HZM-N Series

Silicon Epitaxial Planar Zener Diode for Stabilizer

HITACHI

ADE-208-130C (Z)
Rev. 3

Features

- Wide spectrum from 1.9V through 38V 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

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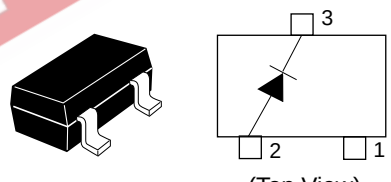
Outline



(Top View)

1 NC
2 Anode
3 Cathode

Absolute Maximum Ratings (Ta = 25°C)

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

Note: See Fig. 3.

HZM-N Series

Electrical Characteristics (Ta = 25°C)

		Zener Voltage*			Reverse Current		Dynamic Resistance	
		V_Z (V)		Test Condition	I_R (μA)	Test Condition	r_d (Ω)	Test Condition
Type	Grade	Min	Max	I_Z (mA)	Max	V_R (V)	Max	I_Z (mA)
HZM2.0N	B	1.90	2.20	5	120	0.5	100	5
HZM2.2N	B	2.10	2.40	5	120	0.7	100	5
HZM2.4N	B	2.30	2.60	5	120	1.0	100	5
HZM2.7N	B	2.50	2.90	5	120	1.0	110	5
	B1	2.50	2.75					
	B2	2.65	2.90					
HZM3.0N	B	2.80	3.20	5	50	1.0	120	5
	B1	2.80	3.05					
	B2	2.95	3.20					
HZM3.3N	B	3.10	3.50	5	20	1.0	130	5
	B1	3.10	3.35					
	B2	3.25	3.50					
HZM3.6N	B	3.40	3.80	5	10	1.0	130	5
	B1	3.40	3.65					
	B2	3.55	3.80					
HZM3.9N	B	3.70	4.10	5	10	1.0	130	5
	B1	3.70	3.97					
	B2	3.87	4.10					
HZM4.3N	B	4.01	4.48	5	10	1.0	130	5
	B1	4.01	4.21					
	B2	4.15	4.34					
	B3	4.28	4.48					
HZM4.7N	B	4.42	4.90	5	10	1.0	130	5
	B1	4.42	4.61					
	B2	4.55	4.75					
	B3	4.69	4.90					
HZM5.1N	B	4.84	5.37	5	5	1.5	130	5
	B1	4.84	5.04					
	B2	4.98	5.20					
	B3	5.14	5.37					

Note: Tested with pulse (P_W = 40ms)

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Electrical Characteristics (Ta = 25°C) (cont)

		Zener Voltage*			Reverse Current		Dynamic Resistance	
		V_Z (V)		Test Condition	I_R (μA)	Test Condition	r_d (Ω)	Test Condition
Type	Grade	Min	Max	I_Z (mA)	Max	V_R (V)	Max	I_Z (mA)
HZM5.6N	B	5.31	5.92	5	5	2.5	80	5
	B1	5.31	5.55					
	B2	5.49	5.73					
	B3	5.67	5.92					
HZM6.2N	B	5.86	6.53	5	2	3.0	50	5
	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	5
	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	5
	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	5
	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	5
	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	5
	B1	9.45	9.87					
	B2	9.77	10.21					
	B3	10.11	10.55					

Note: Tested with pulse (P_W = 40ms)

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Electrical Characteristics (Ta = 25°C) (cont)

		Zener Voltage *			Reverse Current		Dynamic Resistance	
		V_Z (V)		Test Condition	I_R (μA)	Test Condition	r_d (Ω)	Test Condition
Type	Grade	Min	Max	I_Z (mA)	Max	V_R (V)	Max	I_Z (mA)
HZM11N	B	10.44	11.56	5	2	8.0	30	5
	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	5
	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	5
	B1	12.47	13.03					
	B2	12.91	13.49					
	B3	13.37	13.96					
HZM15N	B	13.84	15.52	5	2	11.0	40	5
	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	5
	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	5
	B1	16.94	17.70					
	B2	17.56	18.35					
	B3	18.21	19.03					
HZM20N	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					

Note: Tested with pulse (P_W = 40ms)

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Electrical Characteristics (Ta = 25°C) (cont)

		Zener Voltage*			Reverse Current		Dynamic Resistance	
		V_Z (V)		Test Condition	I_R (μA)	Test Condition	r_d (Ω)	Test Condition
Type	**Grade**	**Min**	**Max**	**I_Z (mA)**	**Max**	**V_R (V)**	**Max**	**I_Z (mA)**
HZM22N	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					
HZM24N	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					
HZM27N	B	25.10	28.90	2	2	21.0	70	2
HZM30N	B	28.00	32.00	2	2	23.0	80	2
HZM33N	B	31.00	35.00	2	2	25.0	80	2
HZM36N	B	34.00	38.00	2	2	27.0	90	2

Note: Tested with pulse (P_W = 40ms)

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HZM-N Series

MARK CODE

Type	Grade	MARK No.
HZM2.0N	B	2 0 –
HZM2.2N	B	2 2 –
HZM2.4N	B	2 4 –
HZM2.7N	B1	2 7 1
	B2	2 7 2
HZM3.0N	B1	3 0 1
	B2	3 0 2
HZM3.3N	B1	3 3 1
	B2	3 3 2
HZM3.6N	B1	3 6 1
	B2	3 6 2
HZM3.9N	B1	3 9 1
	B2	3 9 2
HZM4.3N	B1	4 3 1
	B2	4 3 2
	B3	4 3 3
HZM4.7N	B1	4 7 1
	B2	4 7 2
	B3	4 7 3
HZM5.1N	B1	5 1 1
	B2	5 1 2
	B3	5 1 3
HZM5.6N	B1	5 6 1
	B2	5 6 2
	B3	5 6 3
HZM6.2N	B1	6 2 1
	B2	6 2 2
	B3	6 2 3
HZM6.8N	B1	6 8 1
	B2	6 8 2
	B3	6 8 3

Type	Grade	MARK No.
HZM7.5N	B1	7 5 1
	B2	7 5 2
	B3	7 5 3
HZM8.2N	B1	8 2 1
	B2	8 2 2
	B3	8 2 3
HZM9.1N	B1	9 1 1
	B2	9 1 2
	B3	9 1 3
HZM10N	B1	1 0 1
	B2	1 0 2
	B3	1 0 3
HZM11N	B1	1 1 1
	B2	1 1 2
	B3	1 1 3
HZM12N	B1	1 2 1
	B2	1 2 2
	B3	1 2 3
HZM13N	B1	1 3 1
	B2	1 3 2
	B3	1 3 3
HZM15N	B1	1 5 1
	B2	1 5 2
	B3	1 5 3
HZM16N	B1	1 6 1
	B2	1 6 2
	B3	1 6 3
HZM18N	B1	1 8 1
	B2	1 8 2
	B3	1 8 3

Type	Grade	MARK No.
HZM20N	B1	2 0 1
	B2	2 0 2
	B3	2 0 3
HZM22N	B1	2 2 1
	B2	2 2 2
	B3	2 2 3
HZM24N	B1	2 4 1
	B2	2 4 2
	B3	2 4 3
HZM27N	B	2 7 –
HZM30N	B	3 0 –
HZM33N	B	3 3 –
HZM36N	B	3 6 –

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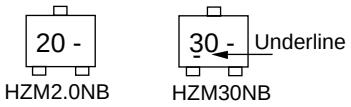
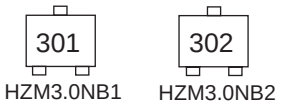
Example of Marking

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 HZM-N series are delivered taped (TL/TR).
Choose one taping code and adhere to parts No.
Example: HZM2.0NBTL (or TR), HZM2.2NBTL (or TR), HZM36NBTL (or TR).
(Grade B type)
HZM2.7NB1TL (or TR), HZM2.7NB2TL (or TR) •• HZM24NB3TL (or TR).
(Grade B1, B2, B3 type)

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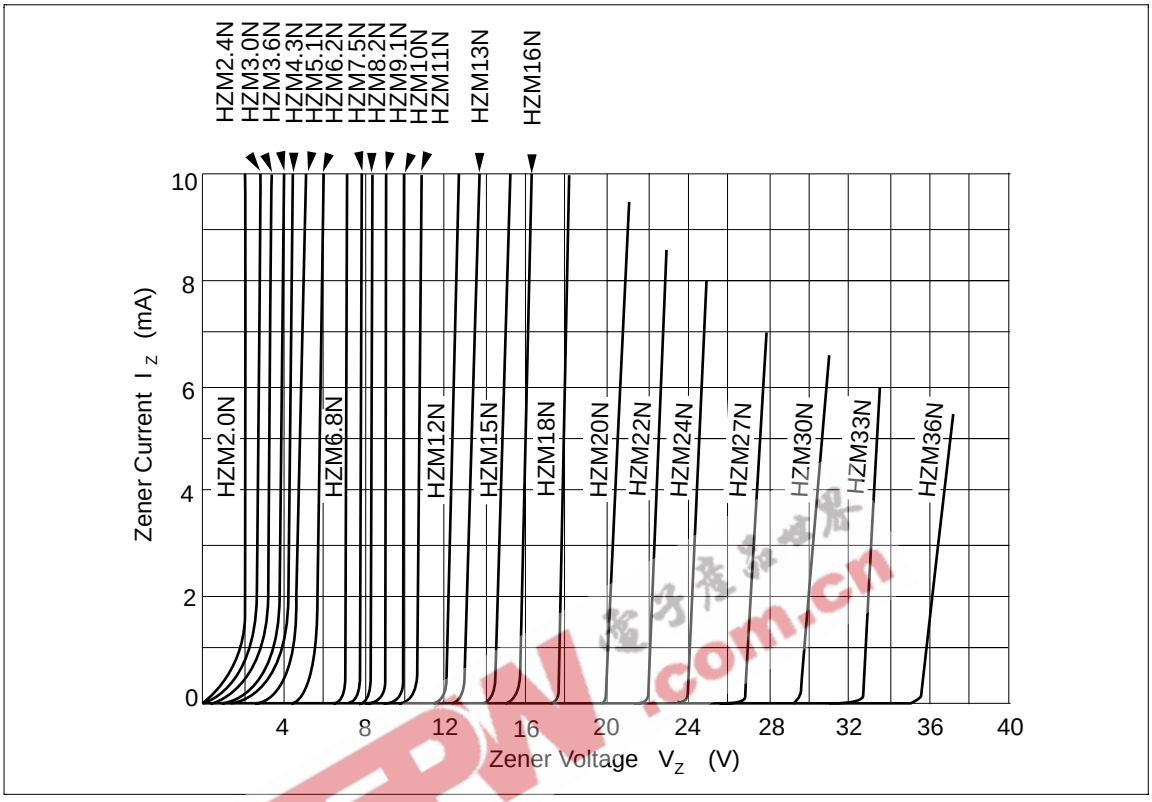

Fig.1 Zener current Vs. Zener voltage

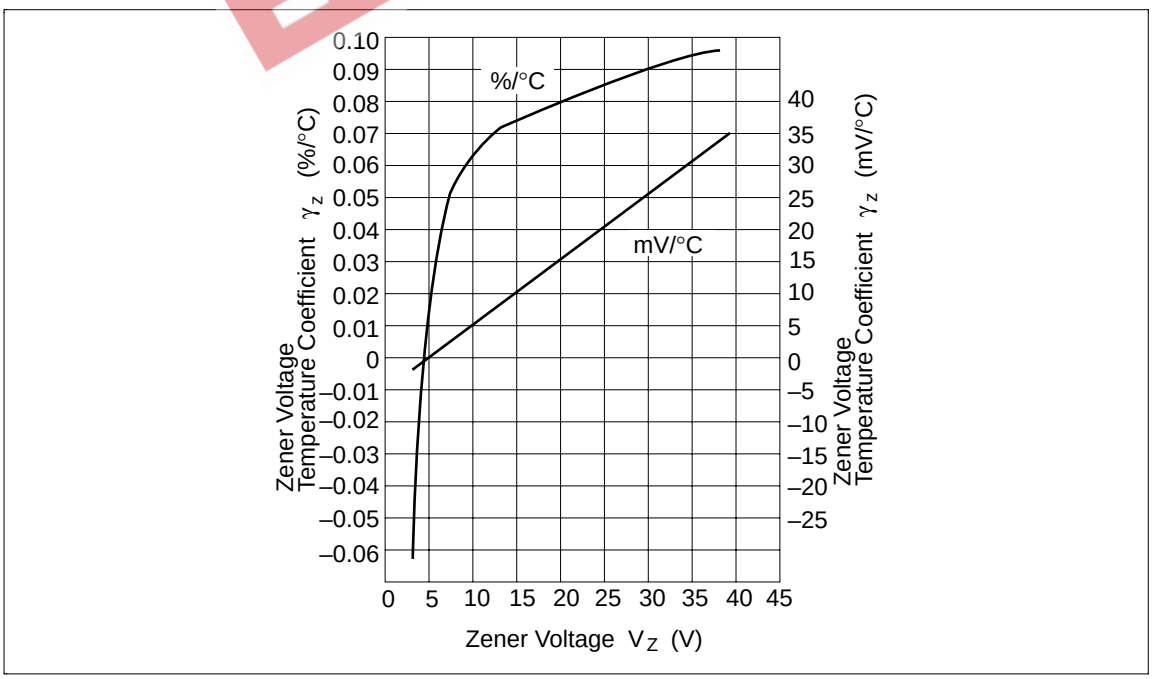

Fig.2 Temperature Coefficient Vs. Zener voltage

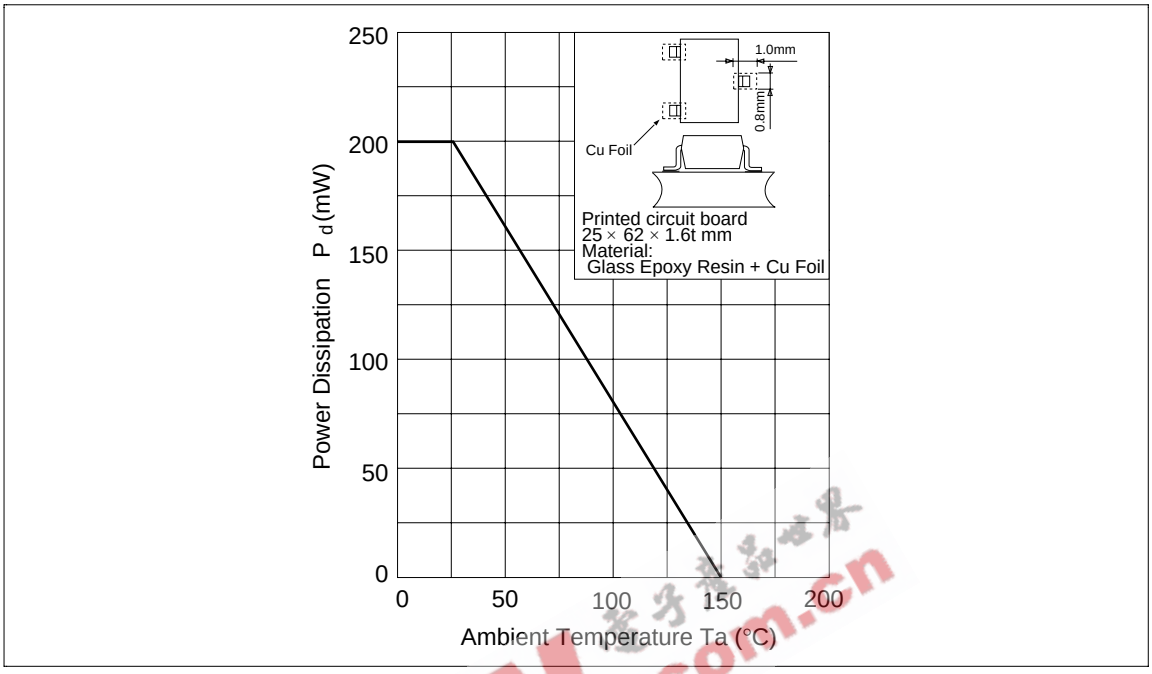

Fig.3 Power Dissipation Vs. Ambient Temperature

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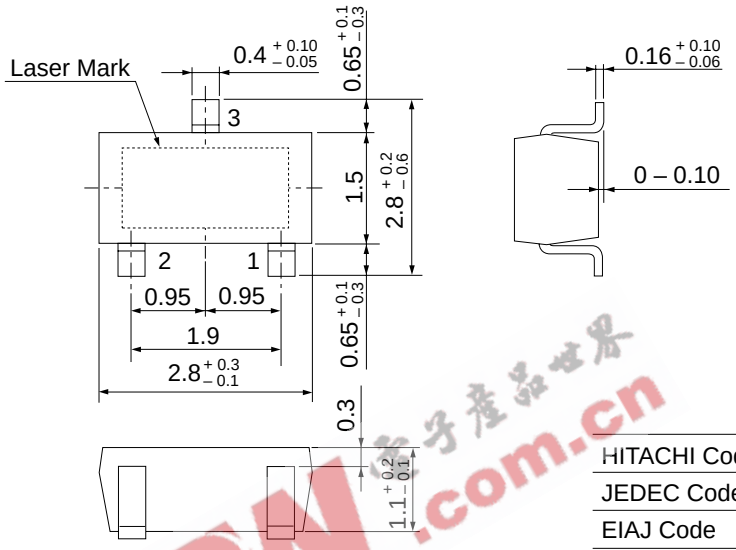
Package Dimensions

Unit: mm



1 NC
2 Anode
3 Cathode

HITACHI Code	MPAK(1)
JEDEC Code	—
EIAJ Code	SC-59A
Weight (g)	0.011

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