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

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HZC Series

Silicon Epitaxial Planar Zener Diode for Surge Absorb



ADE-208-1436A (Z)

Rev.1
Jan. 2002

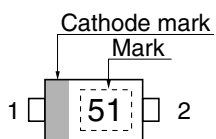
Features

- These diodes are delivered taped.
- Ultra small Flat Package (UFP) is suitable for surface mount design.

Ordering Information

Type No.	Laser Mark	Package Code
HZC Series	Let to Mark Code	UFP

Pin Arrangement



1. Cathode
2. Anode

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Power dissipation	Pd * ¹	150	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. See Fig2.

Electrical Characteristics

(Ta = 25°C)

Type	Zener voltage		Reverse current		Dynamic resistance		ESD-Capability * ²	
	V _z (V) * ¹		I _R (μA)		r _d (Ω)		— (kV) * ²	
	Min	Max	I _z (mA)	Max	V _R (V)	Max	I _z (mA)	Min
HZC2.0	1.90	2.20	5	120.0	0.5	100	5	30
HZC2.2	2.10	2.40	5	120.0	0.7	100	5	30
HZC2.4	2.30	2.60	5	120.0	1.0	100	5	30
HZC2.7	2.50	2.90	5	120.0	1.0	110	5	30
HZC3.0	2.80	3.20	5	50.0	1.0	120	5	30
HZC3.3	3.10	3.50	5	20.0	1.0	130	5	30
HZC3.6	3.40	3.80	5	10.0	1.0	130	5	30
HZC3.9	3.70	4.10	5	10.0	1.0	130	5	30
HZC4.3	4.01	4.48	5	10.0	1.0	130	5	30
HZC4.7	4.42	4.90	5	10.0	1.0	130	5	30
HZC5.1	4.84	5.37	5	5.0	1.5	130	5	30
HZC5.6	5.31	5.92	5	5.0	2.5	80	5	30
HZC6.2	5.86	6.53	5	2.0	3.0	50	5	30
HZC6.8	6.47	7.14	5	1.0	3.5	30	5	30
HZC7.5	7.06	7.84	5	1.0	4.0	30	5	30
HZC8.2	7.76	8.64	5	0.5	5.0	30	5	30
HZC9.1	8.56	9.55	5	0.5	6.0	30	5	30
HZC10	9.45	10.55	5	0.5	7.0	30	5	30
HZC11	10.44	11.56	5	0.5	8.0	30	5	30

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

2. C =150 pF, R = 330 Ω, Both forward and reverse direction 10 pulse
Failure criterion ; According to IR spec

Type	Zener voltage		Reverse current		Dynamic resistance		ESD-Capability * ²	
	V_z (V) * ¹		Test Condition	I_R (μA)	Test Condition	r_d (Ω)	Test Condition	— (kV) * ²
	Min	Max	I_z (mA)	Max	V_R (V)	Max	I_z (mA)	Min
HZC12	11.42	12.60	5	0.5	9.0	35	5	30
HZC13	12.47	13.96	5	0.5	10.0	35	5	30
HZC15	13.84	15.52	5	0.5	11.0	40	5	30
HZC16	15.37	17.09	5	0.5	12.0	40	5	30
HZC18	16.94	19.03	5	0.5	13.0	45	5	30
HZC20	18.86	21.08	5	0.5	15.0	50	5	30
HZC22	20.88	23.17	5	0.5	17.0	55	5	30
HZC24	22.93	25.57	5	0.5	19.0	60	5	30
HZC27	25.10	28.90	2	0.5	21.0	70	2	30
HZC30	28.00	32.00	2	0.5	23.0	80	2	30
HZC33	31.00	35.00	2	0.5	25.0	80	2	25
HZC36	34.00	38.00	2	0.5	27.0	90	2	20

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

2. C =150 pF, R = 330 Ω, Both forward and reverse direction 10 pulse
Failure criterion ; According to IR spec

Mark Code

Type	Mark No.	Type	Mark No.	Type	Mark No.
HZC2.0	20	HZC5.6	56	HZC15	15 *
HZC2.2	22	HZC6.2	62	HZC16	16 *
HZC2.4	24	HZC6.8	68	HZC18	18 *
HZC2.7	27	HZC7.5	75	HZC20	20 *
HZC3.0	30	HZC8.2	82	HZC22	22 *
HZC3.3	33	HZC9.1	91	HZC24	24 *
HZC3.6	36	HZC10	10 *	HZC27	27 *
HZC3.9	39	HZC11	11 *	HZC30	30 *
HZC4.3	43	HZC12	12 *	HZC33	33 *
HZC4.7	47	HZC13	13 *	HZC36	36 *
HZC5.1	51				

Note: 1. HZC10 To HZC36 has , on the right of Laser Mark.

Main Characteristic

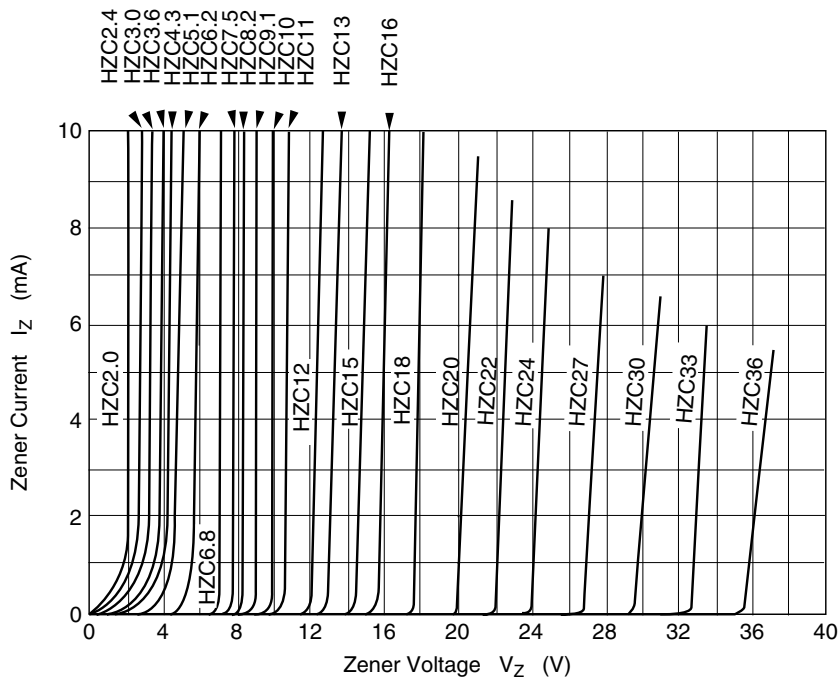


Fig.1 Zener current vs. Zener voltage

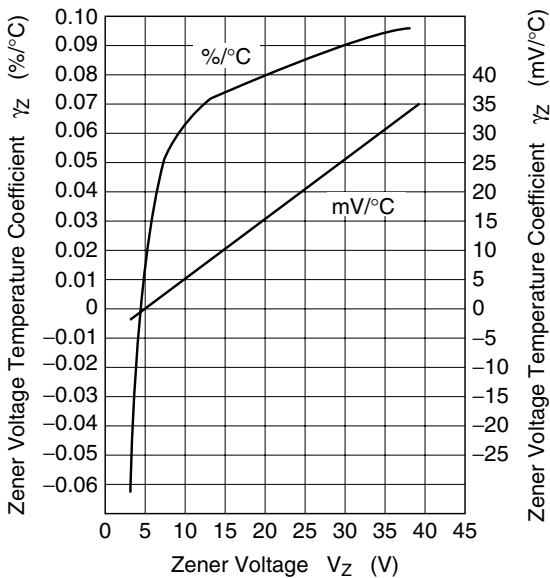


Fig.2 Temperature Coefficient vs. Zener voltage

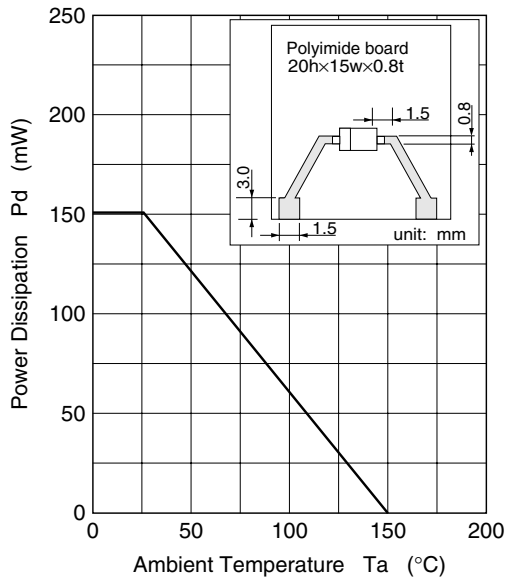
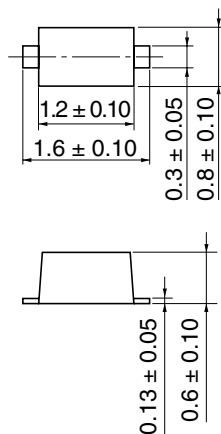


Fig.2 Power Dissipation vs. Ambient Temperature

Package Dimensions

As of July, 2001
Unit: mm



Hitachi Code	UFP
JEDEC	—
JEITA	Conforms
Mass (reference value)	0.0016 g

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