

# Zener diode

## MTZ J Series

### ● Applications

Constant voltage control

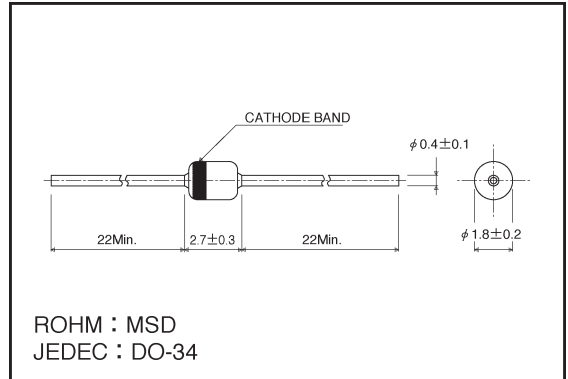
### ● Features

- 1) Glass sealed envelope. (JEDEC: DO-34)
- 2) High reliability.

### ● Construction

Silicon epitaxial planar

### ● External dimensions (Units: mm)



### ● Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Power dissipation	$P_d$	500	mW
Junction temperature	$T_j$	175	°C
Storage temperature	$T_{stg}$	-65 ~ +175	°C

### ● Cathode band colors

Type	Color
MTZ J Series	Black

The Zener voltage value is stamped on the body as a digital marking.

### ● Electrical characteristics (Ta = 25°C)

Type	Rank	Zener voltage		Operating resistance		Rising operating resistance		Reverse current		
		$V_z$ (V)		$Z_z$ ( $\Omega$ )		$Z_{zk}$ ( $\Omega$ )		$I_R$ ( $\mu$ A)		
		Min.	Max.	Max.	$I_z$ (mA)	Max.	$I_z$ (mA)	Max.	$V_R$ (V)	
MTZ J 2.0	A	1.880	2.100	5	100	5	1000	0.5	120	0.5
	B	2.020	2.200							
MTZ J 2.2	A	2.120	2.300	5	100	5	1000	0.5	100	0.7
	B	2.220	2.410							
MTZ J 2.4	A	2.330	2.520	5	100	5	1000	0.5	120	1.0
	B	2.430	2.630							
MTZ J 2.7	A	2.540	2.750	5	110	5	1000	0.5	100	1.0
	B	2.690	2.910							
MTZ J 3.0	A	2.850	3.070	5	120	5	1000	0.5	50	1.0
	B	3.010	3.220							
MTZ J 3.3	A	3.160	3.380	5	120	5	1000	0.5	20	1.0
	B	3.320	3.530							
MTZ J 3.6	A	3.455	3.695	5	100	5	1000	1	10	1.0
	B	3.600	3.845							
MTZ J 3.9	A	3.74	4.01	5	100	5	1000	1	5	1.0
	B	3.89	4.16							
MTZ J 4.3	A	4.04	4.29	5	100	5	1000	1	5	1.0
	B	4.17	4.43							
	C	4.30	4.57							
MTZ J 4.7	A	4.44	4.68	5	80	5	900	0.5	5	1.0
	B	4.55	4.80							
	C	4.68	4.93							

Type	Rank	Zener voltage			Operating resistance		Rising operating resistance		Reverse current	
		$V_Z$ (V)		$I_Z$ (mA)	$Z_Z$ ( $\Omega$ )		$Z_{ZK}$ ( $\Omega$ )		$I_R$ ( $\mu A$ )	
		Min.	Max.		Max.	$I_Z$ (mA)	Max.	$I_Z$ (mA)	Max.	$V_R$ (V)
MTZ J 5.1	A	4.81	5.07	5	70	5	1200	1	0.5	1.5
	B	4.94	5.20							
	C	5.09	5.37							
MTZ J 5.6	A	5.28	5.55	5	40	5	900	1	0.5	2.5
	B	5.45	5.73							
	C	5.61	5.91							
MTZ J 6.2	A	5.78	6.09	5	30	5	500	1	0.5	3.0
	B	5.96	6.27							
	C	6.12	6.44							
MTZ J 6.8	A	6.29	6.63	5	20	5	150	0.5	2	3.5
	B	6.49	6.83							
	C	6.66	7.01							
MTZ J 7.5	A	6.85	7.22	5	20	5	120	0.5	0.5	4.0
	B	7.07	7.45							
	C	7.29	7.67							
MTZ J 8.2	A	7.53	7.92	5	20	5	120	0.5	0.5	5.0
	B	7.78	8.19							
	C	8.03	8.45							
MTZ J 9.1	A	8.29	8.73	5	20	5	120	0.5	0.5	6.0
	B	8.57	9.01							
	C	8.83	9.30							
MTZ J 10	A	9.12	9.59	5	20	5	120	0.5	0.2	7.0
	B	9.41	9.90							
	C	9.70	10.20							
	D	9.94	10.44							
MTZ J 11	A	10.18	10.71	5	20	5	120	0.5	0.2	8.0
	B	10.50	11.05							
	C	10.82	11.38							
MTZ J 12	A	11.13	11.71	5	25	5	110	0.5	0.2	9.0
	B	11.44	12.03							
	C	11.74	12.35							
MTZ J 13	A	12.11	12.75	5	25	5	110	0.5	0.2	10
	B	12.55	13.21							
	C	12.99	13.66							
MTZ J 15	A	13.44	14.13	5	25	5	110	0.5	0.2	11
	B	13.89	14.62							
	C	14.35	15.09							
MTZ J 16	A	14.80	15.57	5	25	5	150	0.5	0.2	12
	B	15.25	16.04							
	C	15.69	16.51							
MTZ J 18	A	16.22	17.06	5	30	5	150	0.5	0.2	13
	B	16.82	17.70							
	C	17.42	18.33							
MTZ J 20	A	18.02	18.96	5	30	5	200	0.5	0.2	15
	B	18.63	19.59							
	C	19.23	20.22							
	D	19.72	20.72							
MTZ J 22	A	20.15	21.20	5	30	5	200	0.5	0.2	17
	B	20.64	21.71							
	C	21.08	22.17							
	D	21.52	22.63							
MTZ J 24	A	22.05	23.18	5	35	5	200	0.5	0.2	19
	B	22.61	23.77							
	C	23.12	24.31							
	D	23.63	24.85							
MTZ J 27	A	24.26	25.52	5	45	5	250	0.5	0.2	21
	B	24.97	26.26							
	C	25.63	26.95							
	D	26.29	27.64							

Type	Rank	Zener voltage			Operating resistance		Rising operating resistance		Reverse current	
		V <sub>Z</sub> (V)		I <sub>Z</sub> (mA)	Z <sub>Z</sub> (Ω)		Z <sub>ZK</sub> (Ω)		I <sub>R</sub> (μA)	
		Min.	Max.		Max.	I <sub>Z</sub> (mA)	Max.	I <sub>Z</sub> (mA)	Max.	V <sub>R</sub> (V)
MTZ J 30	A	26.99	28.39	5	55	5	250	0.5	0.2	23
	B	27.70	29.13							
	C	28.36	29.82							
	D	29.02	30.51							
MTZ J 33	A	29.68	31.22	5	65	5	250	0.5	0.2	25
	B	30.32	31.88							
	C	30.90	32.50							
	D	31.49	33.11							
MTZ J 36	A	32.14	33.79	5	75	5	250	0.5	0.2	27
	B	32.79	34.49							
	C	33.40	35.13							
	D	34.01	35.77							
MTZ J 39	A	34.68	36.47	5	85	5	250	0.5	0.2	30
	B	35.36	37.19							
	C	36.00	37.85							
	D	36.63	38.52							

Note) 1. The Zener voltage is measured 40 ms after power is supplied.  
 2. Specify Zener voltage rank (A, B or C) when ordering the parts.

●Electrical characteristic curves (Ta = 25°C)

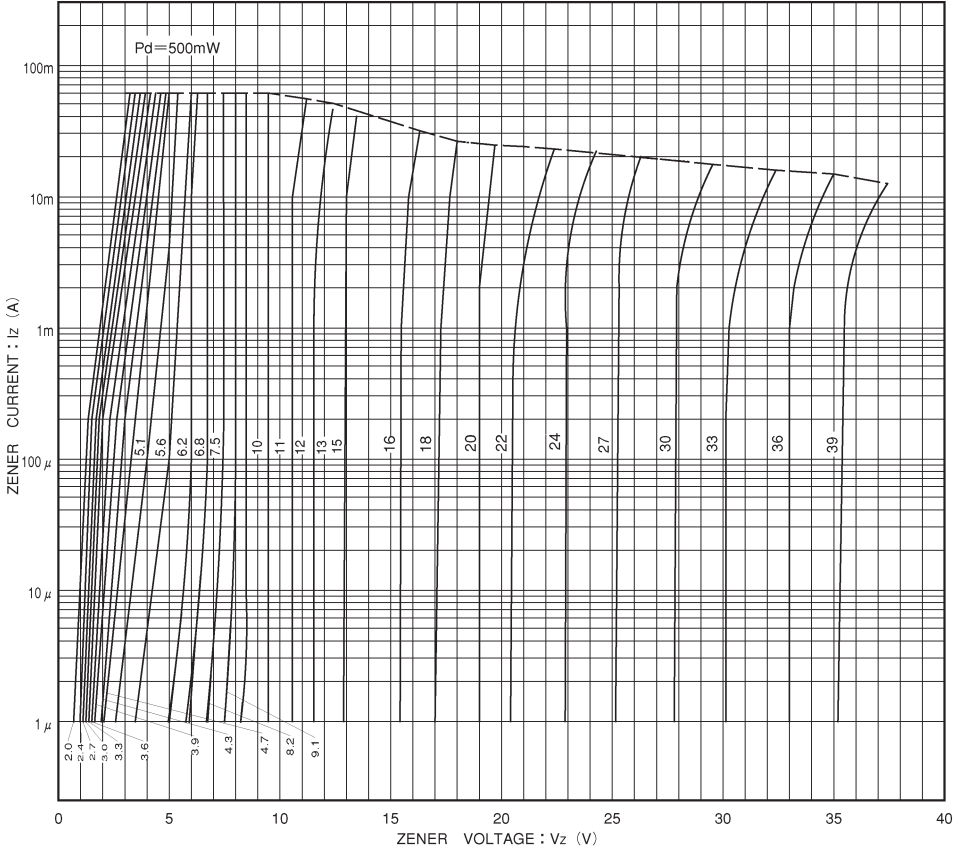


Fig. 1 Zener characteristics

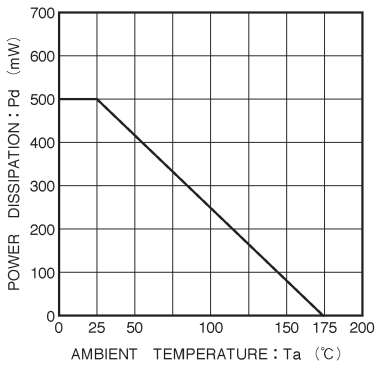


Fig. 2 Derating curve