

# ZENER DIODES

## PRODUCT SUMMARY

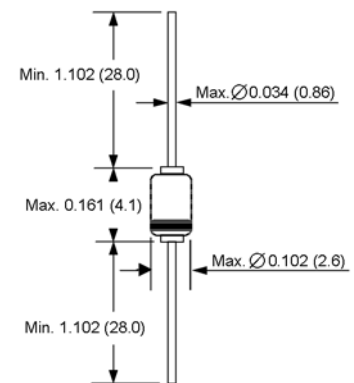
$V_Z$  range: 3.6 to 200 Volts  
 Power dissipation: 1.3W



## 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 24 standard. Replace suffix "C" with "B" for  $\pm 2\%$  tolerance.  
 Other voltage tolerances and other Zener voltages are available upon request.

DO-204AL (DO-41 Glass)



Dimensions in inches and (millimeters)

## MECHANICAL DATA

Case: DO-41Glass Case  
 Weight: approx. 0.35g

 **Pb-free; RoHS-compliant**

## MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

( $T_A=25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Value	Unit
Zener current (see Table "Characteristics")			
Power dissipation at $T_{\text{amb}}=25^\circ\text{C}$	$P_{\text{tot}}$	1.3 <sup>(1)</sup>	W
Thermal resistance junction to ambient air	$R_{\theta JA}$	130 <sup>(1)</sup>	$^\circ\text{C/W}$
Junction temperature	$T_J$	175	$^\circ\text{C}$
Storage temperature range	$T_S$	-55 to +175	$^\circ\text{C}$

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

## ELECTRICAL CHARACTERISTICS

( $T_A=25^{\circ}\text{C}$  unless otherwise noted) Maximum  $V_F=1.0\text{V}$  at  $I_F=200\text{mA}$

Type number y=C for $\pm 5\%$ y=B for $\pm 2\%$	Dynamic resistance				Temp. coefficient of zener voltage at $I_z=I_{ZT}$ $\alpha_{VZ}$ ( $\%/^{\circ}\text{C}$ )		Reverse leakage current		Admissible zener current <sup>(2)</sup>	
	$r_{ZT}^{(3)}$ ( $\Omega$ )	at $I_{ZT}$ (mA)	$r_{ZK}^{(3)}$ ( $\Omega$ )	at $I_{ZK}$ (mA)	Min.	Max.	at $I_R$ ( $\mu\text{A}$ )	at $V_R$ (Volts)	$I_z$ (mA)	at $t_p=10\text{ms}$ $I_{ZSM}$ (mA)
BZX85 - y2V7	< 20	60	< 400	1	- 0.08	- 0.06	-	1	-	-
BZX85 - y3V0	< 20	60	< 400	1	- 0.08	- 0.06	-	1	-	-
BZX85 - y3V3	< 20	60	< 400	1	- 0.08	- 0.06	-	1	-	-
BZX85 - y3V6	< 15	60	< 500	1	- 0.08	- 0.05	< 20	1	290	2660
BZX85 - y3V9	< 15	60	< 500	1	- 0.07	- 0.02	< 10	1	280	2540
BZX85 - y4V3	< 13	50	< 500	1	- 0.05	+0.01	< 3	1	250	2440
BZX85 - y4V7	< 13	45	< 600	1	- 0.03	+0.04	< 3	1	215	2320
BZX85 - y5V1	< 10	45	< 500	1	- 0.01	+0.04	< 1	1.5	200	2200
BZX85 - y5V6	< 7	45	< 400	1	0	+0.045	< 1	2	190	2080
BZX85 - y6V2	< 4	35	< 300	1	+0.01	+0.055	< 1	3	170	1960
BZX85 - y6V8	< 3.5	35	< 300	1	+0.015	+0.06	< 1	4	155	1800
BZX85 - y7V5	< 3	35	< 200	0.5	+0.02	+0.065	< 1	4.5	140	1620
BZX85 - y8V2	< 5	25	< 200	0.5	+0.03	+0.07	< 1	6.2	130	1520
BZX85 - y9V1	< 5	25	< 200	0.5	+0.035	+0.075	< 1	6.8	120	1340
BZX85 - y10	< 7	25	< 200	0.5	+0.04	+0.08	< 0.5	7.5	105	1200
BZX85 - y11	< 8	20	< 300	0.5	+0.045	+0.08	< 0.5	8.2	97	1100
BZX85 - y12	< 9	20	< 350	0.5	+0.045	+0.085	< 0.5	9.1	88	1000
BZX85 - y13	< 10	20	< 400	0.5	+0.05	+0.085	< 0.5	10	79	900
BZX85 - y15	< 10	15	< 500	0.5	+0.055	+0.09	< 0.5	11	71	760
BZX85 - y16	< 15	15	< 500	0.5	+0.055	+0.09	< 0.5	12	66	700
BZX85 - y18	< 20	15	< 500	0.5	+0.06	+0.09	< 0.5	13	62	600
BZX85 - y20	< 24	10	< 600	0.5	+0.06	+0.09	< 0.5	15	56	540
BZX85 - y22	< 25	10	< 600	0.5	+0.06	+0.095	< 0.5	16	52	500
BZX85 - y24	< 25	10	< 600	0.5	+0.06	+0.095	< 0.5	18	47	450
BZX85 - y27	< 30	8	< 750	0.25	+0.06	+0.095	< 0.5	20	41	400
BZX85 - y30	< 30	8	< 1000	0.25	+0.06	+0.095	< 0.5	22	36	380
BZX85 - y33	< 35	8	< 1000	0.25	+0.06	+0.095	< 0.5	24	33	350
BZX85 - y36	< 40	8	< 1000	0.25	+0.06	+0.095	< 0.5	27	30	320
BZX85 - y39	< 50	6	< 1000	0.25	+0.06	+0.095	< 0.5	30	28	296
BZX85 - y43	< 50	6	< 1000	0.25	+0.06	+0.095	< 0.5	33	26	270
BZX85 - y47	< 90	4	< 1500	0.25	+0.06	+0.095	< 0.5	36	23	246
BZX85 - y51	< 115	4	< 1500	0.25	+0.06	+0.095	< 0.5	39	21	226
BZX85 - y56	< 120	4	< 2000	0.25	+0.06	+0.095	< 0.5	43	19	208
BZX85 - y62	< 125	4	< 2000	0.25	+0.06	+0.095	< 0.5	47	16	186
BZX85 - y68	< 130	4	< 2000	0.25	0.055	0.095	< 0.5	51	15	171
BZX85 - y75	< 135	4	< 2000	0.25	0.055	0.095	< 0.5	56	14	161
BZX85 - y82	< 200	2.7	< 3000	0.25	0.055	0.095	< 0.5	62	12	141
BZX85 - y91	< 250	2.7	< 3000	0.25	0.055	0.095	< 0.5	68	10	127
BZX85 - y100	< 350	2.7	< 3000	0.25	0.055	0.095	< 0.5	75	9.4	116
BZX85 - y110	< 450	2.7	< 4000	0.25	0.055	0.095	< 0.5	82	8.6	105
BZX85 - y120	< 550	2	< 4500	0.25	0.055	0.095	< 0.5	91	7.8	96
BZX85 - y130	< 700	2	< 5000	0.25	0.055	0.095	< 0.5	100	7.0	89
BZX85 - y150	< 1000	2	< 6000	0.25	0.055	0.095	< 0.5	110	6.4	77
BZX85 - y160	< 1100	1.5	< 6500	0.25	0.050	0.095	< 0.5	120	5.8	72
BZX85 - y180	< 1200	1.5	< 7000	0.25	0.050	0.095	< 0.5	130	5.2	64
BZX85 - y200	< 1500	1.5	< 8000	0.25	0.050	0.095	< 0.5	150	4.7	58

- Notes:**
1. Measured with pulses  $t_p=5$  ms
  2. Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case
  3. Measured with  $f=1$  kHz

## ELECTRICAL CHARACTERISTICS

( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

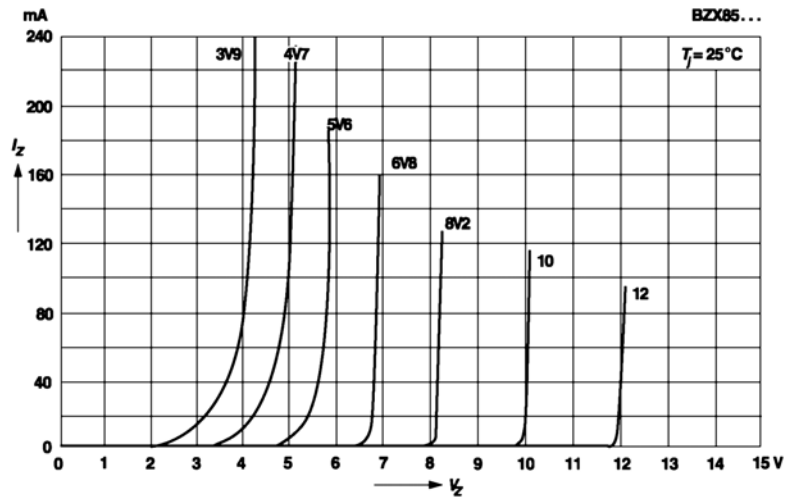
Type number ±5% Tol.	Zener voltage range <sup>(1)</sup> at $I_z$ $V_z$ (Volts)		Test current $I_z$ (mA)
	Min.	Max.	
BZX85-C2V7	2.50	2.90	60
BZX85-C3V0	2.80	3.20	60
BZX85-C3V3	3.10	3.50	60
BZX85-C3V6	3.40	3.80	60
BZX85-C3V9	3.70	4.10	60
BZX85-C4V3	4.00	4.60	50
BZX85-C4V7	4.40	5.00	45
BZX85-C5V1	4.80	5.40	45
BZX85-C5V6	5.20	6.00	45
BZX85-C6V2	5.80	6.60	35
BZX85-C6V8	6.40	7.20	35
BZX85-C7V5	7.00	7.90	35
BZX85-C8V2	7.70	8.70	25
BZX85-C9V1	8.50	9.60	25
BZX85-C10	9.40	10.6	25
BZX85-C11	10.4	11.6	20
BZX85-C12	11.4	12.7	20
BZX85-C13	12.4	14.1	20
BZX85-C15	13.8	15.6	15
BZX85-C16	15.3	17.1	15
BZX85-C18	16.8	19.1	15
BZX85-C20	18.8	21.2	10
BZX85-C22	20.8	23.3	10
BZX85-C24	22.8	25.6	10
BZX85-C27	25.1	28.9	8.0
BZX85-C30	28.0	32.0	8.0
BZX85-C33	31.0	35.0	8.0
BZX85-C36	34.0	38.0	8.0
BZX85-C39	37.0	41.0	6.0
BZX85-C43	40.0	46.0	6.0
BZX85-C47	44.0	50.0	4.0
BZX85-C51	48.0	54.0	4.0
BZX85-C56	52.0	60.0	4.0
BZX85-C62	58.0	66.0	4.0
BZX85-C68	64.0	72.0	4.0
BZX85-C75	70.0	80.0	4.0
BZX85-C82	77.0	87.0	2.7
BZX85-C91	85.0	96.0	2.7
BZX85-C100	94.0	106	2.7
BZX85-C110	104	116	2.7
BZX85-C120	114	127	2.0
BZX85-C130	124	141	2.0
BZX85-C150	138	156	2.0
BZX85-C160	153	171	1.5
BZX85-C180	168	191	1.5
BZX85-C200	188	212	1.5

**Notes:** 1. Measured with pulses  $t_p=5$  ms

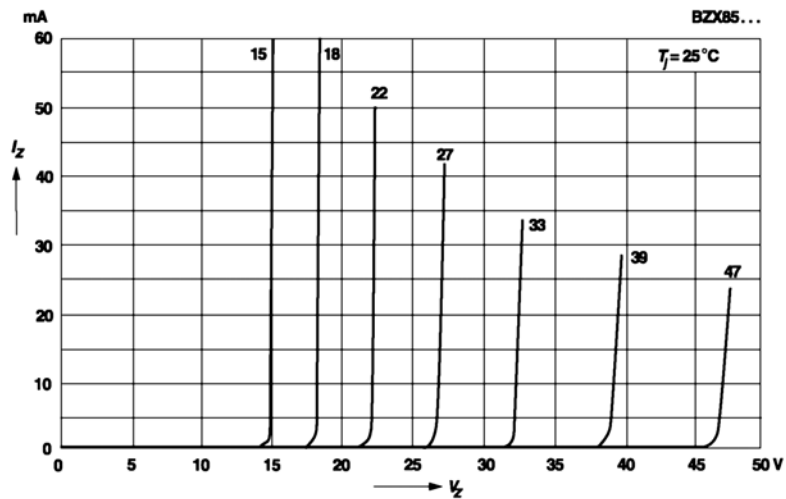
## RATINGS AND CHARACTERISTIC CURVES

( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

**Breakdown characteristics**  
at  $T_j = \text{constant}$  (pulsed)

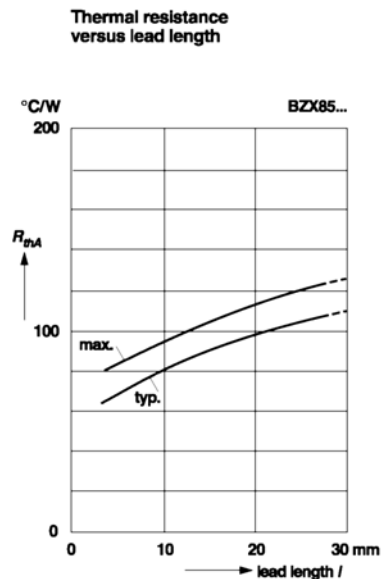
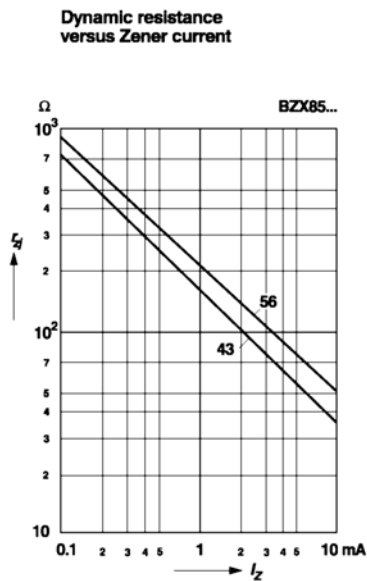
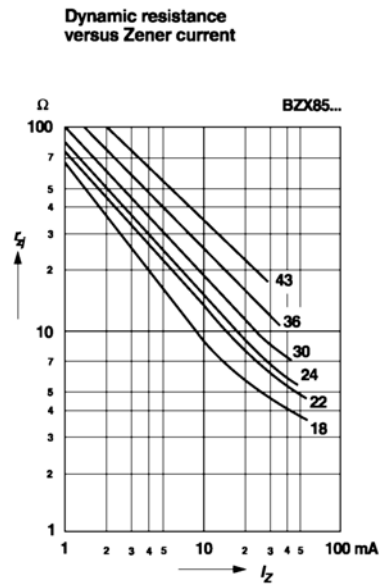
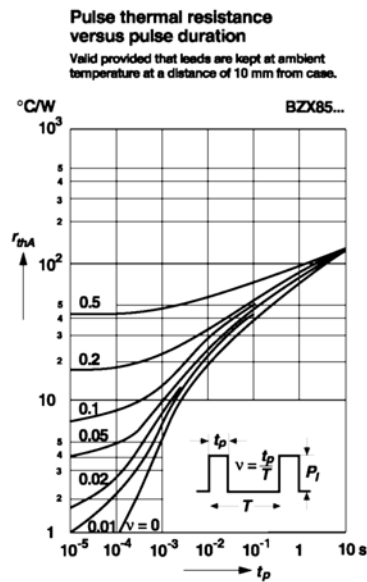


**Breakdown characteristics**  
at  $T_j = \text{constant}$  (pulsed)



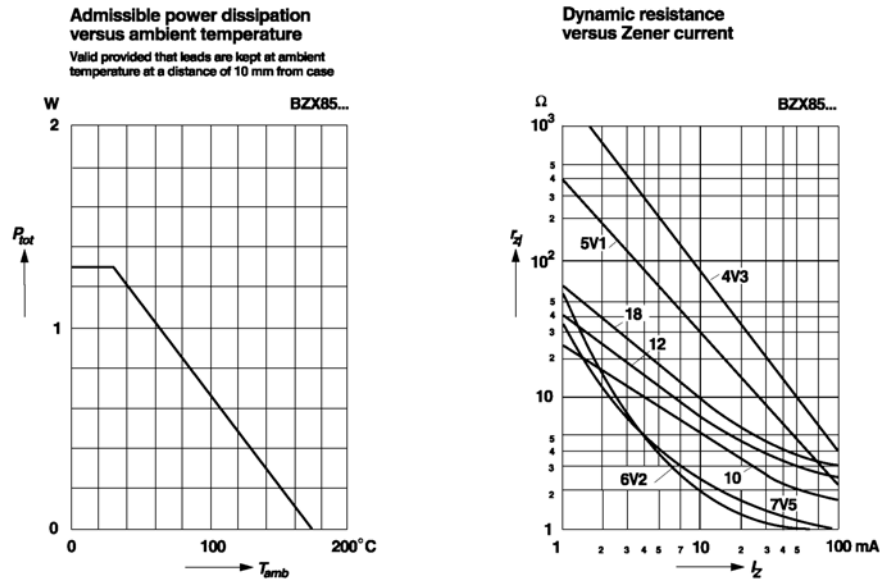
## RATINGS AND CHARACTERISTIC CURVES

( $T_A=25^{\circ}\text{C}$  unless otherwise noted)



## RATINGS AND CHARACTERISTIC CURVES

( $T_A=25^{\circ}\text{C}$  unless otherwise noted)



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