Silicon Schottky Diode

BYG90-20

20V/1A

DATASHEET

OEM – Philips

Source: Philips Databook 1999

Datasheet Rev. 1.3 – 04/19 – data without warranty / liability

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.

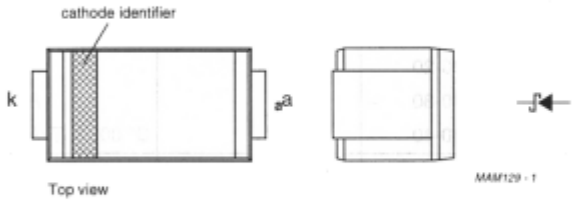

Fig.1 Simplified outline (SOD106A), pin configuration and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
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 °C; see Fig.2; $R_{th\ j\text{-}a}$ = 80 K/W; note 1; $V_{R(equiv)}$ = 0.2 V; note 2	–	1	A
I_{FSM}	non-repetitive peak forward current	t = 8.3 µs half sine wave; JEDEC method	–	30	A
I_{RSM}	non-repetitive peak reverse current	t_p = 100 µs	–	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.

ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per diode						
V_F	forward voltage	see Fig.2; note 1				
		I_F = 1 A	–	–	550	mV
		I_F = 3 A	–	–	850	mV
		I_F = 1 A; T_j = 100 °C	–	–	450	mV
I_R	reverse current	$V_R = V_{RRMmax}$; note 1; see Fig.3	–	–	1	mA
		$V_R = V_{RRMmax}$; T_j = 100 °C; note 1; see Fig.3	–	–	10	mA
C_d	diode capacitance	V_R = 4 V; f = 1 MHz; see Fig.4	–	–	75	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	80	K/W

Note

1. Refer to SOD106A standard mounting conditions.

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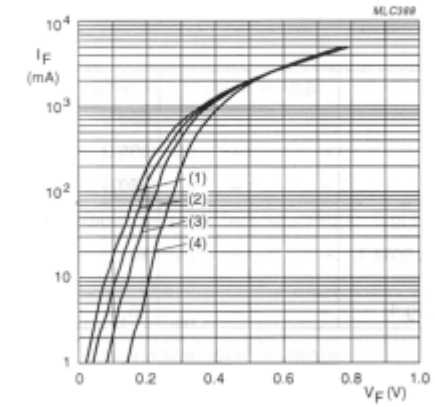
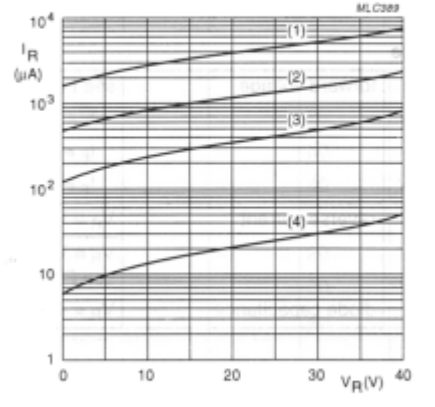
GRAPHICAL DATA



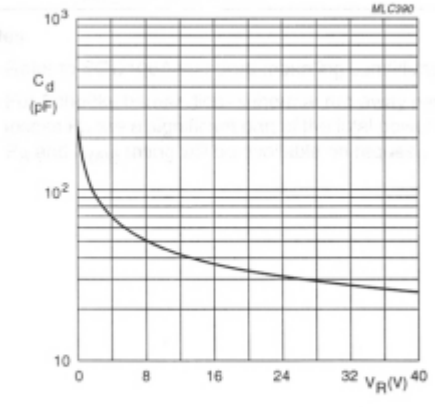
(1) T_{amb} = 125 °C.
(2) T_{amb} = 100 °C.
(3) T_{amb} = 75 °C.
(4) T_{amb} = 25 °C.

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



(1) T_{amb} = 125 °C.
(2) T_{amb} = 100 °C.
(3) T_{amb} = 75 °C.
(4) T_{amb} = 25 °C.

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



f = 1 MHz.

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