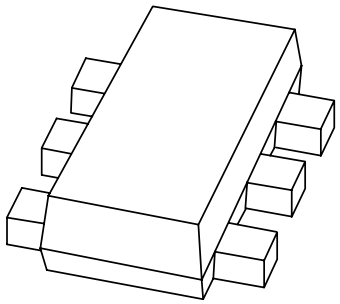
DATA SHEET



BAS40-05V
Schottky barrier diodes

Product specification

2002 Nov 21

Philips
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Schottky barrier diodes BAS40-05V

FEATURES

- Low forward voltage
- Absorbs very high surge pulse
- Low capacitance
- Ultra small SMD plastic package
- Flat leads giving excellent coplanarity and improved thermal behaviour.

APPLICATIONS

- Ultra high-speed switching
- Voltage clamping
- Board space critical applications.

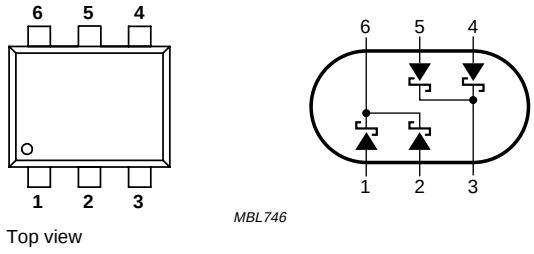
DESCRIPTION

The BAS40-05V consists of two dual Schottky barrier diodes with common cathodes and integrated guard ring for stress protection.

Two separate dice are encapsulated in a SOT666 ultra small SMD plastic package.

PINNING

PIN	DESCRIPTION
1	anode (a1)
2	anode (a2)
3	common cathode (k2)
4	anode (a3)
5	anode (a4)
6	common cathode (k1)



Marking code: 65

Fig.1 Simplified outline (SOT666) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
V_R	continuous reverse voltage		–	40	V
I_F	continuous forward current		–	120	mA
I_{FRM}	repetitive peak forward current	$t_p < 1$ s; $\delta < 0.5$	–	120	mA
I_{FSM}	non-repetitive peak forward current	t = 8.3 ms half sinewave; JEDEC method	–	200	mA
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

ELECTRICAL CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
Per diode				
V_F	continuous forward voltage	see Fig.2; note 1		
		I_F = 1 mA	380	mV
		I_F = 10 mA	500	mV
		I_F = 40 mA	1	V
I_R	reverse current	see Fig.3; note 1		
		V_R = 30 V	1	μA
		V_R = 40 V	10	μA
C_d	diode capacitance	V_R = 0 V; f = 1 MHz; see Fig.5	5	pF

Note

1. Pulsed test: t_p = 300 μs; δ = 0.02.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	225	K/W

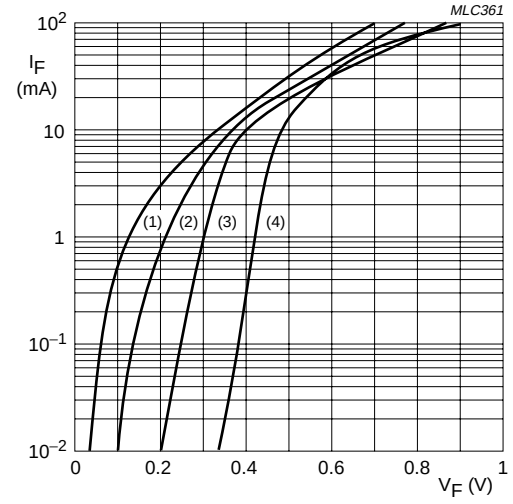
Note

1. Refer to SOT666 standard mounting conditions.

Soldering

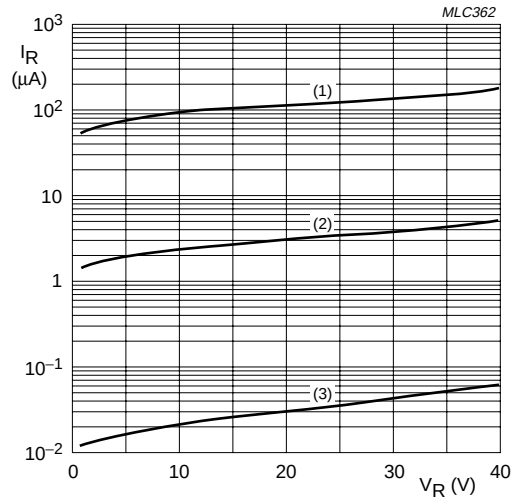
The only recommended soldering is reflow soldering.

GRAPHICAL DATA



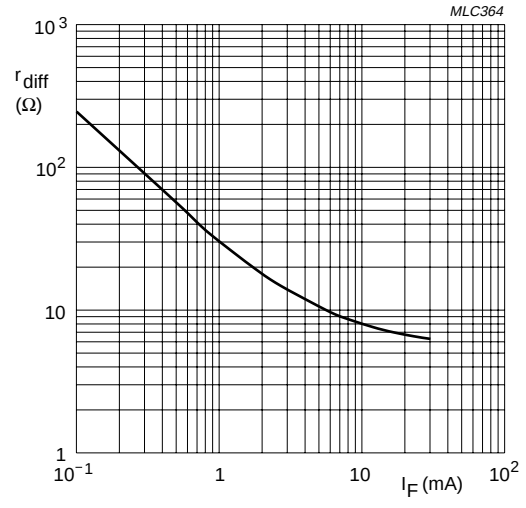
(1) T_{amb} = 150 °C.
(2) T_{amb} = 85 °C.
(3) T_{amb} = 25 °C.
(4) T_{amb} = –40 °C.

Fig.2 Forward current as a function of forward voltage; typical values.



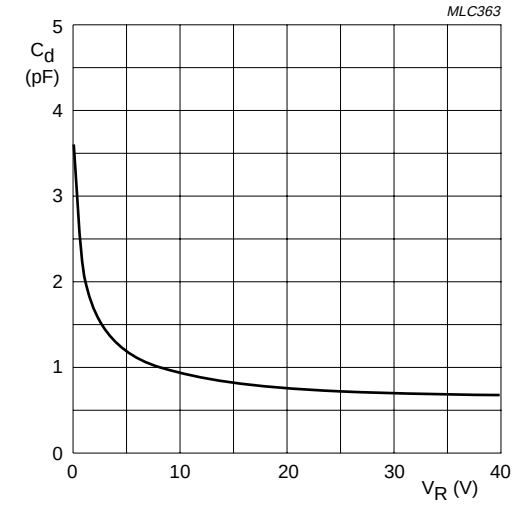
(1) T_{amb} = 150 °C.
(2) T_{amb} = 85 °C.
(3) T_{amb} = 25 °C.

Fig.3 Reverse current as a function of reverse voltage; typical values.



f = 10 kHz.

Fig.4 Differential forward resistance as a function of forward current; typical values.

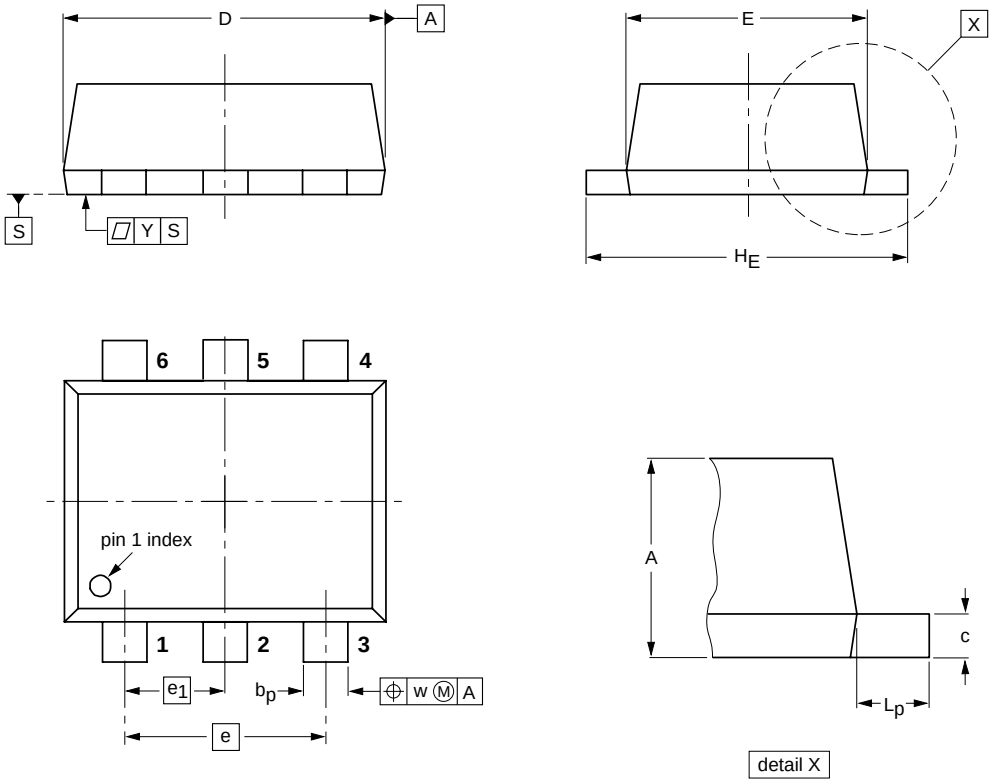


f = 1 MHz; T_{amb} = 25 °C.

Fig.5 Diode capacitance as a function of reverse voltage; typical values.

PACKAGE OUTLINE

Plastic surface mounted package; 6 leads **SOT666**



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_p	c	D	E	e	e_1	H_E	L_p	w	y
mm	0.6 0.5	0.27 0.17	0.18 0.08	1.7 1.5	1.3 1.1	1.0	0.5	1.7 1.5	0.3 0.1	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT666						~~01-01-04~~ 01-08-27

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS(1)	PRODUCT STATUS(2)(3)	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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