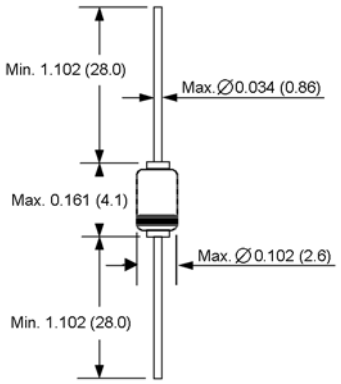
ZENER DIODES

PRODUCT SUMMARY

V_Z range: 3.6 to 200 Volts
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 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

Pb-free; RoHS-compliant

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_{thJA}	130 (1)	°C/W
Junction temperature	T_j	175	°C
Storage temperature range	T_S	-55 to +175	°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°C unless otherwise noted) Maximum V_F=1.0V at I_F=200mA

Type number y=C for ±5% y=B for ±2%	Dynamic resistance				Temp. coefficient of zener voltage at $I_Z=I_{ZT}$ αvz (% / °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 (uA)	at V_R (Volts)	I_Z (mA)	at t_p=10ms 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°C unless otherwise noted)

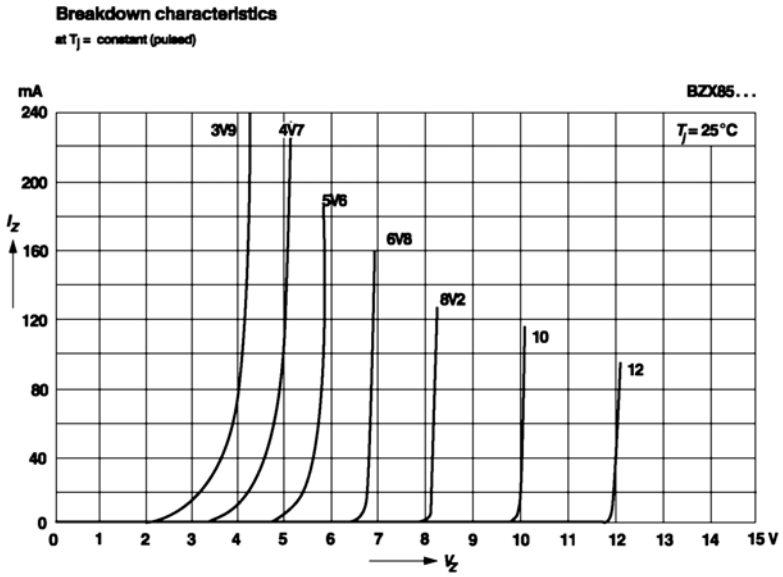
Type number ±5% Tol.	Zener voltage range (1) at I_z V_z (Volts) Min.	Max.	Test current I_z (mA)
BZX85-C2V7	2.50	2.90	60
BZX85-C3V0	2.80	3.20	60
BZX85-C3V3	3.10	3.50	60
BZX85-C3V6	3.40	3.80	60
BZX85-C3V9	3.70	4.10	60
BZX85-C4V3	4.00	4.60	50
BZX85-C4V7	4.40	5.00	45
BZX85-C5V1	4.80	5.40	45
BZX85-C5V6	5.20	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

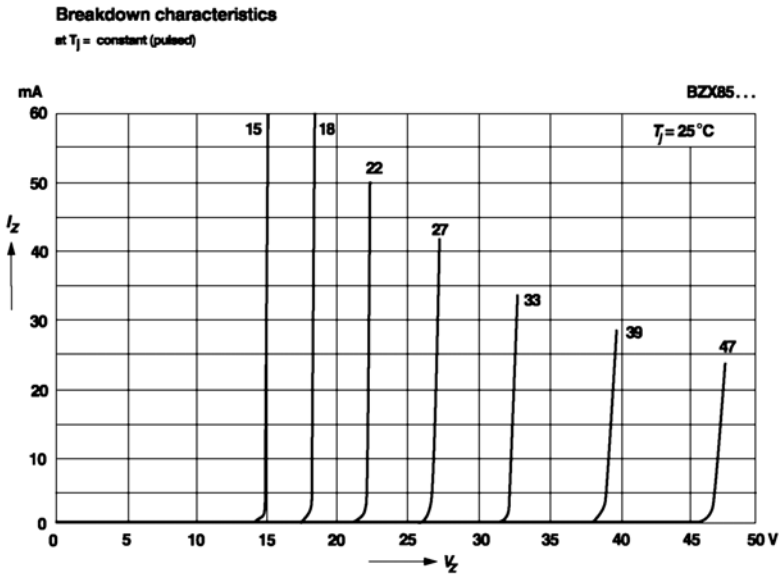
Type number ±2% Tol.	Zener voltage range (1) at I_z V_z (Volts) Min.	Max.	Test current I_z (mA)
BZX85-B2V7	2.35	2.45	60
BZX85-B3V0	2.94	3.06	60
BZX85-B3V3	3.23	3.37	60
BZX85-B3V6	3.53	3.67	60
BZX85-B3V9	3.82	3.98	60
BZX85-B4V3	4.21	4.39	50
BZX85-B4V7	4.61	4.79	45
BZX85-B5V1	5.00	5.20	45
BZX85-B5V6	5.49	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

(T_A=25°C unless otherwise noted)



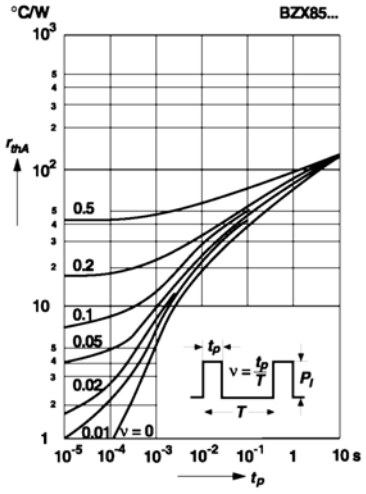


RATINGS AND CHARACTERISTIC CURVES

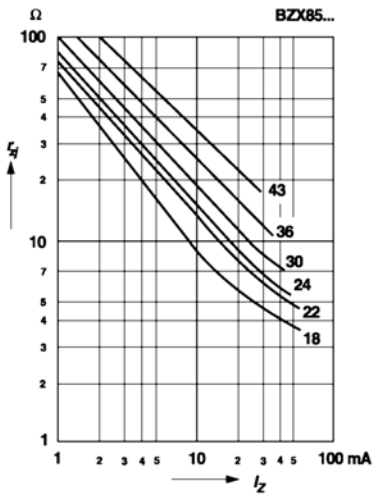
(T_A=25°C unless otherwise noted)

Pulse thermal resistance versus pulse duration

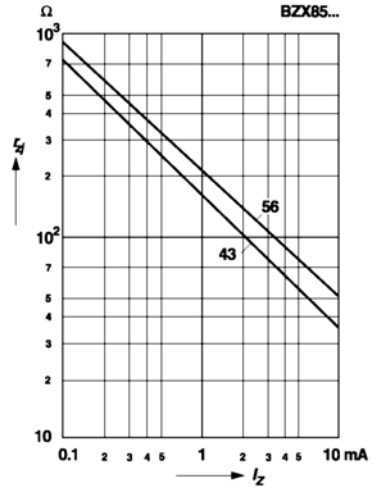
Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case.



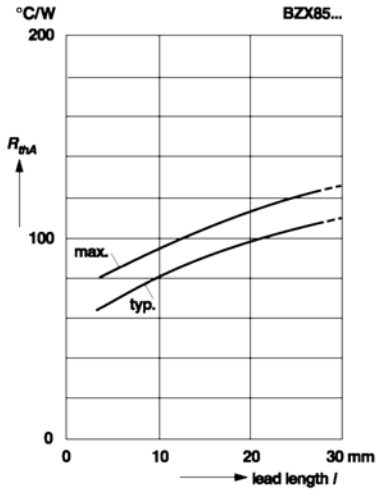
Dynamic resistance versus Zener current



Dynamic resistance versus Zener current



Thermal resistance versus lead length

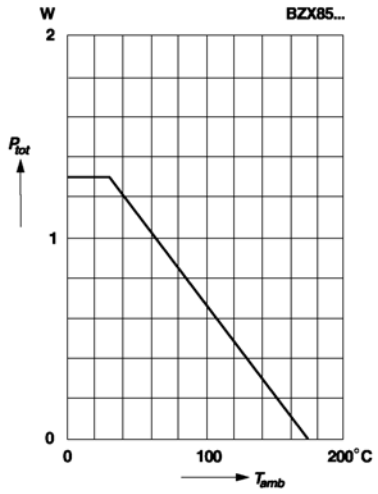


RATINGS AND CHARACTERISTIC CURVES

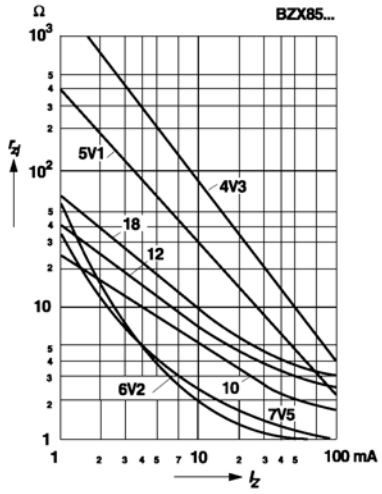
(T_A=25°C unless otherwise noted)

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



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