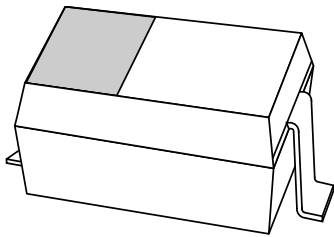


# DATA SHEET



**PMEG2005AEA; PMEG3005AEA;  
PMEG4005AEA**

Very low  $V_F$  MEGA Schottky barrier  
rectifiers

**Very low  $V_F$  MEGA  
Schottky barrier rectifiers**

**PMEG2005AEA; PMEG3005AEA;  
PMEG4005AEA**

**FEATURES**

- Very low forward voltage
- High surge current
- Very small plastic SMD package.

**APPLICATIONS**

- Low voltage rectification
- High efficiency DC/DC conversion
- Voltage clamping
- Inverse polarity protection
- Low power consumption applications.

**DESCRIPTION**

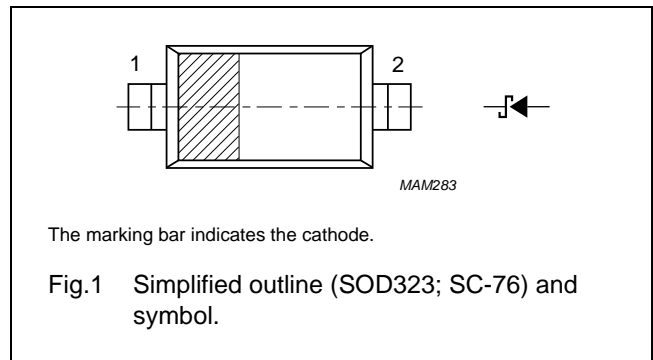
Planar Maximum Efficiency General Application (MEGA) Schottky barrier rectifier with an integrated guard ring for stress protection, encapsulated in a SOD323 (SC-76) very small SMD plastic package.

**QUICK REFERENCE DATA**

SYMBOL	PARAMETER	MAX.	UNIT
$I_F$	forward current	0.5	A
$V_R$	reverse voltage		
	PMEG2005AEA	20	V
	PMEG3005AEA	30	V
	PMEG4005AEA	40	V

**PINNING**

PIN	DESCRIPTION
1	cathode
2	anode



**MARKING**

TYPE NUMBER	MARKING CODE
PMEG2005AEA	E5
PMEG3005AEA	E4
PMEG4005AEA	E3

**RELATED PRODUCTS**

TYPE NUMBER	DESCRIPTION	FEATURE
PMEGxx05AEV	0.5 A; 20/30/40 V very low $V_F$ MEGA Schottky rectifier	SOT666 package
PMEG2005EB	0.5 A; 20 V very low $V_F$ MEGA Schottky rectifier	smaller SOD523 (SC-79) package
PMEG2010EA	1 A; 20 V very low $V_F$ MEGA Schottky rectifier	higher forward current

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Schottky barrier rectifiers

PMEG2005AEA; PMEG3005AEA;  
PMEG4005AEA

### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_R$	continuous reverse voltage				
	PMEG2005AEA		–	20	V
	PMEG3005AEA		–	30	V
	PMEG4005AEA		–	40	V
$I_F$	continuous forward current	note 1	–	0.5	A
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1$ ms; $\delta \leq 0.5$	–	3.5	A
$I_{FSM}$	non-repetitive peak forward current	$t_p = 8$ ms; square wave	–	10	A
$T_j$	junction temperature	note 2	–	150	°C
$T_{amb}$	operating ambient temperature	note 2	–65	+150	°C
$T_{stg}$	storage temperature		–65	+150	°C

### 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.

### THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	in free air; notes 1 and 2	450	K/W
		in free air; notes 2 and 3	210	K/W
$R_{th\ j-s}$	thermal resistance from junction to soldering 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 an FR4 printed-circuit board with copper clad 10 × 10 mm.
4. Solder point of cathode tab.

Very low  $V_F$  MEGA  
Schottky barrier rectifiers

PMEG2005AEA; PMEG3005AEA;  
PMEG4005AEA

**ELECTRICAL CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	PMEG2005AEA		PMEG3005AEA		PMEG4005AEA		UNIT
			TYP.	MAX.	TYP.	MAX.	TYP.	MAX.	
$V_F$	forward voltage	$I_F = 0.1\text{ mA}$	90	130	90	130	95	130	mV
		$I_F = 1\text{ mA}$	150	190	150	200	155	210	mV
		$I_F = 10\text{ mA}$	210	240	215	250	220	270	mV
		$I_F = 100\text{ mA}$	280	330	285	340	295	350	mV
		$I_F = 500\text{ mA}$	355	390	380	430	420	470	mV
$I_R$	continuous reverse current	$V_R = 10\text{ V}$ ; note 1	15	40	12	30	7	20	$\mu\text{A}$
		$V_R = 20\text{ V}$ ; note 1	40	200	–	–	–	–	$\mu\text{A}$
		$V_R = 30\text{ V}$ ; note 1	–	–	40	150	–	–	$\mu\text{A}$
		$V_R = 40\text{ V}$ ; note 1	–	–	–	–	30	100	$\mu\text{A}$
$C_d$	diode capacitance	$V_R = 1\text{ V}$ ; $f = 1\text{ MHz}$	66	80	55	70	43	50	pF

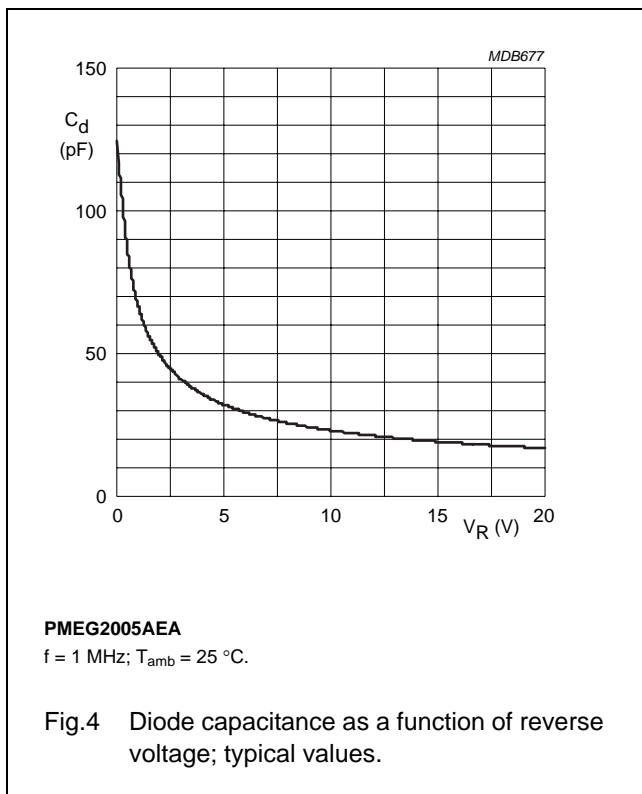
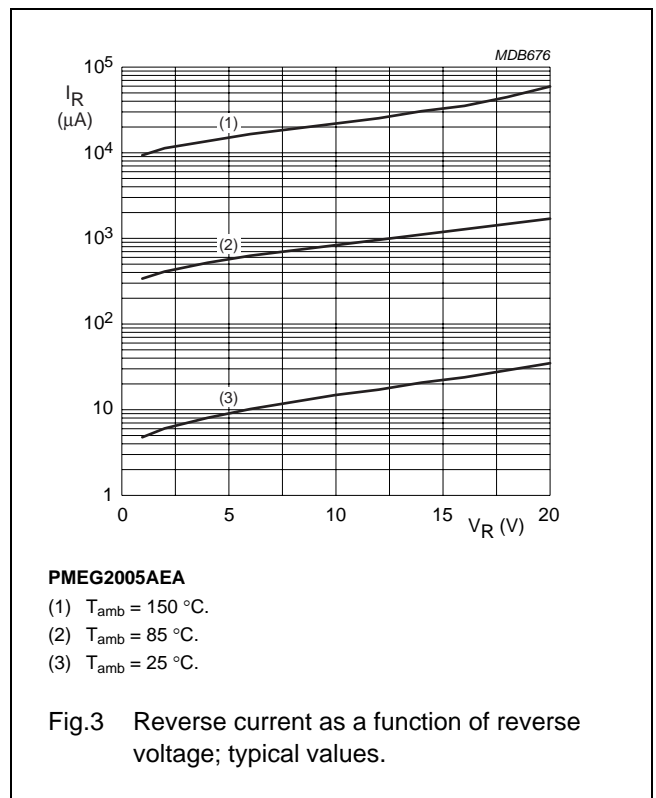
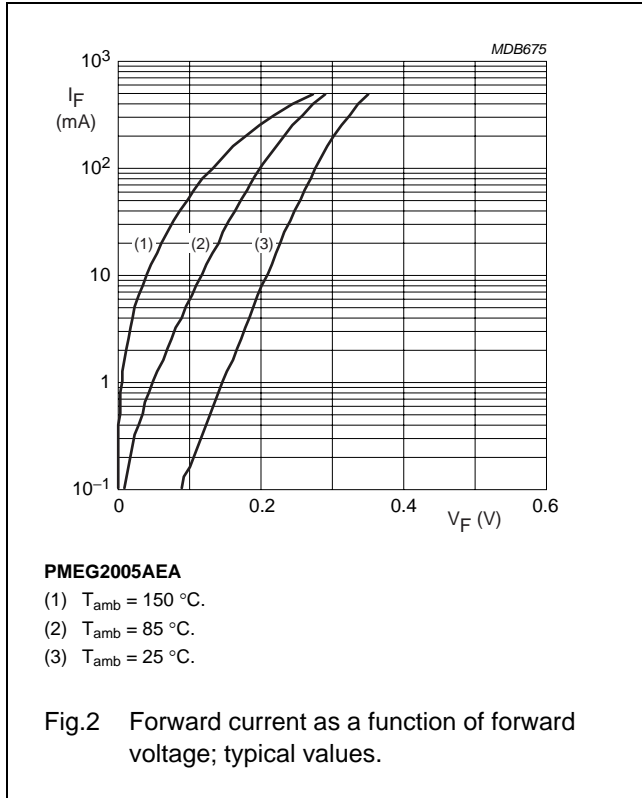
**Note**

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

Very low  $V_F$  MEGA  
Schottky barrier rectifiers

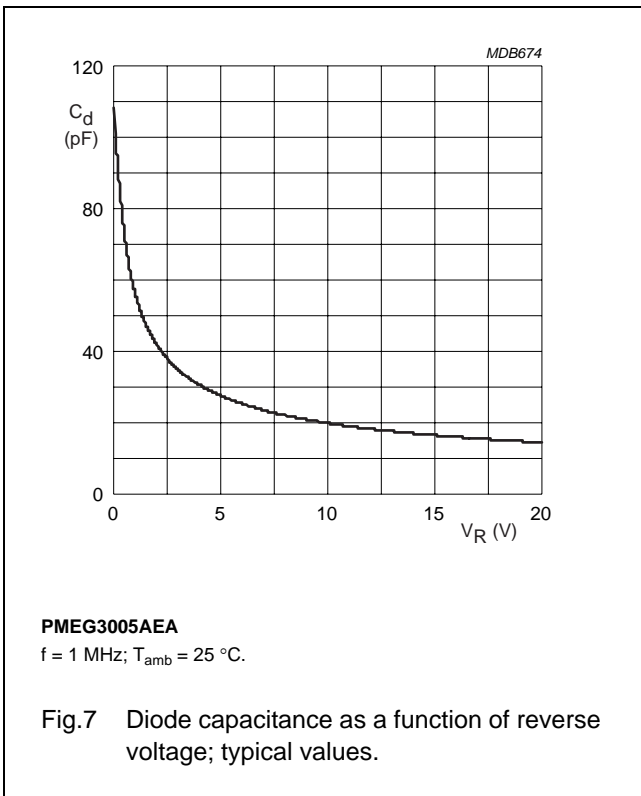
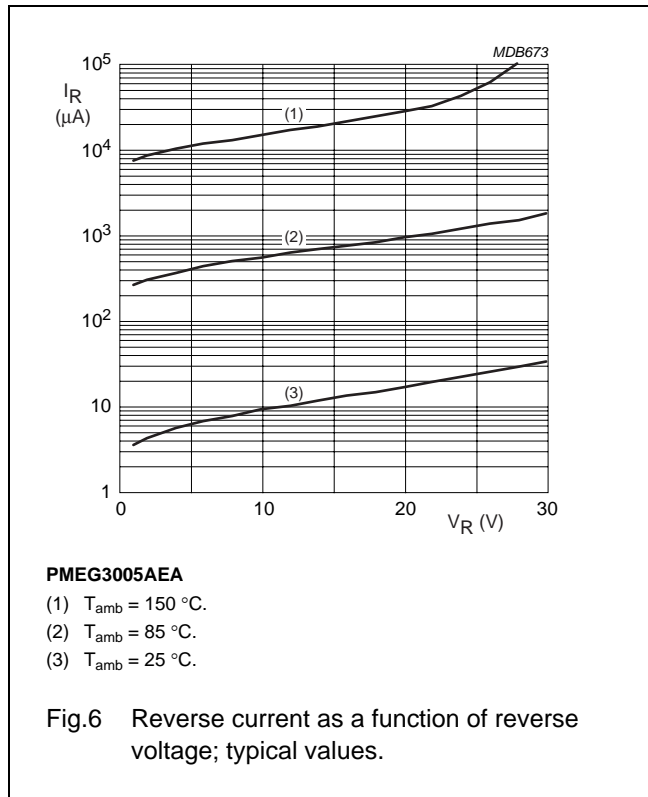
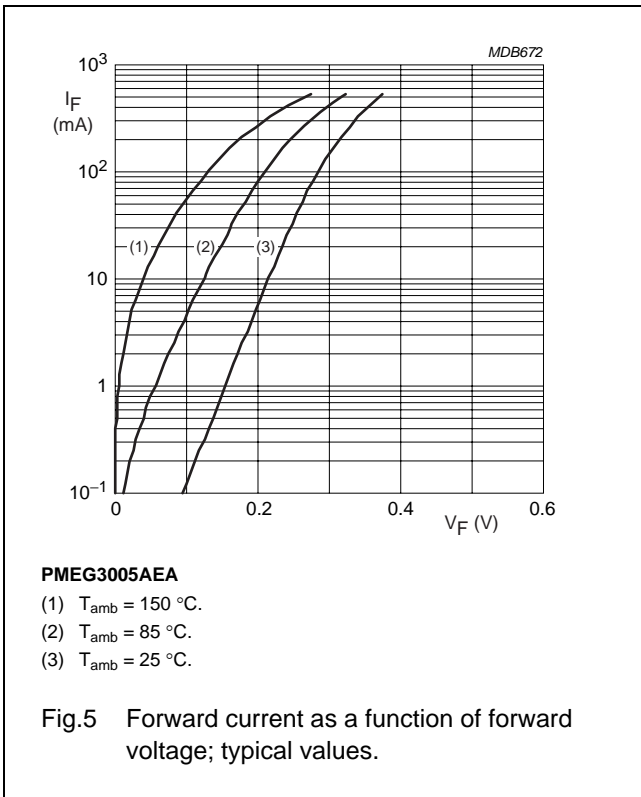
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GRAPHICAL DATA



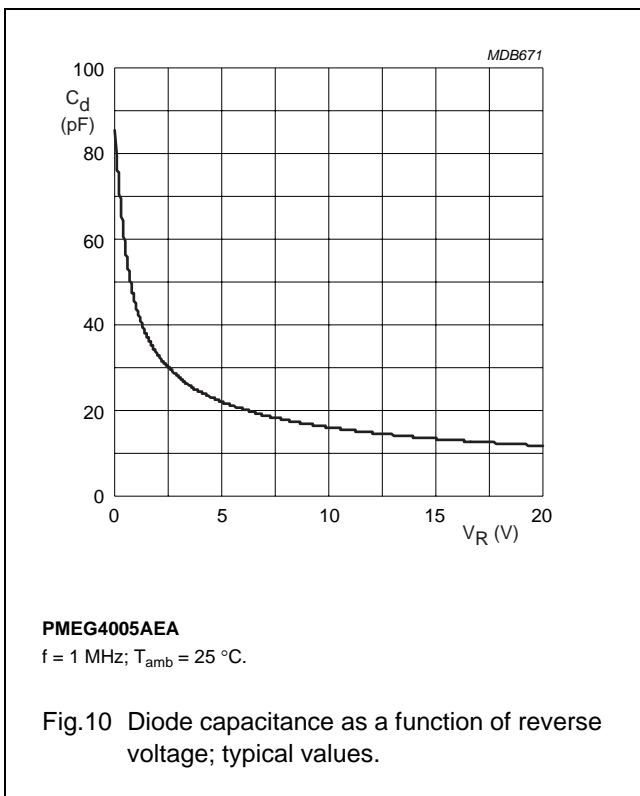
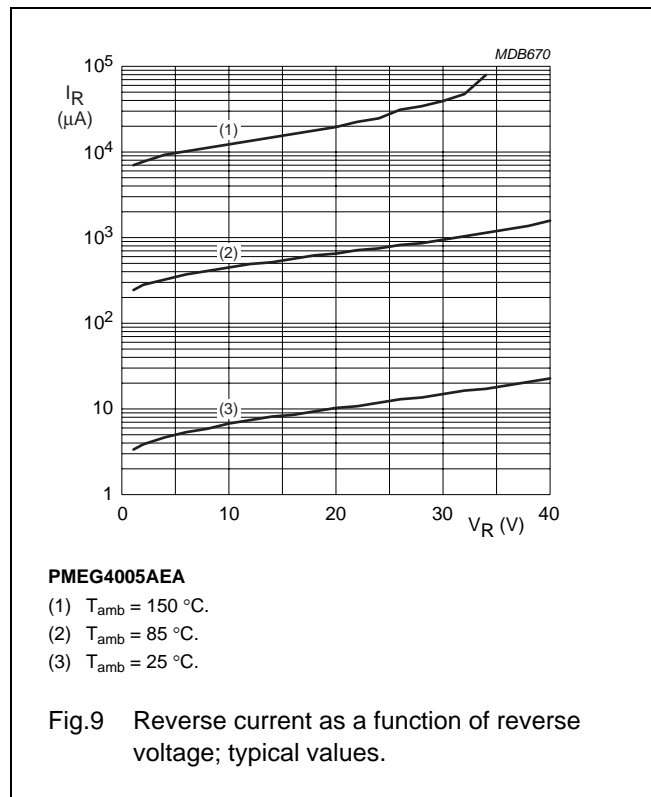
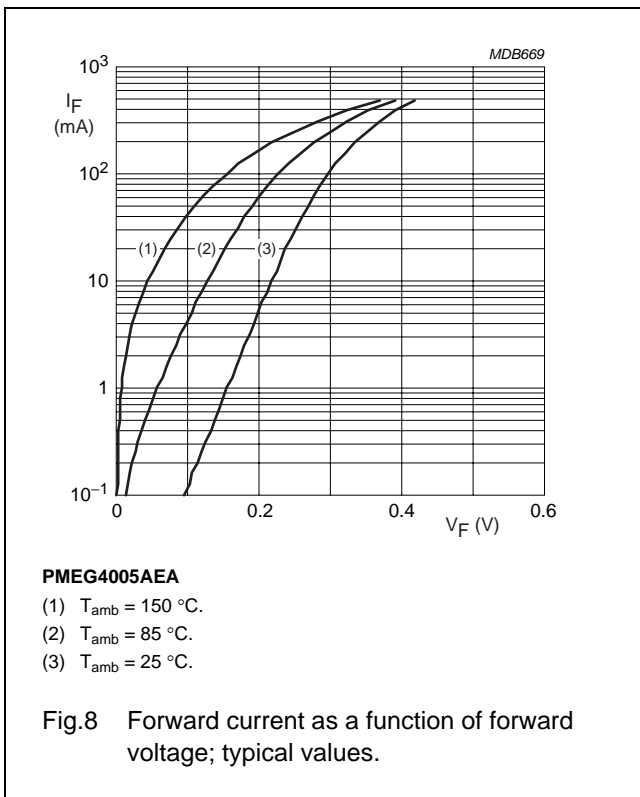
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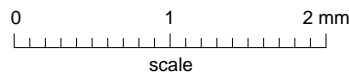
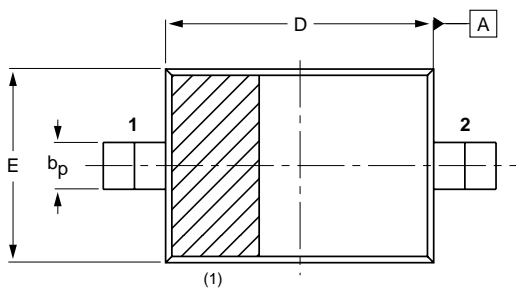
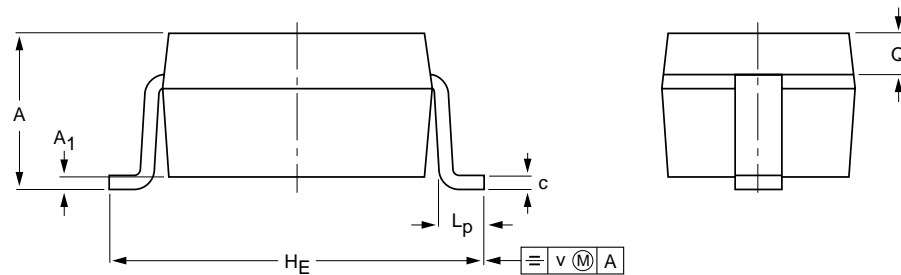
Very low  $V_F$  MEGA  
Schottky barrier rectifiers

PMEG2005AEA; PMEG3005AEA;  
PMEG4005AEA

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			<del>98-09-14</del> 99-09-13



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PMEG4005AEA

**DATA SHEET STATUS**

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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