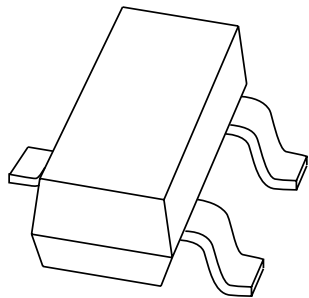


DATA SHEET



PMBZ5226B to PMBZ5257B Voltage regulator diodes

Product specification
Supersedes data of 1999 May 17

2001 Feb 09

Voltage regulator diodes

PMBZ5226B to PMBZ5257B

FEATURES

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

APPLICATIONS

- General regulation functions.

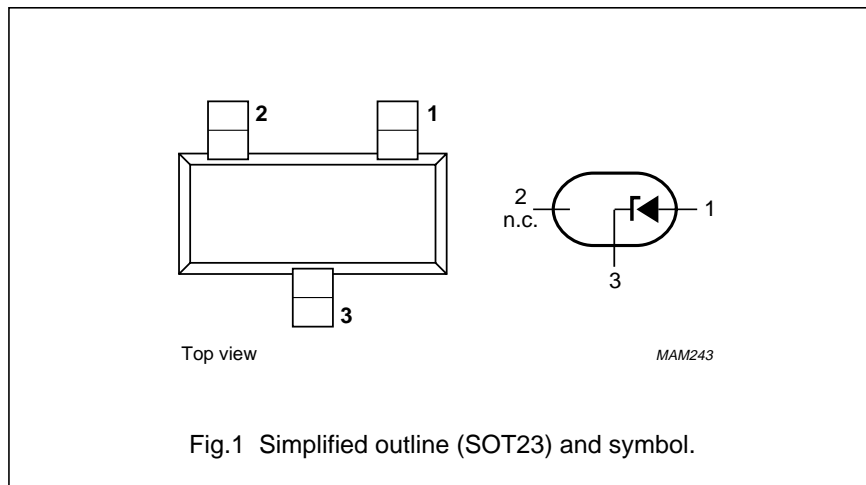
DESCRIPTION

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

Note

1. * = p : Made in Hong Kong.
* = t : Made in Malaysia.

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	$t_p = 100 \mu\text{s}$; square wave; $T_j = 25 \text{ }^\circ\text{C}$ prior to surge	see Table "Per type"		
P_{tot}	total power dissipation	$T_{amb} = 25 \text{ }^\circ\text{C}$; note 1	–	300	mW
		$T_{amb} = 25 \text{ }^\circ\text{C}$; note 2	–	250	mW
P_{ZSM}	non-repetitive peak reverse power dissipation	$t_p = 100 \mu\text{s}$; square wave; $T_j = 25 \text{ }^\circ\text{C}$ prior to surge; see Fig.2	–	40	W
T_{stg}	storage temperature		–65	+150	$^\circ\text{C}$
T_j	junction temperature		–	150	$^\circ\text{C}$

Notes

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

ELECTRICAL CHARACTERISTICS**Total series**

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

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

Voltage regulator diodes

PMBZ5226B to PMBZ5257B

Per type

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

TYPE No.	WORKING VOLTAGE V_Z (V) ⁽¹⁾ at I_{Ztest}	DIFFERENTIAL RESISTANCE r_{dif} (Ω) at $I_Z = 0.25\text{ mA}$	TEMP. COEFF. S_Z (%/K) at I_Z ⁽²⁾	TEST CURRENT I_{Ztest} (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 $t_p = 100\text{ }\mu\text{s}$; $T_{amb} = 25\text{ °C}$	
	NOM.	MAX.	TYP.			I_R (μA)	V_R (V)		MAX.
						MAX.			
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 No.	WORKING VOLTAGE V_Z (V) ⁽¹⁾ at I_{Ztest}	DIFFERENTIAL RESISTANCE r_{dif} (Ω) at $I_Z = 0.25$ mA	TEMP. COEFF. S_Z (%/K) at I_Z ⁽²⁾	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 $t_p = 100$ μ s; $T_{amb} = 25$ °C
						I_R (μ A)	V_R (V)	
	NOM.	MAX.	TYP.		MAX.	MAX.	MAX.	
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

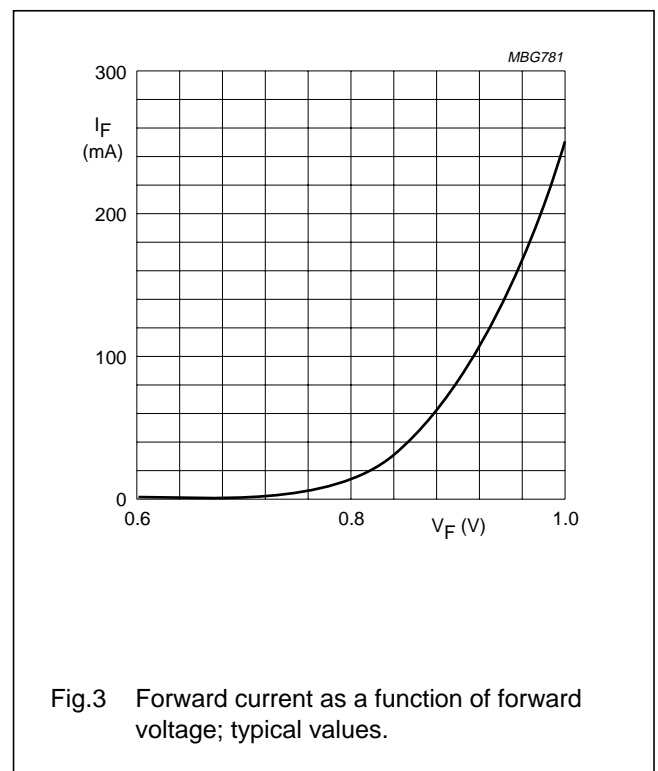
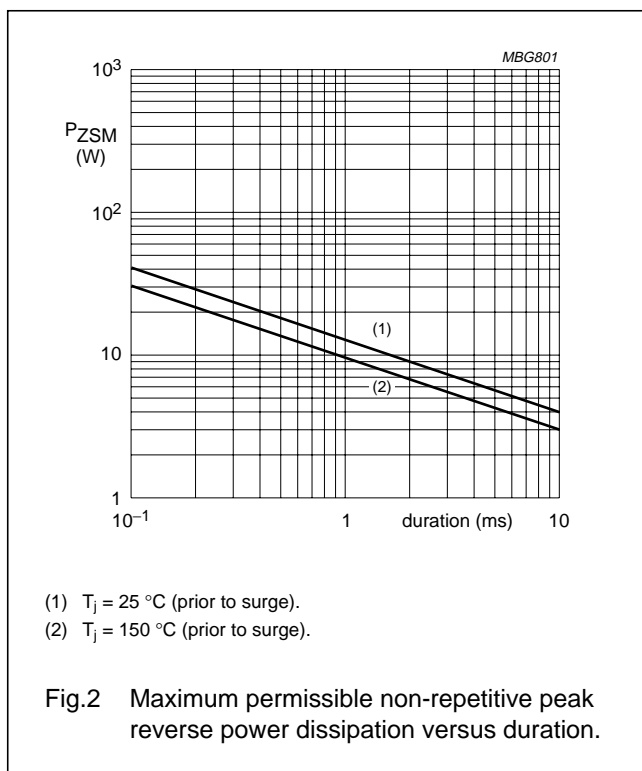
THERMAL CHARACTERISTICS

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



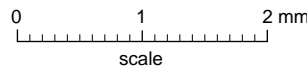
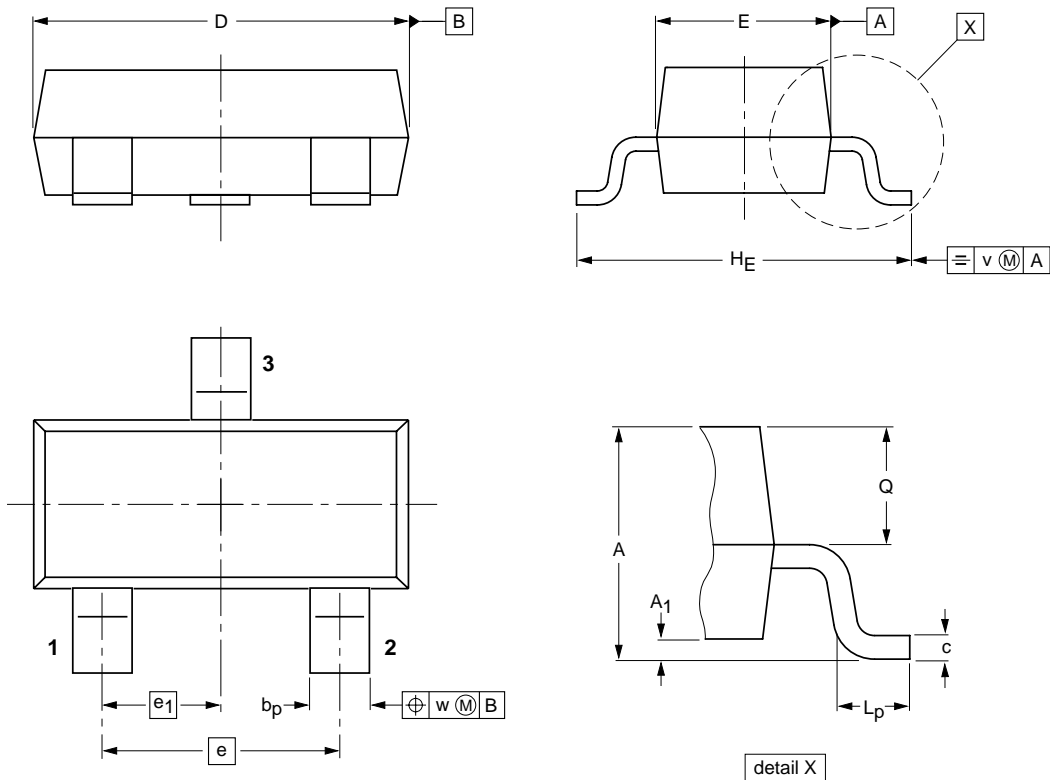
Voltage regulator diodes

PMBZ5226B to PMBZ5257B

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max.	b _p	c	D	E	e	e ₁	H _E	L _p	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

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS ⁽¹⁾
Objective specification	Development	This data sheet contains the design target or goal specifications for product development. Specification may change in any manner without notice.
Preliminary specification	Qualification	This data sheet contains preliminary data, and supplementary data will be published at a later date. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product specification	Production	This data sheet contains final specifications. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.

Note

1. Please consult the most recently issued data sheet before initiating or completing a design.

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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Voltage regulator diodes

PMBZ5226B to PMBZ5257B

NOTES

Voltage regulator diodes

PMBZ5226B to PMBZ5257B

NOTES

Voltage regulator diodes

PMBZ5226B to PMBZ5257B

NOTES

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