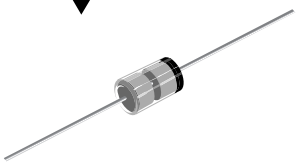
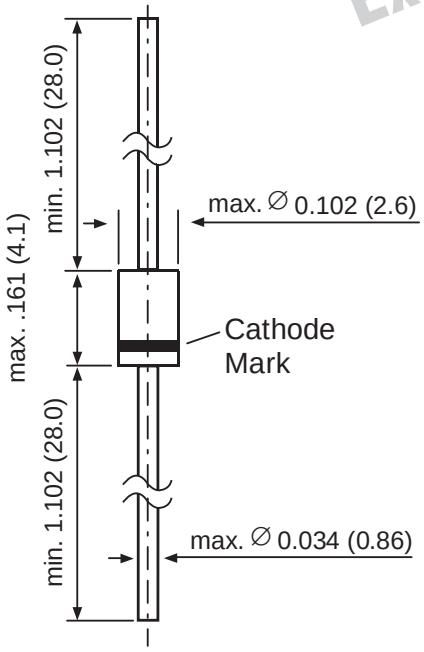


Zener Diodes

V_Z Range 3.6 to 200V
Power Dissipation 1.3W

Extended Voltage Range

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 24 standard. Replace suffix “C” with “B” for ±2% tolerance. Other voltage tolerances and other Zener voltages are available upon request.

Mechanical Data

Case: DO-41Glass Case

Weight: approx. 0.35g

Packaging Codes/Options:
D9/5K per 13” reel (52mm tape), 10K/box
E1/5K per Ammo tape (52mm tape), 10K/box

Maximum Ratings and Thermal Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Zener Current (see Table “Characteristics”)			
Power Dissipation at T_{amb} = 25°C	P_{tot}	1.3(1)	W
Thermal Resistance Junction to Ambient Air	$R_{\Theta JA}$	130(1)	°C/W
Junction Temperature	T_j	175	°C
Storage Temperature Range	T_S	–55 to +175	°C

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

Electrical Characteristics (T_A = 25°C unless otherwise noted) **Maximum V_F = 1.0 V at I_F = 200 mA**

Type y = C for 5% y = B for 2%	Dynamic resistance				Temp. coefficient of Zener Voltage at $I_Z = I_{ZT}$ α_{VZ} (%/°C)		Reverse leakage current		Admissible Zener current[2]	
	r_{ZT}[3] (Ω)	at I_{ZT} (mA)	r_{ZK}[3] (Ω)	at I_{ZK} (mA)	min.	max.	at I_R (μA)	at V_R (V)	I_Z (mA)	at t_p=10ms I_{ZSM} (mA)
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°C unless otherwise noted)

Type ± 5% Tol.	Zener Voltage range[1] at Iz Vz (V) min.	max.	Test Current Iz (mA)
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	9.4	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	96.0	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

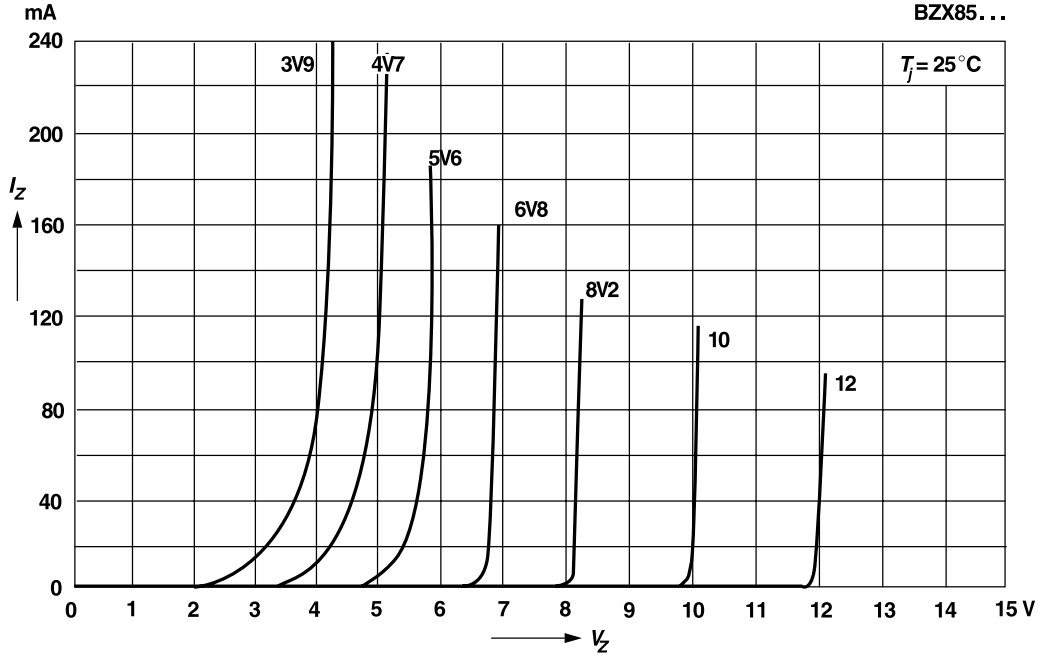
Type ± 2% Tol.	Zener Voltage range[1] at Iz Vz (V) min.	max.	Test Current Iz (mA)
BZX85-B3V6	3.53	3.67	60
BZX85-B3V9	3.82	3.98	60
BZX85-B4V3	4.21	4.39	50
BZX85-B4V7	4.61	4.79	45
BZX85-B5V1	5.00	5.20	45
BZX85-B5V6	5.49	5.71	45
BZX85-B6V2	6.08	6.32	35
BZX85-B6V8	6.66	6.94	35
BZX85-B7V5	7.35	7.65	35
BZX85-B8V2	8.04	8.36	25
BZX85-B9V1	8.92	9.28	25
BZX85-B10	9.80	10.2	25
BZX85-B11	10.8	11.2	20
BZX85-B12	11.8	12.2	20
BZX85-B13	12.7	13.3	20
BZX85-B15	14.7	15.3	15
BZX85-B16	15.7	16.3	15
BZX85-B18	17.6	18.4	15
BZX85-B20	19.6	20.4	10
BZX85-B22	21.6	22.4	10
BZX85-B24	23.5	24.5	10
BZX85-B27	26.5	27.5	8.0
BZX85-B30	29.4	30.6	8.0
BZX85-B33	32.3	33.7	8.0
BZX85-B36	35.3	36.7	8.0
BZX85-B39	38.2	39.8	6.0
BZX85-B43	42.1	43.9	6.0
BZX85-B47	46.1	47.9	4.0
BZX85-B51	50.0	52.0	4.0
BZX85-B56	54.9	57.1	4.0
BZX85-B62	60.8	63.2	4.0
BZX85-B68	66.6	69.4	4.0
BZX85-B75	73.5	76.5	4.0
BZX85-B82	80.4	83.6	2.7
BZX85-B91	89.2	92.8	2.7
BZX85-B100	98.0	102	2.7
BZX85-B110	108	112	2.7
BZX85-B120	118	122	2.0
BZX85-B130	127	133	2.0
BZX85-B150	147	153	2.0
BZX85-B160	157	163	1.5
BZX85-B180	176	184	1.5
BZX85-B200	196	204	1.5

Notes: (1) Measured with pulses t_p = 5 ms

Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

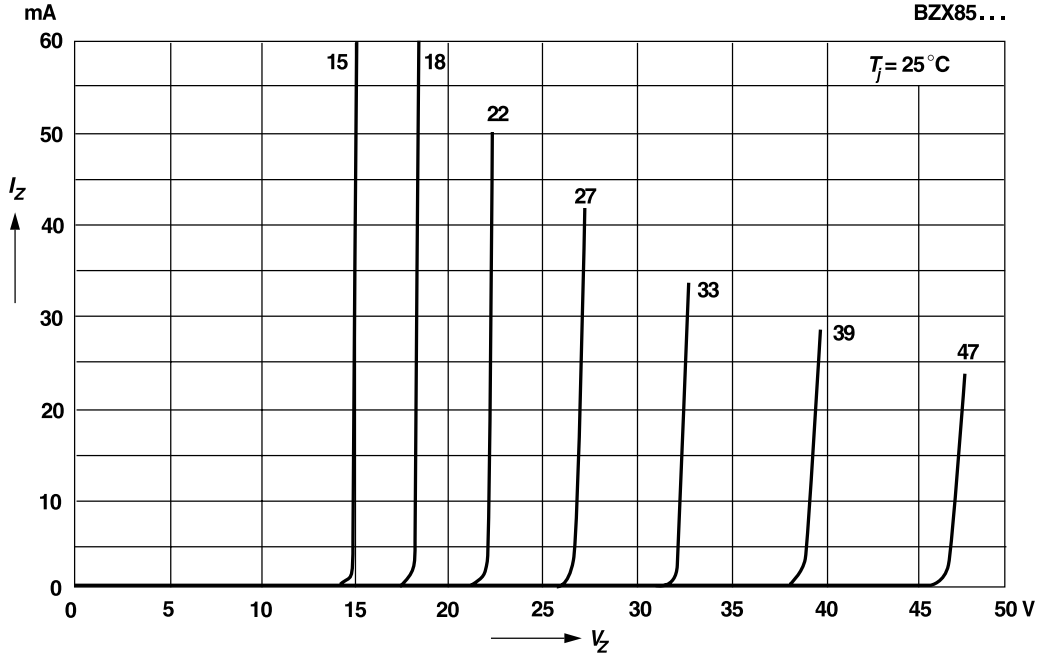
Breakdown characteristics

at T_j = constant (pulsed)



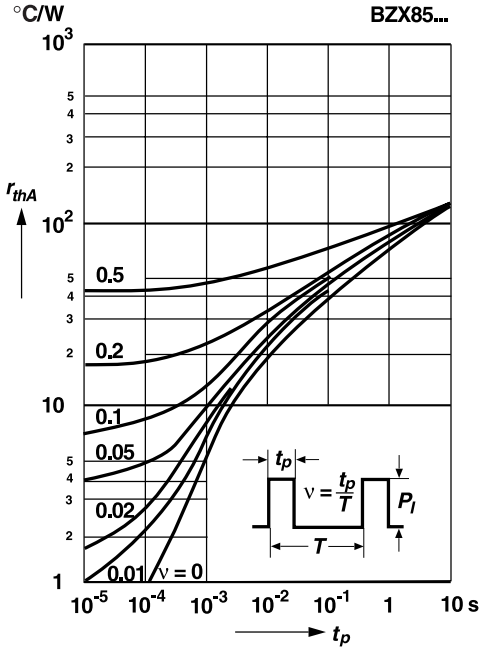
Breakdown characteristics

at T_j = constant (pulsed)

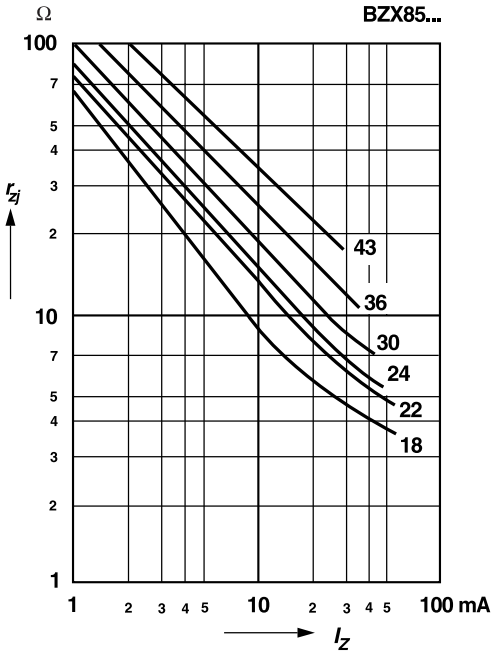


Pulse thermal resistance versus pulse duration

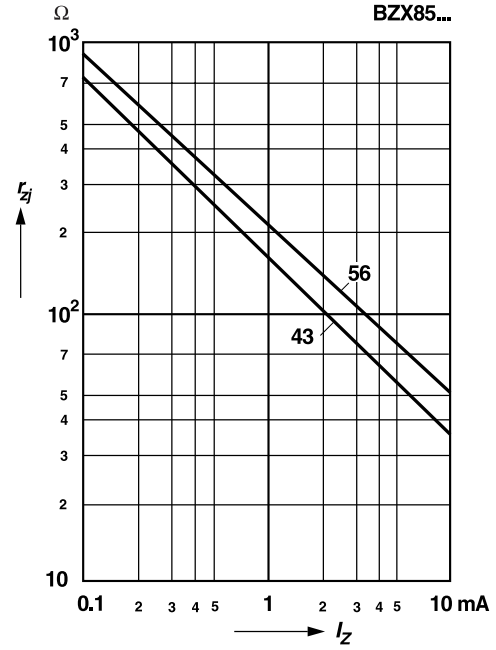
Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case.



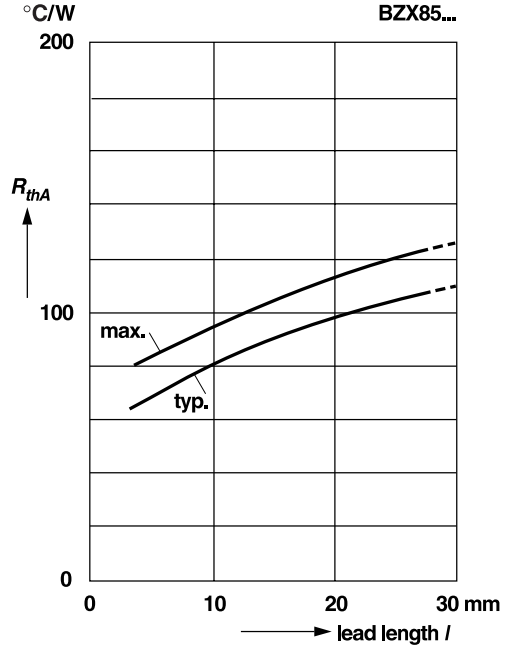
Dynamic resistance versus Zener current



Dynamic resistance versus Zener current



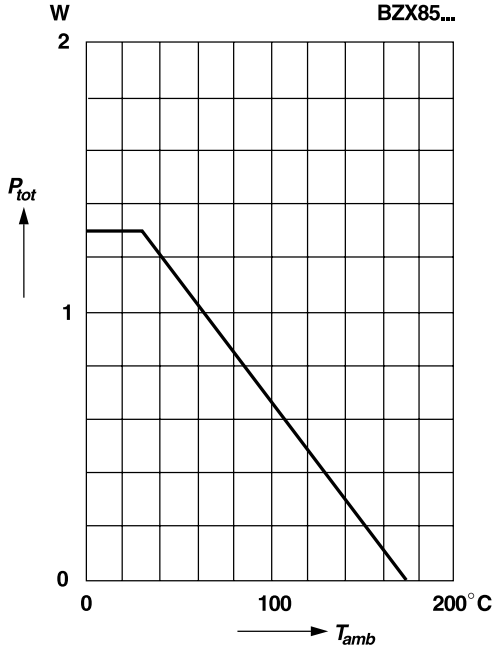
Thermal resistance versus lead length



Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Admissible power dissipation versus ambient temperature

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



Dynamic resistance versus Zener current