

# Silicon Schottky Diode

## **BYG90-40**

40V/1A

# DATASHEET

OEM – Philips

Source: Philips Databook 1999

**Schottky barrier rectifier diodes****BYG90-40 series****FEATURES**

- Low switching losses
- Capability of absorbing very high surge current
- Fast recovery time
- Guard ring protected
- Plastic SMD package.

**APPLICATIONS**

- Low power switched-mode power supplies
- Rectifying
- Polarity protection.

**DESCRIPTION**

The BYG 90-40 series consists of Schottky barrier rectifier diodes, fabricated in planar technology, and encapsulated in rectangular SOD106A plastic SMD packages.

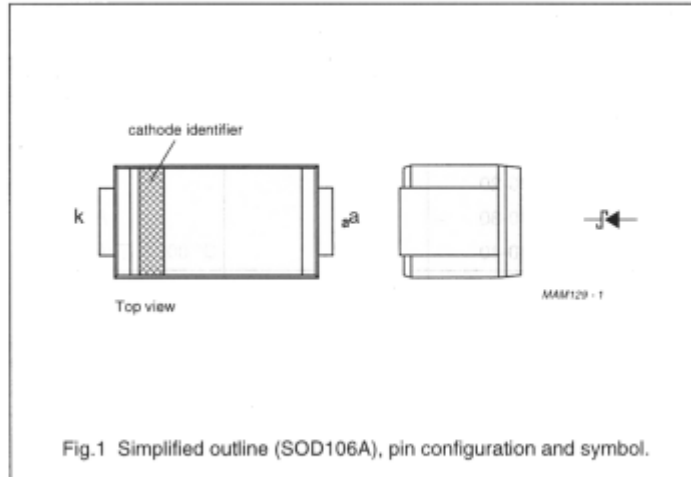


Fig.1 Simplified outline (SOD106A), pin configuration and symbol.

## Schottky barrier rectifier diodes

## BYG90-40 series

**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per diode</b>					
$V_R$	continuous reverse voltage				
	BYG90-20		–	20	V
	BYG90-30		–	30	V
	BYG90-40		–	40	V
$V_{RRM}$	repetitive peak reverse voltage				
	BYG90-20		–	20	V
	BYG90-30		–	30	V
	BYG90-40		–	40	V
$V_{RWM}$	crest working reverse voltage				
	BYG90-20		–	20	V
	BYG90-30		–	30	V
	BYG90-40		–	40	V
$I_{F(AV)}$	average forward current	$T_{amb} = 65\text{ °C}$ ; see Fig.2; $R_{th\ j-a} = 80\text{ K/W}$ ; note 1; $V_{R(equiv)} = 0.2\text{ V}$ ; note 2	–	1	A
$I_{FSM}$	non-repetitive peak forward current	$t = 8.3\ \mu\text{s}$ half sine wave; JEDEC method	–	30	A
$I_{RSM}$	non-repetitive peak reverse current	$t_p = 100\ \mu\text{s}$	–	0.5	A
$T_{stg}$	storage temperature		–65	+125	°C
$T_j$	junction temperature		–	125	°C

**Notes**

1. Refer to SOD106A standard mounting conditions.
2. For Schottky barrier diodes thermal run-away has to be considered, as in some applications, the reverse power losses  $P_R$  are a significant part of the total power losses. Nomograms for determination of the reverse power losses  $P_R$  and  $I_{F(AV)}$  rating will be available on request.

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**ELECTRICAL CHARACTERISTICS**

$T_{amb} = 25\text{ °C}$ ; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
<b>Per diode</b>						
$V_F$	forward voltage	see Fig.2; note 1				
		$I_F = 1\text{ A}$	–	–	550	mV
		$I_F = 3\text{ A}$	–	–	850	mV
$I_R$	reverse current	$V_R = V_{RRMmax}$ ; note 1; see Fig.3	–	–	1	mA
		$V_R = V_{RRMmax}$ ; $T_j = 100\text{ °C}$ ; note 1; see Fig.3	–	–	10	mA
$C_d$	diode capacitance	$V_R = 4\text{ V}$ ; $f = 1\text{ MHz}$ ; see Fig.4	–	–	75	pF

**Note**

1. Pulsed test:  $t_p = 300\text{ }\mu\text{s}$ ;  $\delta = 0.02$ .

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	80	K/W

**Note**

1. Refer to SOD106A standard mounting conditions.

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GRAPHICAL DATA

