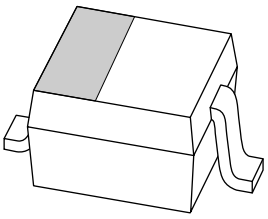
DATA SHEET



PMEG1020EA

Ultra low V_F MEGA Schottky barrier rectifier

Product specification
Supersedes data of 2003 Jul 15

2004 Feb 06

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Ultra low V_F MEGA Schottky barrier rectifier PMEG1020EA

FEATURES

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

APPLICATIONS

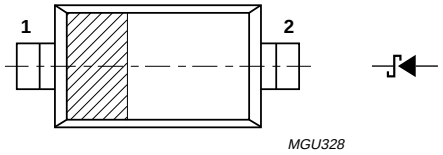
- Low voltage rectification
- High efficiency DC/DC conversion
- Switch mode power supply
- Inverse polarity protection
- Low power consumption applications.

DESCRIPTION

Planar Maximum Efficiency General Application (MEGA) Schottky barrier rectifier 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



Marking code: E2.
The marking bar indicates the cathode.

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

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
PMEG1020EA	–	plastic surface mounted package; 2 leads	SOD323

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	$T_{sp} \leq 55$ °C	–	2	A
I_{FRM}	repetitive peak forward current	$t_p \leq 1$ ms; $\delta \leq 0.5$	–	3.2	A
I_{FSM}	non-repetitive peak forward current	$t_p = 8$ 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

CHARACTERISTICS

T_{amb} = 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	100	130	mV
		I_F = 0.1 A	170	200	mV
		I_F = 1 A	280	350	mV
		I_F = 2 A	350	460	mV
I_R	reverse current	see Fig.3; note 2			
		V_R = 5 V	0.7	2	mA
		V_R = 8 V	1	2.5	mA
		V_R = 10 V	1.2	3	mA
C_d	diode capacitance	V_R = 5 V; f = 1 MHz; see Fig.4	37	45	pF

Notes

1. Pulse test: t_p = 300 μs; δ = 0.02.
2. For Schottky barrier rectifiers 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.

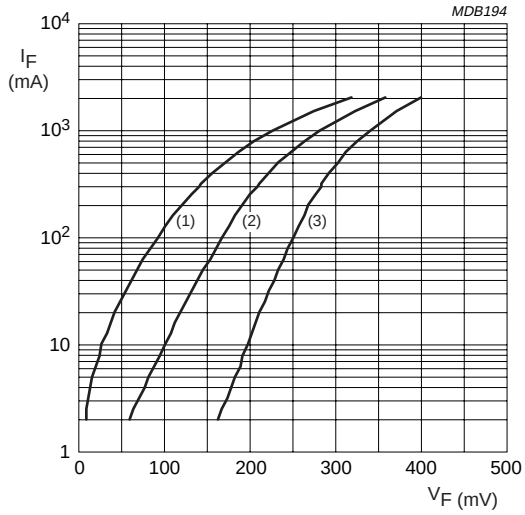
THERMAL CHARACTERISTICS

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

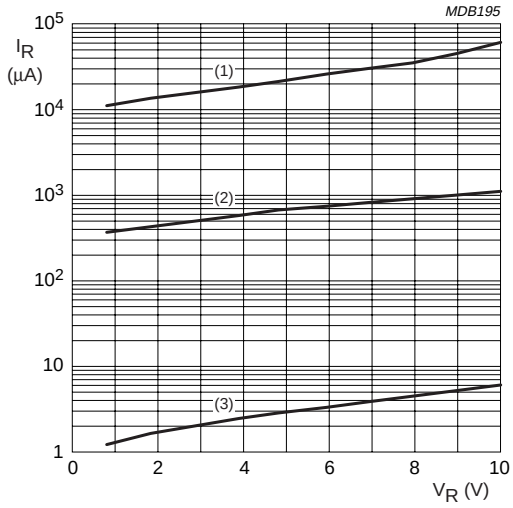
1. Refer to SOD323 (SC-76) standard mounting conditions.
2. Device mounted on an FR4 printed-circuit board with copper clad 10 x 10 mm.
3. Solder point of cathode tab.

GRAPHICAL DATA



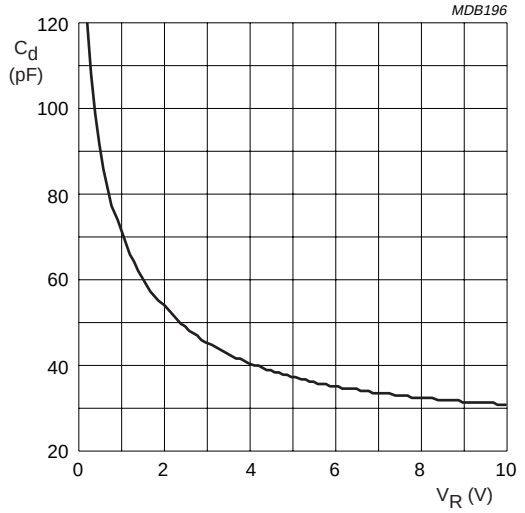
(1) T_{amb} = 85 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = –40 °C.

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



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

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

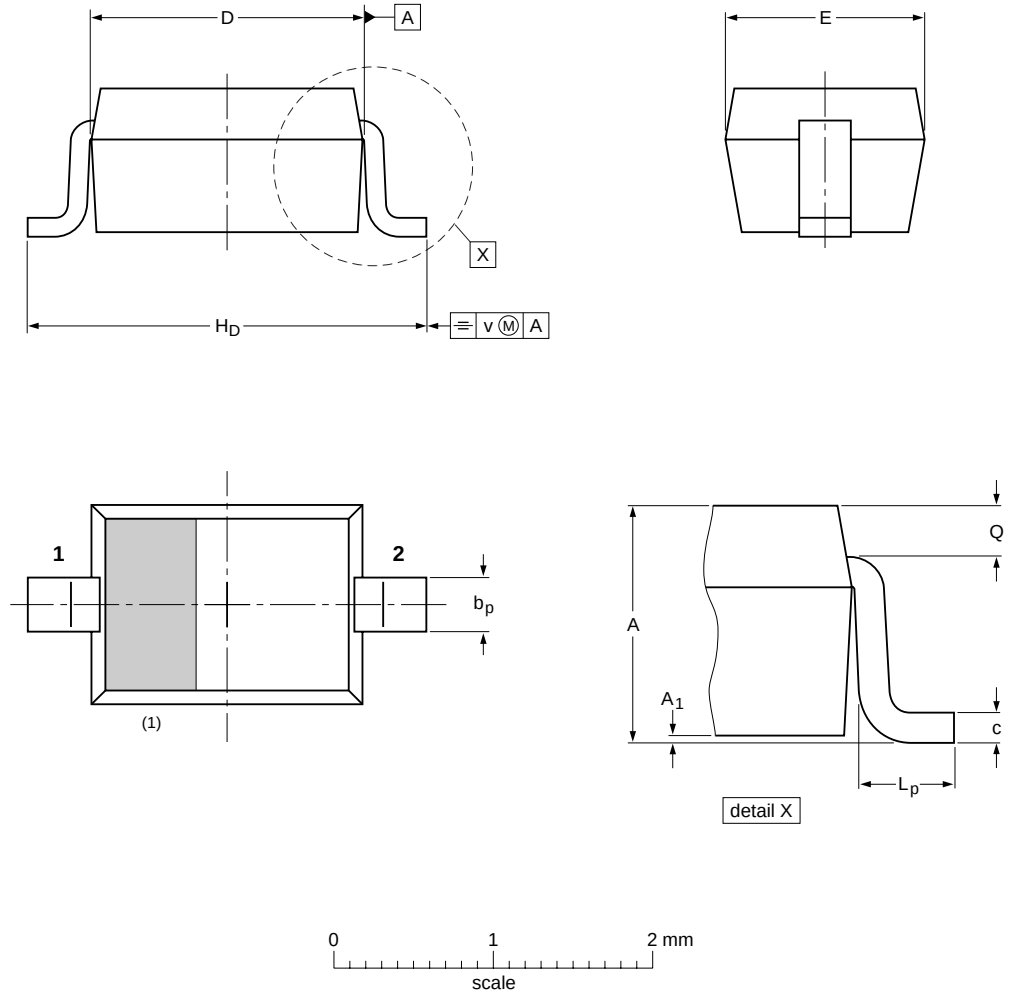


T_{amb} = 25 °C; f = 1 MHz.

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.
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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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