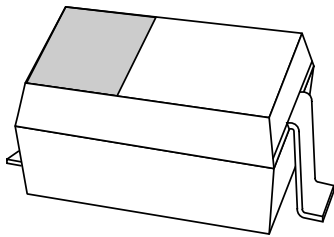


# DATA SHEET



## **PMEG1020EA**

Ultra low  $V_F$  MEGA Schottky barrier diode

Preliminary specification

2003 Mar 07

# Ultra low $V_F$ MEGA Schottky barrier diode

# PMEG1020EA

### FEATURES

- Forward current: 2 A
- Reverse voltage: 10 V
- Ultra low forward voltage
- Very small plastic SMD package.

### APPLICATIONS

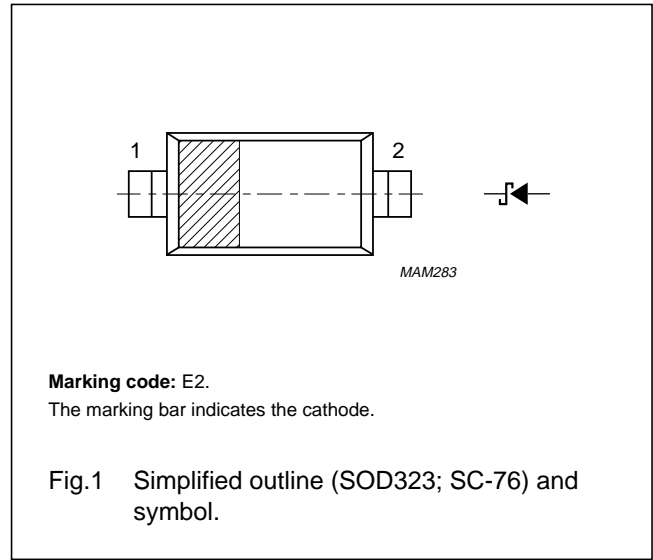
- Low voltage rectification
- High efficiency DC/DC conversion
- Switch mode power supply
- Inverse polarity protection
- Low power consumption applications.

### DESCRIPTION

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

### PINNING

PIN	DESCRIPTION
1	cathode
2	anode



### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_R$	continuous reverse voltage		–	10	V
$I_F$	continuous forward current	$T_{sp} \leq 55\text{ }^\circ\text{C}$	–	2	A
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1\text{ ms}; \delta \leq 0.5$	–	3.2	A
$I_{FSM}$	non-repetitive peak forward current	$t_p = 8\text{ ms square wave}$	–	9	A
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	junction temperature		–	150	$^\circ\text{C}$
$T_{amb}$	operating ambient temperature		–65	+150	$^\circ\text{C}$

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**ELECTRICAL CHARACTERISTICS**

$T_{amb} = 25\text{ }^\circ\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
$V_F$	forward voltage	see Fig.2; note 1			
		$I_F = 0.01\text{ A}$	100	130	mV
		$I_F = 0.1\text{ A}$	170	200	mV
		$I_F = 1\text{ A}$	280	350	mV
$I_R$	reverse current	see Fig.3; note 2			
		$V_R = 5\text{ V}$	0.7	2	mA
		$V_R = 8\text{ V}$	1	2.5	mA
		$V_R = 10\text{ V}$	1.2	3	mA
$C_d$	diode capacitance	$V_R = 5\text{ V}$ ; $f = 1\text{ MHz}$ ; see Fig.4	37	45	pF

**Notes**

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

**THERMAL CHARACTERISTICS**

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

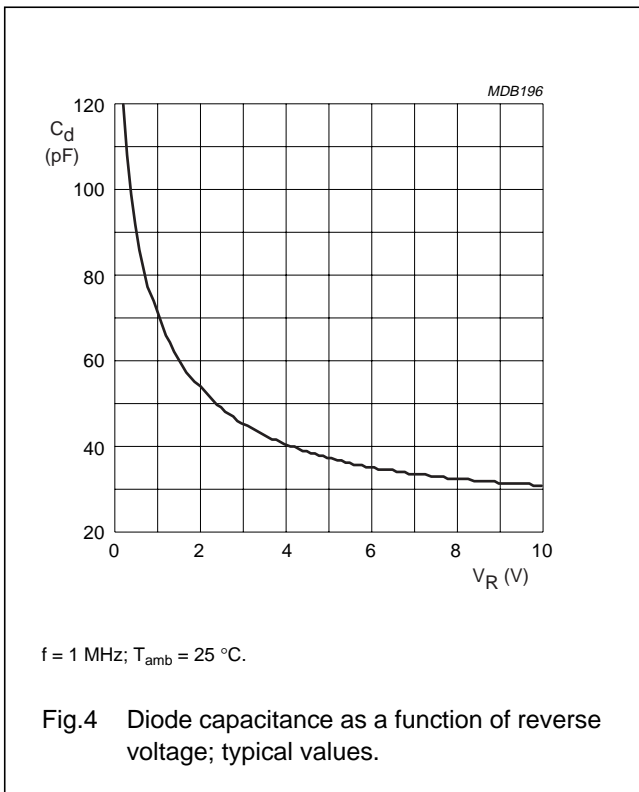
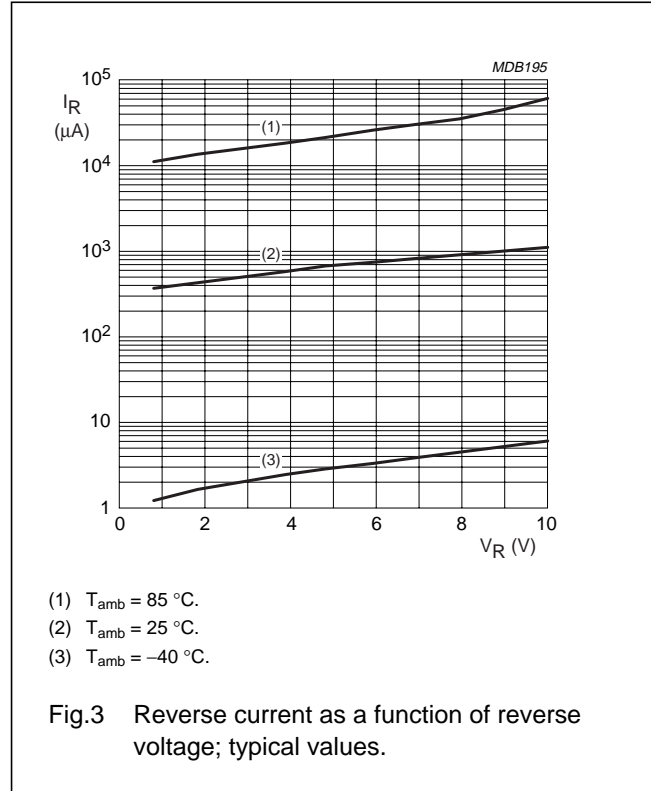
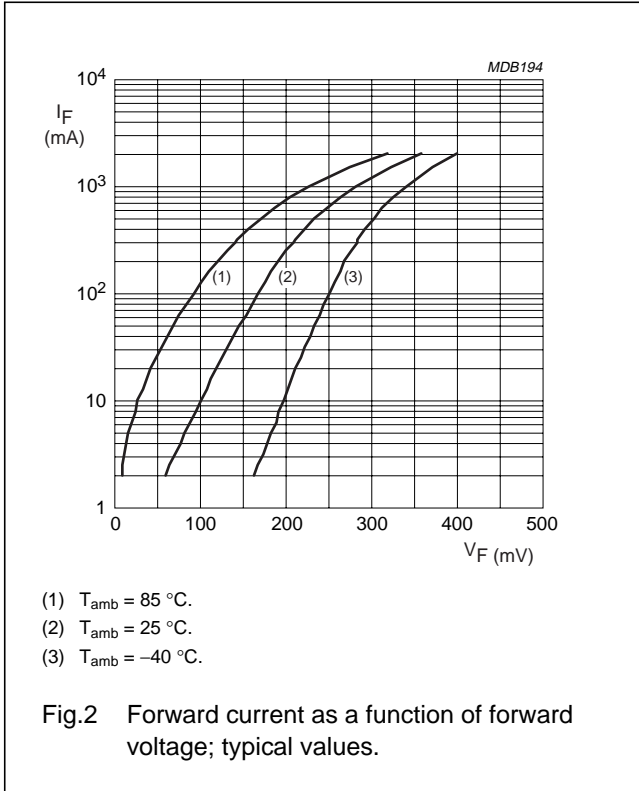
**Notes**

1. Refer to SOD323 (SC-76) standard mounting conditions.
2. Device mounted on an FR4 printed-circuit board with copper clad 10 x 10 mm.
3. Solder point of cathode tab.

Ultra low  $V_F$  MEGA Schottky barrier diode

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GRAPHICAL DATA



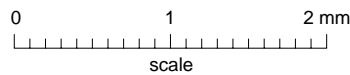
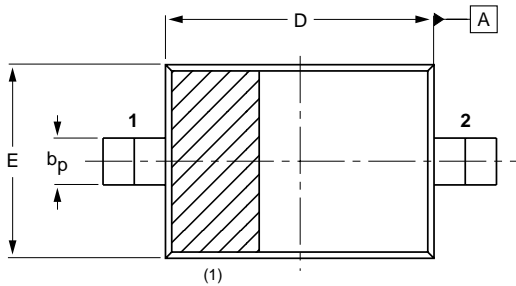
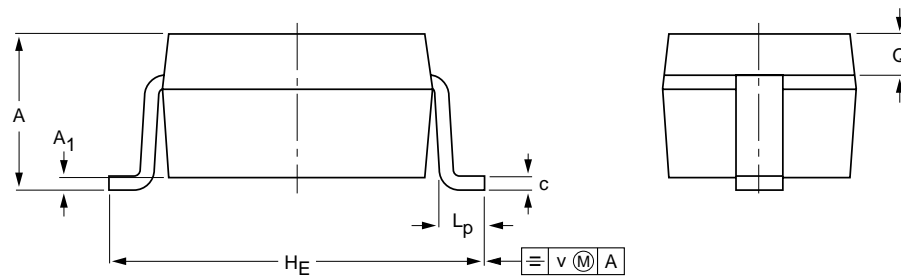
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PACKAGE OUTLINE

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>E</sub>	L <sub>p</sub>	Q	v
mm	1.1 0.8	+0.05 -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	EIAJ			
SOD323			SC-76			98-09-14 99-09-13

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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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**NOTES**

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