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

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HZ-P Series

Silicon Epitaxial Planar Zener Diodes for Voltage Controller & Voltage Limiter

RENESAS

ADE-208-123E (Z)

Rev.5
Mar. 2002

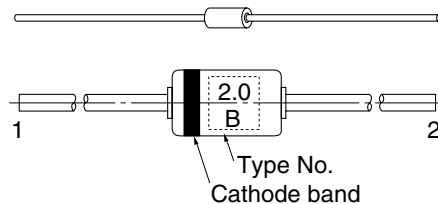
Features

- Wide spectrum from 1.88 V through 40 V of zener voltage provide flexible application.
- Glass package DO-41 structure ensures high reliability.

Ordering Information

Type No.	Mark	Package Code
HZ-P Series	Type No.	DO-41

Pin Arrangement



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Power dissipation	Pd	1.0	W
Junction temperature	Tj	175	°C
Storage temperature	Tstg	−55 to +175	°C

Electrical Characteristics

(Ta = 25°C)

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
HZ2.0	BP	1.88	2.12	40	200	0.5	25
	CP	2.00	2.24				
HZ2.2	BP	2.08	2.33	40	200	0.7	20
	CP	2.20	2.45				
HZ2.4	BP	2.28	2.56	40	200	1.0	15
	CP	2.40	2.70				
HZ2.7	BP	2.5	2.9	40	200	1.0	15
	CP	2.7	3.1				
HZ3.0	BP	2.8	3.2	40	100	1.0	15
	CP	3.0	3.4				
HZ3.3	BP	3.1	3.5	40	80	1.0	15
	CP	3.3	3.7				
HZ3.6	BP	3.4	3.8	40	60	1.0	15
	CP	3.6	4.0				
HZ3.9	BP	3.7	4.1	40	40	1.0	15
	CP	3.9	4.4				
HZ4.3	BP	4.0	4.5	40	20	1.0	15
	CP	4.3	4.8				
HZ4.7	BP	4.4	4.9	40	20	1.0	10
	CP	4.7	5.2				

Note: 1. Tested with DC.

Electrical Characteristics (cont)

(Ta = 25°C)

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
HZ5.1	BP	4.8	5.4	40	20	1.0	8
	CP	5.1	5.7				
HZ5.6	BP	5.3	6.0	40	20	1.5	8
	CP	5.6	6.3				
HZ6.2	BP	5.8	6.6	40	20	3.0	6
	CP	6.2	7.0				
HZ6.8	BP	6.4	7.2	40	20	3.5	6
	CP	6.8	7.7				
HZ7.5	BP	7.0	7.9	40	20	4.0	4
	CP	7.5	8.4				
HZ8.2	BP	7.7	8.7	40	20	5.0	4
	CP	8.2	9.3				
HZ9.1	BP	8.5	9.6	40	20	6.0	6
	CP	9.1	10.2				
HZ10	BP	9.4	10.6	40	10	7.0	6
	CP	10.0	11.2				
HZ11	BP	10.4	11.6	20	10	8.0	8
	CP	11.0	12.3				
HZ12	BP	11.4	12.6	20	10	9.0	8
	CP	12.0	13.5				
HZ13	BP	12.4	14.1	20	10	10.0	10
	CP	13.3	15.0				
HZ15	BP	13.8	15.6	20	10	11.0	10
	CP	14.7	16.5				
HZ16	BP	15.3	17.1	20	10	12.0	12
	CP	16.2	18.3				
HZ18	BP	16.8	19.1	20	10	13.0	12
	CP	18.0	20.3				
HZ20	BP	18.8	21.2	20	10	15.0	14
	CP	20.0	22.4				

Note: 1. Tested with DC.

HZ-P Series

Electrical Characteristics (cont)

(Ta = 25°C)

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
HZ22	BP	20.8	23.3	10	10	17.0	14
	CP	22.0	24.5				
HZ24	BP	22.8	25.6	10	10	19.0	16
	CP	24.0	27.6				
HZ27	BP	25.1	28.9	10	10	21.0	16
	CP	27.0	30.8				
HZ30	BP	28.0	32.0	10	10	23.0	18
	CP	30.0	34.0				
HZ33	BP	31.0	35.0	10	10	25.0	18
	CP	33.0	37.0				
HZ36	BP	34.0	38.0	10	10	27.0	20
	CP	36.0	40.0				

- Notes: 1. Tested with DC.
2. Type No. is as follows; HZ2.0BP, HZ2.0CP, ••• HZ36BP, HZ36CP.

Main Characteristic

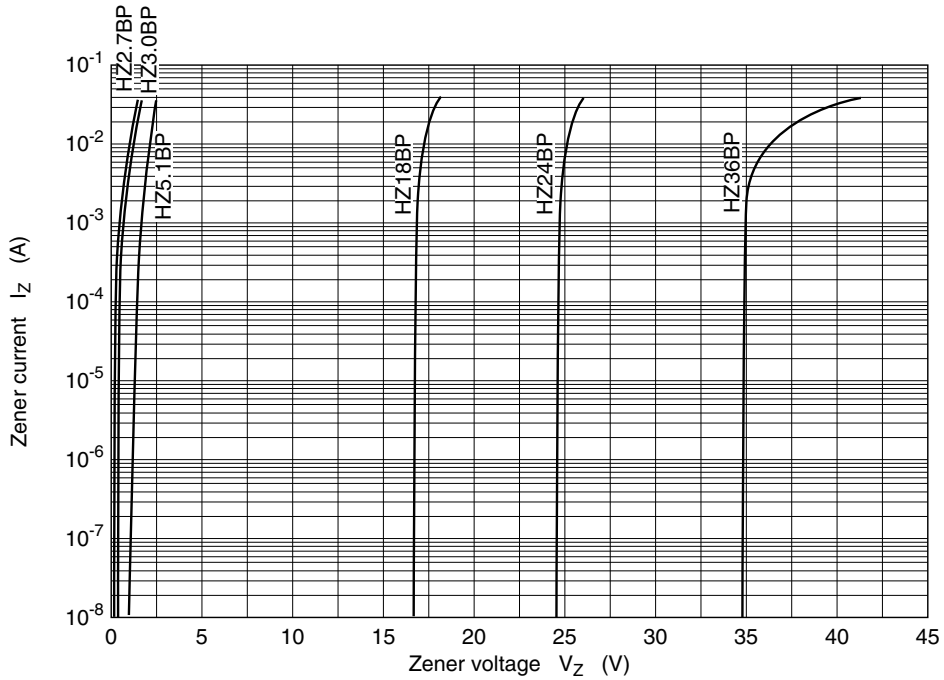


Fig.1 Zener Current vs. Zener Voltage

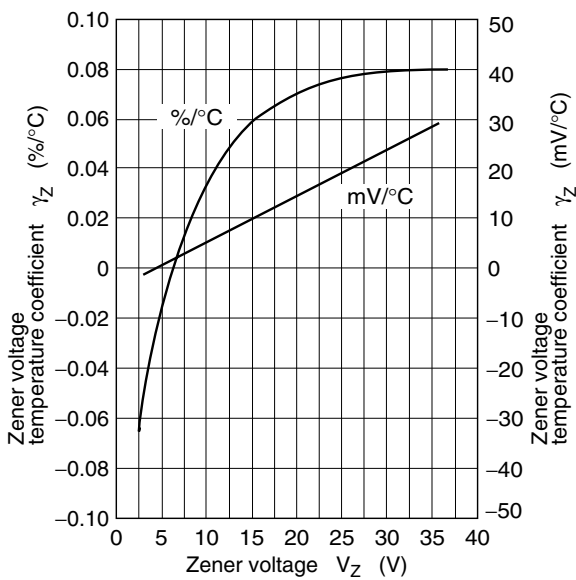


Fig.2 Temperature Coefficient vs. Zener Voltage

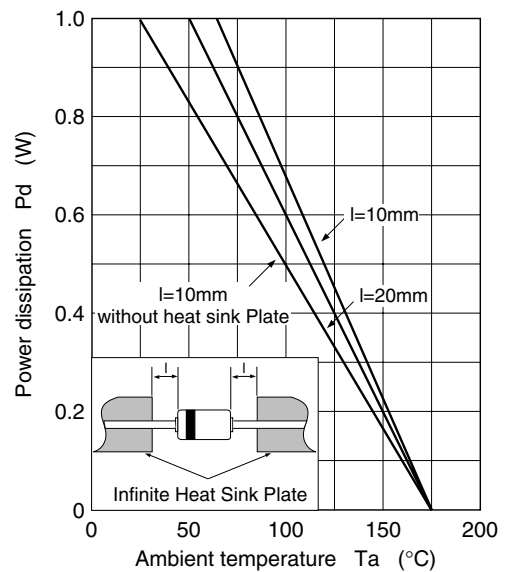


Fig.3 Power Dissipation vs. Ambient Temperature

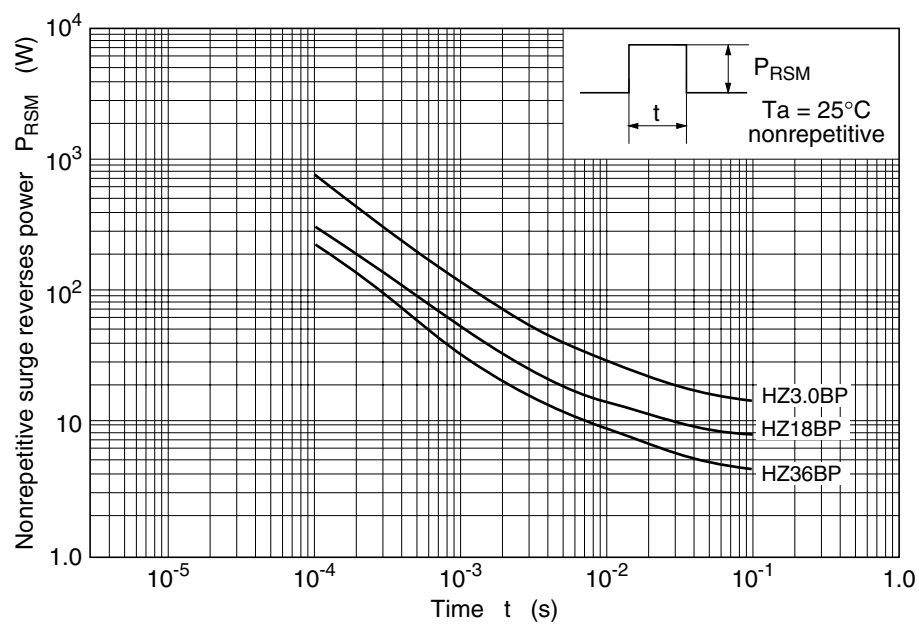


Fig.4 Surge Reverse Power Ratings (Reference Data)

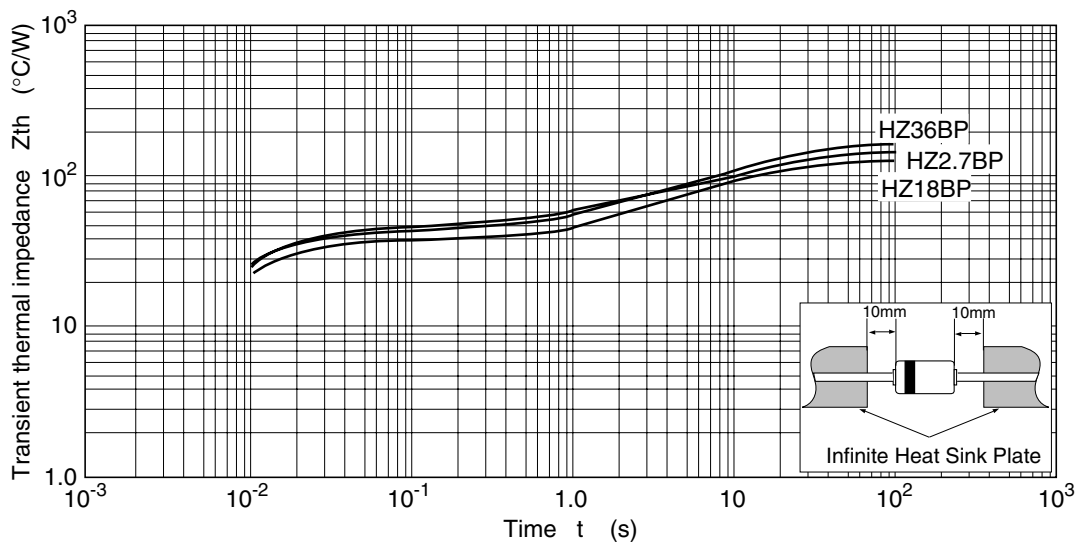
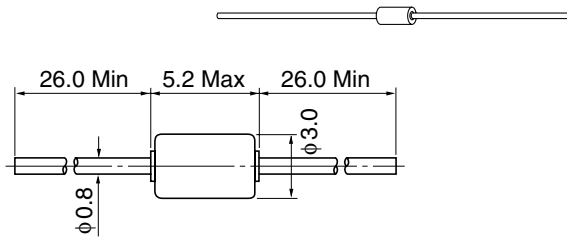


Fig.5 Transient Thermal Impedance

Package Dimensions

As of July, 2001
Unit: mm



Hitachi Code	DO-41
JEDEC	Conforms
JEITA	Conforms
Mass (reference value)	0.38 g

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