1300mW,2.7 - 200V Zener Diodes

Features

- Low leakage current
- Available in unidirectional
- Glass passivated junction
- Silicon Planar Power Zener Diodes
- Total power dissipation: Max 1300mW
- Moisture sensitivity: level 1, per J-STD-020
- BZX85-C series zener voltage tolerance is ±5%
- BZX85-B series zener voltage tolerance is ±2%

DO-41(DO-204AL)

Applications

Protection from high voltage, high energy transients, voltage stabilization.

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Ratings	Unit
Zener voltage	V_Z	See Next Table	V
Power dissipation at T_L=75℃	P_{tot}	1300	mW
Continuous forward current	I_F	200	mA
Typical Thermal Resistance , Junction to Ambient	$R_{\theta JA}$	130	℃/W
Maximum junction temperature	T_J	175	℃
Storage temperature range	T_{STG}	-65 to +175	℃

Note：

1. Valid provided that leads at a distance of 9.5mm from case are kept at ambient temperature.

Electrical Characteristics (TA = 25 °C unless otherwise noted)

Part Number	V_Z at I_{ZT} (V)					I_{ZT}(mA)	Maximum Zener Current
	Typ	Y=C		Y=B			
		Min	Max	Min	Max		IZM (mA)
BZX85-Y2V7	2.7	2.57	2.84	2.65	2.75	60	-
BZX85-Y3V0	3.0	2.85	3.15	2.94	3.06	60	-
BZX85-Y3V3	3.3	3.14	3.47	3.23	3.37	60	-
BZX85-Y3V6	3.6	3.42	3.78	3.53	3.67	60	290
BZX85-Y3V9	3.9	3.71	4.10	3.82	3.98	60	280
BZX85-Y4V3	4.3	4.09	4.52	4.21	4.39	50	250
BZX85-Y4V7	4.7	4.47	4.94	4.61	4.79	45	215
BZX85-Y5V1	5.1	4.85	5.36	5.00	5.20	45	200
BZX85-Y5V6	5.6	5.32	5.88	5.49	5.71	45	190
BZX85-Y6V2	6.2	5.89	6.51	6.08	6.32	35	170
BZX85-Y6V8	6.8	6.46	7.14	6.66	6.94	35	155
BZX85-Y7V5	7.5	7.13	7.88	7.35	7.65	35	140
BZX85-Y8V2	8.2	7.79	8.61	8.04	8.36	25	130
BZX85-Y9V1	9.1	8.65	9.56	8.92	9.28	25	120
BZX85-Y10	10	9.50	10.50	9.80	10.20	25	105
BZX85-Y11	11	10.45	11.55	10.78	11.22	20	97
BZX85-Y12	12	11.40	12.60	11.76	12.24	20	88
BZX85-Y13	13	12.35	13.65	12.74	13.26	20	79
BZX85-Y15	15	14.25	15.75	14.70	15.30	15	71
BZX85-Y16	16	15.20	16.80	15.68	16.32	15	66
BZX85-Y18	18	17.10	18.90	17.64	18.36	15	62
BZX85-Y20	20	19.00	21.00	19.60	20.40	10	56
BZX85-Y22	22	20.90	23.10	21.56	22.44	10	52
BZX85-Y24	24	22.80	25.20	23.52	24.48	10	47
BZX85-Y27	27	25.65	28.35	26.46	27.54	8	41
BZX85-Y30	30	28.50	31.50	29.40	30.60	8	36
BZX85-Y33	33	31.35	34.65	32.34	33.66	8	33
BZX85-Y36	36	34.20	37.80	35.28	36.72	8	30
BZX85-Y39	39	37.05	40.95	38.22	39.78	6	28
BZX85-Y43	43	40.85	45.15	42.14	43.86	6	26
BZX85-Y47	47	44.65	49.35	46.06	47.94	4	23
BZX85-Y51	51	48.45	53.55	49.98	52.02	4	21
BZX85-Y56	56	53.20	58.80	54.88	57.12	4	19
BZX85-Y62	62	58.90	65.10	60.76	63.24	4	16
BZX85-Y68	68	64.60	71.40	66.64	69.36	4	15
BZX85-Y75	75	71.25	78.75	73.50	76.50	4	14

Electrical Characteristics (TA = 25 °C unless otherwise noted)1

Part Number	V_Z at I_{ZT}(V)					I_{ZT}(mA)	Maximum Zener Current
	Typ	Y=C		Y=B			
		Min	Max	Min	Max		IZM (mA)
BZX85-Y82	82	77.90	86.10	80.36	83.64	2.7	12
BZX85-Y91	91	86.45	95.55	89.18	92.82	2.7	10
BZX85-Y100	100	95.00	105.0	98.0	102.0	2.7	9.4
BZX85-Y110	110	104.5	115.5	107.8	112.2	2.7	8.6
BZX85-Y120	120	114.0	126.0	117.6	122.4	2.0	7.8
BZX85-Y130	130	123.5	136.5	127.4	132.6	2.0	7.0
BZX85-Y150	150	142.5	157.5	147.0	153.0	2.0	6.4
BZX85-Y160	160	152.0	168.0	156.8	163.2	1.5	5.8
BZX85-Y180	180	171.0	189.0	176.4	183.6	1.5	5.2
BZX85-Y200	200	190.0	210.0	196.0	204.0	1.5	4.7

Electrical Characteristics (TA = 25 °C unless otherwise noted)

Part Number	Maximum dynamic resistance				Maximum reverse leakage current	
	Z_{ZT}@I_{ZT}(Ω)	I_{ZT}(mA)	Z_{ZK}@I_{ZK}(Ω)	I_{ZK}(mA)	I_R @ V_R(uA)	V_R(V)
BZX85-Y2V7	20	60	400	1	-	1
BZX85-Y3V0	20	60	400	1	-	1
BZX85-Y3V3	20	60	400	1	-	1
BZX85-Y3V6	15	60	500	1	20	1
BZX85-Y3V9	15	60	500	1	10	1
BZX85-Y4V3	13	50	500	1	3	1
BZX85-Y4V7	13	45	600	1	3	1
BZX85-Y5V1	10	45	500	1	1	1.5
BZX85-Y5V6	7	45	400	1	1	2
BZX85-Y6V2	4	35	300	1	1	3
BZX85-Y6V8	3.5	35	300	1	1	4
BZX85-Y7V5	3	35	200	0.5	1	4.5
BZX85-Y8V2	5	25	200	0.5	1	6.2
BZX85-Y9V1	5	25	200	0.5	1	6.8
BZX85-Y10	7	25	200	0.5	0.5	7.5
BZX85-Y11	8	20	300	0.5	0.5	8.2
BZX85-Y12	9	20	350	0.5	0.5	9.1

Electrical Characteristics (TA = 25 °C unless otherwise noted)1

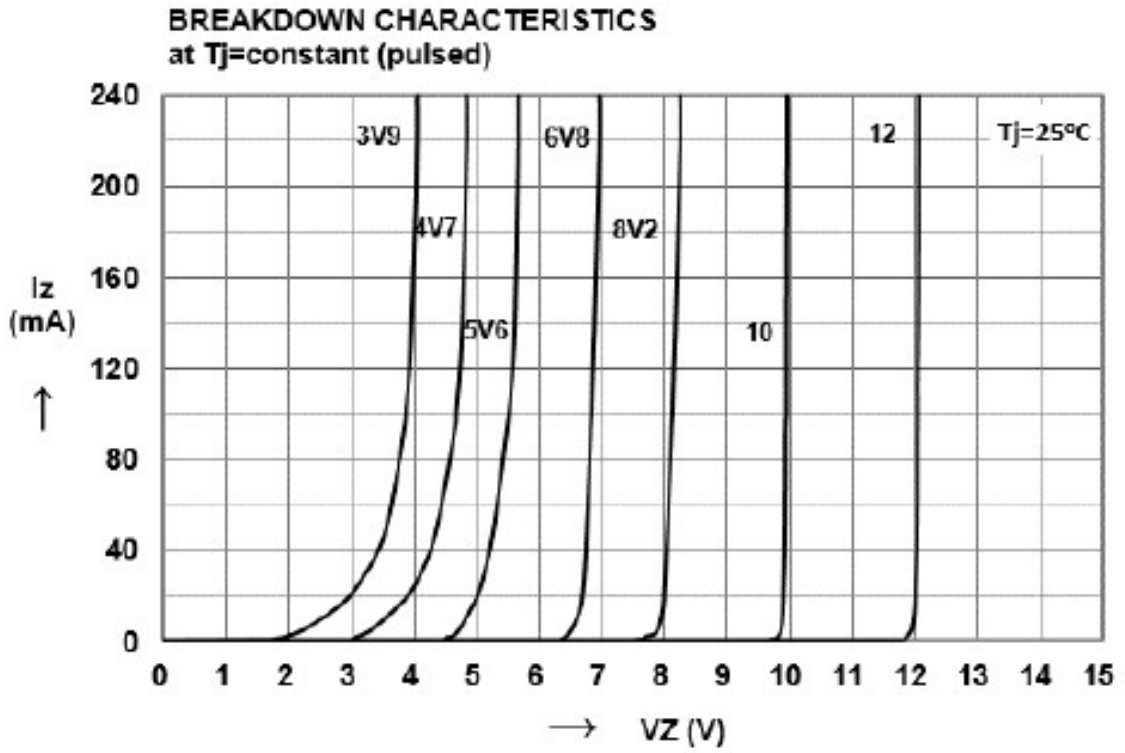
Part Number	Dynamic resistance				Reverse leakage current	
	Z_{ZT}@I_{ZT}(Ω)	I_{ZT}(mA)	Z_{ZK}@I_{ZK}(Ω)	I_{ZK}(mA)	I_R @ V_R(uA)	V_R(V)
BZX85-Y13	10	20	400	0.5	0.5	10
BZX85-Y15	10	15	500	0.5	0.5	11
BZX85-Y16	15	15	500	0.5	0.5	12
BZX85-Y18	20	15	500	0.5	0.5	13
BZX85-Y20	24	10	600	0.5	0.5	15
BZX85-Y22	25	10	600	0.5	0.5	16
BZX85-Y24	25	10	600	0.5	0.5	18
BZX85-Y27	30	8	750	0.25	0.5	20
BZX85-Y30	30	8	1000	0.25	0.5	22
BZX85-Y33	35	8	1000	0.25	0.5	24
BZX85-Y36	40	8	1000	0.25	0.5	27
BZX85-Y39	50	6	1000	0.25	0.5	30
BZX85-Y43	50	6	1000	0.25	0.5	33
BZX85-Y47	90	4	1500	0.25	0.5	36
BZX85-Y51	115	4	1500	0.25	0.5	39
BZX85-Y56	120	4	2000	0.25	0.5	43
BZX85-Y62	125	4	2000	0.25	0.5	47
BZX85-Y68	130	4	2000	0.25	0.5	51
BZX85-Y75	135	4	2000	0.25	0.5	56
BZX85-Y82	200	4	3000	0.25	0.5	62
BZX85-Y91	250	2.7	3000	0.25	0.5	68
BZX85-Y100	350	2.7	3000	0.25	0.5	75
BZX85-Y110	450	2.7	4000	0.25	0.5	82
BZX85-Y120	550	2.0	4500	0.25	0.5	91
BZX85-Y130	700	2.0	5000	0.25	0.5	100
BZX85-Y150	1000	2.0	6000	0.25	0.5	110
BZX85-Y160	1100	1.5	6500	0.25	0.5	120
BZX85-Y180	1200	1.5	7000	0.25	0.5	130
BZX85-Y200	1500	1.5	8000	0.25	0.5	150

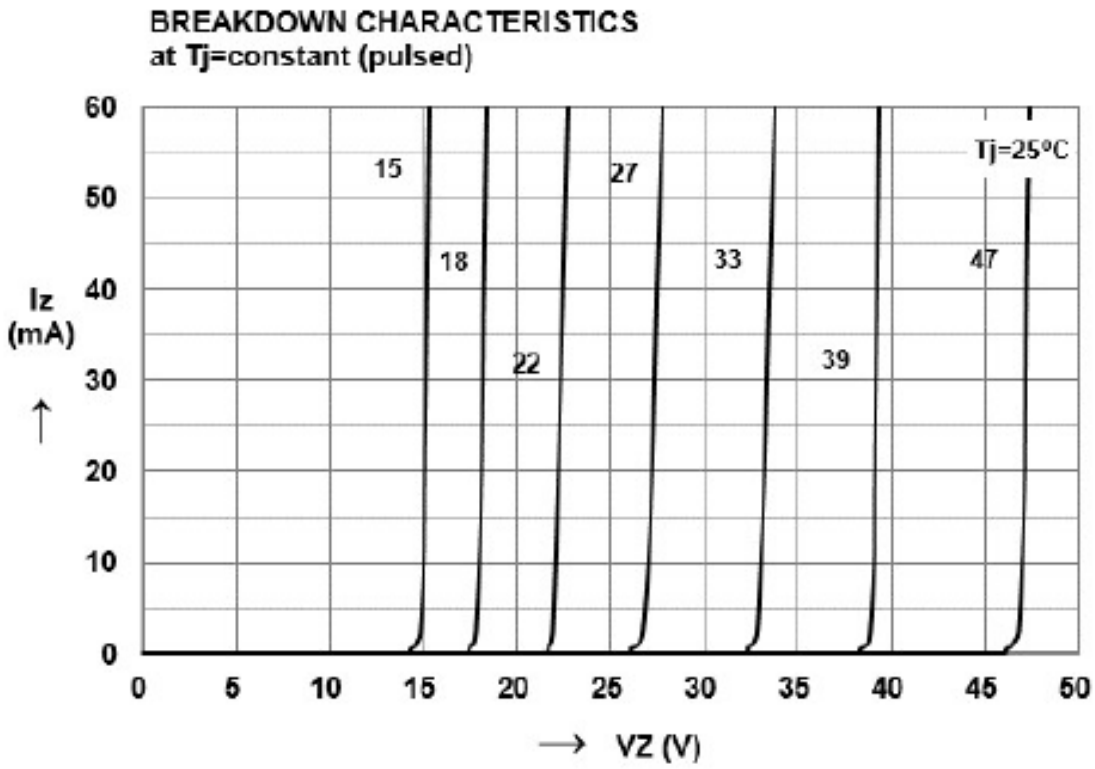
Note：

1. BZX85-C series zener voltage tolerance is ±5%
2. BZX85-B series zener voltage tolerance is ±2%

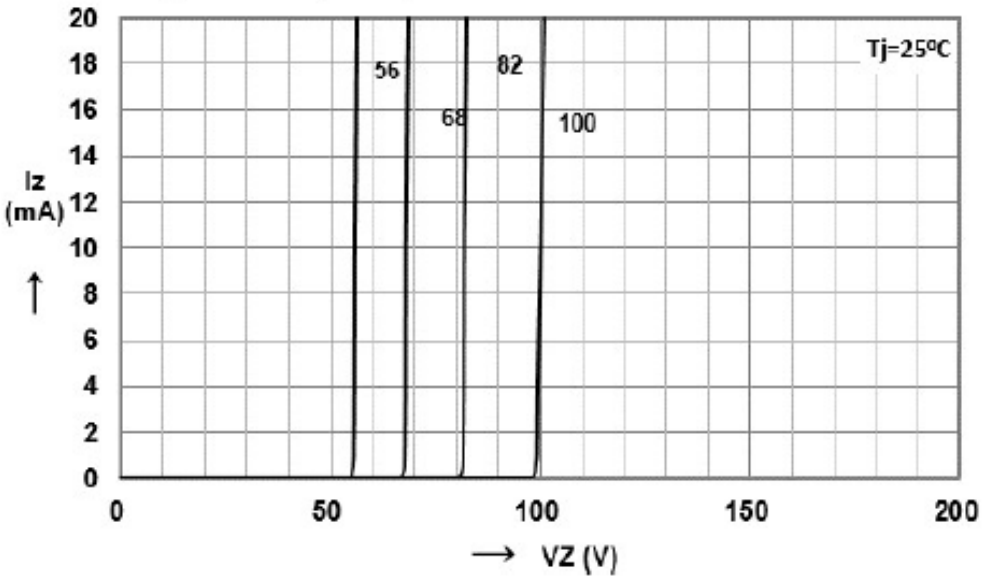
Ratings and Characteristics Curves

(T_A = 25℃ unless otherwise noted)

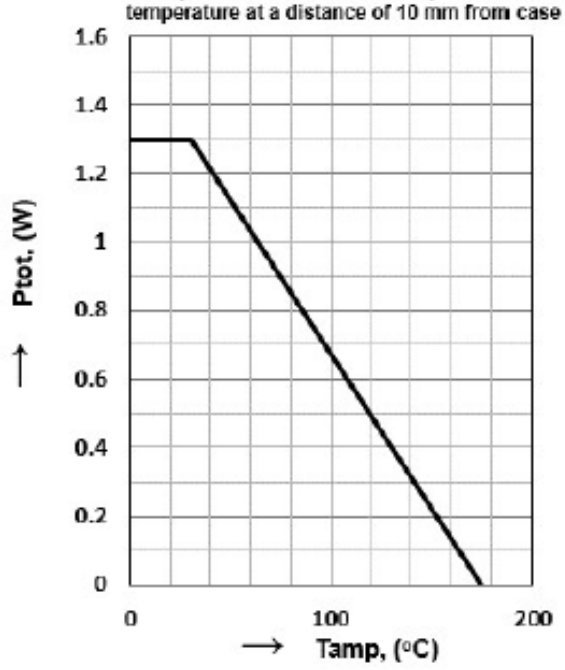




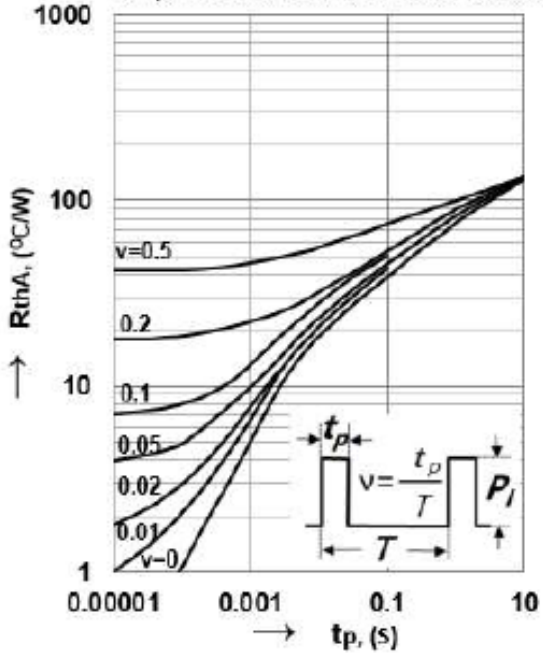
BREAKDOWN CHARACTERISTICS
at Tj=constant (pulsed)

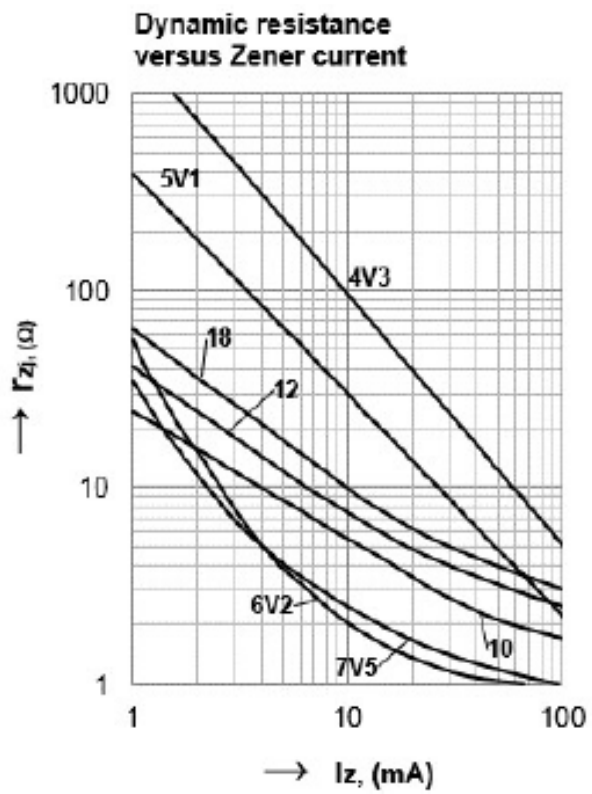


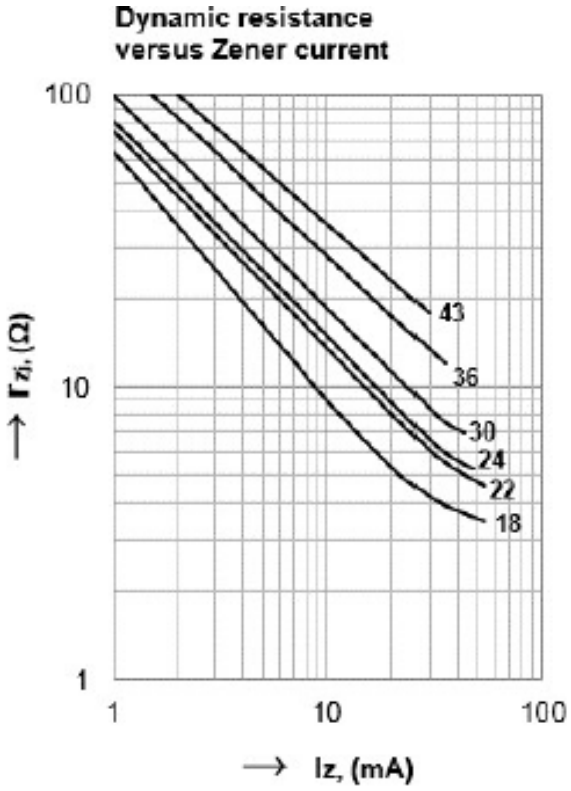
Admissible power dissipation
versus ambient temperature
Valid provided that leads are kept ambient temperature at a distance of 10 mm from case

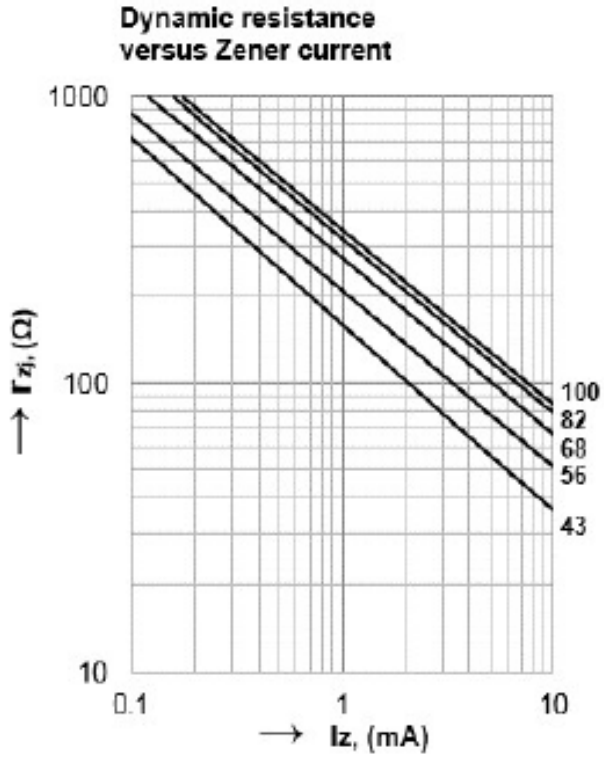


Pulse thermal resistance
versus pulse duration
Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case




Dynamic resistance
versus Zener current
1000
100
10
1
1
10
100
5V1
4V3
18
12
6V2
7V5
10
rzj, (Ω)
Iz, (mA)


Dynamic resistance
versus Zener current
100
10
1
1
10
100
43
36
30
24
22
18
rzj, (Ω)
Iz, (mA)

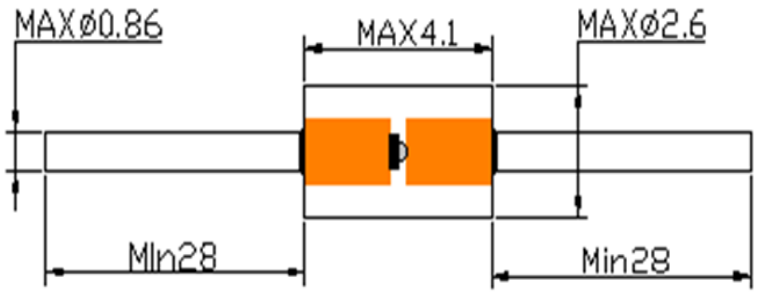

Dynamic resistance
versus Zener current
1000
100
10
0.1
1
10
100
82
68
56
43
rzj, (Ω)
Iz, (mA)

Package Outline Dimensions

in inches (millimeters)

DO-41 (DO-204AL)

CASE DIMENSION (DO-41 Type, 52mm), Unit: mm



Revision History

Document Version	Date of release	Description of changes
Rev.A	2021.06.15	Released Datasheet
Rev.B	2023.10.31	Modify document format

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