0.5W Zener Diode - 1N52*B series

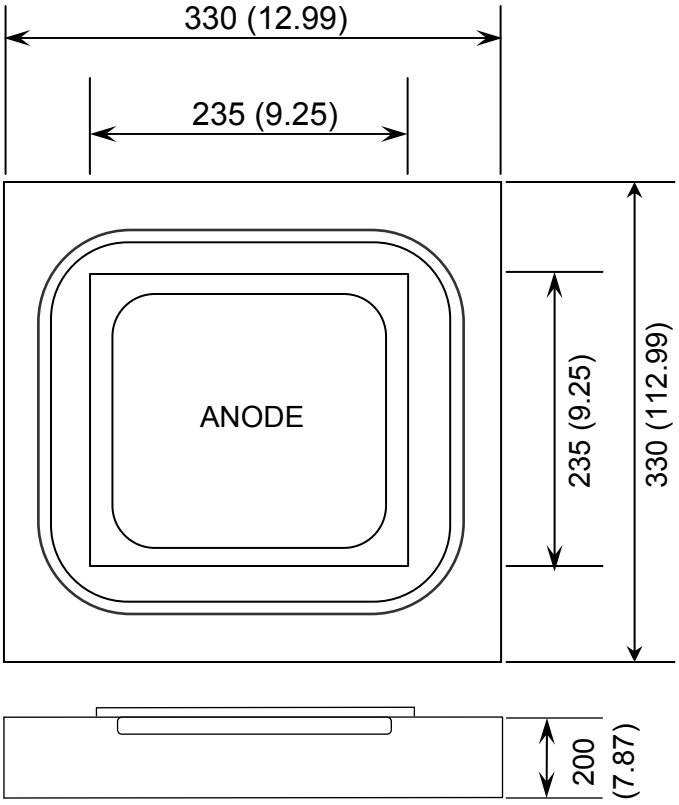
Rev 1.1
05/04/19

Silicon Planar Zener diode in bare die form – 5% tolerance

Features:

- Sharp Reverse Characteristics
- Low Reverse Current Levels
- High Reliability Gold Back Metal
- High Reliability tested grades.

Die Dimensions in µm (mils)



CHIP BACKSIDE IS CATHODE

Ordering Information

The following part suffixes apply:

- No suffix - Commercial grade die
- "**H**"– Hi-rel grade die + MIL-STD-38534 Class H LAT
- "**K**" – Hi-rel grade die + MIL-STD-38534 Class K LAT.

LAT = Lot acceptance Test.

For information on Hi-Rel LAT flows please see below.

www.siliconsupplies.com\bare-die-lot-qualification

Supply Formats:

- Default – Die in Waffle Pack (400 per tray capacity)
- Sawn Wafer on Tape – By specific request
- Unsawn Wafer – By specific request
- With additional electrical selection – By specific request

Mechanical Specification

Die Size (Unsawn)	330 x 330 12.99 x 12.99	µm mils
Anode Pad Size	235 x 235 9.25 x 9.25	µm mils
Die Thickness	200 7.87	µm mils
Top Metal Composition	Al	
Back Metal Composition	AuAs	

0.5W Zener Diode - 1N52*B series

Rev 1.1
05/04/19

Absolute Maximum Ratings T_A = 25°C unless otherwise stated

PARAMETER	SYMBOL	VALUE	UNIT
Power Dissipation	P_{TOT}	500	mW
Junction Temperature	T_J	175	°C
Storage Temperature Range	T_S	-65 to +200	°C
Forward Voltage @ I_F = 200mA	V_F	1.5	V

Electrical Characteristics T_A = 25°C unless otherwise stated

DEVICE	ZENER VOLTAGE RANGE			TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE		TEMP. COEFFICIENT
	V_Z @ I_{ZT1}			I_{ZT2}	I_{ZT2}	I_R @ V_R		Z_Z @ I_{ZT1}	Z_{ZK} @ I_{ZT2}	α V_Z
						T_A = 25°C		f = 1 kHz		
	V			mA		µA	V	Ω		%/K
	Min.	Nom.	Max.			Max.		Max.	Max.	Typ.
1N5221B	2.28	2.4	2.52	20	0.25	100	1	30	1200	-0.085
1N5222B	2.38	2.5	2.63	20	0.25	100	1	30	1250	-0.085
1N5223B	2.57	2.7	2.84	20	0.25	75	1	30	1300	-0.08
1N5224B	2.66	2.8	2.94	20	0.25	75	1	30	1400	-0.08
1N5225B	2.85	3	3.15	20	0.25	50	1	29	1600	-0.075
1N5226B	3.14	3.3	3.47	20	0.25	25	1	28	1600	-0.07
1N5227B	3.42	3.6	3.78	20	0.25	15	1	24	1700	-0.065
1N5228B	3.71	3.9	4.10	20	0.25	10	1	23	1900	-0.06
1N5229B	4.09	4.3	4.52	20	0.25	5	1	22	2000	0.055
1N5230B	4.47	4.7	4.94	20	0.25	5	1	19	1900	0.03
1N5231B	4.85	5.1	5.36	20	0.25	5	2	17	1600	0.03
1N5232B	5.32	5.6	5.88	20	0.25	5	3	11	1600	0.038
1N5233B	5.70	6	6.30	20	0.25	5	3.5	7	1600	0.038
1N5234B	5.89	6.2	6.51	20	0.25	5	4.0	7	1000	0.045
1N5235B	6.46	6.8	7.14	20	0.25	3	5.0	5	750	0.05
1N5236B	7.13	7.5	7.88	20	0.25	3	6.0	6	500	0.058
1N5237B	7.79	8.2	8.61	20	0.25	3	6.5	8	500	0.062
1N5238B	8.27	8.7	9.14	20	0.25	3	6.5	8	600	0.065
1N5239B	8.65	9.1	9.56	20	0.25	3	7.0	10	600	0.068
1N5240B	9.50	10	10.50	20	0.25	3	8.0	17	600	0.075
1N5241B	10.45	11	11.55	20	0.25	2	8.4	22	600	0.076
1N5242B	11.40	12	12.60	20	0.25	0.1	9.1	30	600	0.077
1N5243B	12.35	13	13.65	9.5	0.25	0.1	9.9	13	600	0.079
1N5244B	13.30	14	14.70	9.0	0.25	0.1	10	15	600	0.082

0.5W Zener Diode - 1N52*B series

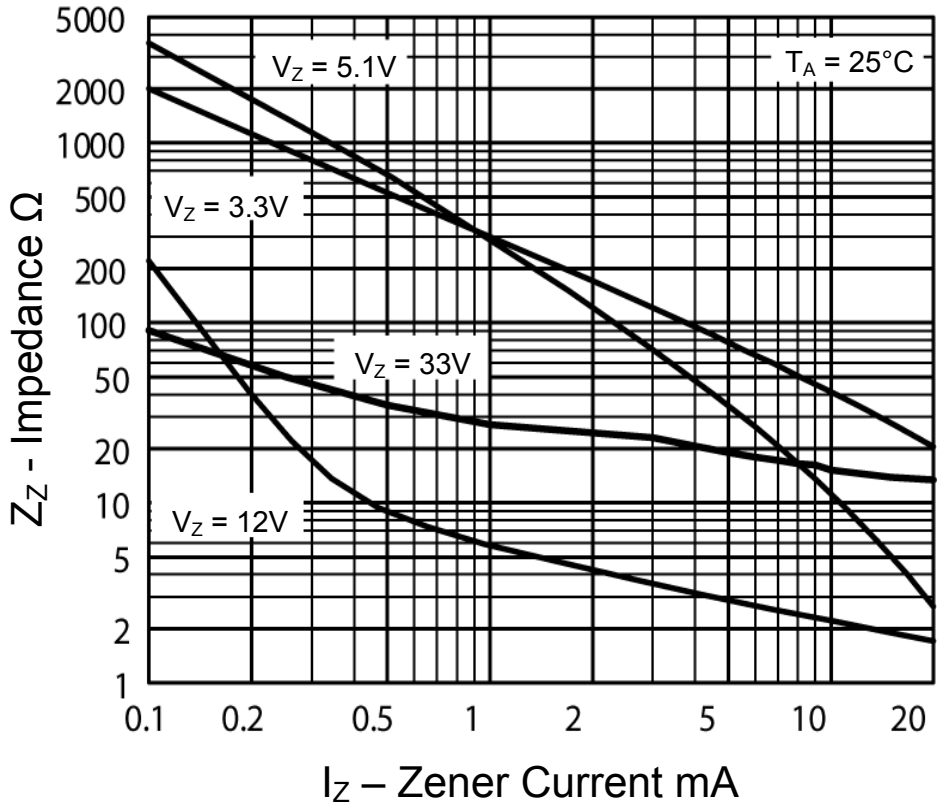
Rev 1.1
05/04/19

Electrical Characteristics T_A = 25°C unless otherwise stated

DEVICE	ZENER VOLTAGE RANGE			TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE		TEMP. COEFFICIENT
	V_Z @ I_{ZT1}			I_{ZT2}	I_{ZT2}	I_R @ V_R		Z_Z @ I_{ZT1}	Z_{ZK} @ I_{ZT2}	α V_Z
						T_A = 25°C		f = 1 kHz		
	V			mA		µA	V	Ω		%/K
	Min.	Nom.	Max.			Max.		Max.	Max.	Typ.
1N5245B	14.25	15	15.75	8.5	0.25	0.1	11	19	600	0.082
1N5246B	15.20	16	16.80	7.8	0.25	0.1	12	21	600	0.083
1N5247B	16.15	17	17.85	7.4	0.25	0.1	13	23	600	0.084
1N5248B	17.1	18	18.90	7	0.25	0.1	14	25	600	0.085
1N5249B	18.05	19	19.95	6.6	0.25	0.1	14	29	600	0.086
1N5250B	19	20	21.00	6.2	0.25	0.1	15	33	600	0.086
1N5251B	20.9	22	23.10	5.6	0.25	0.1	17	35	600	0.087
1N5252B	22.8	24	25.20	5.2	0.25	0.1	18	41	600	0.088
1N5253B	23.75	25	26.25	5	0.25	0.1	19	44	600	0.089
1N5254B	25.65	27	28.35	4.6	0.25	0.1	21	49	600	0.09
1N5255B	26.6	28	29.40	4.5	0.25	0.1	21	58	600	0.091
1N5256B	28.5	30	31.50	4.2	0.25	0.1	23	70	600	0.091
1N5257B	31.35	33	34.65	3.8	0.25	0.1	25	80	700	0.092
1N5258B	34.2	36	37.80	3.4	0.25	0.1	27	93	700	0.093
1N5259B	37.05	39	40.95	3.2	0.25	0.1	30	105	800	0.094
1N5260B	40.85	43	45.15	3	0.25	0.1	33	125	900	0.095
1N5261B	44.65	47	49.35	2.7	0.25	0.1	36	150	1000	0.095
1N5262B	48.45	51	53.55	2.5	0.25	0.1	39	170	1100	0.096
1N5263B	53.2	56	58.80	2.2	0.25	0.1	43	185	1300	0.096
1N5264B	57	60	63.00	2.1	0.25	0.1	46	230	1400	0.097
1N5265B	58.9	62	65.10	2	0.25	0.1	47	270	1400	0.097
1N5266B	64.6	68	71.40	1.8	0.25	0.1	52	330	1600	0.097
1N5267B	71.25	75	78.75	1.7	0.25	0.1	56	370	1700	0.098

1. Operation above the absolute maximum rating may cause device failure. Operation at the absolute maximum ratings, for extended periods, may reduce device reliability.

2. Assembled in DO-35 package. Performance in die form subject to assembly heat sinking and die attach methods.



Zener Impedance Versus Operating Current - Z_Z Versus I_Z