



# Zener Diodes



## FEATURES

- Silicon planar power Zener diodes
- For use in stabilizing and clipping circuits with high power rating
- Standard Zener voltage tolerance is  $\pm 5\%$
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## DESIGN SUPPORT TOOLS AVAILABLE



## APPLICATIONS

- Voltage stabilization

PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V <sub>Z</sub> range nom.	3.3 to 100	V
Test current I <sub>ZT</sub>	2.5 to 76	mA
V <sub>Z</sub> specification	Thermal equilibrium	
Circuit configuration	Single	

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
1N4728A to 1N4764A	1N4728A to 1N4764A -series-TR	5000 per 13" reel	25 000/box
1N4728A to 1N4764A	1N4728A to 1N4764A-series-TAP	5000 per ammopack (52 mm tape)	25 000/box

PACKAGE				
PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
DO-41 (DO-204AL)	310 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C

ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Power dissipation	Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature	P <sub>tot</sub>	1300	mW
Zener current		I <sub>Z</sub>	P <sub>V</sub> /V <sub>Z</sub>	mA
Thermal resistance junction to ambient air	Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature	R <sub>thJA</sub>	110	K/W
Junction temperature		T <sub>j</sub>	175	°C
Storage temperature range		T <sub>stg</sub>	-65 to +175	°C
Forward voltage (max.)	I <sub>F</sub> = 200 mA	V <sub>F</sub>	1.2	V



ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)									
PART NUMBER	ZENER VOLTAGE RANGE <sup>(1)</sup>	TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE $f = 1\text{ kHz}$		SURGE CURRENT <sup>(3)</sup>	REGULATOR CURRENT <sup>(2)</sup>
	$V_Z$ at $I_{ZT1}$	$I_{ZT1}$	$I_{ZT2}$	$I_R$ at $V_R$		$Z_{ZT}$ at $I_{ZT1}$	$Z_{ZK}$ at $I_{ZT2}$	$I_R$	$I_{ZM}$
	V	mA	mA	$\mu\text{A}$	V	$\Omega$		mA	mA
	NOM.			MAX.		TYP.	MAX.		MAX.
1N4728A	3.3	76	1	100	1	10	400	1380	276
1N4729A	3.6	69	1	100	1	10	400	1260	252
1N4730A	3.9	64	1	50	1	9	400	1190	234
1N4731A	4.3	58	1	10	1	9	400	1070	217
1N4732A	4.7	53	1	10	1	8	500	970	193
1N4733A	5.1	49	1	10	1	7	550	890	178
1N4734A	5.6	45	1	10	2	5	600	810	162
1N4735A	6.2	41	1	10	3	2	700	730	146
1N4736A	6.8	37	1	10	4	3.5	700	660	133
1N4737A	7.5	34	0.5	10	5	4	700	605	121
1N4738A	8.2	31	0.5	10	6	4.5	700	550	110
1N4739A	9.1	28	0.5	10	7	5	700	500	100
1N4740A	10	25	0.25	10	7.6	7	700	454	91
1N4741A	11	23	0.25	5	8.4	8	700	414	83
1N4742A	12	21	0.25	5	9.1	9	700	380	76
1N4743A	13	19	0.25	5	9.9	10	700	344	69
1N4744A	15	17	0.25	5	11.4	14	700	304	61
1N4745A	16	15.5	0.25	5	12.2	16	700	285	57
1N4746A	18	14	0.25	5	13.7	20	750	250	50
1N4747A	20	12.5	0.25	5	15.2	22	750	225	45
1N4748A	22	11.5	0.25	5	16.7	23	750	205	41
1N4749A	24	10.5	0.25	5	18.2	25	750	190	38
1N4750A	27	9.5	0.25	5	20.6	35	750	170	34
1N4751A	30	8.5	0.25	5	22.8	40	1000	150	30
1N4752A	33	7.5	0.25	5	25.1	45	1000	135	27
1N4753A	36	7	0.25	5	27.4	50	1000	125	25
1N4754A	39	6.5	0.25	5	29.7	60	1000	115	23
1N4755A	43	6	0.25	5	32.7	70	1500	110	22
1N4756A	47	5.5	0.25	5	35.8	80	1500	95	19
1N4757A	51	5	0.25	5	38.8	95	1500	90	18
1N4758A	56	4.5	0.25	5	42.6	110	2000	80	16
1N4759A	62	4	0.25	5	47.1	125	2000	70	14
1N4760A	68	3.7	0.25	5	51.7	150	2000	65	13
1N4761A	75	3.3	0.25	5	56	175	2000	60	12
1N4762A	82	3	0.25	5	62.2	200	3000	55	11
1N4763A	91	2.8	0.25	5	69.2	250	3000	50	10
1N4764A	100	2.5	0.25	5	76	350	3000	45	9

**Notes**

- (1) Based on DC measurement at thermal equilibrium while maintaining the lead temperature ( $T_L$ ) at  $30\text{ }^{\circ}\text{C} + 1\text{ }^{\circ}\text{C}$ , 9.5 mm (3/8") from the diode body
- (2) Valid provided that electrodes at a distance of 4 mm from case are kept at ambient temperature
- (3)  $t_p = 10\text{ ms}$ .

## BASIC CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

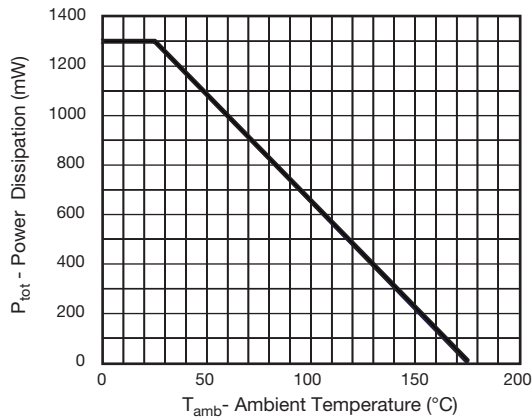
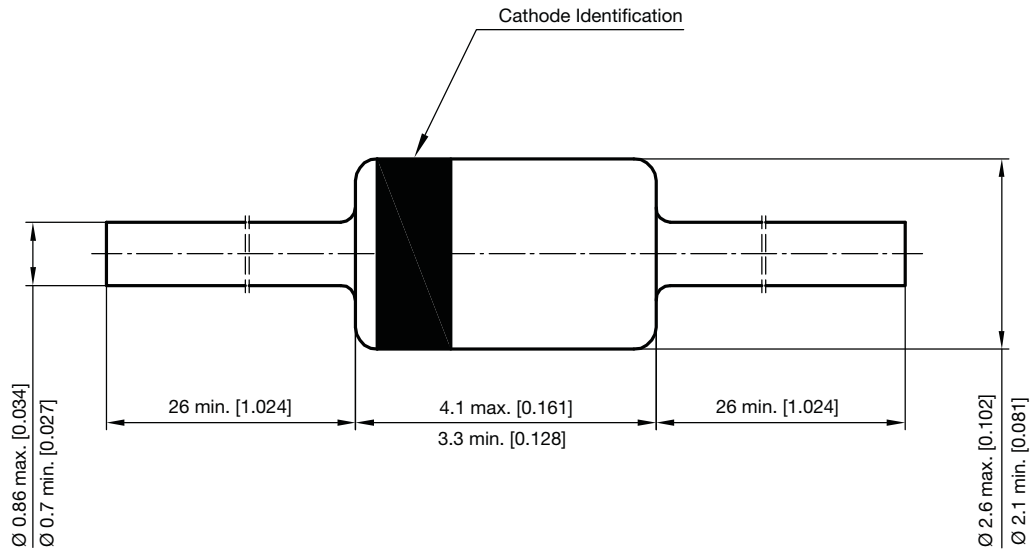


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature  
 $P_{tot} = f(T_{amb})$

## PACKAGE DIMENSIONS in millimeters (inches): DO-41 (DO-204AL)\_1N47xx



Document no. S8-V-3901.04-001(4)  
 Rev. 1 - Date: 30. Nov. 2011  
 22624



## **Disclaimer**

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.