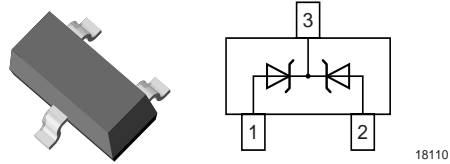


Small Signal Zener Diodes, Dual

Features

- This diode is also available in other case styles and configurations including: the dual diode common cathode configuration with type designation AZ23, the single diode SOT-23 case with the type designation BZX84C, and the single diode SOD-123 case with the type designation BZT52C.
- Dual Silicon Planar Zener Diodes, Common Cathode



- The Zener voltages are graded according to the international E 24 standard. Standard Zener voltage tolerance is $\pm 5\%$. Replace "C" with "B" for 2% tolerance.
- The parameters are valid for both diodes in one case. ΔV_Z and Δr_{zj} of the two diodes in one case is $\leq 5\%$

Mechanical Data

Case: SOT-23 Plastic case

Weight: approx. 8.8 mg

Packaging Codes/Options:

GS18 / 10 k per 13 " reel, (8 mm tape), 10 k/box

GS08 / 3 k per 7 " reel, (8 mm tape), 15 k/box

Absolute Maximum Ratings

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

Parameter	Test condition	Symbol	Value	Unit
Power dissipation		P_{tot}	300 ¹⁾	mW

¹⁾ Device on fiberglass substrate, see layout

Thermal Characteristics

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

Parameter	Test condition	Symbol	Value	Unit
Thermal resistance junction to ambient air		R_{thJA}	420 ¹⁾	$^\circ\text{C}/\text{W}$
Junction temperature		T_j	150	$^\circ\text{C}$
Storage temperature range		T_s	- 65 to + 150	$^\circ\text{C}$

¹⁾ Device on fiberglass substrate, see layout

Electrical Characteristics

Partnumber	Marking Code	Zener Voltage Range ¹⁾		Dynamic Resistance		Test Current I_Z	Temperature Coefficient of Zener Voltage		Reverse Voltage $V_R @ I_R = 100 \text{ nA}$
		$V_Z @ I_Z$		$r_{zj} @ I_Z = 5 \text{ mA}, f = 1 \text{ kHz}$	$r_{zj} @ I_Z = 1 \text{ mA}, f = 1 \text{ kHz}$		$\alpha_{VZ} @ I_Z = 5 \text{ mA}$		
		V		Ω			mA	$10^{-4}/^\circ\text{C}$	
		min	max				min	max	V
DZ23C2V7	V1	2.5	2.9	75 (<83)	<500	5	-9	-4	-
DZ23C3V0	V2	2.8	3.2	80 (<95)	<500	5	-9	-3	-
DZ23C3V3	V3	3.1	3.5	80 (<95)	<500	5	-8	-3	-
DZ23C3V6	V4	3.4	3.8	80 (<95)	<500	5	-8	-3	-
DZ23C3V9	V5	3.7	4.1	80 (<95)	<500	5	-7	-3	-
DZ23C4V3	V6	4	4.6	80 (<95)	<500	5	-6	-1	-
DZ23C4V7	V7	4.4	5	70 (<78)	<500	5	-5	2	-
DZ23C5V1	V8	4.8	5.4	30 (<60)	<480	5	-3	4	>0.8
DZ23C5V6	V9	5.2	6	10 (<40)	<400	5	-2	6	>1
DZ23C6V2	V10	5.8	6.6	4.8 (<10)	<200	5	-1	7	>2
DZ23C6V8	V11	6.4	7.2	4.5 (<8)	<150	5	2	7	>3
DZ23C7V5	V12	7	7.9	4 (<7)	<50	5	-3	7	>5
DZ23C8V2	V13	7.7	8.7	4.5 (<7)	<50	5	4	7	>6
DZ23C9V1	V14	8.5	9.6	4.8 (<10)	<50	5	5	8	>7
DZ23C10	V15	9.4	10.6	5.2 (<15)	<70	5	5	8	>7.5
DZ23C11	V16	10.4	11.6	6 (<20)	<70	5	5	9	>8.5
DZ23C12	V17	11.4	12.7	7 (<20)	<90	5	6	9	>9
DZ23C13	V18	12.4	14.1	9 (<25)	<110	5	7	9	>10
DZ23C15	V19	13.8	15.6	11 (<30)	<110	5	7	9	>11
DZ23C16	V20	15.3	17.1	13 (<40)	<170	5	8	9.5	>12
DZ23C18	V21	16.8	19.1	18 (<50)	<170	5	8	9.5	>14
DZ23C20	V22	18.8	21.2	20 (<50)	<220	5	8	10	>15
DZ23C22	V23	20.8	23.3	25 (<55)	<220	5	8	10	>17
DZ23C24	V24	22.8	25.6	28 (<80)	<220	5	8	10	>18
DZ23C27	V25	25.1	28.9	30 (<80)	<250	5	8	10	>20
DZ23C30	V26	28	32	35 (<80)	<250	5	8	10	>22.5
DZ23C33	V27	31	35	40 (<80)	<250	5	8	10	>25
DZ23C36	V28	34	38	40 (<90)	<250	5	8	10	>27
DZ23C39	V29	37	41	50 (<90)	<300	5	10	12	>29
DZ23C43	V30	40	46	60 (<100)	<700	5	10	12	>32
DZ23C47	V31	44	50	70 (<100)	<750	5	10	12	>35
DZ23C51	V32	48	54	70 (<100)	<750	5	10	12	>38

¹⁾ Tested with pulses $t_p = 5 \text{ ms}$



Electrical Characteristics

Partnumber	Marking Code	Zener Voltage Range ¹⁾		Dynamic Resistance		Test Current	Temperature Coefficient of Zener Voltage		Reverse Voltage		
		$V_Z @ I_Z$		$r_{zj} @$ $I_Z = 5 \text{ mA},$ $f = 1 \text{ kHz},$	$r_{zj} @$ $I_Z = 1 \text{ mA},$ $f = 1 \text{ kHz},$		I_Z	$\alpha_{VZ} @ I_Z = 5 \text{ mA}$		$V_R @$ $I_R = 100 \text{ nA}$	
		V		Ω			mA	$10^{-4}/^{\circ}\text{C}$		V	
		min	max				min	max			
DZ23B2V7	V1	2.65	2.75	75 (<83)	<500	5	-9	-4	-		
DZ23B3V0	V2	2.94	3.06	80 (<95)	<500	5	-9	-3	-		
DZ23B3V3	V3	3.23	3.37	80 (<95)	<500	5	-8	-3	-		
DZ23B3V6	V4	3.53	3.67	80 (<95)	<500	5	-8	-3	-		
DZ23B3V9	V5	3.82	3.98	80 (<95)	<500	5	-7	-3	-		
DZ23B4V3	V6	4.21	4.39	80 (<95)	<500	5	-6	-1	-		
DZ23B4V7	V7	4.61	4.79	70 (<78)	<500	5	-5	2	-		
DZ23B5V1	V8	5	5.2	30 (<60)	<480	5	-3	4	>0.8		
DZ23B5V6	V9	5.49	5.71	10 (<40)	<400	5	-2	6	>1		
DZ23B6V2	V10	6.08	6.32	4.8 (<10)	<200	5	-1	7	>2		
DZ23B6V8	V11	6.66	6.94	4.5 (<8)	<150	5	2	7	>3		
DZ23B7V5	V12	7.35	7.65	4 (<7)	<50	5	-3	7	>5		
DZ23B8V2	V13	8.04	8.36	4.5 (<7)	<50	5	4	7	>6		
DZ23B9V1	V14	8.92	9.28	4.8 (<10)	<50	5	5	8	>7		
DZ23B10	V15	9.8	10.2	5.2 (<15)	<70	5	5	8	>7.5		
DZ23B11	V16	10.8	11.2	6 (<20)	<70	5	5	9	>8.5		
DZ23B12	V17	11.8	12.2	7 (<20)	<90	5	6	9	>9		
DZ23B13	V18	12.7	13.3	9 (<25)	<110	5	7	9	>10		
DZ23B15	V19	14.7	15.3	11 (<30)	<110	5	7	9	>11		
DZ23B16	V20	15.7	16.3	13 (<40)	<170	5	8	0.5	>12		
DZ23B18	V21	17.6	18.4	18 (<50)	<170	5	8	0.5	>14		
DZ23B20	V22	19.6	20.4	20 (<50)	<220	5	8	10	>15		
DZ23B22	V23	21.6	22.4	25 (<55)	<220	5	8	10	>17		
DZ23B24	V24	23.5	24.5	28 (<80)	<220	5	8	10	>18		
DZ23B27	V25	26.5	27.5	30 (<80)	<250	5	8	10	>20		
DZ23B30	V26	29.4	30.6	35 (<80)	<250	5	8	10	>22.5		
DZ23B33	V27	32.3	33.7	40 (<80)	<250	5	8	10	>25		
DZ23B36	V28	35.3	36.7	40 (<90)	<250	5	8	10	>27		
DZ23B39	V29	38.2	39.8	50 (<90)	<300	5	10	12	>29		
DZ23B43	V30	42.1	43.9	60 (<100)	<700	5	10	12	>32		
DZ23B47	V31	46.1	47.9	70 (<100)	<750	5	10	12	>35		
DZ23B51	V32	50	52	70 (<100)	<750	5	10	12	>38		

¹⁾ Tested with pulses $t_p = 5 \text{ ms}$

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

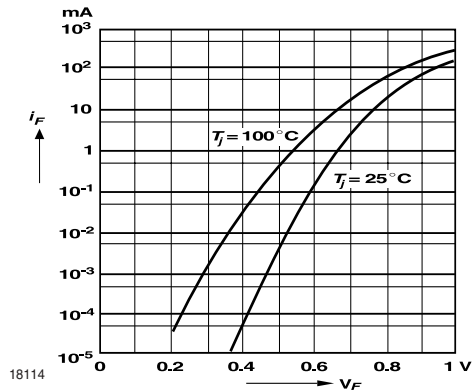


Figure 1. Forward characteristics

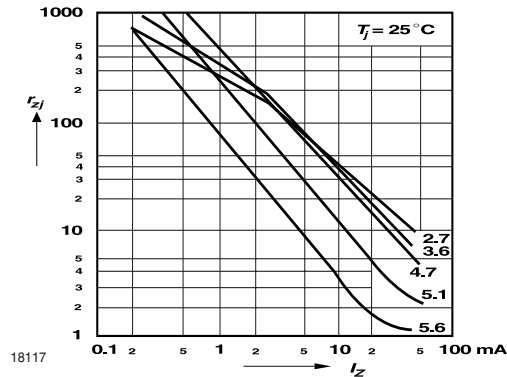


Figure 4. Dynamic Resistance vs. Zener Current

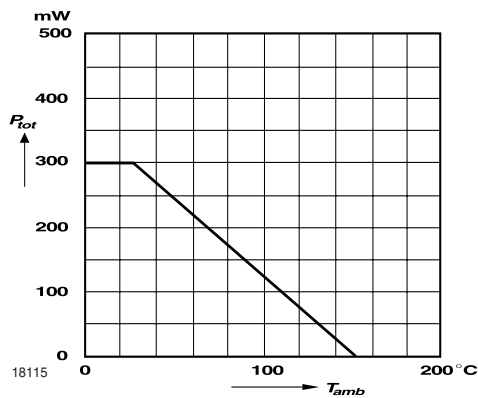


Figure 2. Admissible Power Dissipation vs. Ambient Temperature

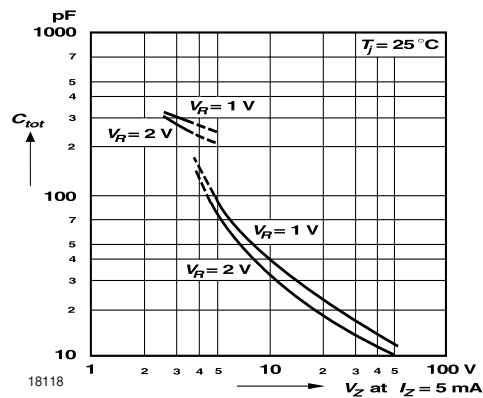


Figure 5. Capacitance vs. Zener Voltage

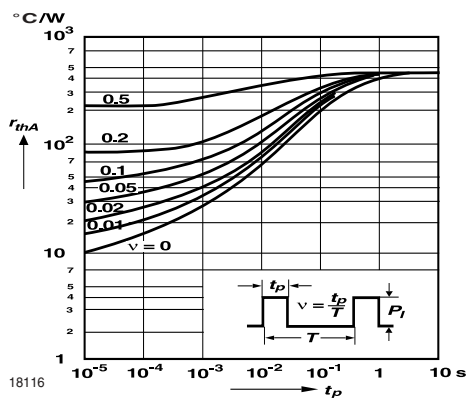


Figure 3. Pulse Thermal Resistance vs. Pulse Duration

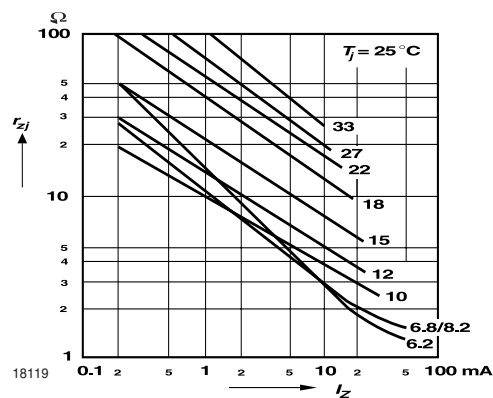


Figure 6. Dynamic Resistance vs. Zener Current

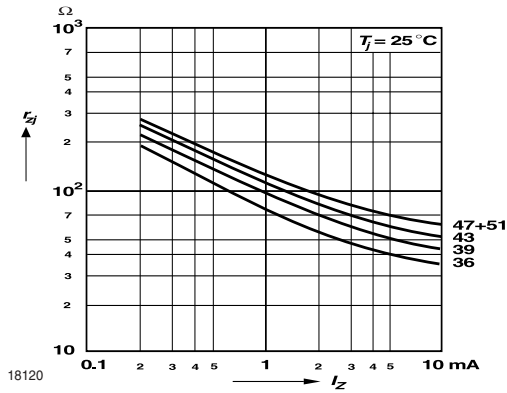


Figure 7. Dynamic Resistance vs. Zener Current

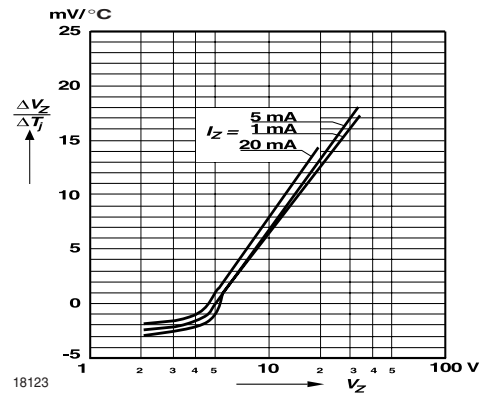


Figure 10. Temperature Dependence of Zener Voltage vs. Zener Voltage

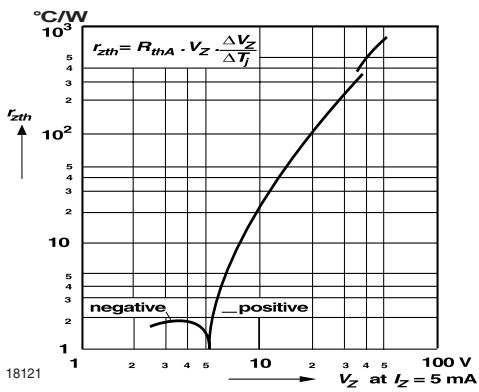


Figure 8. Thermal Differential Resistance vs. Zener Voltage

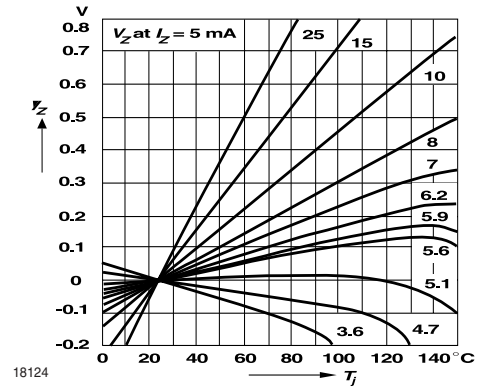


Figure 11. Change of Zener Voltage vs. Junction Temperature

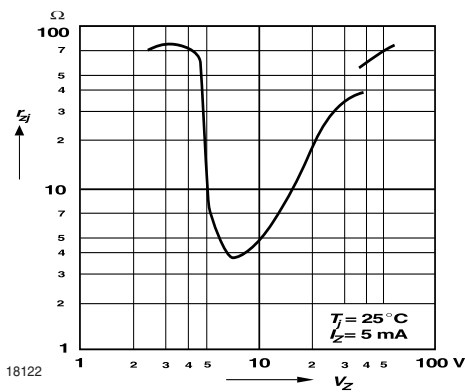


Figure 9. Dynamic Resistance vs. Zener Voltage

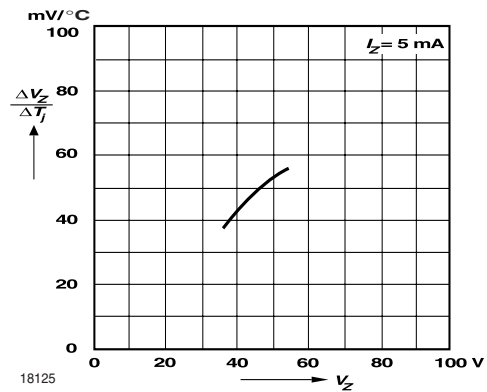


Figure 12. Temperature Dependence of Zener Voltage vs. Zener Voltage

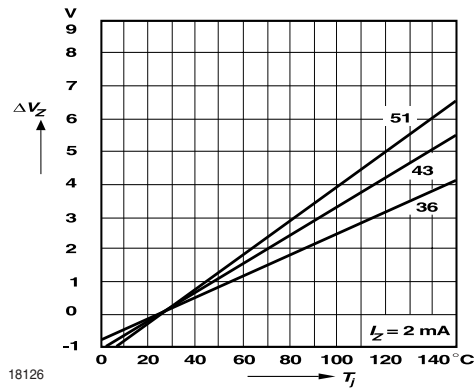


Figure 13. Change of Zener Voltage vs. Junction Temperature

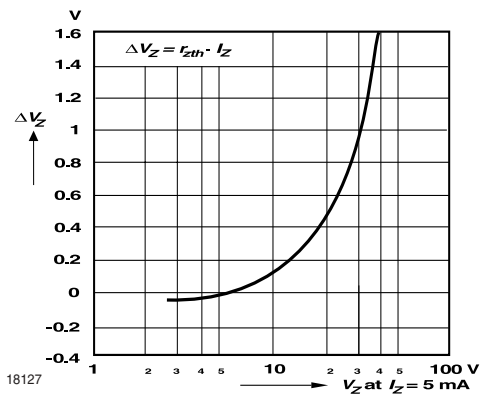


Figure 14. Change of Zener voltage from turn-on up to the point of thermal equilibrium vs. Zener voltage

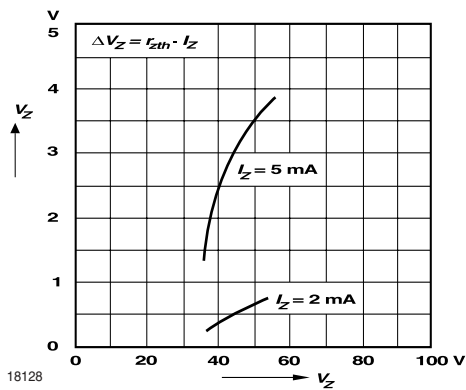


Figure 15. Change of Zener voltage from turn-on up to the point of thermal equilibrium vs. Zener voltage

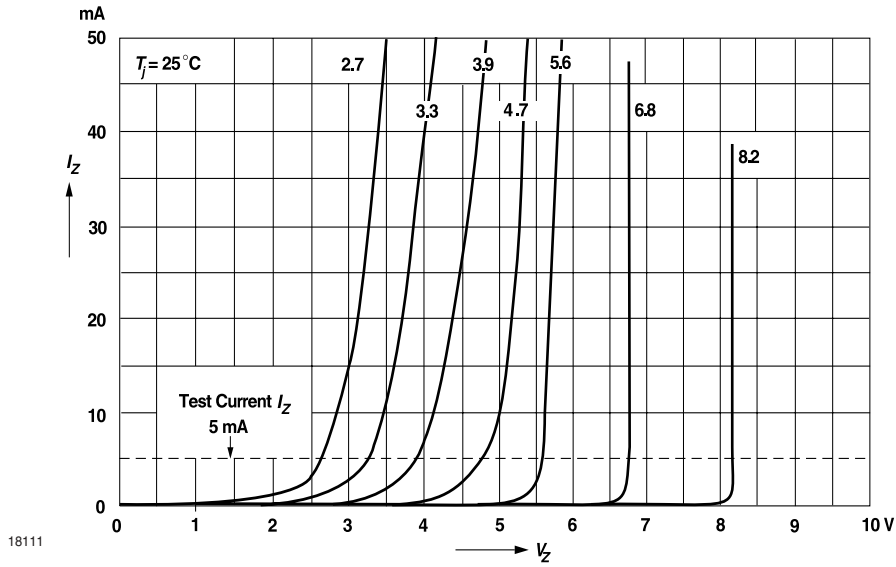


Figure 16. Breakdown Characteristics

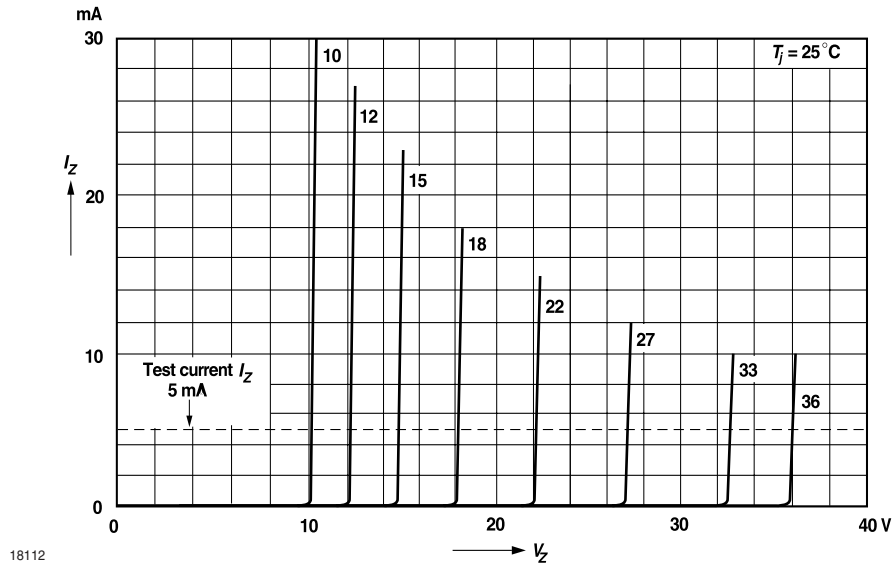
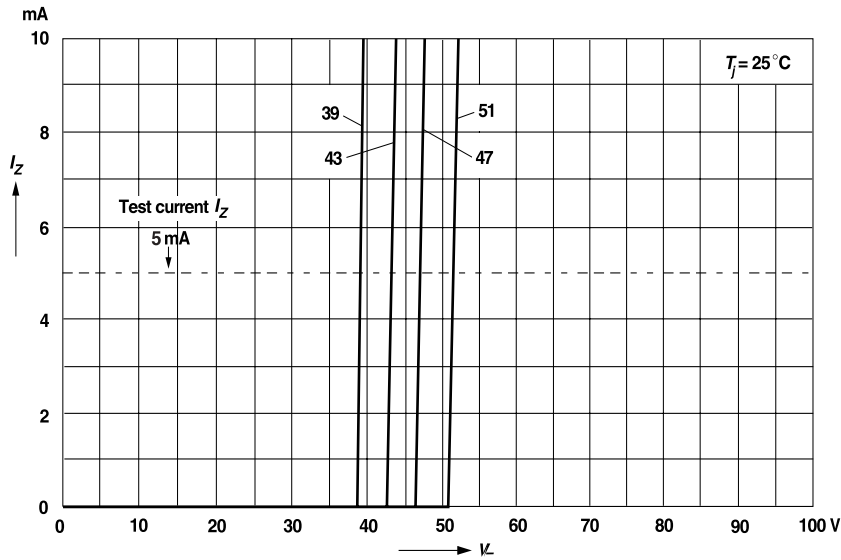


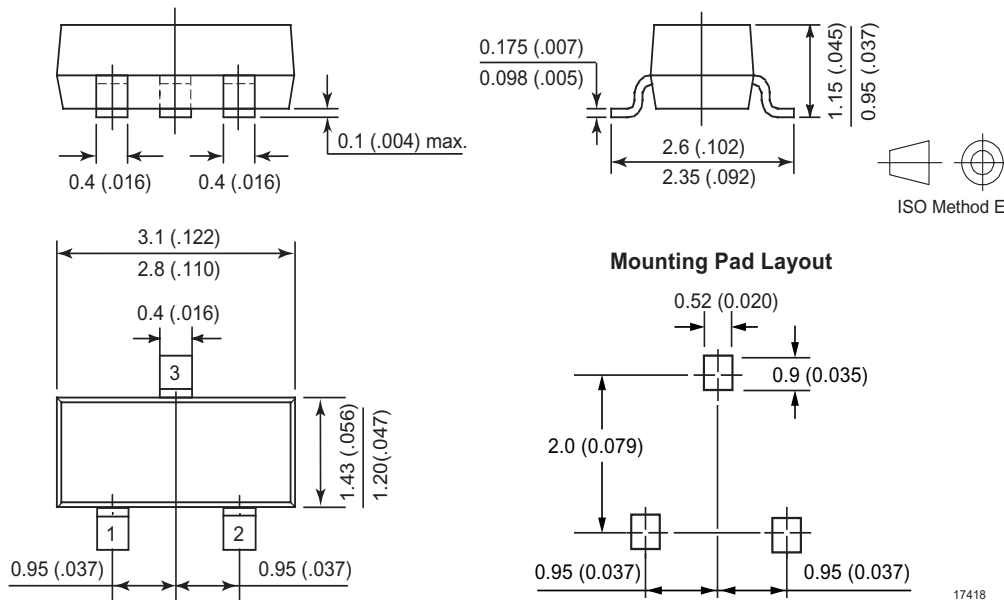
Figure 17. Breakdown Characteristics



18113

Figure 18. Breakdown Characteristics

Package Dimensions in mm (Inches)



17418

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.

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