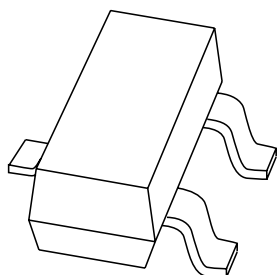


# DATA SHEET



## **PMBZ5226B to PMBZ5257B** Voltage regulator diodes

Product specification  
Supersedes data of 2001 Feb 09

2004 Jan 20

## Voltage regulator diodes

## PMBZ5226B to PMBZ5257B

## FEATURES

- Total power dissipation: max. 250 mW
- Tolerance series:  $\pm 5\%$
- Working voltage range: nominal 3.3 to 33 V
- Non-repetitive peak reverse power dissipation: max. 40 W.

## APPLICATIONS

- General regulation functions.

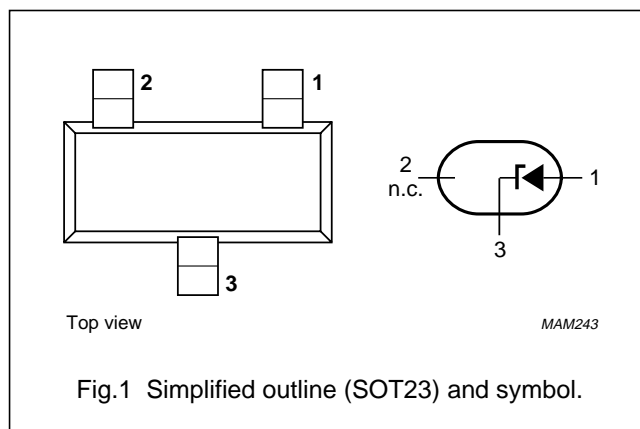
## DESCRIPTION

Low-power voltage regulator diodes in small SOT23 plastic SMD packages.

The series consists of 32 types with nominal working voltages from 3.3 to 33 V.

## PINNING

PIN	DESCRIPTION
1	anode
2	not connected
3	cathode



## MARKING

TYPE NUMBER	MARKING CODE <sup>(1)</sup>	TYPE NUMBER	MARKING CODE <sup>(1)</sup>	TYPE NUMBER	MARKING CODE <sup>(1)</sup>	TYPE NUMBER	MARKING CODE <sup>(1)</sup>
PMBZ5226B	*8A	PMBZ5234B	*8J	PMBZ5242B	*8S	PMBZ5250B	81A or *9T
PMBZ5227B	*8B	PMBZ5235B	*8K	PMBZ5243B	*8T	PMBZ5251B	81B or *9U
PMBZ5228B	*8C	PMBZ5236B	*8L	PMBZ5244B	*8U	PMBZ5252B	81C or *9V
PMBZ5229B	*8D	PMBZ5237B	*8M	PMBZ5245B	*8V	PMBZ5253B	81D or *9X
PMBZ5230B	*8E	PMBZ5238B	*8N	PMBZ5246B	*8W	PMBZ5254B	81E or *9Y
PMBZ5231B	*8F	PMBZ5239B	*8P	PMBZ5247B	*8X	PMBZ5255B	81F or *D1
PMBZ5232B	*8G	PMBZ5240B	*8Q	PMBZ5248B	*8Y	PMBZ5256B	81G or *D2
PMBZ5233B	*8H	PMBZ5241B	*8R	PMBZ5249B	*8Z	PMBZ5257B	81H or *9Z

## Note

- \* = p : Made in Hong Kong.  
 \* = t : Made in Malaysia.  
 \* = W : Made in China.

## ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
PMBZ5226B to PMBZ5257B	—	plastic surface mounted package; 3 leads	SOT23

## Voltage regulator diodes

## PMBZ5226B to PMBZ5257B

**LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_F$	continuous forward current		–	200	mA
$I_{ZSM}$	non-repetitive peak reverse current	$t_p = 100 \mu s$ ; square wave; $T_j = 25^\circ C$ prior to surge	see Table “Per type”		
$P_{tot}$	total power dissipation	$T_{amb} = 25^\circ C$ ; note 1	–	300	mW
		$T_{amb} = 25^\circ C$ ; note 2	–	250	mW
$P_{ZSM}$	non-repetitive peak reverse power dissipation	$t_p = 100 \mu s$ ; square wave; $T_j = 25^\circ C$ prior to surge; see Fig.2	–	40	W
$T_{stg}$	storage temperature		–65	+150	$^\circ C$
$T_j$	junction temperature		–	150	$^\circ C$

**Notes**

1. Device mounted on a ceramic substrate of  $8 \times 10 \times 0.7$  mm.
2. Device mounted on an FR4 printed-circuit board.

**CHARACTERISTICS****Total series**

$T_j = 25^\circ C$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
$V_F$	forward voltage	$I_F = 200$ mA; see Fig.3	1.1	V

## Voltage regulator diodes

## PMBZ5226B to PMBZ5257B

## Per type

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

TYPE NUMBER	WORKING VOLTAGE $V_Z$ (V) <sup>(1)</sup> at $I_{Z\text{test}}$	DIFFERENTIAL RESISTANCE $r_{\text{dif}}$ ( $\Omega$ ) at $I_Z = 0.25\text{ mA}$	TEMP. COEFF. $S_Z$ (%/K) at $I_Z$ <sup>(2)</sup>	TEST CURRENT $I_{Z\text{test}}$ (mA)	DIODE CAP. $C_d$ (pF) at $f = 1\text{ MHz}$ ; at $V_R = 0\text{ V}$	REVERSE CURRENT at REVERSE VOLTAGE		NON-REPETITIVE PEAK REVERSE CURRENT $I_{ZSM}$ (A) at $t_p = 100\text{ }\mu\text{s}$ ; $T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$
	NOM.	MAX.	TYP.			$I_R$ ( $\mu\text{A}$ )	$V_R$ (V)	
PMBZ5226B	3.3	1600	-0.064	20	450	25	1.0	6.0
PMBZ5227B	3.6	1700	-0.065	20	450	15	1.0	6.0
PMBZ5228B	3.9	1900	-0.063	20	450	10	1.0	6.0
PMBZ5229B	4.3	2000	-0.058	20	450	5	1.0	6.0
PMBZ5230B	4.7	2000	-0.047	20	450	5	1.0	6.0
PMBZ5231B	5.1	2000	-0.013	20	300	5	2.0	6.0
PMBZ5232B	5.6	1600	+0.023	20	300	5	3.0	6.0
PMBZ5233B	6.0	1600	+0.023	20	300	5	3.5	6.0
PMBZ5234B	6.2	1000	+0.039	20	200	5	4.0	6.0
PMBZ5235B	6.8	750	+0.040	20	200	3	5.0	6.0
PMBZ5236B	7.5	500	+0.047	20	150	3	6.0	4.0
PMBZ5237B	8.2	500	+0.052	20	150	3	6.5	4.0
PMBZ5238B	8.7	600	+0.053	20	150	3	6.5	3.5
PMBZ5239B	9.1	600	+0.055	20	150	3	7.0	3.0
PMBZ5240B	10	600	+0.055	20	90	3	8.0	3.0
PMBZ5241B	11	600	+0.058	20	85	2	8.4	2.5
PMBZ5242B	12	600	+0.062	20	85	1	9.1	2.5
PMBZ5243B	13	600	+0.065	9.5	80	0.5	9.9	2.5
PMBZ5244B	14	600	+0.067	9.0	80	0.1	10	2.0
PMBZ5245B	15	600	+0.073	8.5	75	0.1	11	2.0
PMBZ5246B	16	600	+0.073	7.8	75	0.1	12	1.5
PMBZ5247B	17	600	+0.073	7.4	75	0.1	13	1.5
PMBZ5248B	18	600	+0.078	7.0	70	0.1	14	1.5
PMBZ5249B	19	600	+0.078	6.6	70	0.1	14	1.5
PMBZ5250B	20	600	+0.080	6.2	60	0.1	15	1.5
PMBZ5251B	22	600	+0.080	5.6	60	0.1	17	1.25

# Voltage regulator diodes

PMBZ5226B to PMBZ5257B

TYPE NUMBER	WORKING VOLTAGE $V_Z$ (V) <sup>(1)</sup> at $I_{Ztest}$	DIFFERENTIAL RESISTANCE $r_{dif}$ ( $\Omega$ ) at $I_Z = 0.25$ mA	TEMP. COEFF. $S_Z$ (%/K) at $I_Z$ <sup>(2)</sup>	TEST CURRENT $I_{Ztest}$ (mA)	DIODE CAP. $C_d$ (pF) at $f = 1$ MHz; at $V_R = 0$ V	REVERSE CURRENT at REVERSE VOLTAGE		NON-REPETITIVE PEAK REVERSE CURRENT $I_{ZSM}$ (A) at $t_p = 100$ $\mu$ s; $T_{amb} = 25$ °C
	NOM.	MAX.	TYP.			$I_R$ ( $\mu$ A)	$V_R$ (V)	
PMBZ5252B	24	600	+0.081	5.2	55	0.1	18	1.25
PMBZ5253B	25	600	+0.082	5.0	55	0.1	19	1.25
PMBZ5254B	27	600	+0.085	4.6	50	0.1	21	1.0
PMBZ5255B	28	600	+0.085	4.5	50	0.1	21	1.0
PMBZ5256B	30	600	+0.085	4.2	50	0.1	23	1.0
PMBZ5257B	33	700	+0.085	3.8	45	0.1	25	0.9

## Notes

- $V_Z$  is measured with device at thermal equilibrium while mounted on a ceramic substrate of  $8 \times 10 \times 0.7$  mm.
- For types PMBZ5226B to PMBZ5242B the  $I_Z$  current is 7.5 mA; for PMBZ5243B and higher  $I_Z = I_{Ztest}$ .  $S_Z$  values valid between 25 °C and 125 °C.

Voltage regulator diodes

PMBZ5226B to PMBZ5257B

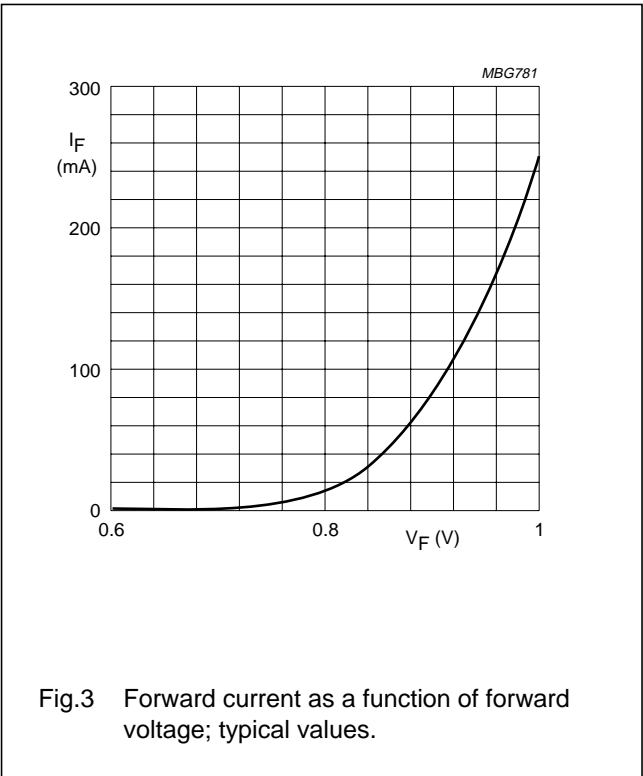
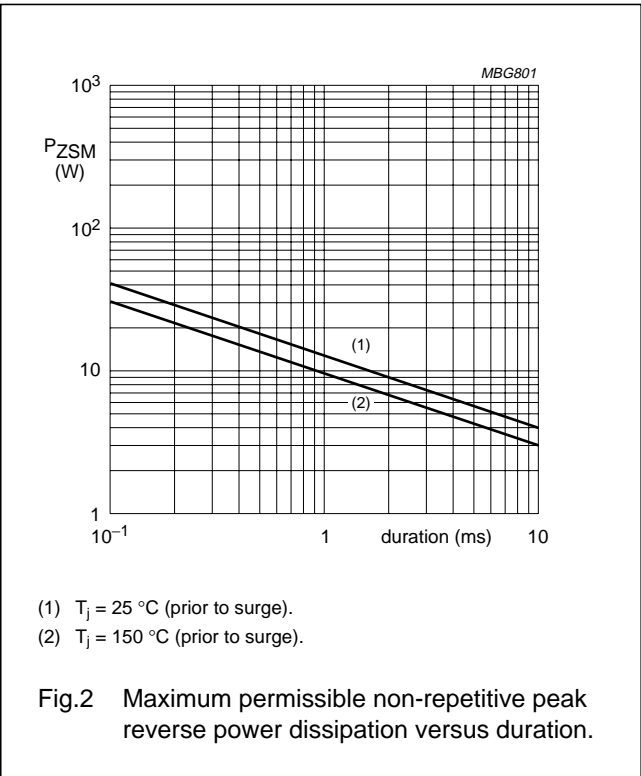
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-tp)}$	thermal resistance from junction to tie-point		330	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient	note 1	500	K/W

Note

1. Device mounted on a printed-circuit board.

GRAPHICAL DATA



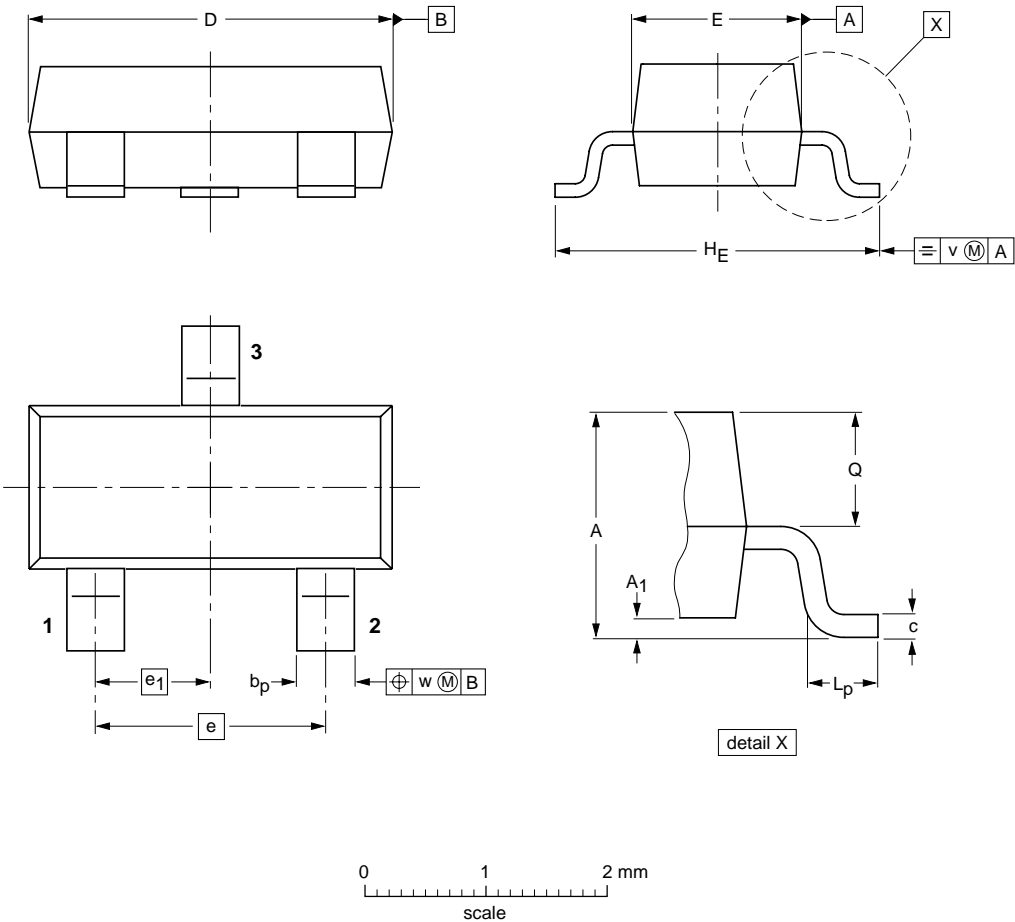
Voltage regulator diodes

PMBZ5226B to PMBZ5257B

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT23		TO-236AB				97-02-28 99-09-13

## Voltage regulator diodes

## PMBZ5226B to PMBZ5257B

## 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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3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

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Printed in The Netherlands

R76/04/pp9

Date of release: 2004 Jan 20

Document order number: 9397 750 12527

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