



**THE DATASHEET OF  
PLVA2659A,215**



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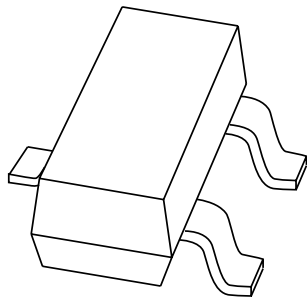
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Kind regards,

Team Nexperia

# DATA SHEET



## **PLVA2600A series**

Low-voltage avalanche regulator  
double diodes

Product data sheet  
Supersedes data of 1999 May 10

2001 Oct 15

# Low-voltage avalanche regulator double diodes

## PLVA2600A series

### FEATURES

- Very low dynamic impedance at low currents: approximately  $\frac{1}{20}$  of conventional series
- Hard breakdown knee
- Low noise: approximately  $\frac{1}{10}$  of conventional series
- Total power dissipation: max. 250 mW
- Small tolerances of  $V_Z$
- Working voltage range: nom. 5.0 to 6.8 V
- Non-repetitive peak reverse power dissipation: max. 30 W.

### APPLICATIONS

- Low current, low power, low noise applications
- CMOS RAM back-up circuits
- Voltage stabilizers
- Voltage limiters
- Smoke detector relays.

### DESCRIPTION

The PLVA2600A series consists of two high performance voltage regulator diodes with common anodes, in small SOT23 plastic SMD packages.

The series consists of PLVA2650A to PLVA2668A.

### MARKING

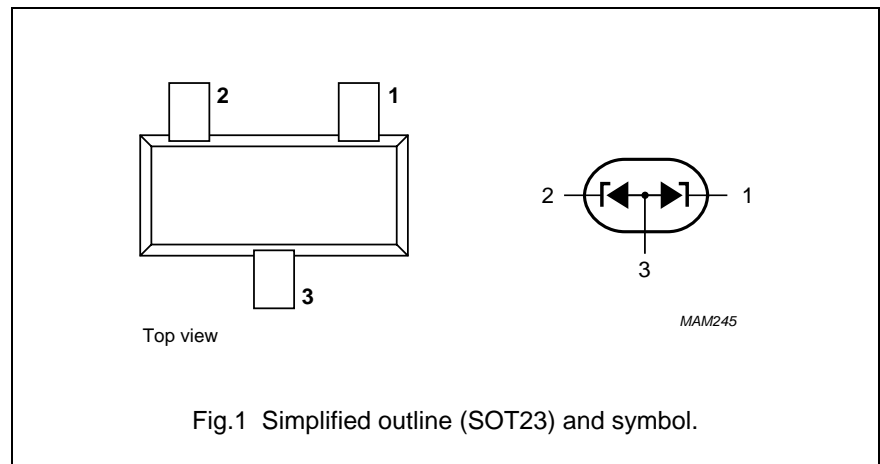
TYPE NUMBER	MARKING CODE <sup>(1)</sup>
PLVA2650A	*9J
PLVA2653A	*9K
PLVA2656A	*9L
PLVA2659A	*9M
PLVA2662A	*9N
PLVA2665A	*9O
PLVA2668A	*9P

### Note

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

### PINNING

PIN	DESCRIPTION
1	cathode (k1)
2	cathode (k2)
3	common anode



# Low-voltage avalanche regulator double diodes

## PLVA2600A series

### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_F$	continuous forward current		–	250	mA
$I_{ZRM}$	repetitive peak working current	$t_p = 100 \mu\text{s}; \delta = 10\%$	–	250	mA
$P_{ZSM}$	non-repetitive peak reverse power dissipation	$t_p = 100 \mu\text{s}; T_j = 150 \text{ }^\circ\text{C}$	–	30	W
$P_{tot}$	total power dissipation	single diode loaded; $T_{amb} = 25 \text{ }^\circ\text{C}; \text{note 1}$	–	250	mW
		double diode loaded; $T_{amb} = 25 \text{ }^\circ\text{C}; \text{note 1}$	–	180	mW
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	junction temperature		–	150	$^\circ\text{C}$

### Note

1. Device mounted on an FR4 printed circuit-board.

# Low-voltage avalanche regulator double diodes

## PLVA2600A series

### ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_F$	forward voltage	$I_F = 10\text{ mA}$	–	–	0.9	V
$V_Z$	working voltage	$I_Z = 250\text{ }\mu\text{A}$	4.80	5.00	5.20	V
			5.10	5.30	5.50	V
			5.40	5.60	5.80	V
			5.70	5.90	6.10	V
			6.00	6.20	6.40	V
			6.30	6.50	6.70	V
			6.60	6.80	7.00	V
	working voltage	$I_Z = 10\text{ }\mu\text{A}$	–	4.30	–	V
			–	5.20	–	V
			–	5.51	–	V
			–	5.85	–	V
			–	6.19	–	V
			–	6.49	–	V
			–	6.80	–	V
$R_Z$	dynamic resistance	1 kHz superimposed; $I_{ZAC}$ is 10% of $I_{ZDC}$ ; $I_Z = 250\text{ }\mu\text{A}$	–	–	700	$\Omega$
			–	–	250	$\Omega$
			–	–	100	$\Omega$
$S_Z$	temperature coefficient	$I_Z = 250\text{ }\mu\text{A}$	–	0.20	–	mV/K
			–	1.60	–	mV/K
			–	1.90	–	mV/K
			–	2.40	–	mV/K
			–	2.65	–	mV/K
			–	2.90	–	mV/K
			–	3.40	–	mV/K
$I_R$	reverse current	$V_R = 80\%$ ; $V_Z$ nominal	–	–	20000	nA
			–	–	5000	nA
			–	–	1000	nA
			–	–	500	nA
			–	–	100	nA
			–	–	50	nA
			–	–	10	nA

# Low-voltage avalanche regulator double diodes

## PLVA2600A series

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT					
$I_R$	reverse current	$V_R = 50\%$ ; $V_Z$ nominal	–	34	–	nA					
	PLVA2650A										
	PLVA2653A										
	PLVA2656A										
	PLVA2659A										
	PLVA2662A										
	PLVA2665A										
	PLVA2668A										
	reverse current	$V_R = 90\%$ ; $V_Z$ nominal	–	21	–	$\mu$ A					
	PLVA2650A										
	PLVA2653A										
	PLVA2656A										
	PLVA2659A										
	PLVA2662A										
PLVA2665A											
PLVA2668A											
$\Delta V_Z$	line regulation	$I_{LO} = 10 \mu\text{A}$ ; $I_{Hi} = 1 \text{ mA}$	–	–	0.1	V					
	PLVA2659A to PLVA2668A										
	PLVA2656A						$I_{LO} = 50 \mu\text{A}$ ; $I_{Hi} = 1 \text{ mA}$	–	–	0.1	V
	PLVA2650A						$I_{LO} = 100 \mu\text{A}$ ; $I_{Hi} = 1 \text{ mA}$	–	–	0.4	V
PLVA2653A	$I_{LO} = 100 \mu\text{A}$ ; $I_{Hi} = 1 \text{ mA}$	–	–	0.2	V						
$V_n$	noise voltage density	$f = 1 \text{ kHz}$ ; $B = 1 \text{ kHz}$ ; $I_Z = 250 \mu\text{A}$	–	–	1.0	$\frac{\mu\text{V}}{\sqrt{\text{Hz}}}$					

### THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point		360	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	500	K/W

#### Note

1. Device mounted on an FR4 printed circuit-board.

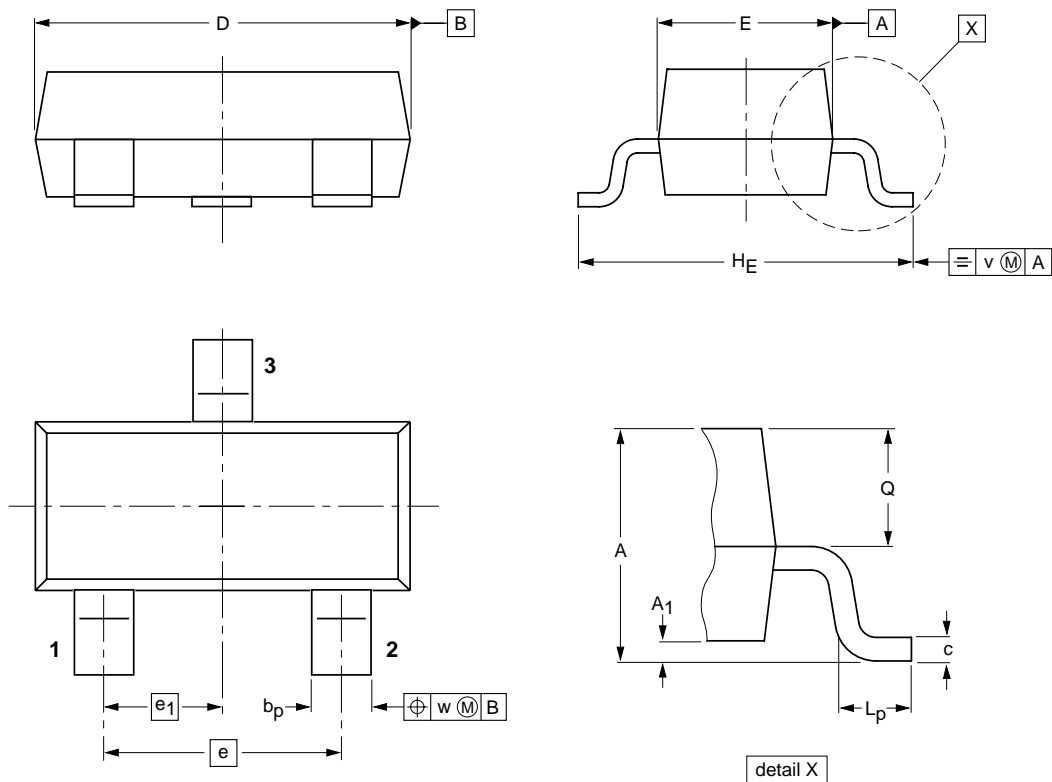
# Low-voltage avalanche regulator double diodes

## PLVA2600A series

### 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

# Low-voltage avalanche regulator double diodes

## PLVA2600A series

### 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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# ***NXP Semiconductors***

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## **Contact information**

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For sales offices addresses send e-mail to: [salesaddresses@nxp.com](mailto:salesaddresses@nxp.com)

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