

# Vishay Semiconductors

## **Zener Diodes**



#### **FEATURES**

- Silicon planar power Zener diodes
- For use in stabilizing and clipping circuits with high power rating



- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



(e2) BoHS

COMPLIANT HALOGEN FREE

### **DESIGN SUPPORT TOOLS AVAILABLE**



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				

### **APPLICATIONS**

Voltage stabilization

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		Tj	175	°C		
Storage temperature range		T <sub>stg</sub>	-65 to +175	°C		
Forward voltage (max.)	I <sub>F</sub> = 200 mA	$V_{F}$	1.2	V		



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ELECTRIC	<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)								
DADT	ZENER VOLTAGE TEST RANGE (1) CURRE					DYNAMIC RESISTANCE f = 1 kHz		SURGE CURRENT (3)	REGULATOR CURRENT (2)
PART NUMBER	V <sub>Z</sub> at I <sub>ZT1</sub>	I <sub>ZT1</sub>	I <sub>ZT2</sub>	I <sub>R</sub> a	t V <sub>R</sub>	Z <sub>ZT</sub> at I <sub>ZT1</sub> Z <sub>ZK</sub> at I <sub>ZT2</sub>		I <sub>R</sub>	I <sub>ZM</sub>
	V	mA	mA	μA	V	Ω		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

<sup>(1)</sup> Based on DC measurement at thermal equilibrium while maintaining the lead temperature (T<sub>L</sub>) at 30 °C + 1 °C, 9.5 mm (3/8") from the diode body

<sup>(2)</sup> Valid provided that electrodes at a distance of 4 mm from case are kept at ambient temperature

 $<sup>^{(3)}</sup>$   $t_p = 10 \text{ ms.}$ 

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### BASIC CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

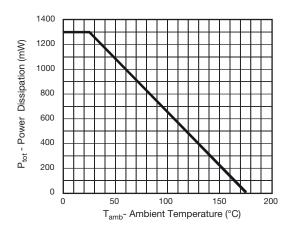
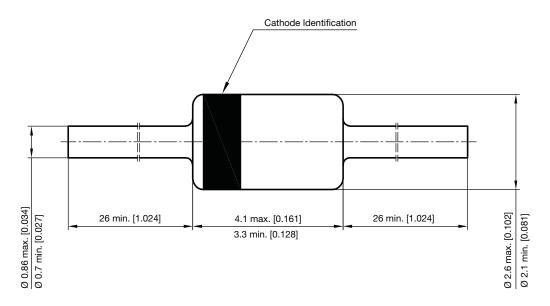


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature  $P_{tot} = f(T_{amb})$ 

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



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