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April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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HZS-N Series

Silicon Planar Zener Diode for Stabilized Power Supply

REJ03G0185-0300

Rev.3.00

Nov 12, 2007

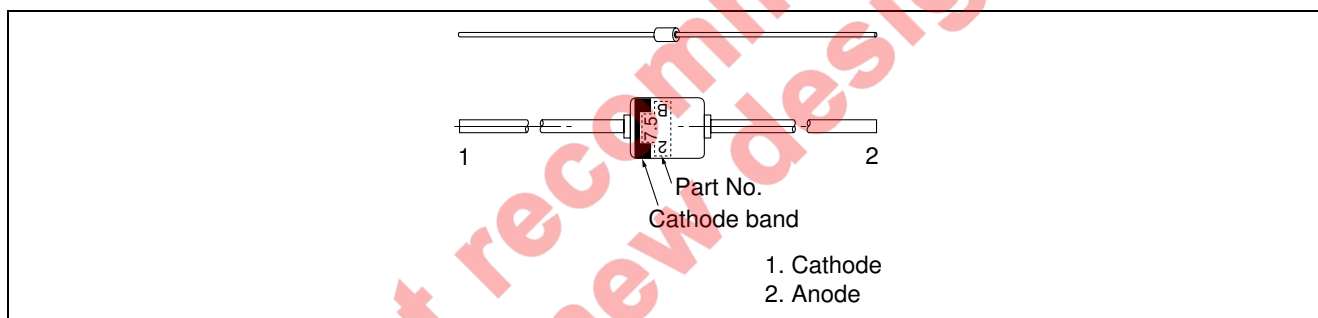
Features

- Low leakage, low zener impedance and maximum power dissipation of 400 mW are ideally suited for stabilized power supply, etc.
- Wide voltage range from 1.88 V through 38.52 V of zener voltage provide flexible application.
- Suitable for 5mm-pitch high speed automatic insertion.

Ordering Information

Part No.	Cathode Band	Package Name	Package Code
HZS-N Series	Black	MHD	GRZZ0002ZC-A

Pin Arrangement



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Power dissipation	Pd	400	mW
Junction temperature	Tj	200	°C
Storage temperature	Tstg	-55 to +175	°C

Electrical Characteristics

(Ta = 25°C)

Type	Grade	Zener Voltage			Reverse Current		Dynamic Resistance	
		Vz (V)*1		Test Condition	IR (μA)	Test Condition	rd (Ω)	Test Condition
		Min	Max	Iz (mA)	Max	VR (V)	Max	Iz (mA)
HVS2.0N	B1	1.88	2.10	5	120	0.5	100	5
	B2	2.02	2.20					
HVS2.2N	B1	2.12	2.30	5	120	0.7	100	5
	B2	2.22	2.41					
HVS2.4N	B1	2.33	2.52	5	120	1.0	100	5
	B2	2.43	2.63					
HVS2.7N	B1	2.54	2.75	5	100	1.0	110	5
	B2	2.69	2.91					
HVS3.0N	B1	2.85	3.07	5	50	1.0	120	5
	B2	3.01	3.22					
HVS3.3N	B1	3.16	3.38	5	20	1.0	120	5
	B2	3.32	3.53					
HVS3.6N	B1	3.47	3.68	5	10	1.0	120	5
	B2	3.62	3.83					
HVS3.9N	B1	3.77	3.98	5	5	1.0	120	5
	B2	3.92	4.14					
HVS4.3N	B1	4.05	4.26	5	5	1.0	120	5
	B2	4.20	4.40					
	B3	4.34	4.53					
HVS4.7N	B1	4.47	4.65	5	5	1.0	100	5
	B2	4.59	4.77					
	B3	4.71	4.91					
HVS5.1N	B1	4.85	5.03	5	5	1.5	70	5
	B2	4.97	5.18					
	B3	5.12	5.35					
HVS5.6N	B1	5.29	5.52	5	5	2.5	40	5
	B2	5.46	5.70					
	B3	5.64	5.88					
HVS6.2N	B1	5.81	6.06	5	5	3.0	30	5
	B2	5.99	6.24					
	B3	6.16	6.40					
HVS6.8N	B1	6.32	6.59	5	2	3.5	25	5
	B2	6.52	6.79					
	B3	6.70	6.97					

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

Type	Grade	Zener Voltage		Reverse Current		Dynamic Resistance		
		V _Z (V)*1		Test Condition	I _R (μA)	Test Condition	r _d (Ω)	Test Condition
		Min	Max	I _Z (mA)	Max	V _R (V)	Max	I _Z (mA)
HVS7.5N	B1	6.88	7.19	5	0.5	4.0	25	5
	B2	7.11	7.41					
	B3	7.33	7.64					
HVS8.2N	B1	7.56	7.90	5	0.5	5.0	20	5
	B2	7.82	8.15					
	B3	8.07	8.41					
HVS9.1N	B1	8.33	8.70	5	0.5	6.0	20	5
	B2	8.61	8.99					
	B3	8.89	9.29					
HVS10N	B1	9.19	9.59	5	0.2	7.0	20	5
	B2	9.48	9.90					
	B3	9.82	10.30					
HVS11N	B1	10.18	10.63	5	0.2	8.0	20	5
	B2	10.50	10.95					
	B3	10.82	11.26					
HVS12N	B1	11.13	11.63	5	0.2	9.0	25	5
	B2	11.50	11.92					
	B3	11.80	12.30					
HVS13N	B1	12.18	12.71	5	0.2	10	25	5
	B2	12.59	13.16					
	B3	13.03	13.62					
HVS15N	B1	13.48	14.09	5	0.2	11	25	5
	B2	13.95	14.56					
	B3	14.42	15.02					
HVS16N	B1	14.87	15.50	5	0.2	12	25	5
	B2	15.33	15.96					
	B3	15.79	16.50					
HVS18N	B1	16.34	17.06	5	0.2	13	30	5
	B2	16.90	17.67					
	B3	17.51	18.30					
HVS20N	B1	18.14	18.96	5	0.2	15	30	5
	B2	18.80	19.68					
	B3	19.52	20.45					
HVS22N	B1	20.23	21.08	5	0.2	17	30	5
	B2	20.76	21.65					
	B3	21.22	22.09					
	B4	21.68	22.61					
HVS24N	B1	22.26	23.12	5	0.2	19	35	5
	B2	22.75	23.73					
	B3	23.29	24.27					
	B4	23.81	24.81					
HVS27N	B1	24.26	25.52	5	0.2	21	45	5
	B2	24.97	26.26					
	B3	25.63	26.95					
	B4	26.29	27.64					

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)	Test Condition
		Min	Max	I _Z (mA)	Max	V _R (V)	Max	I _Z (mA)
HVS30N	B1	26.99	28.39	5	0.2	23	55	5
	B2	27.70	29.13					
	B3	28.36	29.82					
	B4	29.02	30.51					
HVS33N	B1	29.68	31.22	5	0.2	25	65	5
	B2	30.32	31.88					
	B3	30.90	32.50					
	B4	31.49	33.11					
HVS36N	B1	32.14	33.79	5	0.2	27	75	5
	B2	32.79	34.49					
	B3	33.40	35.13					
	B4	34.01	35.77					
HVS39N	B1	34.68	36.47	5	0.2	30	85	5
	B2	35.36	37.19					
	B3	36.00	37.85					
	B4	36.63	38.52					

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

2. Part No. is as follows: HVS2.0NB1, HVS2.0NB2, ... HVS39NB4.

Not recommended
for new design

Main Characteristic

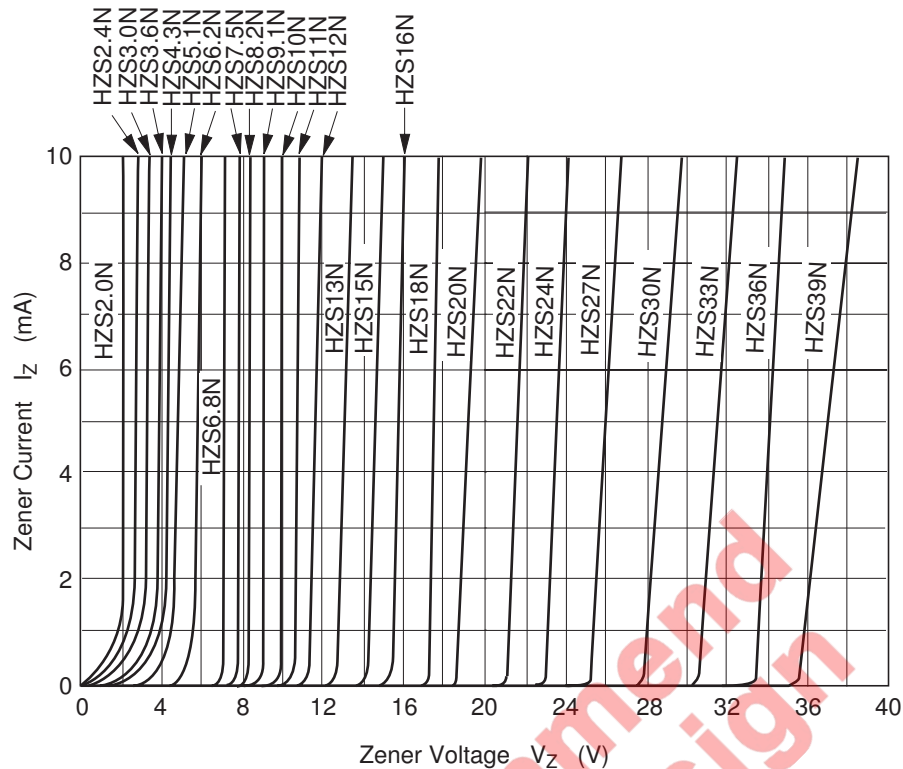


Fig.1 Zener current vs. Zener voltage

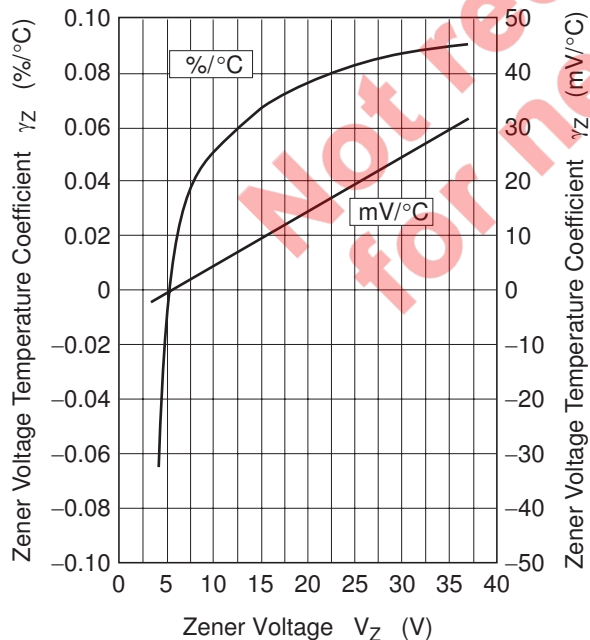


Fig.2 Temperature Coefficient vs. Zener voltage

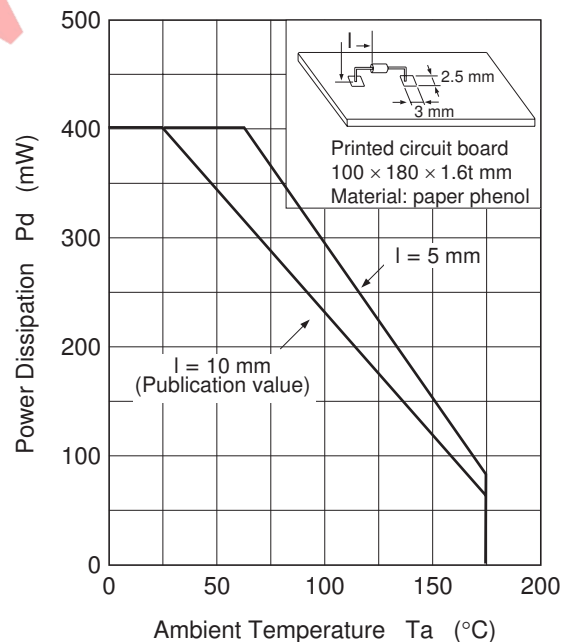
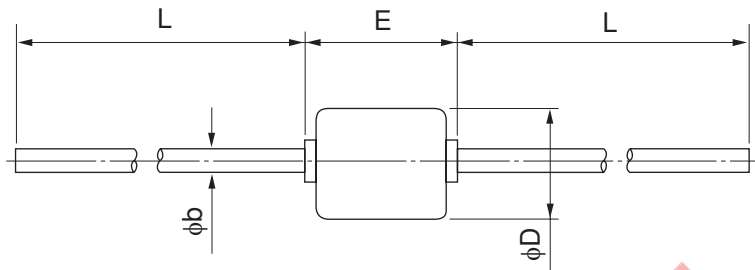


Fig.3 Power Dissipation vs. Ambient Temperature

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
MHD	—	GRZZ0002ZC-A	MHD / MHDV	0.084g



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
phi b	-	0.4	-
phi D	-	2.0	-
E	-	-	2.4
L	26.0	-	-

Not recommend
for new design

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