

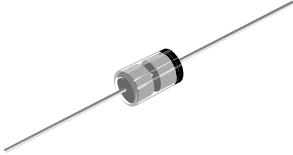


# ZPY1 thru ZPY100

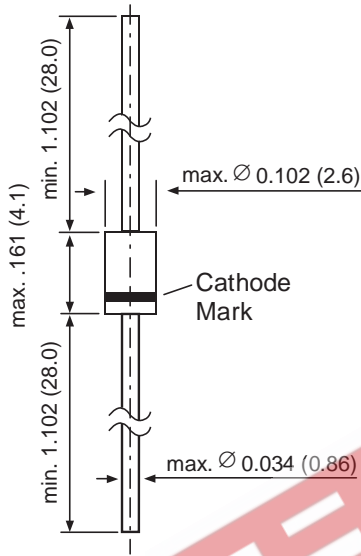
Vishay Semiconductors  
formerly General Semiconductor

## Zener Diodes

Vz Range 1.0, 3.9 to 100V  
Power Dissipation 1.3W



### DO-204AL (DO-41 Glass)



Dimensions in inches and (millimeters)

### Features

- Silicon Planar Power Zener Diodes
- For use in stabilizing and clipping circuits with high power rating.
- The Zener voltages are graded according to the international E 12 standard. Smaller voltage tolerances are available upon request.
- These diodes are also available in the MELF case with the type designation ZMY10 ... ZMY100.

### Mechanical Data

Case: DO-41 Glass Case

Weight: approx. 0.35g

#### Packaging Codes/Options:

D9/5K per 13" reel (52mm tape), 10K/box

E1/5K per Ammo mag. (52 mm tape), 10K/box

### Maximum Ratings and Thermal Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Zener Current (see Table "Characteristics")			
Power Dissipation at T <sub>amb</sub> = 25°C	P <sub>tot</sub>	1.3 <sup>(1)</sup>	W
Thermal Resistance Junction to Ambient Air	R <sub>θJA</sub>	130 <sup>(1)</sup>	°C/W
Junction Temperature	T <sub>j</sub>	175	°C
Storage Temperature Range	T <sub>s</sub>	-55 to +175	°C

**Note:**

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

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## Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

Type	Zener Voltage <sup>(2)</sup> at I <sub>ZT</sub> V <sub>Z</sub> (V)		Dynamic Resistance at I <sub>ZT</sub> f = 1 kHz r <sub>Zi</sub> (Ω)	Temp. Coeff. of Zener Voltage at I <sub>ZT</sub> α <sub>VZ</sub> (10 <sup>-4</sup> /°C)		Test current I <sub>ZT</sub> (mA)	Reverse Voltage at I <sub>R</sub> = 0.5 μA V <sub>R</sub> (V)	Admissible Zener current <sup>(1)</sup> at T <sub>amb</sub> = 25°C I <sub>Z</sub> (mA)
	Min	Max		Min	Max			
ZPY1 <sup>(3)</sup>	0.65	0.75	6.5 (< 8)	- 26	- 23	5	-	580
ZPY3.9	3.7	4.1	4 (< 7)	- 7	+2	100	-	290
ZPY4.3	4.0	4.6	4 (< 7)	- 7	+3	100	-	260
ZPY4.7	4.4	5.0	4 (< 7)	- 7	+4	100	-	235
ZPY5.1	4.8	5.4	2 (< 5)	- 6	+5	100	> 0.7	215
ZPY5.6	5.2	6.0	1 (< 2)	- 3	+5	100	> 1.5	193
ZPY6.2	5.8	6.6	1 (< 2)	- 1	+6	100	> 2.0	183
ZPY6.8	6.4	7.2	1 (< 2)	0	+7	100	> 3.0	157
ZPY7.5	7.0	7.9	1 (< 2)	0	+7	100	> 5.0	143
ZPY8.2	7.7	8.7	1 (< 2)	+3	+8	100	> 6.0	127
ZPY9.1	8.5	9.6	2 (< 4)	+3	+8	50	> 7.0	117
ZPY10	9.41	10.6	2 (< 4)	+5	+9	50	> 7.5	105
ZPY11	10.4	11.6	3 (< 7)	+5	+10	50	> 8.5	94
ZPY12	11.4	12.7	3 (< 7)	+5	+10	50	> 9.0	85
ZPY13	12.4	14.1	4 (< 9)	+5	+10	50	> 10	78
ZPY15	13.8	15.8	4 (< 9)	+5	+10	50	> 11	70
ZPY16	15.3	17.1	5 (< 10)	+7	+11	25	> 12	63
ZPY18	16.8	19.1	5 (< 11)	+7	+11	25	> 14	57
ZPY20	18.8	21.2	6 (< 12)	+7	+11	25	> 15	52
ZPY22	20.8	23.3	7 (< 13)	+7	+11	25	> 17	48
ZPY24	22.8	25.6	8 (< 14)	+7	+12	25	> 18	42
ZPY27	25.1	28.9	9 (< 15)	+7	+12	25	> 20	38
ZPY30	28	32	10 (< 20)	+7	+12	25	> 22.5	35
ZPY33	31	35	11 (< 20)	+7	+12	25	> 25	31
ZPY36	34	38	25 (< 60)	+7	+12	10	> 27	29
ZPY39	37	41	30 (< 60)	+8	+12	10	> 29	26
ZPY43	40	46	35 (< 80)	+8	+13	10	> 32	24
ZPY47	44	50	40 (< 80)	+8	+13	10	> 35	22
ZPY51	48	54	45 (< 100)	+8	+13	10	> 38	20
ZPY56	52	60	50 (< 100)	+8	+13	10	> 42	18
ZPY62	58	66	60 (< 130)	+8	+13	10	> 47	16
ZPY68	64	72	65 (< 130)	+8	+13	10	> 51	14
ZPY75	70	79	70 (< 160)	+8	+13	10	> 56	13
ZPY82	77	88	80 (< 160)	+8	+13	10	> 61	12
ZPY91	85	96	120 (< 250)	+9	+13	5	> 68	11
ZPY100	94	106	130 (< 250)	+9	+13	5	> 75	10

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

(2) Tested with pulses t<sub>p</sub> = 5 ms

(3) The ZPY1 is a silicon diode operated in forward direction. Hence, the index of all characteristics and maximum ratings should be "F" instead of "Z"

Connect the cathode terminal to the negative pole

For devices in glass case DO-41 with higher Zener voltage but same power dissipation see types ZPU100 ... ZPU180



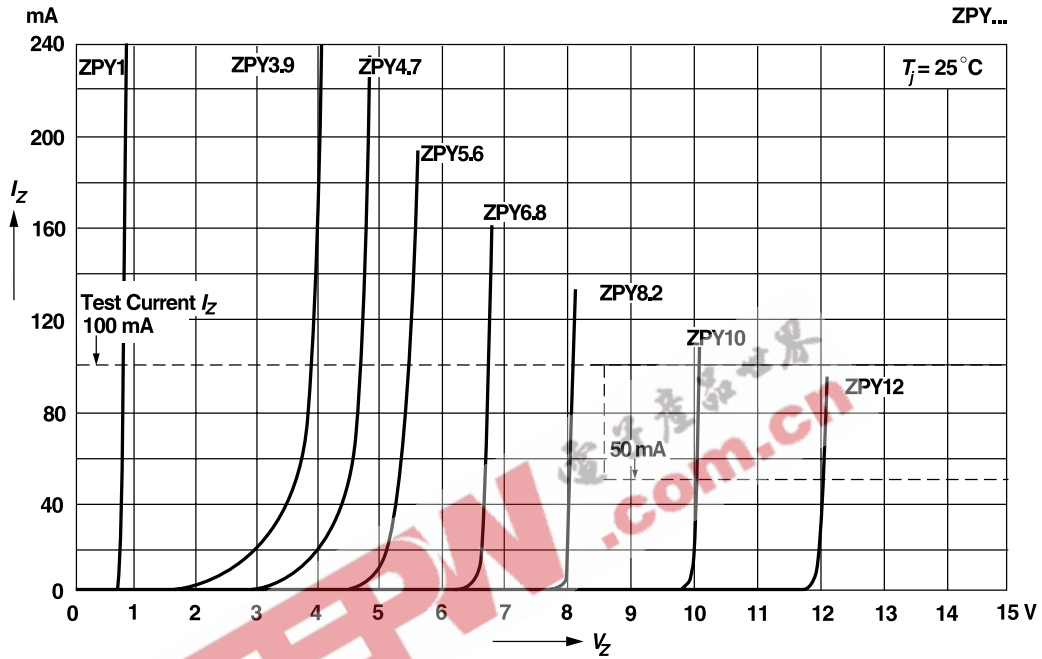
# ZPY1 thru ZPY100

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## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

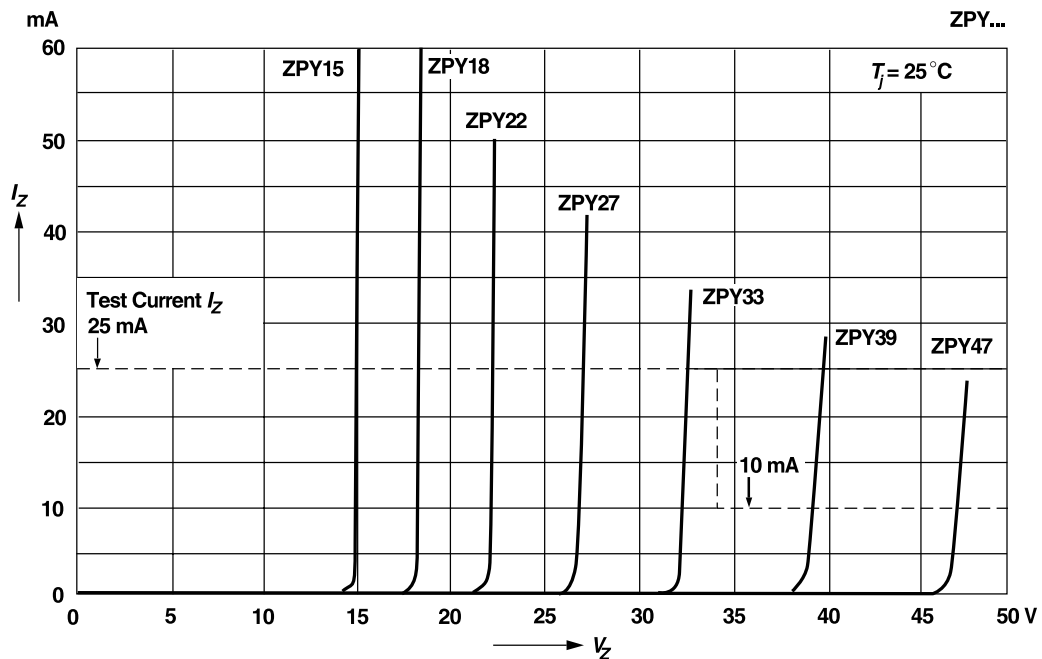
### Breakdown characteristics

$T_j = \text{constant (pulsed)}$



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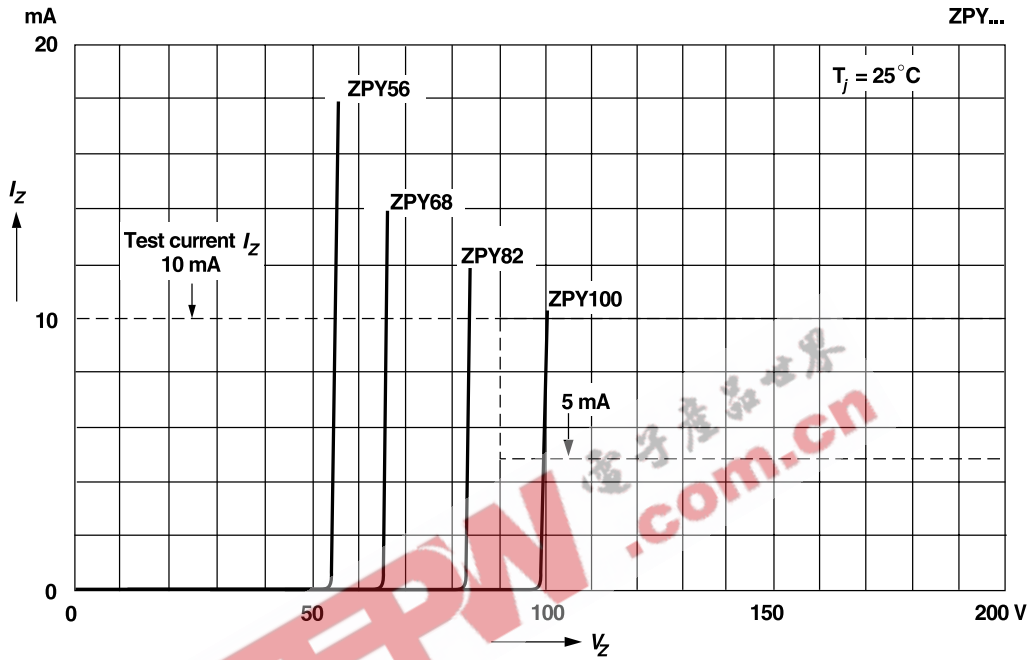
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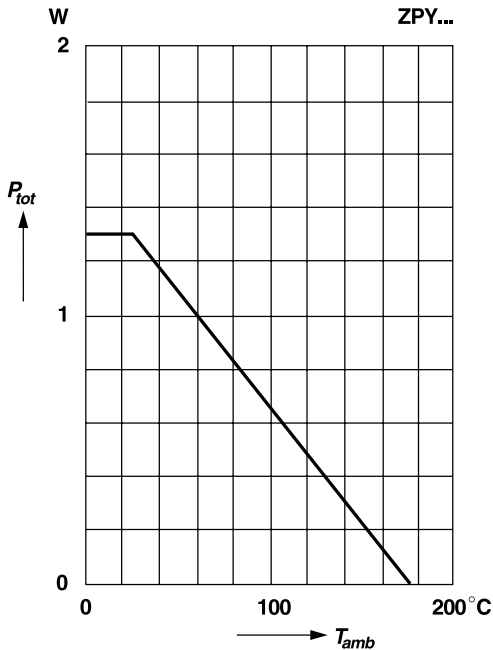
### Breakdown characteristics

$T_j = \text{constant (pulsed)}$



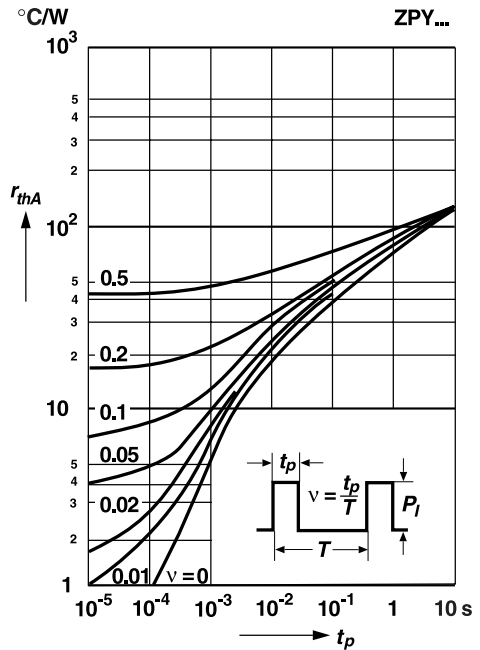
### Admissible power dissipation versus ambient temperature

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



### Pulse thermal resistance versus pulse duration

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



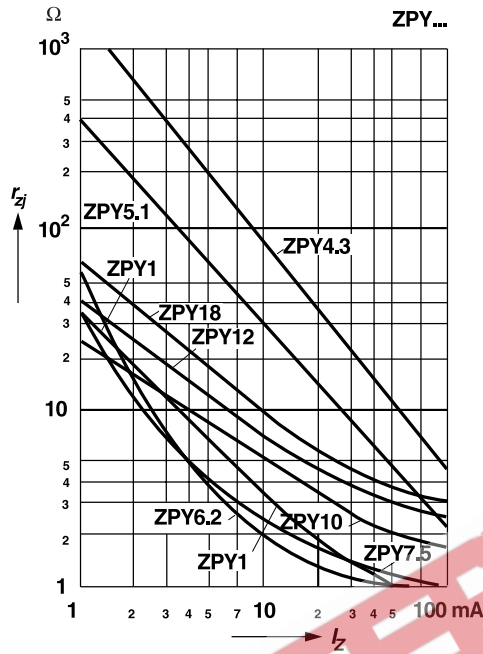


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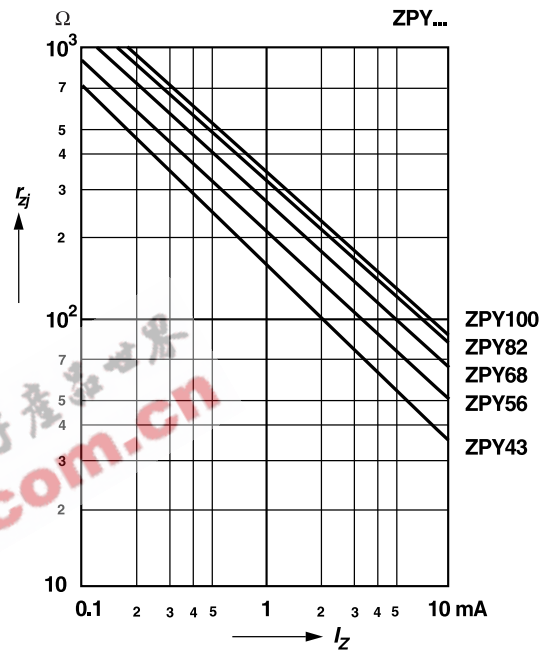
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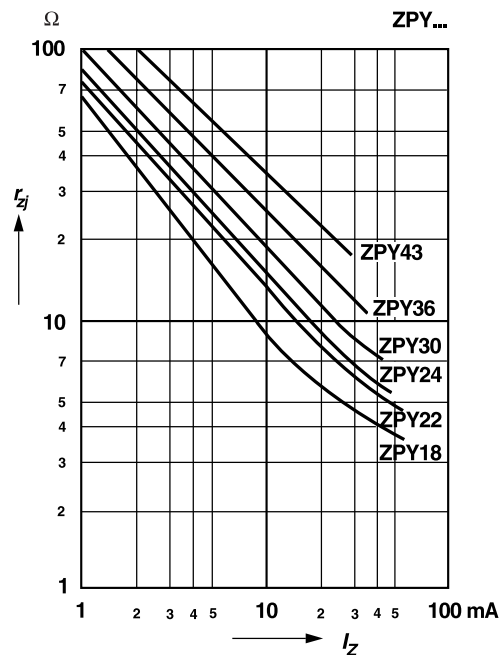
Dynamic resistance versus Zener current



Dynamic resistance versus Zener current



Dynamic resistance versus Zener current



Thermal resistance versus lead length

