

HZM-N Series

Silicon Epitaxial Planar Zener Diode for Stabilizer

REJ03G0483-0500
(Previous: ADE-208-130D)
Rev.5.00
Dec 14, 2004

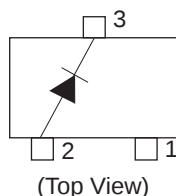
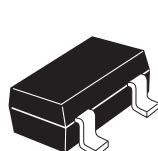
Features

- Wide spectrum from 1.9 V through 38 V of zener voltage provide flexible application.
- MPAK Package is suitable for high density surface mounting and high speed assembly.

Ordering Information

Type No.	Laser Mark	Package Code
HZM-N Series	Let to Mark Code	MPAK

Pin Arrangement



1. NC
2. Anode
3. Cathode

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Power dissipation	Pd *1	200	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

Note: 1. See Fig. 3.

Electrical Characteristics

(Ta = 25°C)

Type	Grade	Zener Voltage		Reverse Current		Dynamic Resistance	
		Vz (V)*1		Test Condition	I _R (μA)	Test Condition	r _d (Ω)
		Min	Max	I _Z (mA)	Max	V _R (V)	Max
H2M2.0N	B	1.90	2.20	5	120	0.5	100
H2M2.2N	B	2.10	2.40	5	120	0.7	100
H2M2.4N	B	2.30	2.60	5	120	1.0	100
H2M2.7N	B	2.50	2.90	5	120	1.0	110
	B1	2.50	2.75				
	B2	2.65	2.90				
H2M3.0N	B	2.80	3.20	5	50	1.0	120
	B1	2.80	3.05				
	B2	2.95	3.20				
H2M3.3N	B	3.10	3.50	5	20	1.0	130
	B1	3.10	3.35				
	B2	3.25	3.50				
H2M3.6N	B	3.40	3.80	5	10	1.0	130
	B1	3.40	3.65				
	B2	3.55	3.80				
H2M3.9N	B	3.70	4.10	5	10	1.0	130
	B1	3.70	3.97				
	B2	3.87	4.10				
H2M4.3N	B	4.01	4.48	5	10	1.0	130
	B1	4.01	4.21				
	B2	4.15	4.34				
	B3	4.28	4.48				
H2M4.7N	B	4.42	4.90	5	10	1.0	130
	B1	4.42	4.61				
	B2	4.55	4.75				
	B3	4.69	4.90				
H2M5.1N	B	4.84	5.37	5	5	1.5	130
	B1	4.84	5.04				
	B2	4.98	5.20				
	B3	5.14	5.37				
H2M5.6N	B	5.31	5.92	5	5	2.5	80
	B1	5.31	5.55				
	B2	5.49	5.73				
	B3	5.67	5.92				

Note: 1. Tested with pulse (P_W = 40 ms)

Type	Grade	Zener Voltage		Reverse Current		Dynamic Resistance	
		V _Z (V)* ¹		Test Condition	I _R (μA)	Test Condition	r _d (Ω)
		Min	Max	I _Z (mA)	Max	V _R (V)	Max
HZM6.2N	B	5.86	6.53	5	2	3.0	50
	B1	5.86	6.12				
	B2	6.06	6.33				
	B3	6.26	6.53				
HZM6.8N	B	6.47	7.14	5	2	3.5	30
	B1	6.47	6.73				
	B2	6.65	6.93				
	B3	6.86	7.14				
HZM7.5N	B	7.06	7.84	5	2	4.0	30
	B1	7.06	7.36				
	B2	7.28	7.60				
	B3	7.52	7.84				
HZM8.2N	B	7.76	8.64	5	2	5.0	30
	B1	7.76	8.10				
	B2	8.02	8.36				
	B3	8.28	8.64				
HZM9.1N	B	8.56	9.55	5	2	6.0	30
	B1	8.56	8.93				
	B2	8.85	9.23				
	B3	9.15	9.55				
HZM10N	B	9.45	10.55	5	2	7.0	30
	B1	9.45	9.87				
	B2	9.77	10.21				
	B3	10.11	10.55				
HZM11N	B	10.44	11.56	5	2	8.0	30
	B1	10.44	10.88				
	B2	10.76	11.22				
	B3	11.10	11.56				
HZM12N	B	11.42	12.60	5	2	9.0	35
	B1	11.42	11.90				
	B2	11.74	12.24				
	B3	12.08	12.60				
HZM13N	B	12.47	13.96	5	2	10.0	35
	B1	12.47	13.03				
	B2	12.91	13.49				
	B3	13.37	13.96				
5M15N	B	13.84	15.52	5	2	11.0	40
	B1	13.84	14.46				
	B2	14.34	14.98				
	B3	14.85	15.52				
HZM16N	B	15.37	17.09	5	2	12.0	40
	B1	15.37	16.01				
	B2	15.85	16.51				
	B3	16.35	17.09				
HZM18N	B	16.94	19.03	5	2	13.0	45
	B1	16.94	17.70				
	B2	17.56	18.35				
	B3	18.21	19.03				

Note: 1. Tested with pulse (P_W = 40 ms)

Type	Grade	Zener Voltage		Test Condition	Reverse Current		Dynamic Resistance	
		V_Z (V)* ¹			I_R (μA)	Test Condition	r_d (Ω)	Test Condition
		Min	Max	I_Z (mA)	Max	V_R (V)	Max	I_Z (mA)
H2M20N	B	18.86	21.08	5	2	15.0	50	5
	B1	18.86	19.70					
	B2	19.52	20.39					
	B3	20.21	21.08					
H2M22N	B	20.88	23.17	5	2	17.0	55	5
	B1	20.88	21.77					
	B2	21.54	22.47					
	B3	22.23	23.17					
H2M24N	B	22.93	25.57	5	2	19.0	60	5
	B1	22.93	23.96					
	B2	23.72	24.78					
	B3	24.54	25.57					
H2M27N	B	25.10	28.90	2	2	21.0	70	2
H2M30N	B	28.00	32.00	2	2	23.0	80	2
H2M33N	B	31.00	35.00	2	2	25.0	80	2
H2M36N	B	34.00	38.00	2	2	27.0	90	2

Note: 1. Tested with pulse ($P_W = 40$ ms)

Mark Code

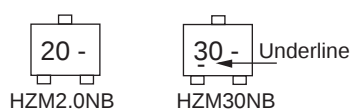
Type	Grade	Mark No.
H2M2.0N	B	2 0 –
H2M2.2N	B	2 2 –
H2M2.4N	B	2 4 –
H2M2.7N	B1	2 7 1
	B2	2 7 2
H2M3.0N	B1	3 0 1
	B2	3 0 2
H2M3.3N	B1	3 3 1
	B2	3 3 2
H2M3.6N	B1	3 6 1
	B2	3 6 2
H2M3.9N	B1	3 9 1
	B2	3 9 2
H2M4.3N	B1	4 3 1
	B2	4 3 2
	B3	4 3 3
H2M4.7N	B1	4 7 1
	B2	4 7 2
	B3	4 7 3
H2M5.1N	B1	5 1 1
	B2	5 1 2
	B3	5 1 3
H2M5.6N	B1	5 6 1
	B2	5 6 2
	B3	5 6 3

Type	Grade	Mark No.
H2M6.2N	B1	6 2 1
	B2	6 2 2
	B3	6 2 3
H2M6.8N	B1	6 8 1
	B2	6 8 2
	B3	6 8 3
H2M7.5N	B1	7 5 1
	B2	7 5 2
	B3	7 5 3
H2M8.2N	B1	8 2 1
	B2	8 2 2
	B3	8 2 3
H2M9.1N	B1	9 1 1
	B2	9 1 2
	B3	9 1 3
H2M10N	B1	<u>1</u> 0 1
	B2	<u>1</u> 0 2
	B3	<u>1</u> 0 3
H2M11N	B1	<u>1</u> 1 1
	B2	<u>1</u> 1 2
	B3	<u>1</u> 1 3
H2M12N	B1	<u>1</u> 2 1
	B2	<u>1</u> 2 2
	B3	<u>1</u> 2 3

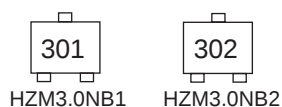
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	B3	<u>1</u> 3 3
H2M15N	B1	<u>1</u> 5 1
	B2	<u>1</u> 5 2
	B3	<u>1</u> 5 3
H2M16N	B1	<u>1</u> 6 1
	B2	<u>1</u> 6 2
	B3	<u>1</u> 6 3
H2M18N	B1	<u>1</u> 8 1
	B2	<u>1</u> 8 2
	B3	<u>1</u> 8 3
H2M20N	B1	<u>2</u> 0 1
	B2	<u>2</u> 0 2
	B3	<u>2</u> 0 3
H2M22N	B1	<u>2</u> 2 1
	B2	<u>2</u> 2 2
	B3	<u>2</u> 2 3
H2M24N	B1	<u>2</u> 4 1
	B2	<u>2</u> 4 2
	B3	<u>2</u> 4 3
H2M27N	B	<u>2</u> 7 –
H2M30N	B	<u>3</u> 0 –
H2M33N	B	<u>3</u> 3 –
H2M36N	B	<u>3</u> 6 –

Example of Marking

1. One grade type (grade type B)



2. Two grade type (B1, B2)



3. Three grade type (B1, B2, B3)



- Notes: 1. The grade B type includes from B1 min. to B3 (or B2) max.
 2. B grade is standard and has better delivery, These are marked one of B1, B2, B3.
 3. Ordering P/N H2M-N series are delivered taped (TL/TR).
 Choose one taping code and adhere to parts No.
 Example: H2M2.0NBTL (or TR), H2M2.2NBTL (or TR), H2M36NBTL (or TR).
 (Grade B type)
 H2M2.7NB1TL (or TR), H2M2.7NB2TL (or TR), H2M24NB3TL (or TR).
 (Grade B1, B2, B3 type)

Main Characteristic

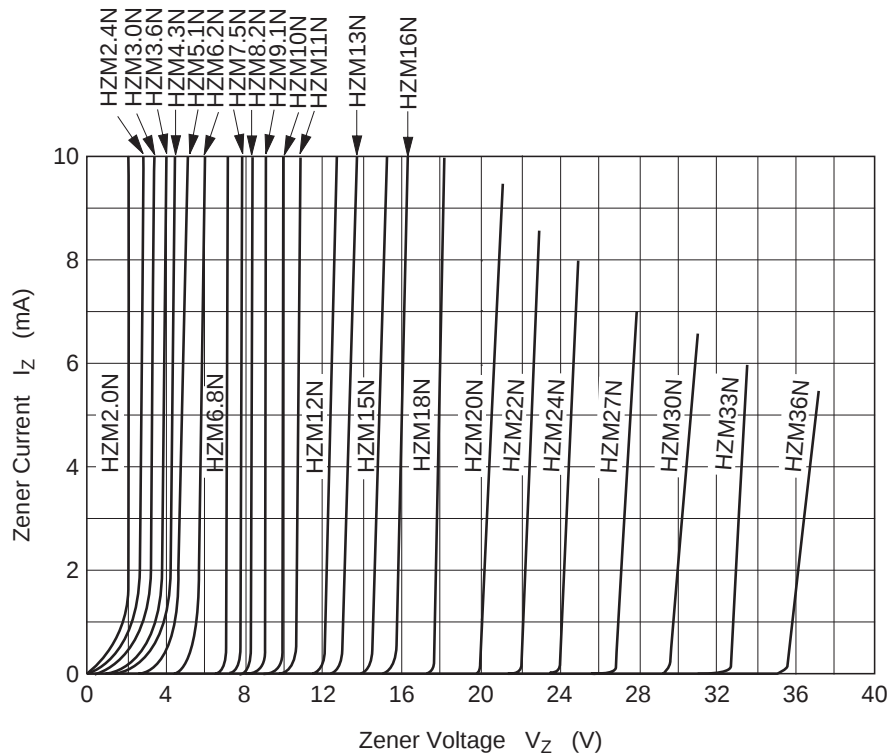


Fig.1 Zener current vs. Zener voltage

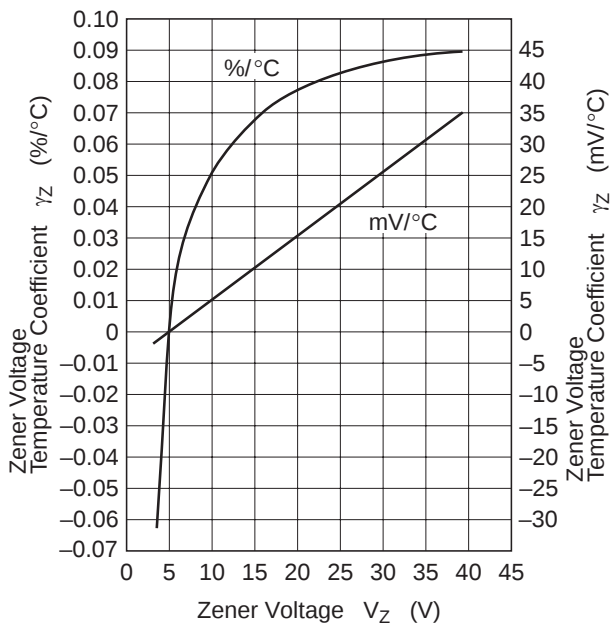


Fig.2 Temperature Coefficient vs. Zener voltage

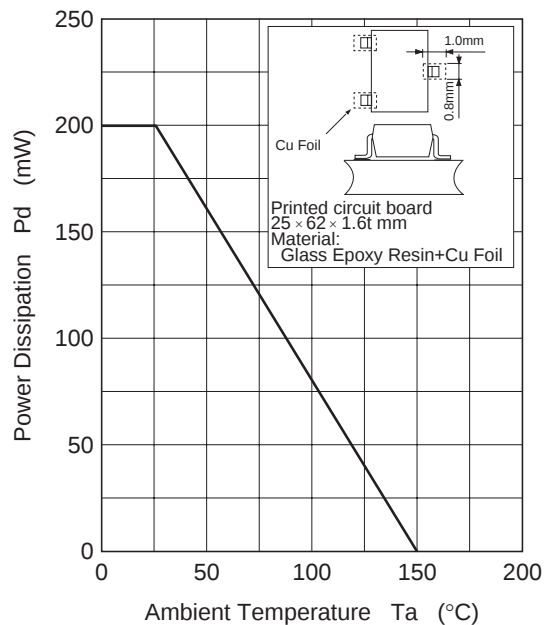
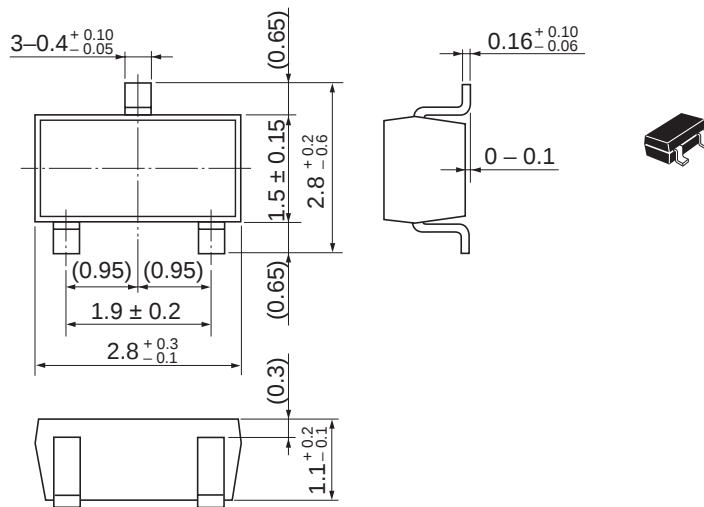


Fig.3 Power Dissipation vs. Ambient Temperature

Package Dimensions

As of January, 2003
Unit: mm



Package Code	MPAK
JEDEC	—
JEITA	Conforms
Mass (reference value)	0.011 g

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