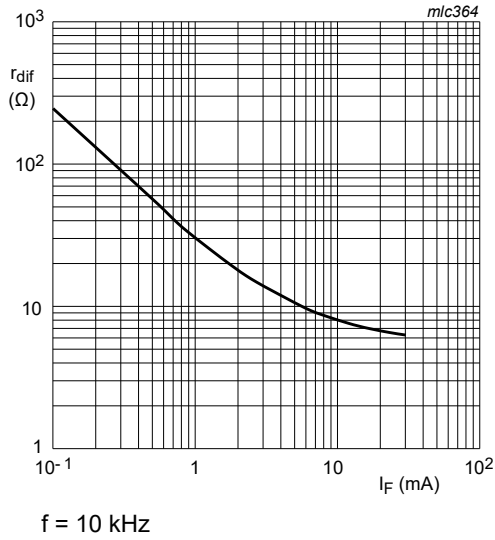


Fig. 3. Differential resistance as a function of forward current; typical values

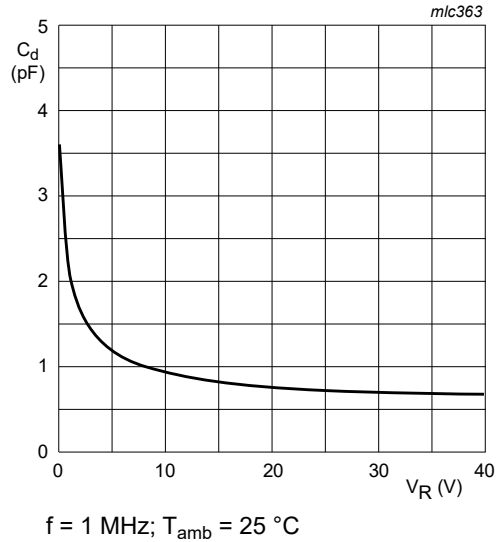


Fig. 4. Diode capacitance as a function of reverse voltage; typical values

11. Package outline

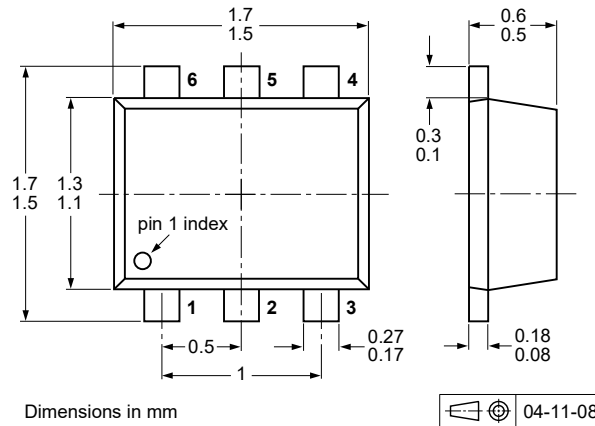


Fig. 5. Package outline SOT666

12. Soldering

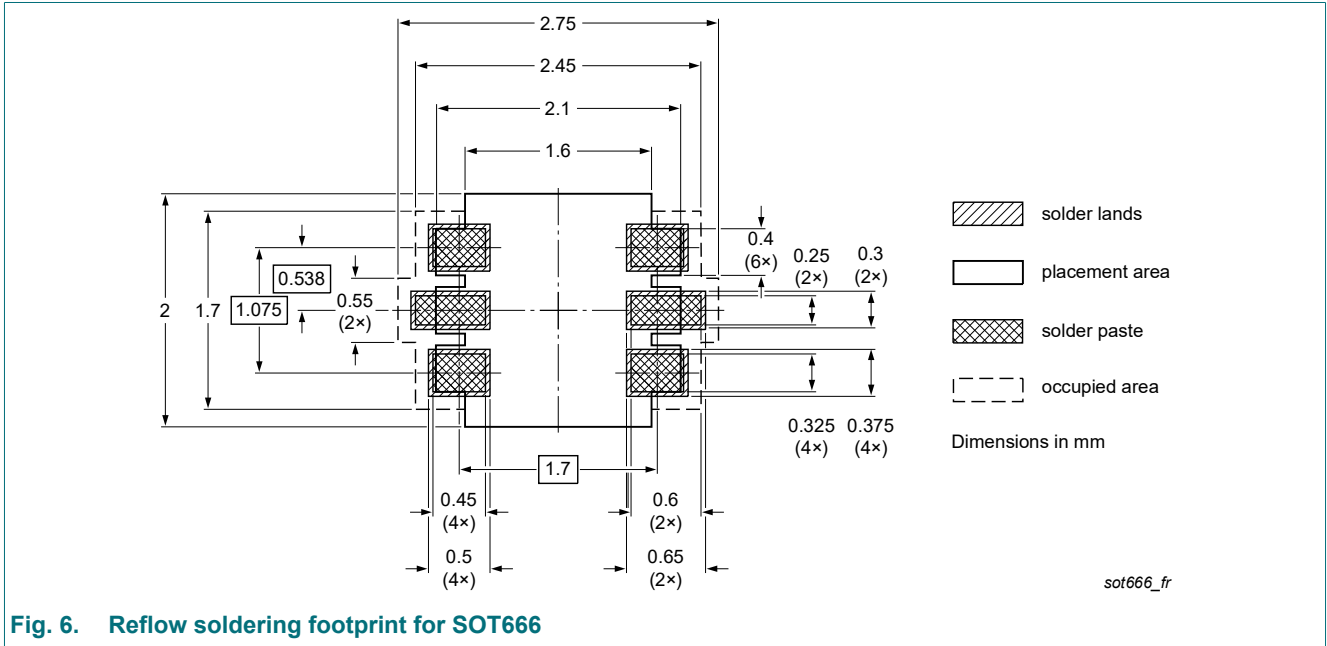


Fig. 6. Reflow soldering footprint for SOT666

13. Revision history

Table 8. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAS40-05V v.12	20221030	Product data sheet	-	BAS40-05V v.11
Modifications:	<ul style="list-style-type: none"> Product(s) changed to non-automotive qualification. 			
BAS40-05V v.11	20220815	Product data sheet	-	BAS40_1PSXXSB4X_SER_10
BAS40_1PSXXSB4X_SER_10	20210407	Product data sheet	-	BAS40_1PSXXSB4X_SER_9
BAS40_1PSXXSB4X_SER_9	201560318	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 specification	-	-
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".
- [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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Date of release: 27 December 2022
