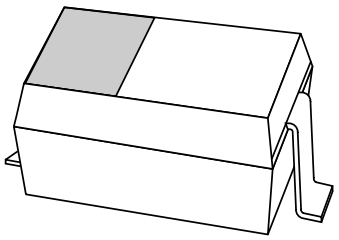
DATA SHEET



PMEG2020AEA

20 V, 2 A very low V_F MEGA Schottky barrier rectifier in SOD323 (SC-76) package

Product specification

2004 Feb 26

Philips Semiconductors

PHILIPS

20 V, 2 A very low V_F MEGA Schottky barrier rectifier in SOD323 (SC-76) package

PMEG2020AEA

FEATURES

- Forward current: 2 A
- Reverse voltage: 20 V
- Very low forward voltage
- Very small SMD package.

APPLICATIONS

- Low voltage rectification
- High efficiency DC/DC conversion
- Switch mode power supply
- Inverse polarity protection
- Low power consumption applications.

DESCRIPTION

Planar Maximum Efficiency General Application (MEGA) Schottky barrier rectifier with an integrated guard ring for stress protection, encapsulated in a SOD323 (SC-76) very small SMD plastic package.

MARKING

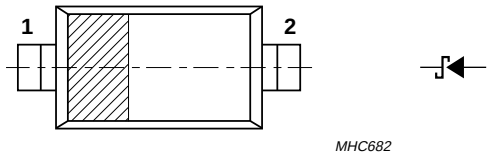
TYPE NUMBER	MARKING CODE
PMEG2020AEA	S3

QUICK REFERENCE DATA

SYMBOL	PARAMETER	VALUE	UNIT
I_F	forward current	2	A
V_R	reverse voltage	20	V

PINNING

PIN	DESCRIPTION
1	cathode
2	anode



The marking bar indicates the cathode.

Fig.1 Simplified outline (SOD323; SC-76) and symbol.

RELATED PRODUCTS

TYPE NUMBER	DESCRIPTION	FEATURES
PMEG1020EA	2 A; 10 V ultra low V_F MEGA Schottky barrier rectifier	SOD323 package; lower reverse voltage; lower forward voltage
PMEG2010EA	1 A; 20 V ultra low V_F MEGA Schottky barrier rectifier	SOD323 package; lower forward current; lower reverse current and diode capacitance

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
PMEG2020AEA	–	plastic surface mounted package; 2 leads	SOD323

20 V, 2 A very low V_F MEGA Schottky barrier rectifier in SOD323 (SC-76) package

PMEG2020AEA

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_R	continuous reverse voltage		–	20	V
I_F	continuous forward current	$T_{sp} \leq 55$ °C	–	2	A
I_{FRM}	repetitive peak forward current	$t_p \leq 1$ ms; $\delta \leq 0.25$	–	7	A
I_{FSM}	non-repetitive peak forward current	t = 8 ms square wave	–	9	A
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-a)}$	thermal resistance from junction to ambient	notes 1 and 2	450	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient	notes 2 and 3	210	K/W
$R_{th(j-s)}$	thermal resistance from junction to solder point	note 4	90	K/W

Notes

1. Refer to SOD323 (SC-76) standard mounting conditions.
2. For Schottky barrier diodes thermal runaway 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.
3. Device mounted on a on an FR4 printed-circuit board with copper clad 10 x 10 mm.
4. Soldering point of cathode tab.

ELECTRICAL CHARACTERISTICS

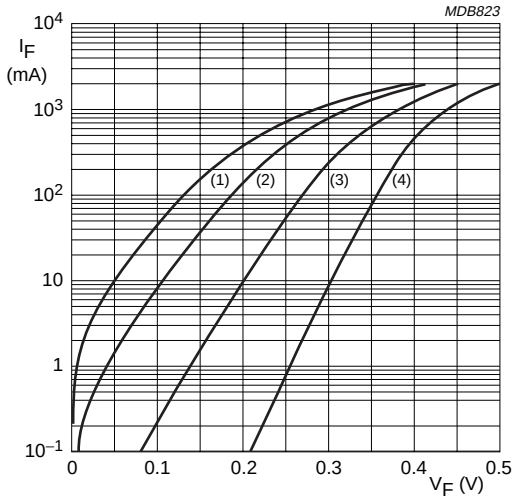
T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V_F	forward voltage	see Fig.2; note 1			
		I_F = 0.01 A	200	220	mV
		I_F = 0.1 A	265	290	mV
		I_F = 1 A	380	430	mV
		I_F = 2 A	450	525	mV
I_R	reverse current	V_R = 5 V; see Fig.3	15	50	µA
		V_R = 10 V	20	80	µA
		V_R = 20 V	50	200	µA
C_d	diode capacitance	V_R = 5 V; f = 1 MHz; see Fig.4	55	70	pF

Note

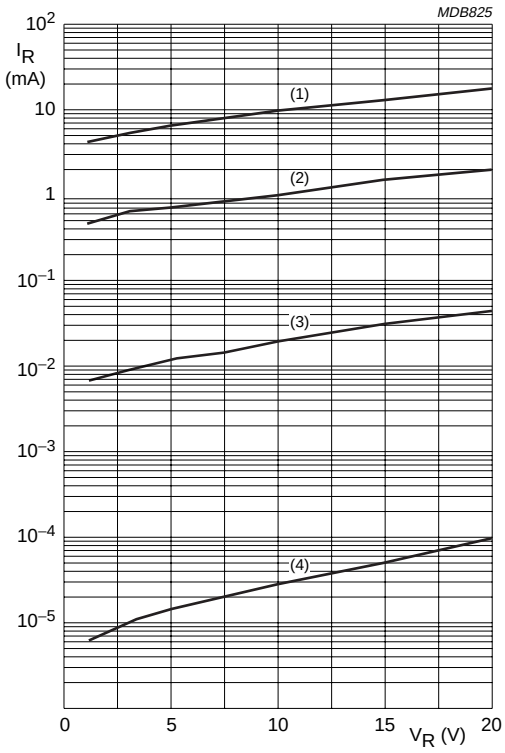
1. Pulse test: $t_p \leq 300$ µs; $\delta \leq 0.02$.

GRAPHICAL DATA



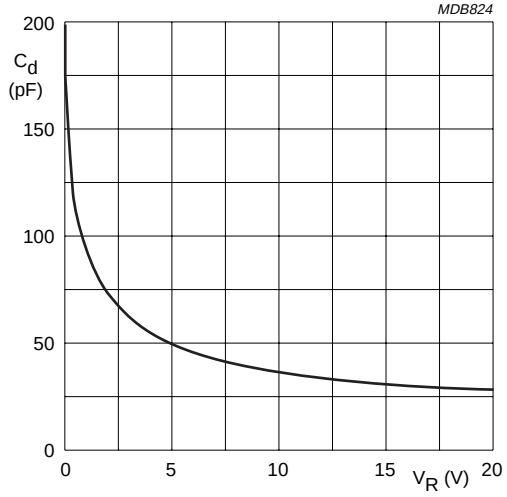
(1) T_{amb} = 125 °C.
(2) T_{amb} = 85 °C.
(3) T_{amb} = 25 °C.
(4) T_{amb} = –40 °C.

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



(1) T_{amb} = 125 °C.
(2) T_{amb} = 85 °C.
(3) T_{amb} = 25 °C.
(4) T_{amb} = –40 °C.

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

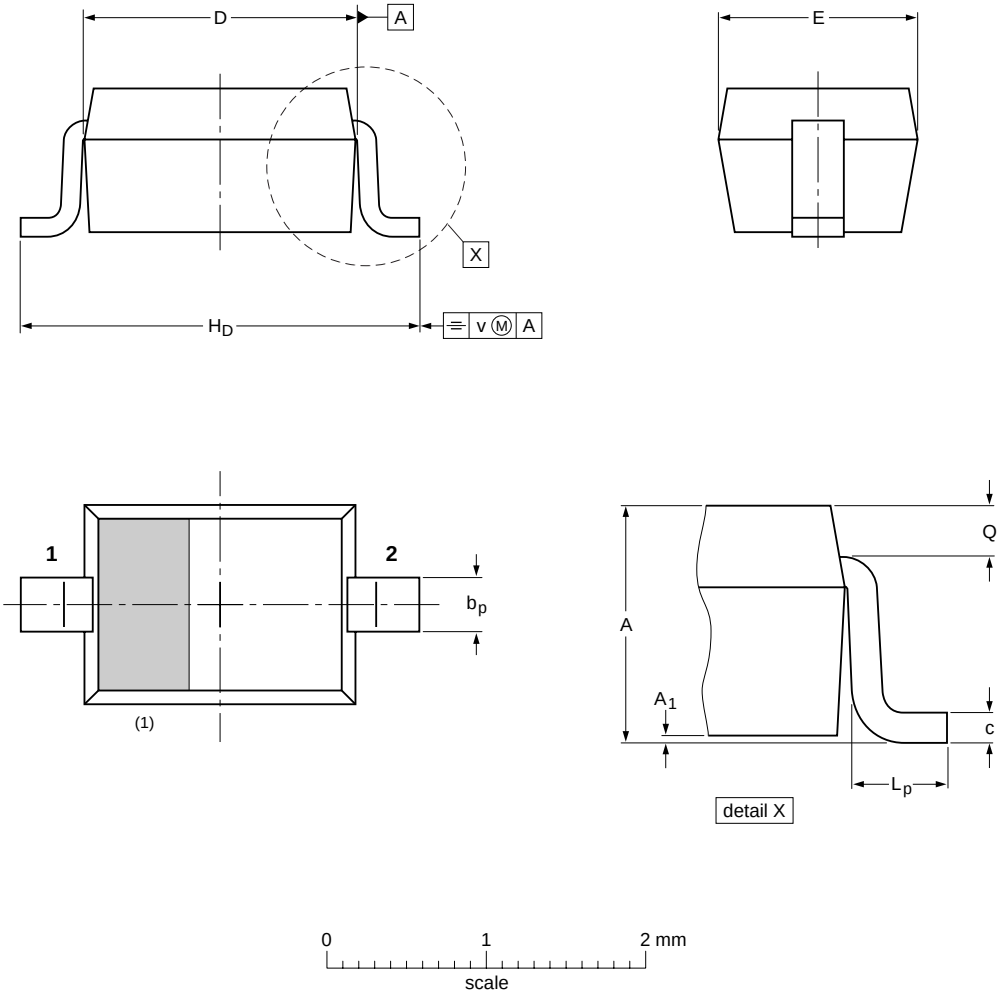


f = 1 MHz; T_{amb} = 25 °C.

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

PACKAGE OUTLINE

Plastic surface mounted package; 2 leads **SOD323**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max	b_p	c	D	E	H_D	L_p	Q	v
mm	1.1 0.8	0.05	0.40 0.25	0.25 0.10	1.8 1.6	1.35 1.15	2.7 2.3	0.45 0.15	0.25 0.15	0.2

Note

1. The marking bar indicates the cathode

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOD323			SC-76			~~99-09-13~~ 03-12-17

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.
II	Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
III	Product data	Production	This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN).

Notes

1. Please consult the most recently issued data sheet before initiating or completing a design.
2. The product status of the device(s) described in this data sheet may have changed since this data sheet was published. The latest information is available on the Internet at URL http://www.semiconductors.philips.com.
3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

DEFINITIONS

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

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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