

Zener diode

Features

1. Low leakage
2. Low zener impedance
3. High reliability

Applications

Voltage stabilization



Absolute Maximum Ratings

T=25°C

Parameter	Symbol	Value	Unit
Power dissipation	P_d	500	mW
Junction temperature	T_j	175	°C
Storage temperature range	T_{stg}	-55~+175	°C

Stresses exceeding maximum ratings may damage the device. Maximum ratings are stress ratings only. Functional operation above the recommended operating conditions is not implied. Extended exposure to stresses above the recommended operating conditions may affect device reliability.

Electrical Characteristics

T=25°C

Type	Grade	Zener Voltage			Dynamic Resistance		Reverse Current	
		V _Z (V)		Test Condition	r _d (Ω)	Test Condition	I _R (μA)	Test Condition
		Min	Max	I _z (mA)	Max	I _z (mA)	Max	V _R (V)
2	A1	1.6	1.8	5	100	5	25	0.5
	A2	1.7	1.9					
	A3	1.8	2.0					
	B1	1.9	2.1	5	100	5	5	0.5
	B2	2.0	2.2					
	B3	2.1	2.3					
	C1	2.2	2.4					
	C2	2.3	2.5					
	C3	2.4	2.6					

Type	Grade	Zener Voltage		Test Condition I _z (mA)	Dynamic Resistance		Reverse Current	
		V _Z (V)			r _d (Ω)	Test Condition I _z (mA)	I _R (μ A)	Test Condition V _R (V)
		Min	Max		Max		Max	
3	A1	2.5	2.7	5	100	5	5	0.5
	A2	2.6	2.8					
	A3	2.7	2.9					
	B1	2.8	3.0					
	B2	2.9	3.1					
	B3	3.0	3.2					
	C1	3.1	3.3					
	C2	3.2	3.4					
C3	3.3	3.5						
4	A1	3.4	3.6	5	100	5	5	1.0
	A2	3.5	3.7					
	A3	3.6	3.8					
	B1	3.7	3.9					
	B2	3.8	4.0					
	B3	3.9	4.1					
	C1	4.0	4.2					
	C2	4.1	4.3					
C3	4.2	4.4						
5	A1	4.3	4.5	5	100	5	5	1.5
	A2	4.4	4.6					
	A3	4.5	4.7					
	B1	4.6	4.8					
	B2	4.7	4.9					
	B3	4.8	5.0					
	C1	4.9	5.1					
	C2	5.0	5.2					
C3	5.1	5.3						
6	A1	5.2	5.5	5	40	5	5	2.0
	A2	5.3	5.6					
	A3	5.4	5.7					
	B1	5.5	5.8					
	B2	5.6	5.9					
	B3	5.7	6.0					
	C1	5.8	6.1					
	C2	6.0	6.3					
C3	6.1	6.4						
7	A1	6.3	6.6	5	15	5	1	3.5
	A2	6.4	6.7					
	A3	6.6	6.9					
	B1	6.7	7.0					
	B2	6.9	7.2					
	B3	7.0	7.3					
	C1	7.2	7.6					
	C2	7.3	7.7					
C3	7.5	7.9						

Type	Grade	Zener Voltage		Test Condition I _z (mA)	Dynamic Resistance		Reverse Current	
		V _Z (V)			r _d (Ω)	Test Condition I _z (mA)	I _R (μA)	Test Condition V _R (V)
		Min	Max		Max		Max	
9	A1	7.7	8.1	5	20	5	1	5.0
	A2	7.9	8.3					
	A3	8.1	8.5					
	B1	8.3	8.7					
	B2	8.5	8.9					
	B3	8.7	9.1					
	C1	8.9	9.3					
	C2	9.1	9.5					
11	C3	9.3	9.7	5	25	5	1	7.5
	A1	9.5	9.9					
	A2	9.7	10.1					
	A3	9.9	10.3					
	B1	10.2	10.6					
	B2	10.4	10.8					
	B3	10.7	11.1					
	C1	10.9	11.3					
12	C2	11.1	11.6	5	35	5	1	9.5
	C3	11.4	11.9					
	A1	11.6	12.1					
	A2	11.9	12.4					
	A3	12.2	12.7					
	B1	12.4	12.9					
	B2	12.6	13.1					
	B3	12.9	13.4					
15	C1	13.2	13.7	5	40	5	1	11.0
	C2	13.5	14.0					
	C3	13.8	14.3					
16	1	14.1	14.7	5	45	5	1	12.0
	2	14.5	15.1					
	3	14.9	15.5					
18	1	15.3	15.9	5	55	5	1	13.0
	2	15.7	16.5					
	3	16.3	17.1					
20	1	16.9	17.7	5	60	5	1	15.0
	2	17.5	18.3					
	3	18.1	19.0					
22	1	18.8	19.7	2	65	2	1	17.0
	2	19.5	20.4					
	3	20.2	21.1					
24	1	20.9	21.9	2	70	2	1	19.0
	2	21.6	22.6					
	3	22.3	23.3					
	1	22.9	24.0	2				
	2	23.6	24.7					
	3	24.3	25.5					

Type	Grade	Zener Voltage		Test Condition I _z (mA)	Dynamic Resistance		Reverse Current	
		V _Z (V)			r _d (Ω)	Test Condition I _z (mA)	I _R (μA)	Test Condition V _R (V)
		Min	Max		Max		Max	
27	1	25.2	26.6	2	80	2	1	21.0
	2	26.2	27.6					
	3	27.2	28.6					
30	1	28.2	29.6	2	100	2	1	23.0
	2	29.2	30.6					
	3	30.2	31.6					
33	1	31.2	32.6	2	120	2	1	25.0
	2	32.2	33.6					
	3	33.2	34.6					
36	1	34.2	35.7	2	140	2	1	27.0
	2	35.3	36.8					
	3	36.4	38.0					

Note: 1. Tested with DC.

2. Type No. is as follows: 2A1, 2A2, 36-3.

Characteristics ($T=25^{\circ}\text{C}$ unless otherwise specified)

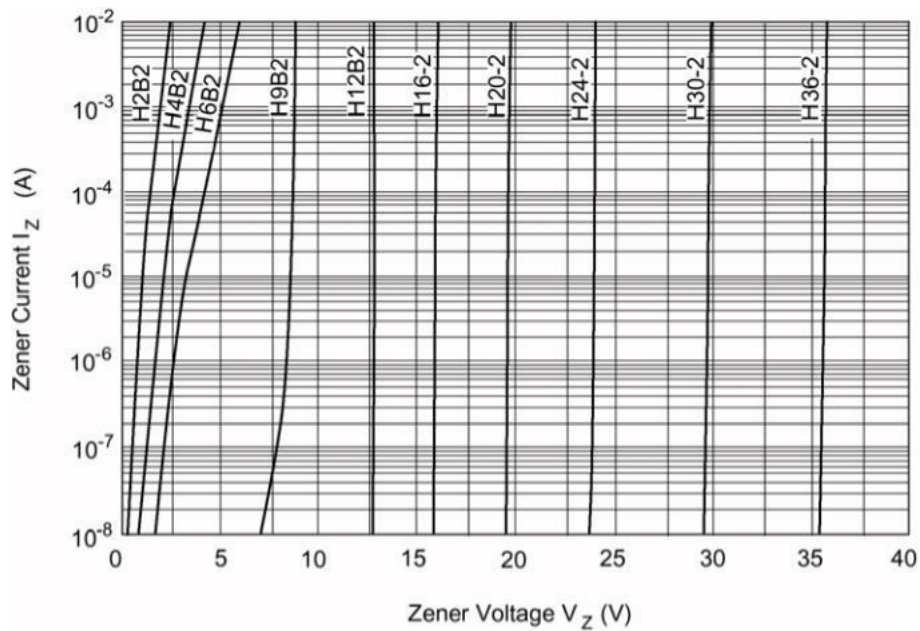


Figure 1. Zener current vs. zener voltage

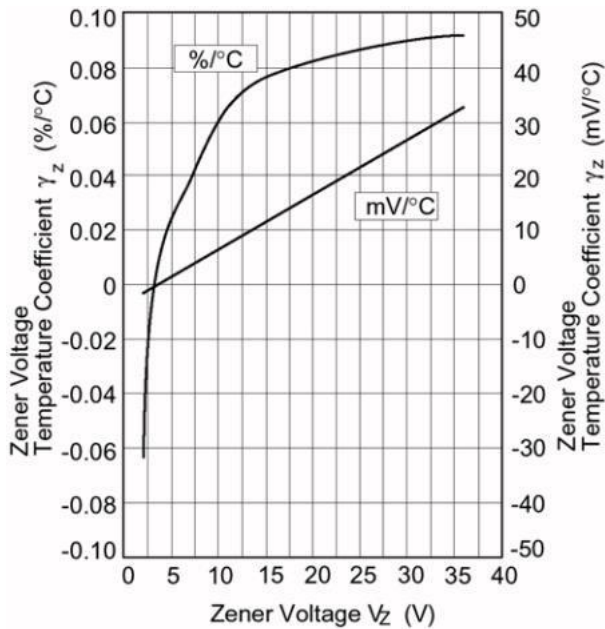


Figure 2. Temperature coefficient vs. zener voltage

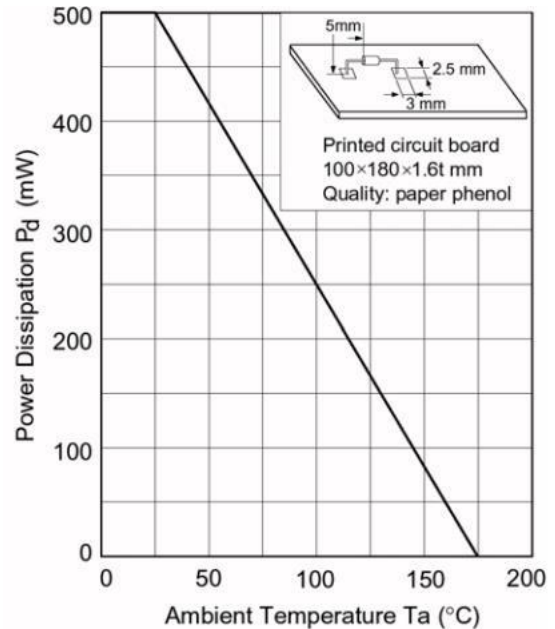


Figure 3. Power Dissipation vs. ambient temperature