



0.5W Zener Diode - 1N52*D series

Silicon Planar Zener Diode in bare die form – 1% tolerance, “D” grade

Rev 1.0
05/04/19

Features:

- Tight tolerance reverse breakdown voltage
- Sharp reverse characteristics
- Low reverse current levels
- Small form factor
- High reliability gold back metal

Ordering Information

The following part suffixes apply:

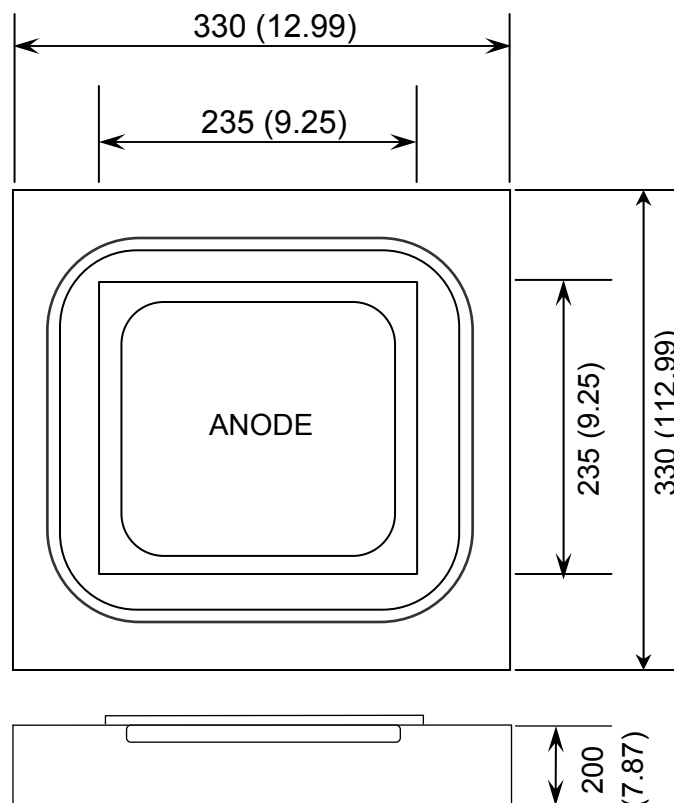
- No suffix - Commercial grade die
- “H” – Hi-rel grade die + MIL-STD-38534 Class H LAT
- “K” – Hi-rel grade die + MIL-STD-38534 Class K LAT.

LAT = Lot acceptance Test.

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

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

Die Dimensions in μm (mils)



CHIP BACKSIDE IS CATHODE

Supply Formats:

- Default – Die in Waffle Pack (400 per tray capacity)
- Sawn Wafer on Tape – By specific request
- Un-sawn Wafer – By specific request
- Lower precision V_Z tolerances:
5% - B grade, 2% - C grade

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*D series

Rev 1.0

05/04/19

Absolute Maximum Ratings¹ $T_A = 25^\circ\text{C}$ unless otherwise stated

PARAMETER	SYMBOL	VALUE	UNIT
Power Dissipation ²	P_{TOT}	500	mW
Junction Temperature	T_J	175	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65 to +200	$^\circ\text{C}$
Forward Voltage @ $I_F = 200\text{mA}$	V_F	1.2	V

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise stated

DEVICE	ZENER VOLTAGE RANGE			TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE	
	$V_Z @ I_{ZT1}$			I_{ZT1}	I_{ZT2}	$I_R @ V_R$		$Z_Z @ I_{ZT1}$	$Z_{ZK} @ I_{ZT2}$
	V			mA		$T_A = 25^\circ\text{C}$		$f = 1 \text{ kHz}$	
	Min.	Nom.	Max.			$\mu\text{A Max.}$	V	Max.	Max.
								Ω	
1N5221D	2.376	2.4	2.424	20	0.25	100	1.0	30	1200
1N5222D	2.475	2.5	2.525	20	0.25	100	1.0	30	1250
1N5223D	2.673	2.7	2.727	20	0.25	75	1.0	30	1300
1N5224D	2.772	2.8	2.828	20	0.25	75	1.0	30	1400
1N5225D	2.970	3	3.030	20	0.25	50	1.0	29	1600
1N5226D	3.267	3.3	3.333	20	0.25	25	1.0	28	1600
1N5227D	3.564	3.6	3.636	20	0.25	15	1.0	24	1700
1N5228D	3.861	3.9	3.939	20	0.25	10	1	23	1900
1N5229D	4.257	4.3	4.343	20	0.25	5	1	22	2000
1N5230D	4.653	4.7	4.747	20	0.25	5	1	19	1900
1N5231D	5.049	5.1	5.151	20	0.25	5	2	17	1600
1N5232D	5.544	5.6	5.656	20	0.25	5	3	11	1600
1N5233D	5.940	6	6.060	20	0.25	5	3.5	7	1600
1N5234D	6.138	6.2	6.262	20	0.25	5	4.0	7	1000
1N5235D	6.732	6.8	6.868	20	0.25	3	5.0	5	750
1N5236D	7.425	7.5	7.575	20	0.25	3	6.0	6	500
1N5237D	8.118	8.2	8.282	20	0.25	3	6.5	8	500
1N5238D	8.613	8.7	8.787	20	0.25	3	6.5	8	600
1N5239D	9.009	9.1	9.191	20	0.25	3	7.0	10	600
1N5240D	9.90	10	10.10	20	0.25	3	8.0	17	600
1N5241D	10.89	11	11.11	20	0.25	2	8.4	22	600
1N5242D	11.88	12	12.12	20	0.25	0.1	9.1	30	600
1N5243D	12.87	13	13.13	9.5	0.25	0.1	9.9	13	600
1N5244D	13.86	14	14.14	9.0	0.25	0.1	10	15	600





0.5W Zener Diode - 1N52*D series

Rev 1.0

05/04/19

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise stated

DEVICE	ZENER VOLTAGE RANGE			TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE	
	$V_Z @ I_{ZT1}$			I_{ZT1}	I_{ZT2}	$I_R @ V_R$		$Z_Z @ I_{ZT1}$	$Z_{ZK} @ I_{ZT2}$
	V			mA		$T_A = 25^\circ\text{C}$		$f = 1 \text{ kHz}$	
	Min.	Nom.	Max.			$\mu\text{A Max.}$	V	Max.	Max.
1N5245D	14.85	15	15.15	8.5	0.25	0.1	11	19	600
1N5246D	15.84	16	16.16	7.8	0.25	0.1	12	21	600
1N5247D	16.83	17	17.17	7.4	0.25	0.1	13	23	600
1N5248D	17.82	18	18.18	7	0.25	0.1	14	25	600
1N5249D	18.81	19	19.19	6.6	0.25	0.1	14	29	600
1N5250D	19.80	20	20.20	6.2	0.25	0.1	15	33	600
1N5251D	21.78	22	22.22	5.6	0.25	0.1	17	35	600
1N5252D	23.76	24	24.24	5.2	0.25	0.1	18	41	600
1N5253D	24.75	25	25.25	5	0.25	0.1	19	44	600
1N5254D	26.73	27	27.27	4.6	0.25	0.1	21	49	600
1N5255D	27.72	28	28.28	4.5	0.25	0.1	21	58	600
1N5256D	29.70	30	30.30	4.2	0.25	0.1	23	70	600
1N5257D	32.67	33	33.33	3.8	0.25	0.1	25	80	700
1N5258D	35.64	36	36.36	3.4	0.25	0.1	27	93	700
1N5259D	38.61	39	39.39	3.2	0.25	0.1	30	105	800
1N5260D	42.57	43	43.43	3	0.25	0.1	33	125	900
1N5261D	46.53	47	47.47	2.7	0.25	0.1	36	150	1000
1N5262D	50.49	51	51.51	2.5	0.25	0.1	39	170	1100
1N5263D	55.44	56	56.56	2.2	0.25	0.1	43	185	1300
1N5264D	59.40	60	60.60	2.1	0.25	0.1	46	230	1400
1N5265D	61.38	62	62.62	2	0.25	0.1	47	270	1400
1N5266D	67.32	68	68.68	1.8	0.25	0.1	52	330	1600
1N5267D	74.25	75	75.75	1.7	0.25	0.1	56	370	1700

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

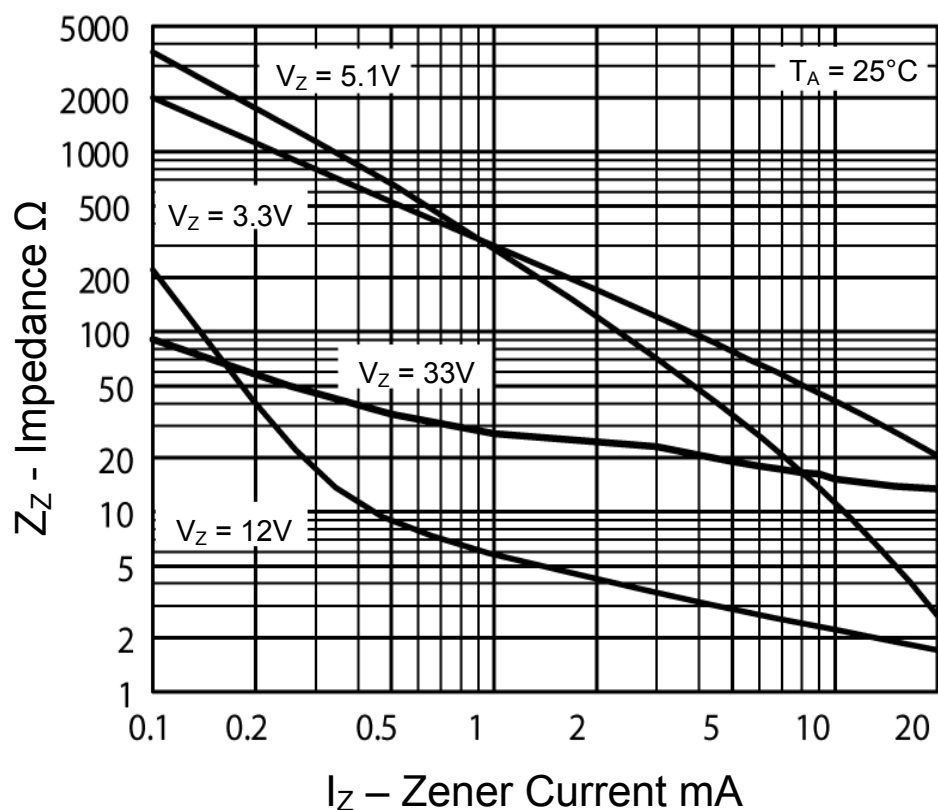
2. Assembled in DO-35 package. Performance in die form subject to assembly heat sinking and die attach methods.





0.5W Zener Diode - 1N52*D series

Rev 1.0
05/04/19



Zener Impedance Versus Operating Current - Z_Z Versus I_Z

DISCLAIMER: The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Silicon Supplies Ltd hereby disclaims any and all warranties and liabilities of any kind.

LIFE SUPPORT POLICY: Silicon Supplies Ltd components may be used in life support devices or systems only with the express written approval of Silicon Supplies Ltd, if a failure of such components can reasonably be expected to cause the failure of that life support device or system or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

