HZM-N Series

Silicon Epitaxial Planar Zener Diode for Stabilizer

HITACHI

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

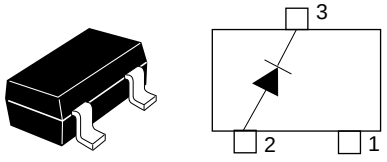
Features

- 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

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.

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)

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)

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)

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)

MARK CODE

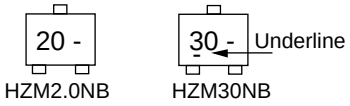
Type	Grade	MARK No.
HZM2.0N	B	2 0 –
HZM2.2N	B	2 2 –
HZM2.4N	B	2 4 –
HZM2.7N	B1	2 7 1
	B2	2 7 2
HZM3.0N	B1	3 0 1
	B2	3 0 2
HZM3.3N	B1	3 3 1
	B2	3 3 2
HZM3.6N	B1	3 6 1
	B2	3 6 2
HZM3.9N	B1	3 9 1
	B2	3 9 2
HZM4.3N	B1	4 3 1
	B2	4 3 2
	B3	4 3 3
HZM4.7N	B1	4 7 1
	B2	4 7 2
	B3	4 7 3
HZM5.1N	B1	5 1 1
	B2	5 1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

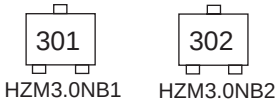
Type	Grade	MARK No.
HZM20N	B1	2 0 1
	B2	2 0 2
	B3	2 0 3
HZM22N	B1	2 2 1
	B2	2 2 2
	B3	2 2 3
HZM24N	B1	2 4 1
	B2	2 4 2
	B3	2 4 3
HZM27N	B	2 7 –
HZM30N	B	3 0 –
HZM33N	B	3 3 –
HZM36N	B	3 6 –

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)

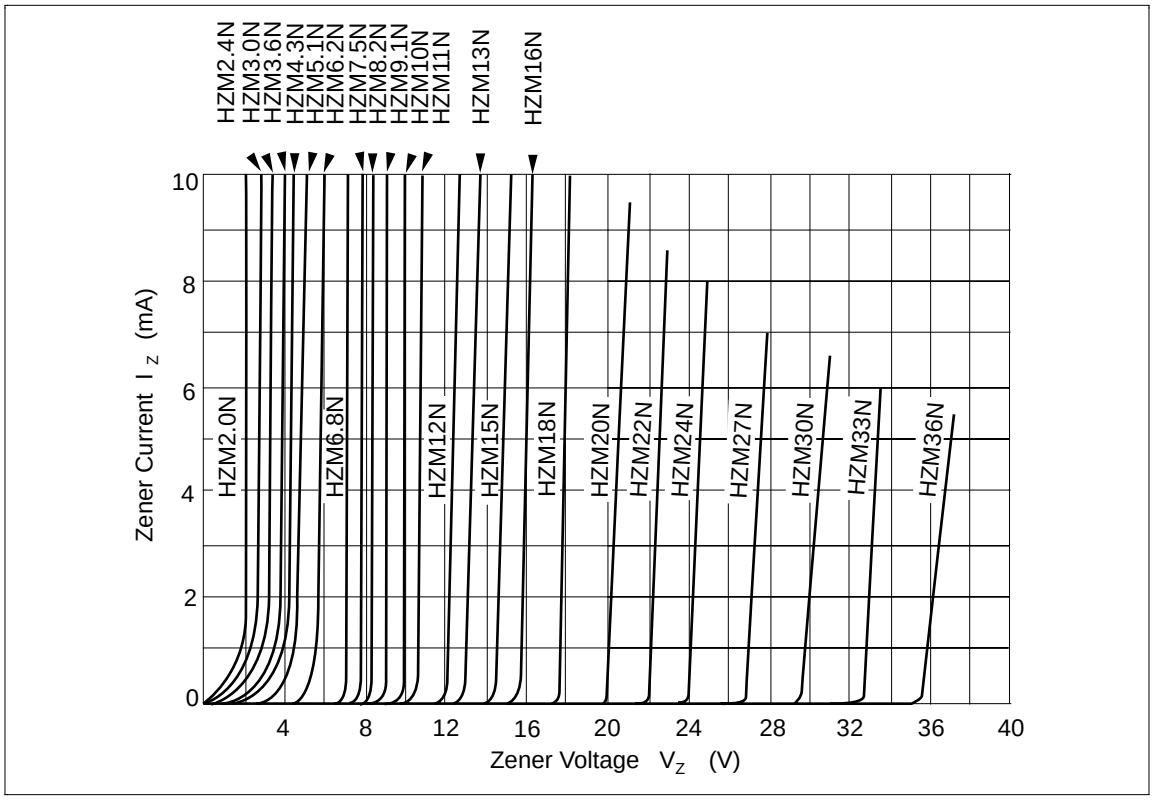


Fig.1 Zener current Vs. Zener voltage

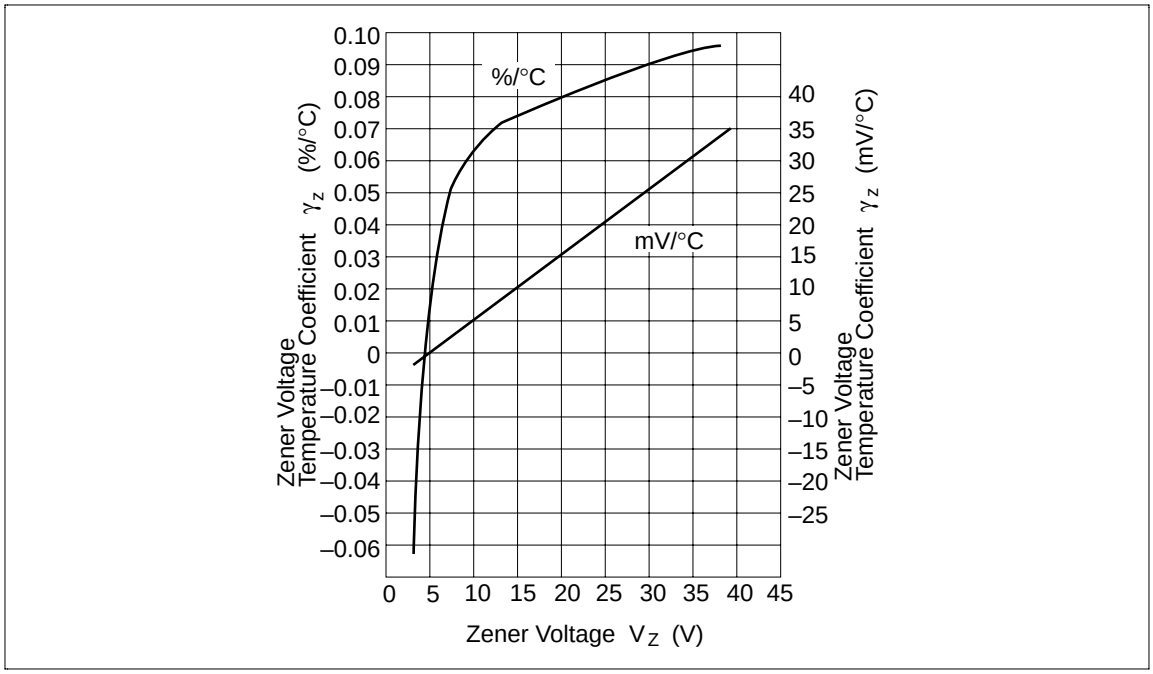


Fig.2 Temperature Coefficient Vs. Zener voltage

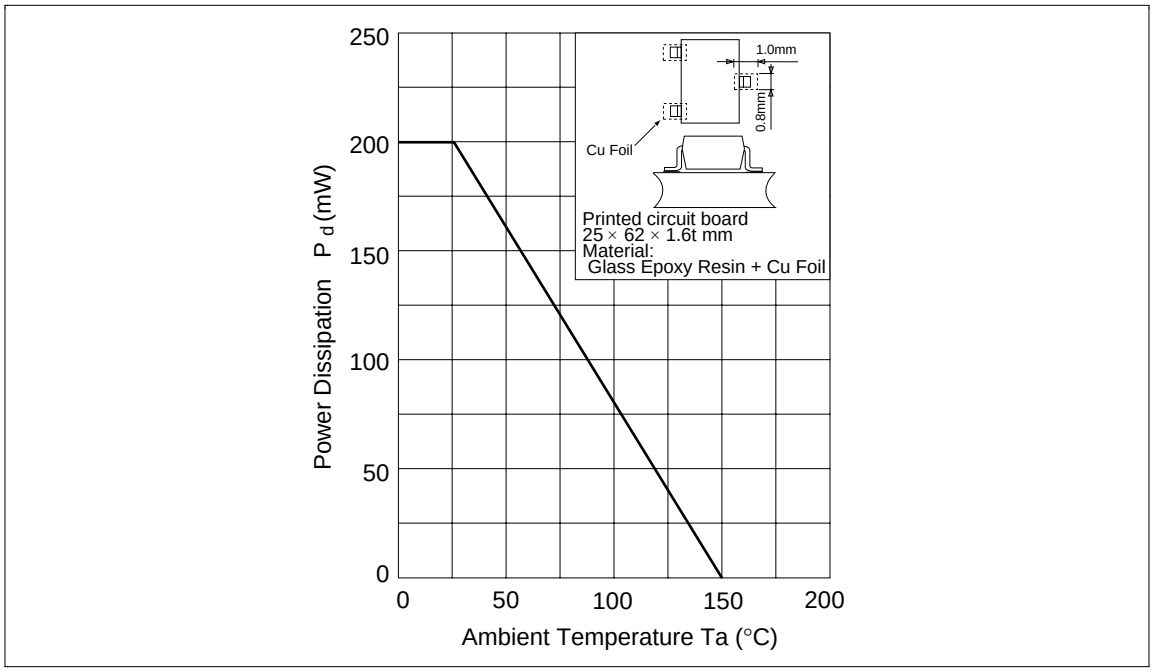
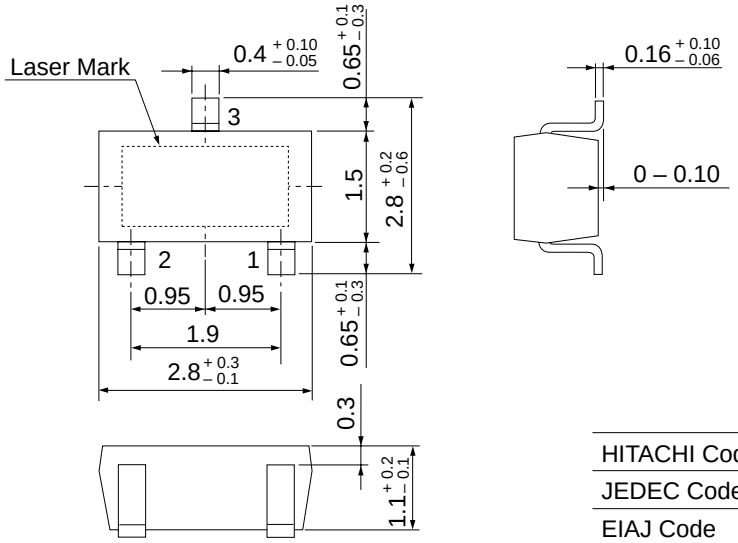


Fig.3 Power Dissipation Vs. Ambient Temperature

Package Dimensions

Unit: mm



1 NC
2 Anode
3 Cathode

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