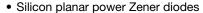
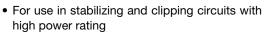


Zener Diodes



FEA	·ΤU	IRE	£S
-----	-----	-----	----







• The Zener voltages are graded according to the international E 12 standard.

RoHS

 These diodes are also available in the MELF case with the type designation ZMY3V9 to ZMY100



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

PRIMARY CHARACTERISTICS						
PARAMETER	VALUE	UNIT				
V _Z range nom.	3.9 to 100	V				
Test current I _{ZT}	5 to 100	mA				
V _Z specification	Pulse current					
Int. construction	Single					

ORDERING INFORMATION							
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY				
ZPY3V9 to ZPY100	ZPY3V9 to ZPY100-series-TR	5000 (52 mm tape on 13" reel)	25 000/box				
ZPY3V9 to ZPY100	ZPY3V9 to ZPY100-series-TAP	5000 per ammopack (52 mm tape)	25 000/box				

PACKAGE					
PACKAGE NAME	WEIGHT MOLDING COMPOUND MOISTURE SENSITIVITY RATING LEVEL		MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS	
DO-41	310 mg	-	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals	

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 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 _{tot}	1300	mW		
Zener current	See table "Characteristics"					
Junction to ambient air	Valid provided that leads at a distance of 4 mm from case are kept at ambient temperature	R _{thJA}	110	K/W		
Junction temperature		Tj	175	°C		
Storage temperature range		T _{stg}	-55 to +175	°C		



	ZENER VOLTAGE RANGE ⁽²⁾		TEST CURRENT	REVERSE VOLTAGE		DYNAMIC RESISTANCE f = 1 kHz	ADMISSIBLE ZENER CURRENT (1)	TEMPERATURE COEFFICIENT OF ZENER VOLTAGE			
PART NUMBER	1	/z at Izī	1	I _{ZT1}	V _R a	at I _R	Z _Z at I _{ZT1}	Iz	TC _{VZ}	at I _{ZT1}	
		٧		mA	٧	μA	Ω	mA		10 ⁻⁴ /°C	
	MIN.	NOM.	MAX.				TYP.		MIN.	MAX.	
ZPY3V9	3.7	3.9	4.1	100	1	0.5	4 (< 7)	290	- 7	2	
ZPY4V3	4	4.3	4.6	100	-	0.5	4 (< 7)	260	- 7	3	
ZPY4V7	4.4	4.7	5	100	-	0.5	4 (< 7)	235	- 7	4	
ZPY5V1	4.8	5.1	5.4	100	> 0.7	0.5	2 (< 5)	215	- 6	5	
ZPY5V6	5.2	5.6	6	100	> 1.5	0.5	1 (< 2)	193	- 3	5	
ZPY6V2	5.8	6.2	6.6	100	> 2.0	0.5	1 (< 2)	183	- 1	6	
ZPY6V8	6.4	6.8	7.2	100	> 3.0	0.5	1 (< 2)	157	0	7	
ZPY7V5	7	7.5	7.9	100	> 5.0	0.5	1 (< 2)	143	0	7	
ZPY8V2	7.7	8.2	8.7	100	> 6.0	0.5	1 (< 2)	127	3	8	
ZPY9V1	8.5	9.1	9.6	50	> 7.0	0.5	2 (< 4)	117	3	8	
ZPY10	9.4	10	10.6	50	> 7.5	0.5	2 (< 4)	105	5	9	
ZPY11	10.4	11	11.6	50	> 8.5	0.5	3 (< 7)	94	5	10	
ZPY12	11.4	12	12.7	50	> 9.0	0.5	3 (< 7)	85	5	10	
ZPY13	12.4	13	14.1	50	> 10	0.5	4 (< 9)	78	5	10	
ZPY15	13.8	15	15.8	50	> 11	0.5	4 (< 9)	70	5	10	
ZPY16	15.3	16	17.1	25	> 12	0.5	5 (< 10)	63	7	11	
ZPY18	16.8	18	19.1	25	> 14	0.5	5 (< 11)	57	7	11	
ZPY20	18.8	20	21.2	25	> 15	0.5	6 (< 12)	52	7	11	
ZPY22	20.8	22	23.3	25	> 17	0.5	7 (< 13)	48	7	11	
ZPY24	22.8	24	25.6	25	> 18	0.5	8 (< 14)	42	7	12	
ZPY27	25.1	27	28.9	25	> 20	0.5	9 (< 15)	38	7	12	
ZPY30	28	30	32	25	> 22.5	0.5	10 (< 20)	35	7	12	
ZPY33	31	33	35	25	> 25	0.5	11 (< 20)	31	7	12	
ZPY36	34	36	38	10	> 27	0.5	25 (< 60)	29	7	12	
ZPY39	37	39	41	10	> 29	0.5	30 (< 60)	26	8	12	
ZPY43	40	43	46	10	> 32	0.5	35 (< 80)	24	8	13	
ZPY47	44	47	50	10	> 35	0.5	40 (< 80)	22	8	13	
ZPY51	48	51	54	10	> 38	0.5	45 (< 100)	20	8	13	
ZPY56	52	56	60	10	> 42	0.5	50 (< 100)	18	8	13	
ZPY62	58	62	66	10	> 47	0.5	60 (< 130)	16	8	13	
ZPY68	64	68	72	10	> 51	0.5	65 (< 130)	14	8	13	
ZPY75	70	75	79	10	> 56	0.5	70 (< 160)	13	8	13	
ZPY82	77	82	88	10	> 61	0.5	80 (< 160)	12	8	13	
ZPY91	85	91	96	5	> 68	0.5	120 (< 250)	11	9	13	
ZPY100	94	100	106	5	> 75	0.5	130 (< 250)	10	9	13	

Notes

⁽¹⁾ Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case

⁽²⁾ Tested with pulses $t_p = 5 \text{ ms}$

BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

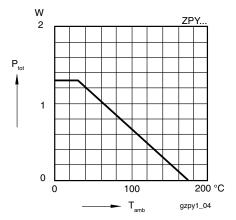


Fig. 1 - Admissible Power Dissipation vs. Ambient Temperature

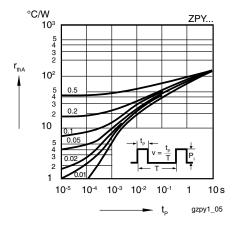


Fig. 2 - Pulse Thermal Resistance vs. Pulse Duration

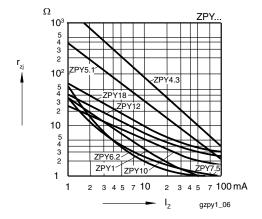


Fig. 3 - Dynamic Resistance vs. Zener Current

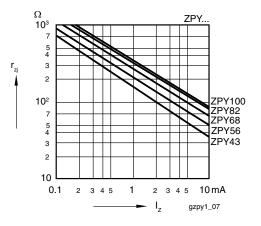


Fig. 4 - Dynamic Resistance vs. Zener Current

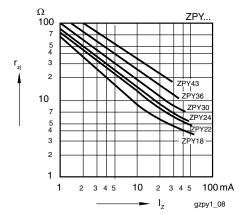


Fig. 5 - Dynamic Resistance vs. Zener Current

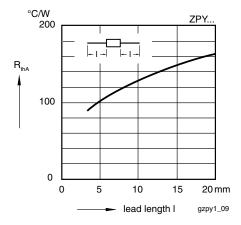


Fig. 6 - Thermal Resistance vs. Lead Length

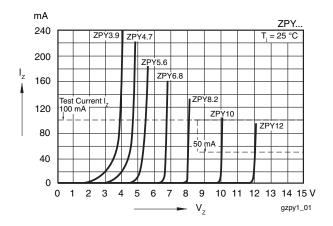


Fig. 7 - Breakdown Characteristics

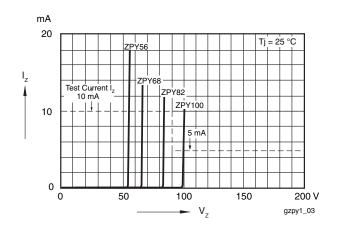


Fig. 9 - Breakdown Characteristics

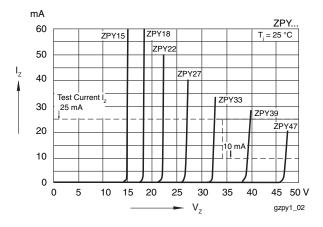
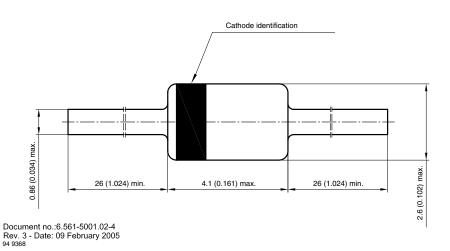


Fig. 8 - Breakdown Characteristics

PACKAGE DIMENSIONS in millimeters (inches): DO-41





Legal Disclaimer Notice

Vishay

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.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.

Revision: 02-Oct-12 Document Number: 91000