

# HZF Series

Silicon Epitaxial Planar Zener Diodes  
for Voltage Controller & Voltage Limiter

# HITACHI

ADE-208-129B(Z)

Rev 2

Jul. 1997

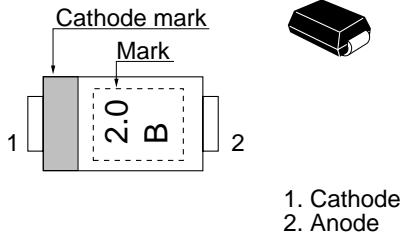
## Features

- Wide spectrum from 1.88V through 40V of zener voltage provide flexible application.
- LRP package is suitable for high density surface mounting and high speed assembly.

## Ordering Information

Type No.	Mark	Package Code
HZF Series	Let to Mark Code	LRP

## Outline



# HZF Series

## Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Value	Unit
Power dissipation	Pd	0.9	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

## Electrical Characteristics (Ta = 25°C)

Type	Grade	Zener Voltage		Reverse Current		Dynamic Resistance		
		V <sub>Z</sub> (V)*1		Test Condition	I <sub>R</sub> (mA)	Test Condition	r <sub>d</sub> (W)	Test Condition
		Min	Max	I <sub>Z</sub> (mA)	Max	V <sub>R</sub> (V)	Max	I <sub>Z</sub> (mA)
HZF2.0	BP	1.88	2.12	40	200	0.5	25	40
	CP	2.00	2.24					
HZF2.2	BP	2.08	2.33	40	200	0.7	20	40
	CP	2.20	2.45					
HZF2.4	BP	2.28	2.56	40	200	1.0	15	40
	CP	2.40	2.70					
HZF2.7	BP	2.5	2.9	40	200	1.0	15	40
	CP	2.7	3.1					
HZF3.0	BP	2.8	3.2	40	100	1.0	15	40
	CP	3.0	3.4					
HZF3.3	BP	3.1	3.5	40	80	1.0	15	40
	CP	3.3	3.7					
HZF3.6	BP	3.4	3.8	40	60	1.0	15	40
	CP	3.6	4.0					
HZF3.9	BP	3.7	4.1	40	40	1.0	15	40
	CP	3.9	4.4					
HZF4.3	BP	4.0	4.5	40	20	1.0	15	40
	CP	4.3	4.8					
HZF4.7	BP	4.4	4.9	40	20	1.0	10	40
	CP	4.7	5.2					
HZF5.1	BP	4.8	5.4	40	20	1.0	8	40
	CP	5.1	5.7					

Note: 1. Tested with DC.

Type	Grade	Zener Voltage		Reverse Current		Dynamic Resistance		
		$V_Z$ (V)*1		Test Condition	$I_R$ (mA)	Test Condition	$r_d$ (W)	Test Condition
		Min	Max	$I_Z$ (mA)	Max	$V_R$ (V)	Max	$I_Z$ (mA)
HZF5.6	BP	5.3	6.0	40	20	1.5	8	40
	CP	5.6	6.3					
HZF6.2	BP	5.8	6.6	40	20	3.0	6	40
	CP	6.2	7.0					
HZF6.8	BP	6.4	7.2	40	20	3.5	6	40
	CP	6.8	7.7					
HZF7.5	BP	7.0	7.9	40	20	4.0	4	40
	CP	7.5	8.4					
HZF8.2	BP	7.7	8.7	40	20	5.0	4	40
	CP	8.2	9.3					
HZF9.1	BP	8.5	9.6	40	20	6.0	6	40
	CP	9.1	10.2					
HZF10	BP	9.4	10.6	40	10	7.0	6	40
	CP	10.0	11.2					
HZF11	BP	10.4	11.6	20	10	8.0	8	20
	CP	11.0	12.3					
HZF12	BP	11.4	12.6	20	10	9.0	8	20
	CP	12.0	13.5					
HZF13	BP	12.4	14.1	20	10	10.0	10	20
	CP	13.3	15.0					
HZF15	BP	13.8	15.6	20	10	11.0	10	20
	CP	14.7	16.5					
HZF16	BP	15.3	17.1	20	10	12.0	12	20
	CP	16.2	18.3					
HZF18	BP	16.8	19.1	20	10	13.0	12	20
	CP	18.0	20.3					
HZF20	BP	18.8	21.2	20	10	15.0	14	20
	CP	20.0	22.4					
HZF22	BP	20.8	23.3	10	10	17.0	14	10
	CP	22.0	24.5					
HZF24	BP	22.8	25.6	10	10	19.0	16	10
	CP	24.0	27.6					

Note: 1. Tested with DC.

# HZF Series

Type	Grade	Zener Voltage		Reverse Current		Dynamic Resistance		
		$V_z$ (V)*1		Test Condition	$I_R$ (mA)	Test Condition	$r_d$ (W)	Test Condition
		Min	Max	$I_z$ (mA)	Max	$V_R$ (V)	Max	$I_z$ (mA)
HZF27	BP	25.1	28.9	10	10	21.0	16	10
	CP	27.0	30.8					
HZF30	BP	28.0	32.0	10	10	23.0	18	10
	CP	30.0	34.0					
HZF33	BP	31.0	35.0	10	10	25.0	18	10
	CP	33.0	37.0					
HZF36	BP	34.0	38.0	10	10	27.0	20	10
	CP	36.0	40.0					

Note: 1. Tested with DC.

Note: 2. Type No. is as follows; HZF2.0BP, HZF2.0CP, ●●● HZF36BP, HZF36CP.

**Mark Code**

<b>Type</b>	<b>Grade</b>	<b>Mark No.</b>	<b>Type</b>	<b>Grade</b>	<b>Mark No.</b>	<b>Type</b>	<b>Grade</b>	<b>Mark No.</b>
HZF2.0	BP	2.0 B	HZF7.5	BP	7.5 B	HZF30	BP	3 0 B
	CP	2.0 C		CP	7.5 C		CP	3 0 C
HZF2.2	BP	2.2 B	HZF8.2	BP	8.2 B	HZF33	BP	3 3 B
	CP	2.2 C		CP	8.2 C		CP	3 3 C
HZF2.4	BP	2.4 B	HZF9.1	BP	9.1 B	HZF36	BP	3 6 B
	CP	2.4 C		CP	9.1 C		CP	3 6 C
HZF2.7	BP	2.7 B	HZF10	BP	1 0 B			
	CP	2.7 C		CP	1 0 C			
HZF3.0	BP	3.0 B	HZF11	BP	1 1 B			
	CP	3.0 C		CP	1 1 C			
HZF3.3	BP	3.3 B	HZF12	BP	1 2 B			
	CP	3.3 C		CP	1 2 C			
HZF3.6	BP	3.6 B	HZF13	BP	1 3 B			
	CP	3.6 C		CP	1 3 C			
HZF3.9	BP	3.9 B	HZF15	BP	1 5 B			
	CP	3.9 C		CP	1 5 C			
HZF4.3	BP	4.3 B	HZF16	BP	1 6 B			
	CP	4.3 C		CP	1 6 C			
HZF4.7	BP	4.7 B	HZF18	BP	1 8 B			
	CP	4.7 C		CP	1 8 C			
HZF5.1	BP	5.1 B	HZF20	BP	2 0 B			
	CP	5.1 C		CP	2 0 C			
HZF5.6	BP	5.6 B	HZF22	BP	2 2 B			
	CP	5.6 C		CP	2 2 C			
HZF6.2	BP	6.2 B	HZF24	BP	2 4 B			
	CP	6.2 C		CP	2 4 C			
HZF6.8	BP	6.8 B	HZF27	BP	2 7 B			
	CP	6.8 C		CP	2 7 C			

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## Main Characteristic

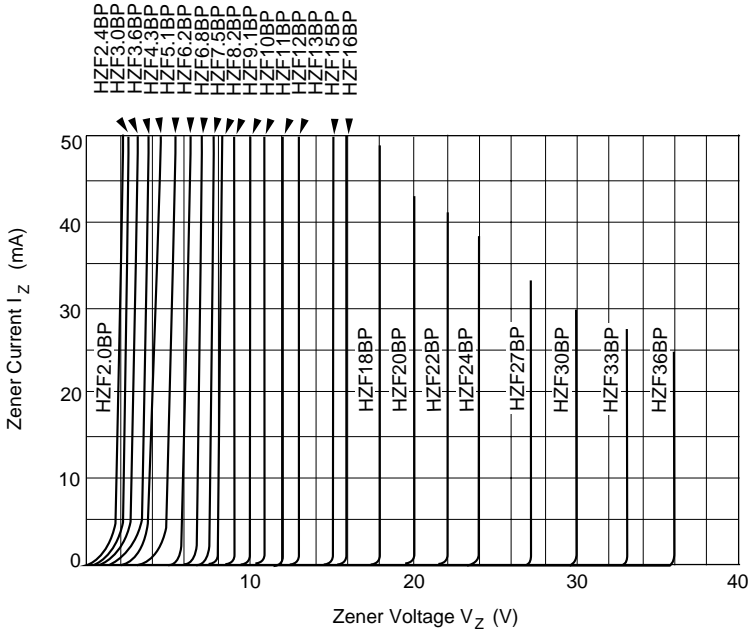


Fig.1 Zener current Vs. Zener voltage

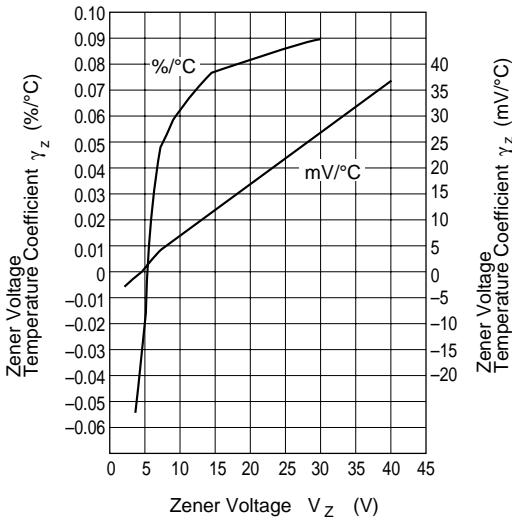


Fig.2 Temperature Coefficient Vs. Zener voltage

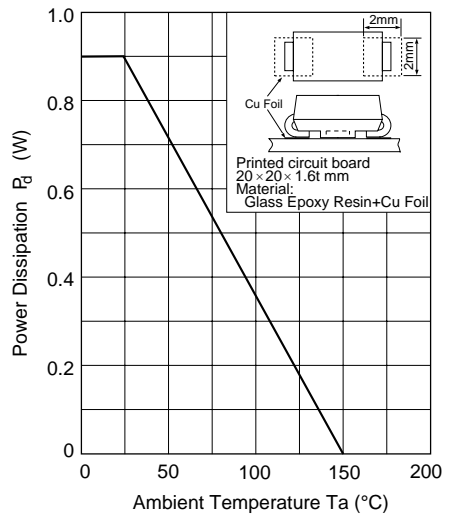


Fig.3 Power Dissipation Vs. Ambient Temperature

Main Characteristic

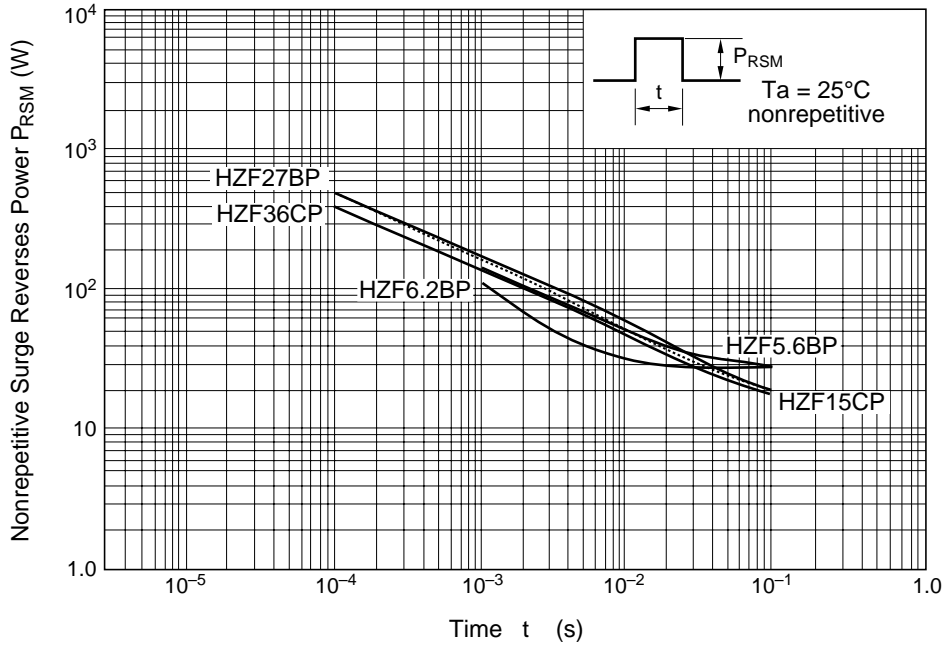


Fig.4 Surge Reverse Power Ratings (Reference only)

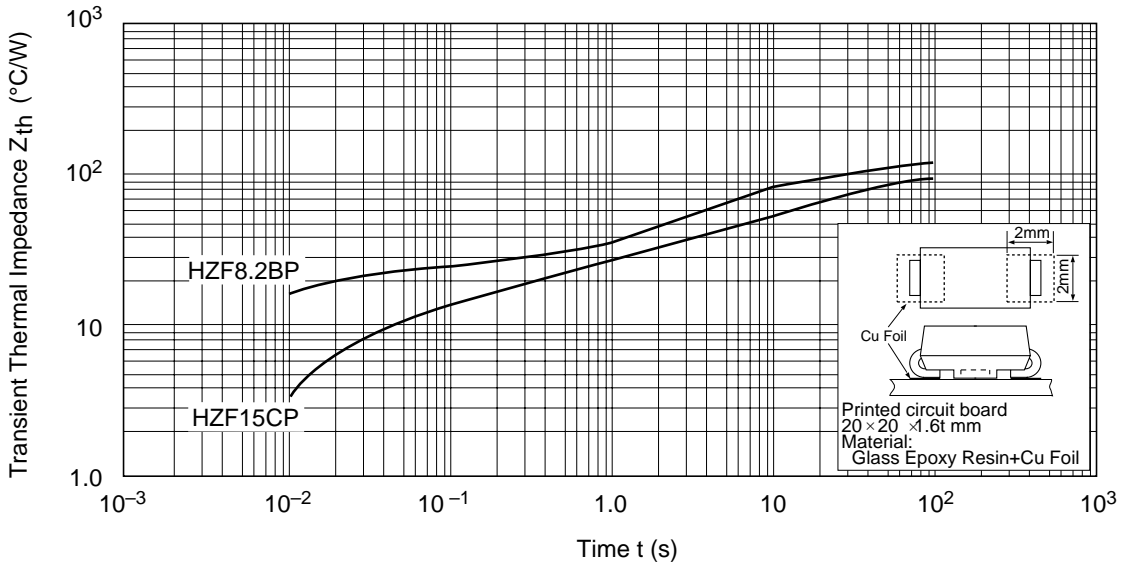
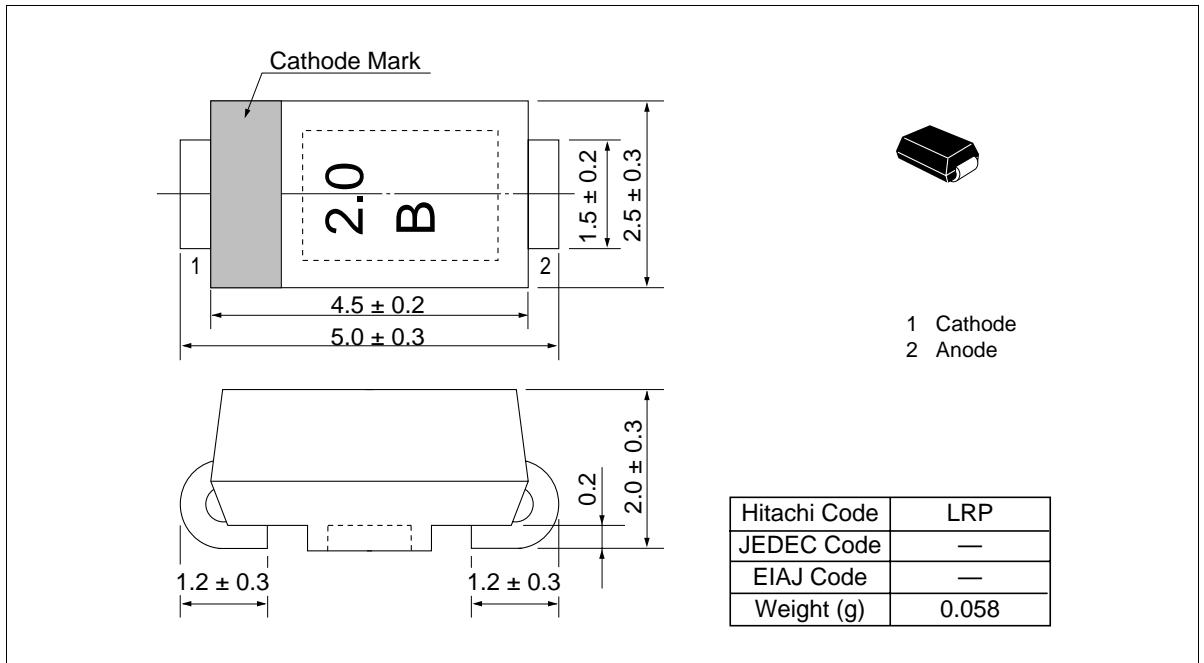


Fig.5 Transient Thermal Impedance (Reference only)

# HZF Series

## Package Dimensions

Unit : mm



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