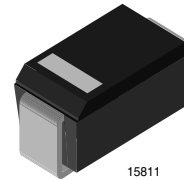


## Zener Diodes

### Features

- Glass passivated junction
- High reliability
- Voltage range 3.3 V to 100 V
- Fits onto 5 mm SMD footpads
- Wave and reflow solderable
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### Applications

- Voltage stabilization

### Mechanical Data

**Case:** DO-214AC

**Weight:** approx. 77 mg

**Packaging Codes/Options:**

TR / 1.5 k 7 " reel

TR3 / 6 k 13 " reel 6 k/box

### Absolute Maximum Ratings

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Power dissipation	$R_{thJA} < 30\text{ K/W}$ , $T_{amb} = 60\text{ }^{\circ}\text{C}$	$P_{diss}$	3	W
	$R_{thJA} < 100\text{ K/W}$ , $T_{amb} = 25\text{ }^{\circ}\text{C}$	$P_{diss}$	1.25	W
Non repetitive peak surge power dissipation	$t_p = 100\text{ }\mu\text{s}$ sq.pulse, $T_j = 25\text{ }^{\circ}\text{C}$ prior to surge	$P_{ZSM}$	60	W
Junction temperature		$T_j$	150	$^{\circ}\text{C}$
Storage temperature range		$T_{stg}$	- 65 to + 150	$^{\circ}\text{C}$

### Thermal Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Junction lead		$R_{thJL}$	30	K/W
Junction ambient	mounted on epoxy-glass hard tissue, Fig. 1a	$R_{thJA}$	150	K/W
	mounted on epoxy-glass hard tissue, Fig. 1b	$R_{thJA}$	125	K/W
	mounted on Al-oxid-ceramic ( $\text{Al}_2\text{O}_3$ ), Fig. 1b	$R_{thJA}$	100	K/W

### Electrical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Forward voltage	$I_F = 0.2\text{ A}$	$V_F$			1.2	V



## Electrical Characteristics

Partnumber	Zener Voltage			Maximum Dynamic Resistance		Test Current	Temp. Coefficient of Zener Voltage		Test Current	Max. Reverse Leakage Current	Reverse Voltage
	$V_Z$ at $I_{ZT}$			$r_{zT}$ at $I_{ZT}$	$r_{zK}$ at $I_{ZK}$		at $I_{ZT}$				
	min	typ	max	$\Omega$		mA	%/K		mA	$\mu A$	V
BZG05C3V3	3.1	3.3	3.5	20	400	80	- 0.08	- 0.05	1	40	1
BZG05C3V6	3.4	3.6	3.8	20	500	60	- 0.08	- 0.05	1	20	1
BZG05C3V9	3.7	3.9	4.1	15	500	60	- 0.07	- 0.02	1	10	1
BZG05C4V3	4.0	4.3	4.6	13	500	50	- 0.07	- 0.01	1	3	1
BZG05C4V7	4.4	4.7	5.0	13	600	45	- 0.03	0.04	1	3	1
BZG05C5V1	4.8	5.1	5.4	10	500	45	- 0.01	0.04	1	1	1.5
BZG05C5V6	5.2	5.6	6.0	7	400	45	0	0.045	1	1	2
BZG05C6V2	5.8	6.2	6.6	4	300	35	0.01	0.055	1	1	3
BZG05C6V8	6.4	6.8	7.2	3.5	300	35	0.015	0.06	1	1	4
BZG05C7V5	7.0	7.5	7.9	3	200	35	0.02	0.065	0.5	1	4.5
BZG05C8V2	7.7	8.2	8.7	5	200	25	0.03	0.07	0.5	1	6.2
BZG05C9V1	8.5	9.1	9.6	5	200	25	0.035	0.075	0.5	1	6.8
BZG05C10	9.4	10	10.6	7	200	25	0.04	0.08	0.5	0.5	7
BZG05C11	10.4	11	11.6	8	300	20	0.045	0.08	0.5	0.5	8.2
BZG05C12	11.4	12	12.7	9	350	20	0.045	0.085	0.5	0.5	9.1
BZG05C13	12.4	13	14.1	10	400	20	0.05	0.085	0.5	0.5	10
BZG05C15	13.8	15	15.6	15	500	15	0.055	0.09	0.5	0.5	11
BZG05C16	15.3	16	17.1	15	500	15	0.055	0.09	0.5	0.5	12
BZG05C18	16.8	18	19.1	20	500	15	0.06	0.09	0.5	0.5	13
BZG05C20	18.8	20	21.2	24	600	10	0.06	0.09	0.5	0.5	15
BZG05C22	20.8	22	23.3	25	600	10	0.06	0.095	0.5	0.5	16
BZG05C24	22.8	24	25.6	25	600	10	0.06	0.095	0.5	0.5	18
BZG05C27	25.1	27	28.9	30	750	8	0.06	0.095	0.25	0.5	20
BZG05C30	28	30	32	30	1000	8	0.06	0.095	0.25	0.5	22
BZG05C33	31	33	35	35	1000	8	0.06	0.095	0.25	0.5	24
BZG05C36	34	36	38	40	1000	8	0.06	0.095	0.25	0.5	27
BZG05C39	37	39	41	50	1000	6	0.06	0.095	0.25	0.5	30
BZG05C43	40	43	46	50	1000	6	0.06	0.095	0.25	0.5	33
BZG05C47	44	47	50	90	1500	4	0.06	0.095	0.25	0.5	36
BZG05C51	48	51	54	115	1500	4	0.06	0.095	0.25	0.5	39
BZG05C56	52	56	60	120	2000	4	0.06	0.095	0.25	0.5	43
BZG05C62	58	62	66	125	2000	4	0.06	0.095	0.25	0.5	47
BZG05C68	64	68	72	130	2000	4	0.06	0.095	0.25	0.5	51
BZG05C75	70	75	79	135	2000	4	0.06	0.095	0.25	0.5	56
BZG05C82	77	82	87	200	3000	2.7	0.06	0.095	0.25	0.5	62
BZG05C91	85	91	96	250	3000	2.7	0.06	0.095	0.25	0.5	68
BZG05C100	95	100	106	350	3000	2.7	0.06	0.095	0.25	0.5	75

## Typical Characteristics ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

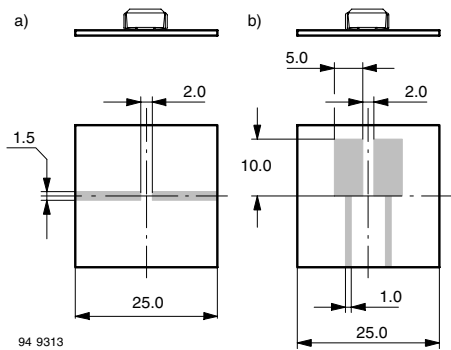
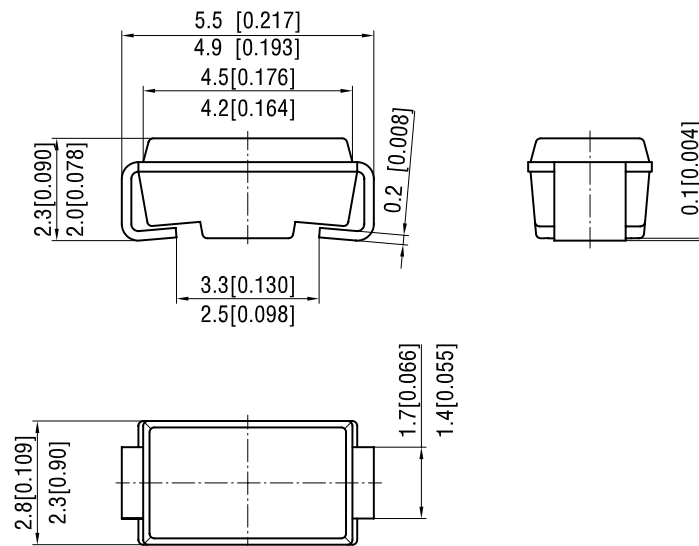
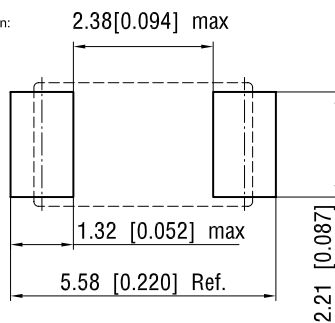


Figure 1. Boards for  $R_{thJA}$  definition (copper overlay  $35\text{ }\mu$ )

## Package Dimensions in mm (Inches)



foot print recommendation:



### Ozone Depleting Substances Policy Statement

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

We reserve the right to make changes to improve technical design  
and may do so without further notice.

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use Vishay Semiconductors products for any unintended or unauthorized application, the buyer shall indemnify Vishay Semiconductors against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany



## Disclaimer

All product specifications and data are subject to change without notice.

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 herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

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.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.