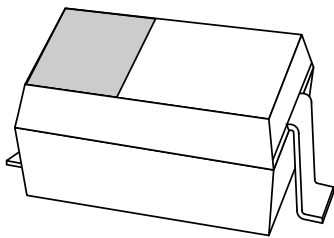


# DATA SHEET



## **PMEG2020AEA**

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

Product specification

2004 Feb 26

## 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

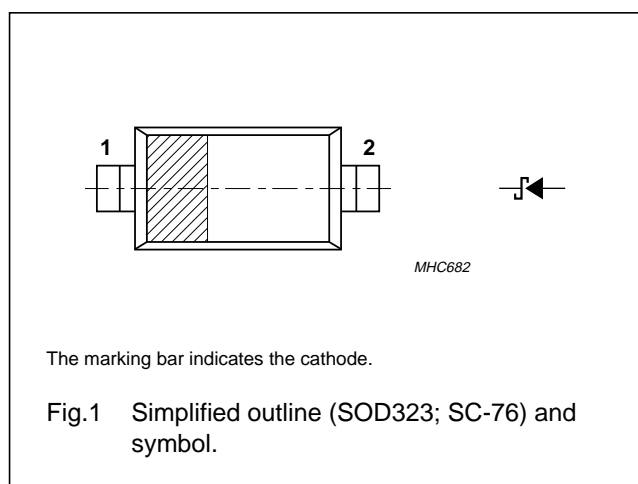
TYPE NUMBER	MARKING CODE
PMEG2020AEA	S3

#### 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



#### 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

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### 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	$T_{sp} \leq 55\text{ °C}$	–	2	A
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1\text{ ms}; \delta \leq 0.25$	–	7	A
$I_{FSM}$	non-repetitive peak forward current	$t = 8\text{ ms square wave}$	–	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

 $T_j = 25\text{ °C}$  unless otherwise specified.

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

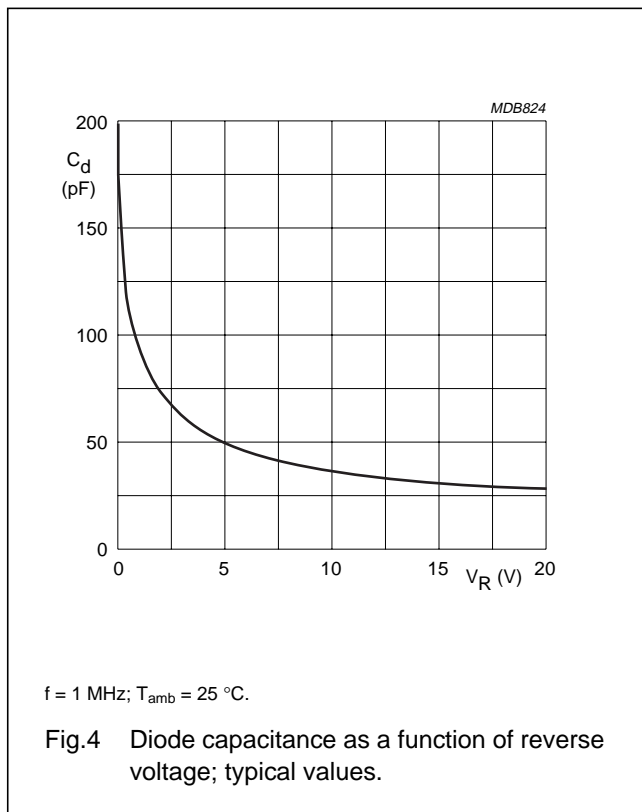
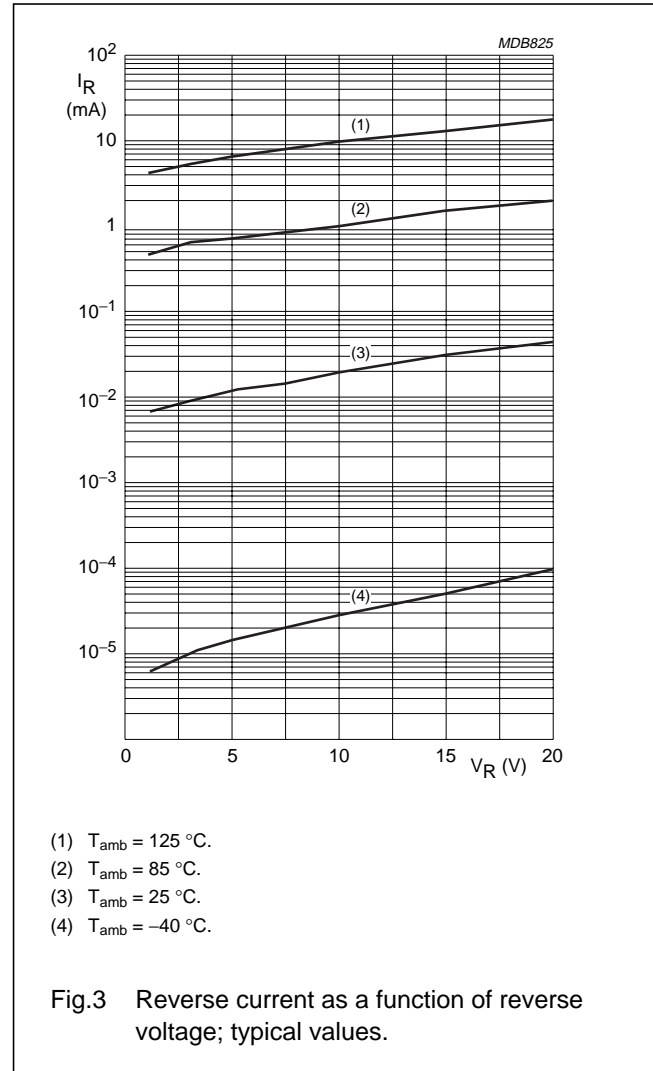
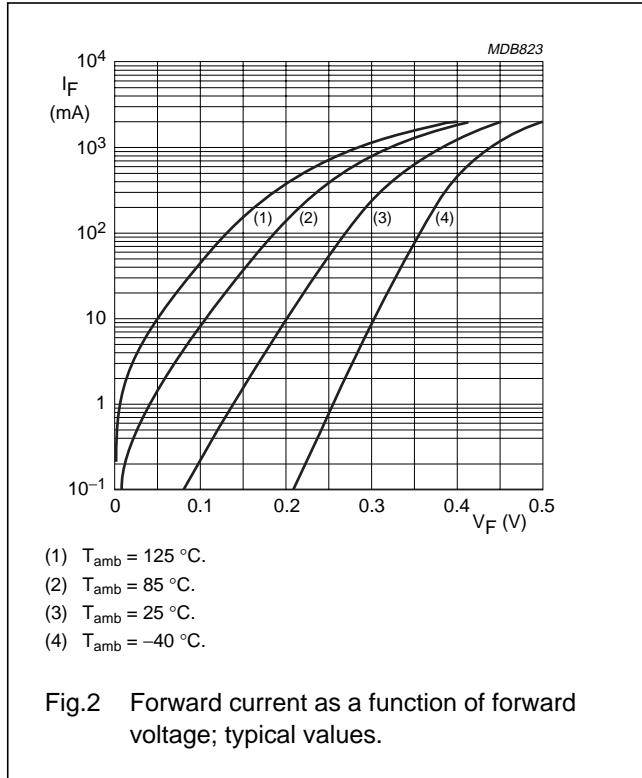
#### Note

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

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GRAPHICAL DATA



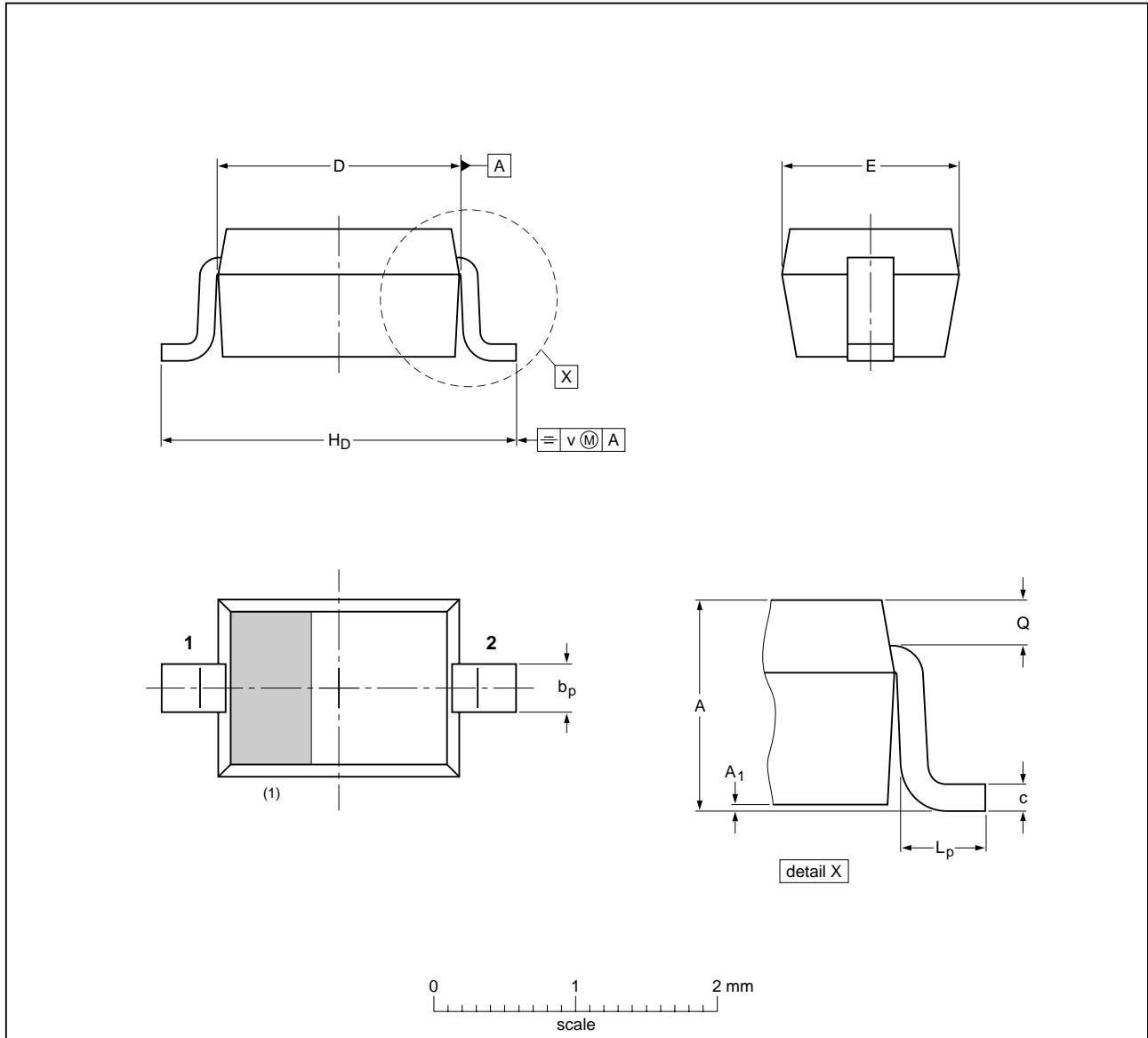
20 V, 2 A very low  $V_F$  MEGA Schottky barrier rectifier in SOD323 (SC-76) package

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PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SOD323



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	H <sub>D</sub>	L <sub>p</sub>	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

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

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### DATA SHEET STATUS

LEVEL	DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)(3)</sup>	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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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).

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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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