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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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1N5223B through 1N5258B

Silicon Epitaxial Planar Zener Diodes for Voltage Regulation

ADE-208-137B (Z)

Rev.2
Dec. 2001

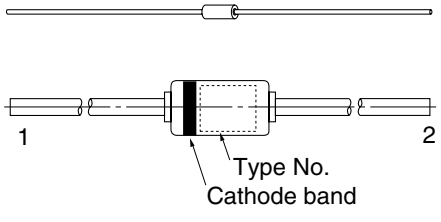
Features

- Glass package DO-35 structure ensures high reliability.
- Wide spectrum from 2.7 V through 36 V of zener voltage provide flexible application.

Ordering Information

Type No.	Cathode band	Mark	Package Code
1N5223B through 1N5258B	Black	Type No.	DO-35

Pin Arrangement



1. Cathode
2. Anode

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Power dissipation	Pd	500	mW
Surge power dissipation	Pd(surge) *1	10	W
Lead temperature	T_L *2	230	°C
Junction temperature	Tj *3	200	°C
Storage temperature	Tstg	–65 to +200	°C

Notes: 1. Non-recurrent square wave, pw = 8.3 ms, Tj = 55°C, Tj is prior to surge.
2. Less than 1/16" from the case for 10 seconds.
3. By standard printed board, see fig 2.

Electrical Characteristics

(Ta = 25°C)

	V_Z (V)		I_R (µA)		Z_{ZT} (Ω)		Z_{ZK} (Ω)		γ_Z (%/°C) *1	V_F *2 (V)
		Test Condition		Test Condition		Test Condition		Test Condition		
		I_Z (mA)	Max	V_R (V)	Max	I_{ZT} (mA)	Max	I_{ZK} (mA)	Max	Max
1N5223B	2.7 ± 5 (%)	20	75	1.0	30	20	1300	0.25	-0.08	1.1
1N5224B	2.8 ± 5 (%)	20	75	1.0	30	20	1400	0.25	-0.08	1.1
1N5225B	3.0 ± 5 (%)	20	50	1.0	29	20	1600	0.25	-0.075	1.1
1N5226B	3.3 ± 5 (%)	20	25	1.0	28	20	1600	0.25	-0.07	1.1
1N5227B	3.6 ± 5 (%)	20	15	1.0	24	20	1700	0.25	-0.065	1.1
1N5228B	3.9 ± 5 (%)	20	10	1.0	23	20	1900	0.25	-0.06	1.1
1N5229B	4.3 ± 5 (%)	20	5	1.0	22	20	2000	0.25	±0.055	1.1
1N5230B	4.7 ± 5 (%)	20	5	2.0	19	20	1900	0.25	±0.03	1.1
1N5231B	5.1 ± 5 (%)	20	5	2.0	17	20	1600	0.25	±0.03	1.1
1N5232B	5.6 ± 5 (%)	20	5	3.0	11	20	1600	0.25	+0.038	1.1
1N5233B	6.0 ± 5 (%)	20	5	3.5	7	20	1600	0.25	+0.038	1.1
1N5234B	6.2 ± 5 (%)	20	5	4.0	7	20	1000	0.25	+0.045	1.1
1N5235B	6.8 ± 5 (%)	20	3	5.0	5	20	750	0.25	+0.05	1.1
1N5236B	7.5 ± 5 (%)	20	3	6.0	6	20	500	0.25	+0.058	1.1
1N5237B	8.2 ± 5 (%)	20	3	6.5	8	20	500	0.25	+0.062	1.1
1N5238B	8.7 ± 5 (%)	20	3	6.5	8	20	600	0.25	+0.065	1.1

Notes: 1. 1N5223 to 1N5242: I_Z = 7.5 mA, 1N5243 to 1N5258: $I_Z = I_Z$, Ta = 25°C to 125°C
2. Tested with DC, I_F = 200 mA

Electrical Characteristics (cont)

(Ta = 25°C)

	V_Z (V)		I_R (µA)		Z_{ZT} (Ω)		Z_{ZK} (Ω)		γ_Z (%/°C) *1	V_F *2 (V)
		Test Condition		Test Condition		Test Condition		Test Condition		
		I_Z (mA)	Max	V_R (V)	Max	I_{ZT} (mA)	Max	I_{ZK} (mA)	Max	Max
1N5239B	9.1 ± 5 (%)	20	3	7.5	10	20	600	0.25	+0.068	1.1
1N5240B	10 ± 5 (%)	20	3	8.0	17	20	600	0.25	+0.075	1.1
1N5241B	11 ± 5 (%)	20	2	8.4	22	20	600	0.25	+0.076	1.1
1N5242B	12 ± 5 (%)	20	1	9.1	30	20	600	0.25	+0.077	1.1
1N5243B	13 ± 5 (%)	9.5	0.5	9.9	13	9.5	600	0.25	+0.079	1.1
1N5244B	14 ± 5 (%)	9.0	0.1	10	15	9.0	600	0.25	+0.082	1.1
1N5245B	15 ± 5 (%)	8.5	0.1	11	16	8.5	600	0.25	+0.082	1.1
1N5246B	16 ± 5 (%)	7.8	0.1	12	17	7.8	600	0.25	+0.083	1.1
1N5247B	17 ± 5 (%)	7.4	0.1	13	19	7.4	600	0.25	+0.084	1.1
1N5248B	18 ± 5 (%)	7.0	0.1	14	21	7.0	600	0.25	+0.085	1.1
1N5249B	19 ± 5 (%)	6.6	0.1	14	23	6.6	600	0.25	+0.086	1.1
1N5250B	20 ± 5 (%)	6.2	0.1	15	25	6.2	600	0.25	+0.086	1.1
1N5251B	22 ± 5 (%)	5.6	0.1	17	29	5.6	600	0.25	+0.087	1.1
1N5252B	24 ± 5 (%)	5.2	0.1	18	33	5.2	600	0.25	+0.088	1.1
1N5253B	25 ± 5 (%)	5.0	0.1	19	35	5.0	600	0.25	+0.089	1.1
1N5254B	27 ± 5 (%)	4.6	0.1	21	41	4.6	600	0.25	+0.090	1.1
1N5255B	28 ± 5 (%)	4.5	0.1	21	44	4.5	600	0.25	+0.091	1.1
1N5256B	30 ± 5 (%)	4.2	0.1	23	49	4.2	600	0.25	+0.091	1.1
1N5257B	33 ± 5 (%)	3.8	0.1	25	58	3.8	700	0.25	+0.092	1.1
1N5258B	36 ± 5 (%)	3.4	0.1	27	70	3.4	700	0.25	+0.093	1.1

Notes: 1. 1N5223 to 1N5242: I_Z = 7.5 mA, 1N5243 to 1N5258: $I_Z = I_Z$, Ta = 25°C to 125°C

2. Tested with DC, I_F = 200 mA

Main Characteristic

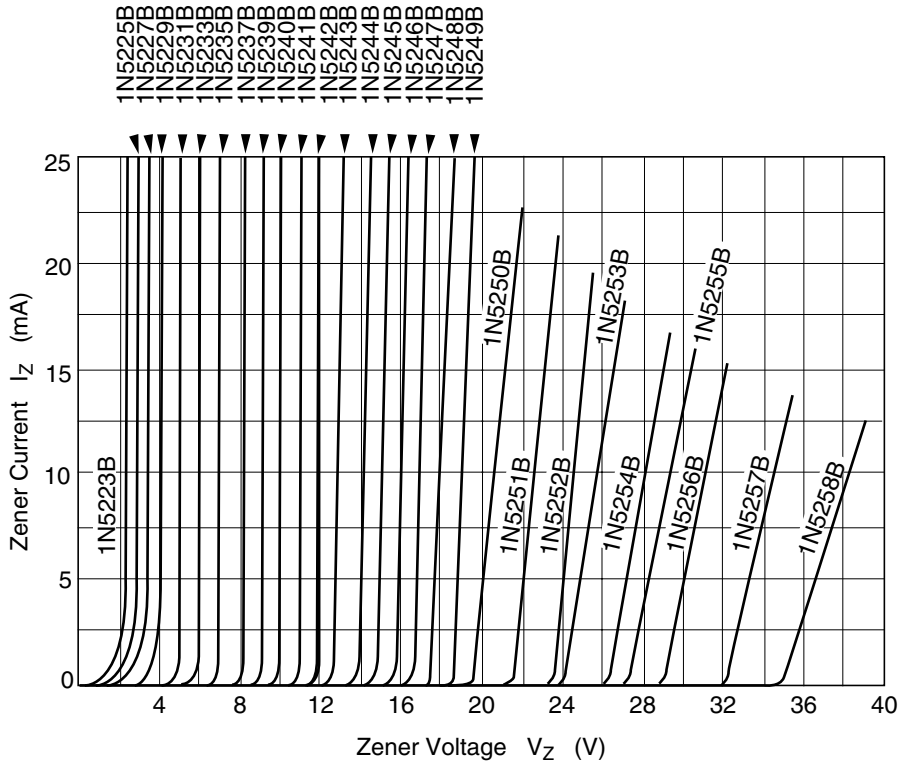


Fig.1 Zener current vs. Zener voltage

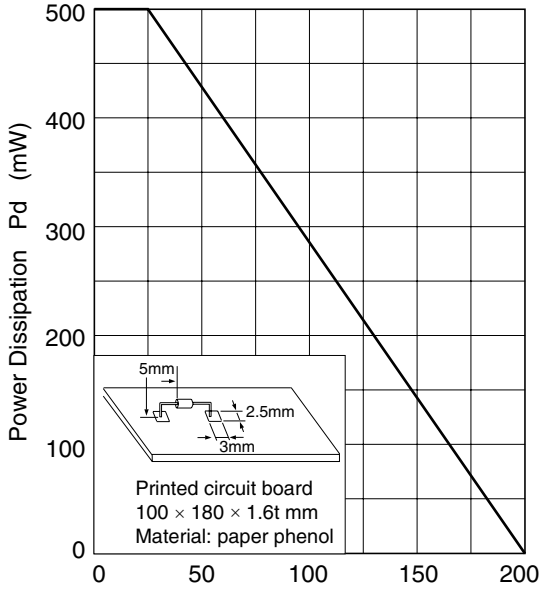
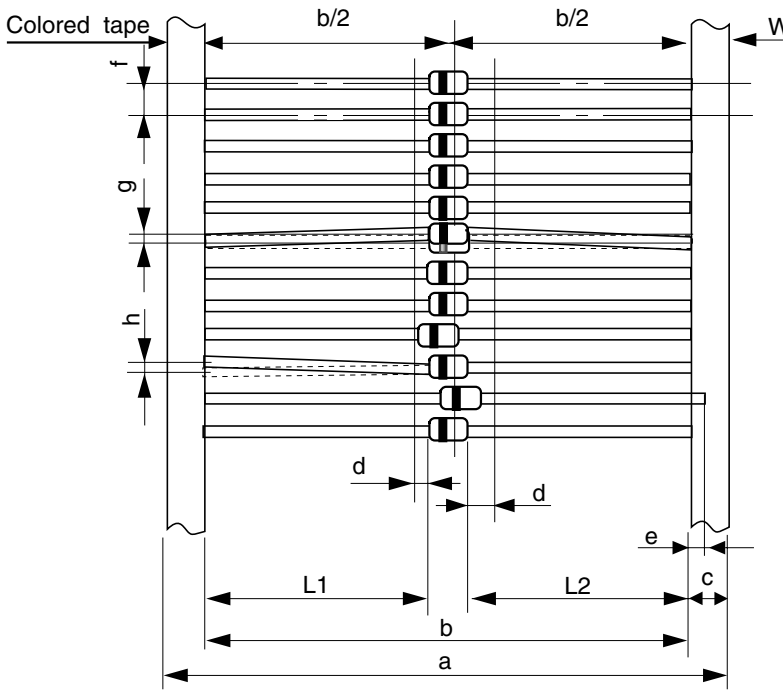


Fig.2 Power Dissipation vs. Ambient Temperature

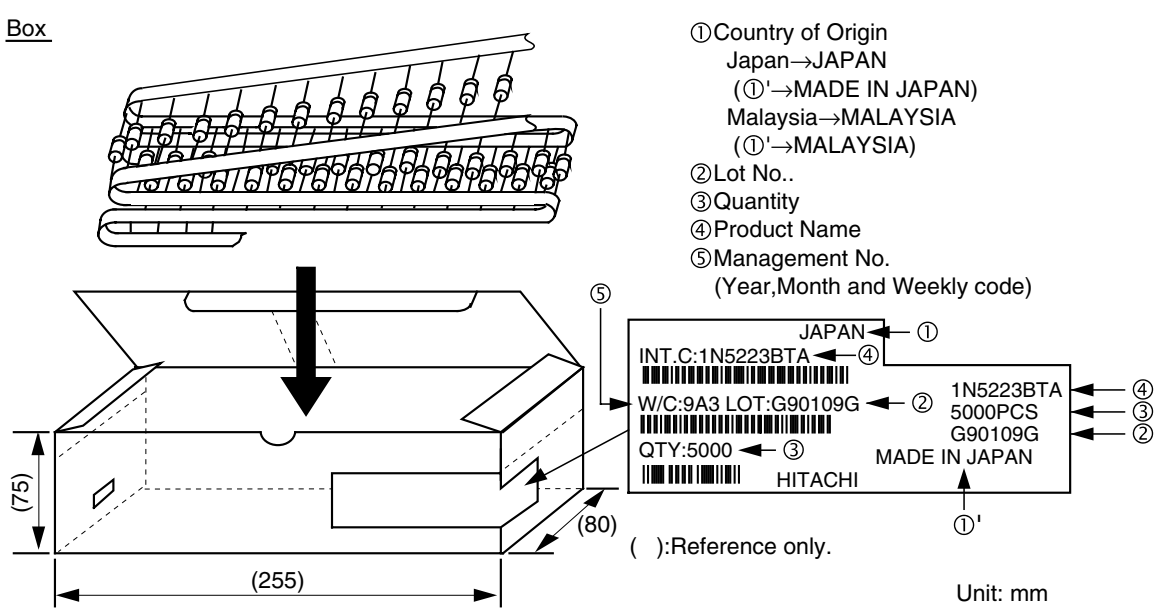
Ammo Pack Taping (TA TYPE)



Unit: mm

a	64.0 ± 1.5
b	52.4 ± 1.2
c	6.0 ± 0.5
d	± 0.5
e	3.2 min
f	5.00 ± 0.38
g	± 1.0
h	1.0max
| L1–L2 |	1.0max
JEITA CODE	TA21 (R)

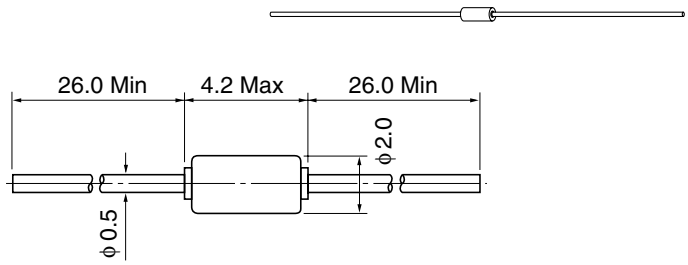
Taping appearance



Package Dimensions

As of July, 2001

Unit: mm



Hitachi Code	DO-35
JEDEC	Conforms
JEITA	Conforms
Mass (reference value)	0.13 g

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