

# DATA SHEET



## **PMEG2005AEV; PMEG3005AEV; PMEG4005AEV**

Very low  $V_F$  MEGA Schottky barrier  
rectifiers

Product specification

2003 Aug 20

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

**PMEG2005AEV; PMEG3005AEV;  
PMEG4005AEV**

**FEATURES**

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

**APPLICATIONS**

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

**DESCRIPTION**

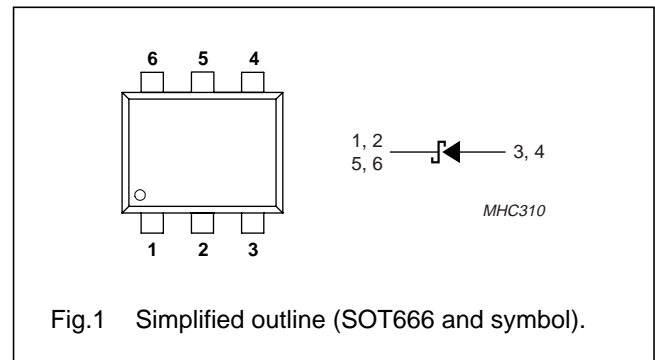
Planar Maximum Efficiency General Application (MEGA) Schottky barrier rectifier with an integrated guard ring for stress protection, encapsulated in a SOT666 ultra small SMD plastic package.

**QUICK REFERENCE DATA**

SYMBOL	PARAMETER	MAX.	UNIT
$I_F$	forward current	0.5	A
$V_R$	reverse voltage		
	PMEG2005AEV	20	V
	PMEG3005AEV	30	V
	PMEG4005AEV	40	V

**PINNING**

PIN	DESCRIPTION
1	cathode
2	cathode
3	anode
4	anode
5	cathode
6	cathode



**MARKING**

TYPE NUMBER	MARKING CODE
PMEG2005AEV	G1
PMEG3005AEV	G2
PMEG4005AEV	G3

**RELATED PRODUCTS**

TYPE NUMBER	DESCRIPTION	FEATURE
PMEGxx05AEA	0.5 A; 20/30/40 V very low $V_F$ MEGA Schottky rectifier	SOD323 (SC-76) package
PMEG2005EB	0.5 A; 20 V very low $V_F$ MEGA Schottky rectifier	SOD523 (SC-79) package
PMEG2010EA	1 A; 20 V very low $V_F$ MEGA Schottky rectifier	higher forward current

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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				
	PMEG2005AEV		–	20	V
	PMEG3005AEV		–	30	V
	PMEG4005AEV		–	40	V
$I_F$	continuous forward current	note 1	–	0.5	A
$I_{FRM}$	repetitive peak forward current	$t_p \leq 1$ ms; $\delta \leq 0.5$ ; note 2	–	3.5	A
$I_{FSM}$	non-repetitive peak forward current	$t_p = 8$ ms; square wave; note 2	–	10	A
$T_j$	junction temperature	note 3	–	150	°C
$T_{amb}$	operating ambient temperature	note 3	–65	+150	°C
$T_{stg}$	storage temperature		–65	+150	°C

### Notes

1. Refer to SOT666 standard mounting conditions.
2. Only valid if pins 3 and 4 are connected in parallel.
3. 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	405	K/W
		in free air; notes 2 and 3	215	K/W
$R_{th\ j-s}$	thermal resistance from junction to soldering point	note 4	80	K/W

### Notes

1. Refer to SOT666 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  $10 \times 10$  mm.
4. Solder point of cathode tab.

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**ELECTRICAL CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	PMEG2005AEV		PMEG3005AEV		PMEG4005AEV		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

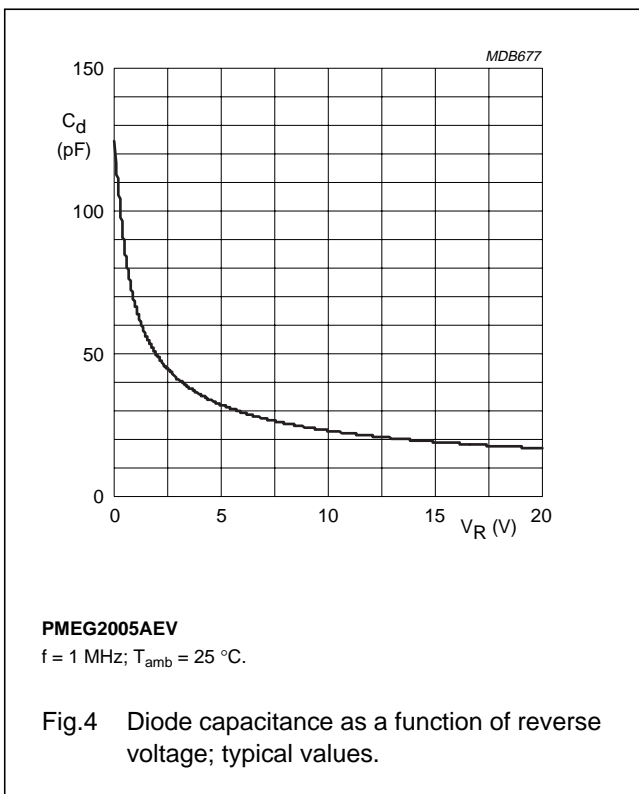
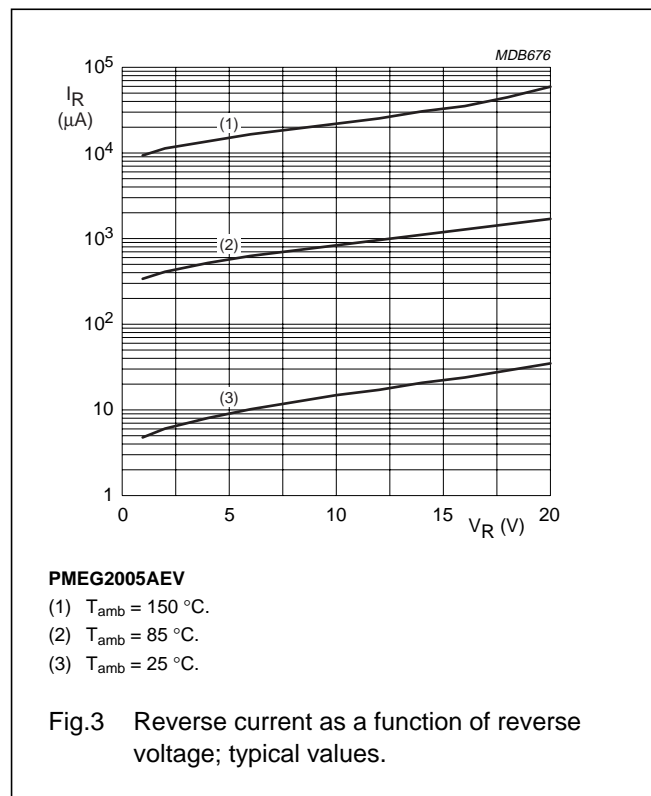
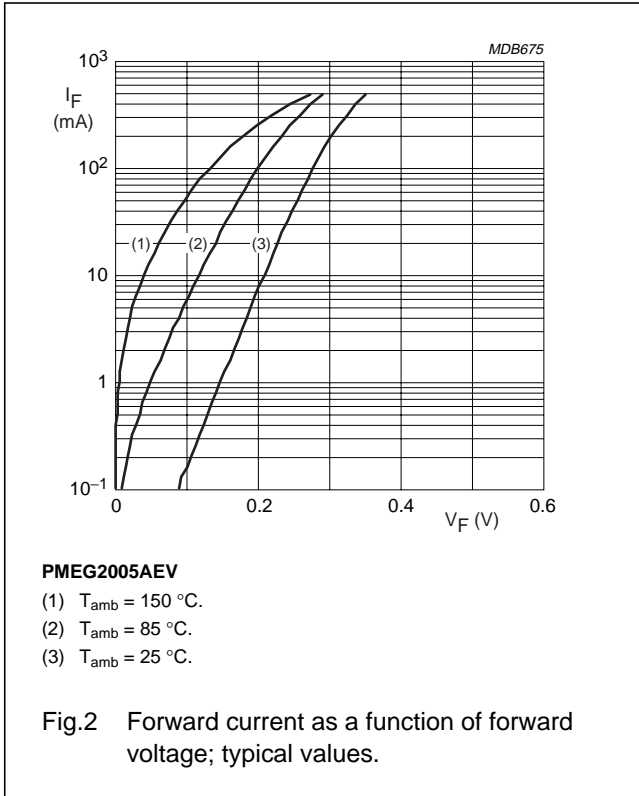
**Note**

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

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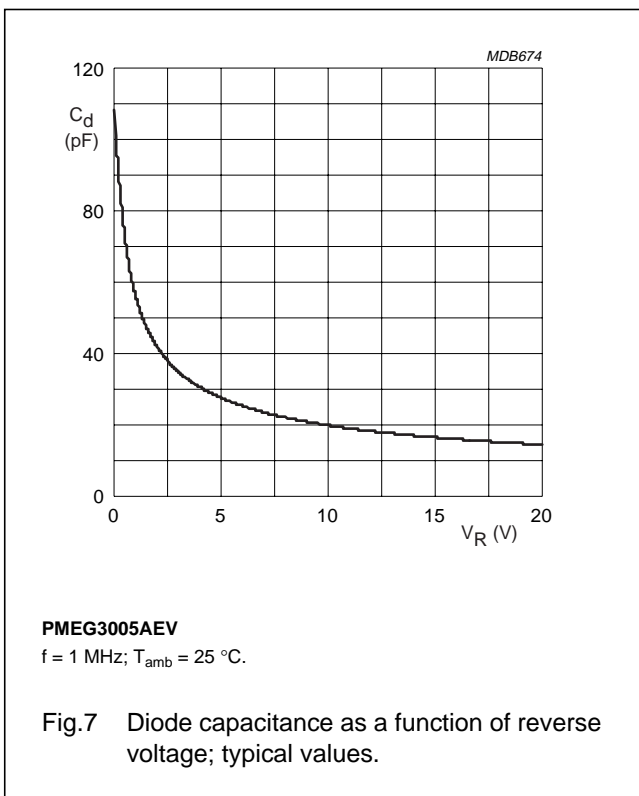
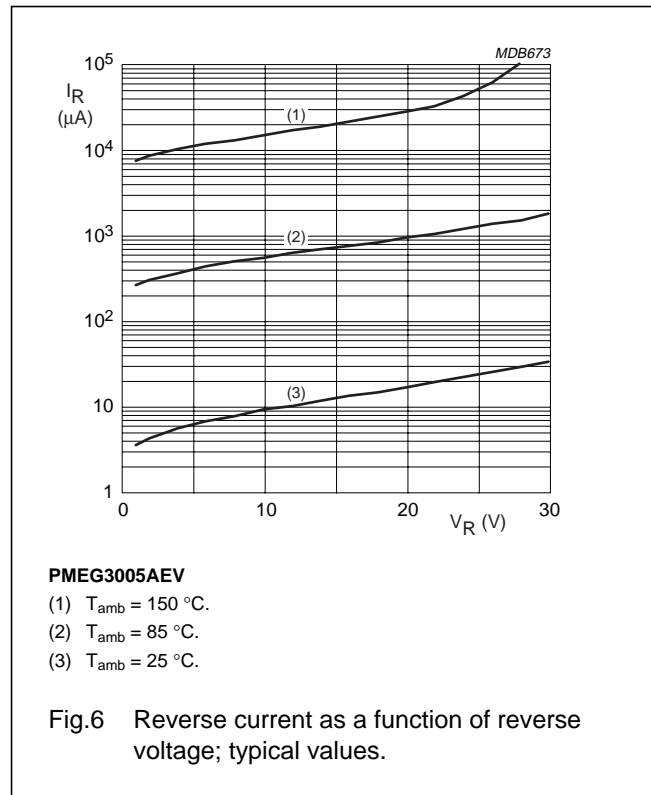
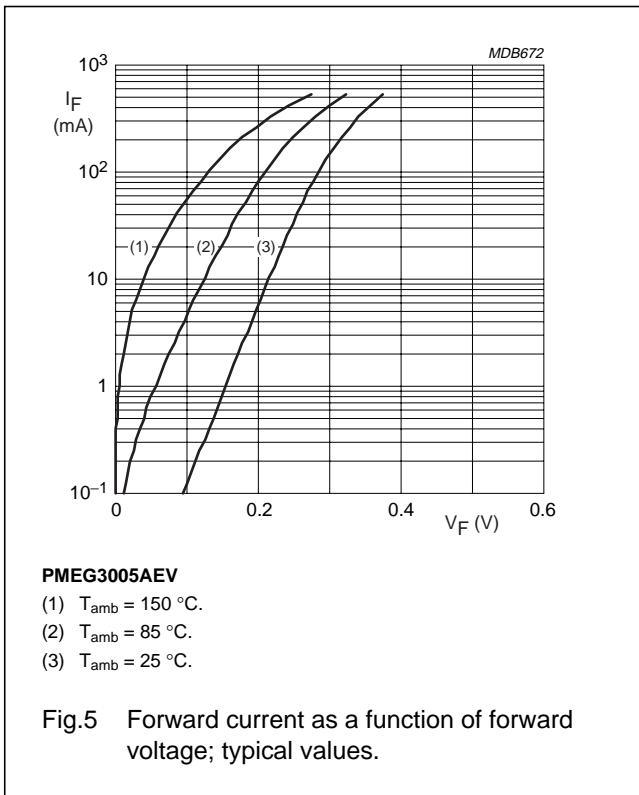
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GRAPHICAL DATA



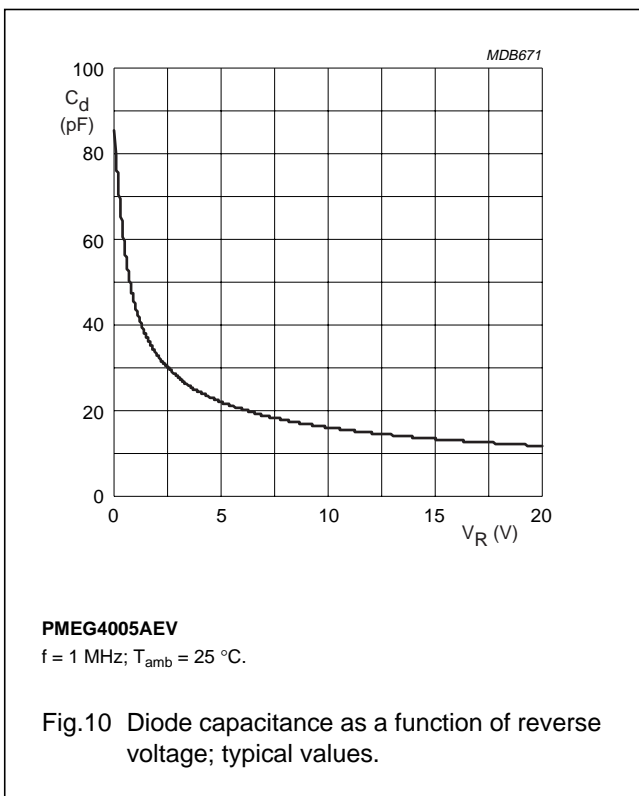
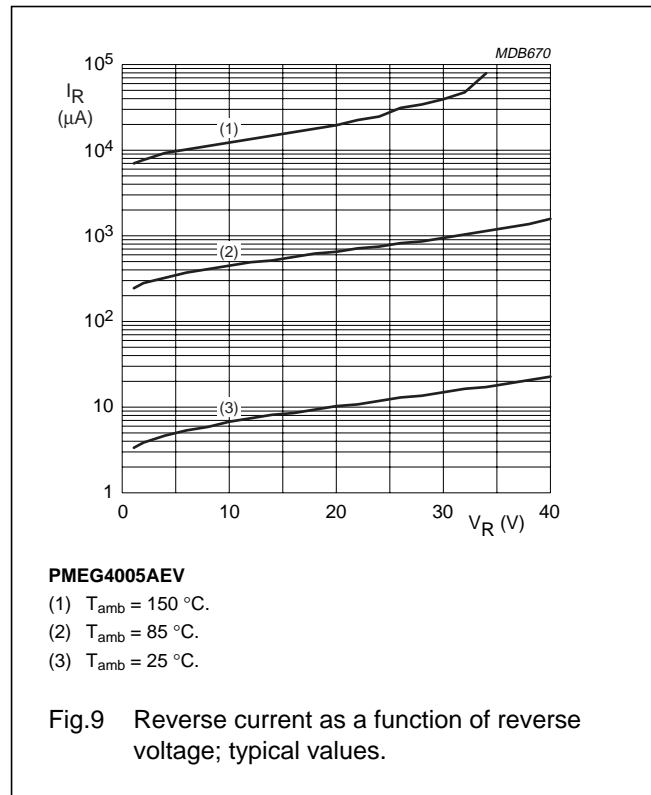
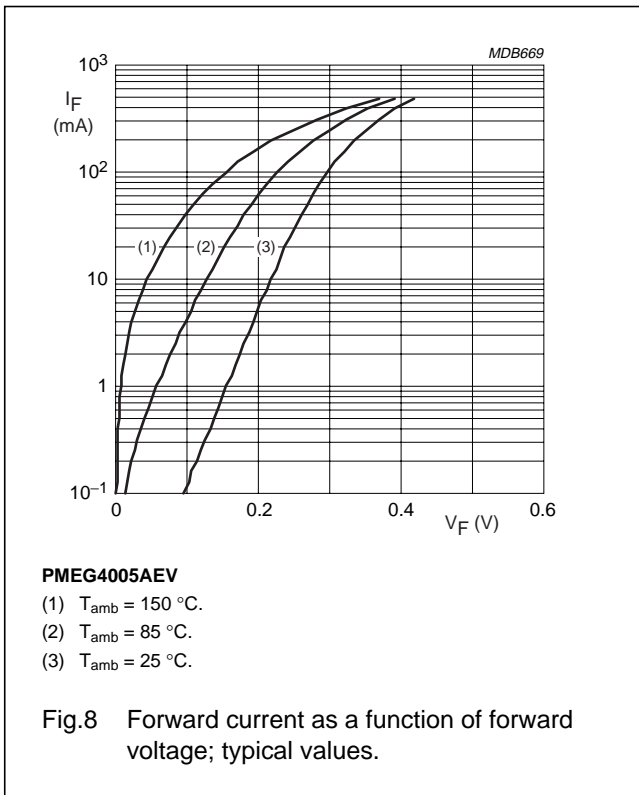
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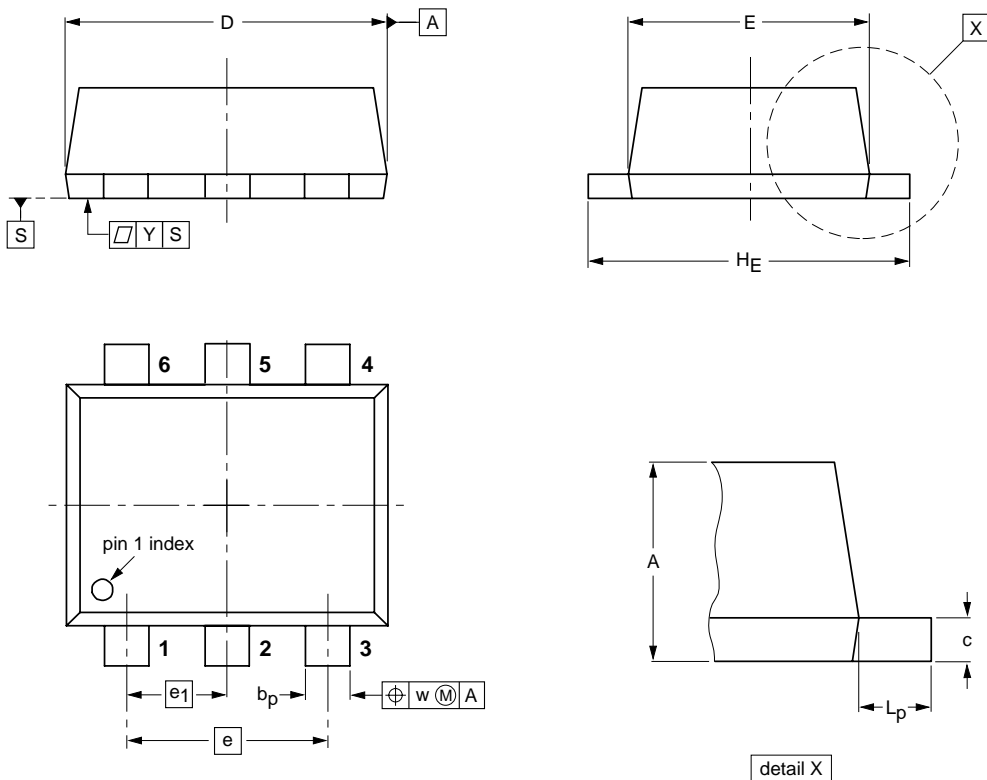
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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT666



DIMENSIONS (mm are the original dimensions)

UNIT	A	$b_p$	c	D	E	e	$e_1$	$H_E$	$L_p$	w	y
mm	0.6 0.5	0.27 0.17	0.18 0.08	1.7 1.5	1.3 1.1	1.0	0.5	1.7 1.5	0.3 0.1	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT666						01-01-04 01-08-27



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#### DATA SHEET STATUS

LEVEL	DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)(3)</sup>	DEFINITION
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## **Contact information**

For additional information please visit <http://www.semiconductors.philips.com>. Fax: +31 40 27 24825

For sales offices addresses send e-mail to: [sales.addresses@www.semiconductors.philips.com](mailto:sales.addresses@www.semiconductors.philips.com).

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