0.5W, 50µA I_{ZT} , Bare Die Zener Diode

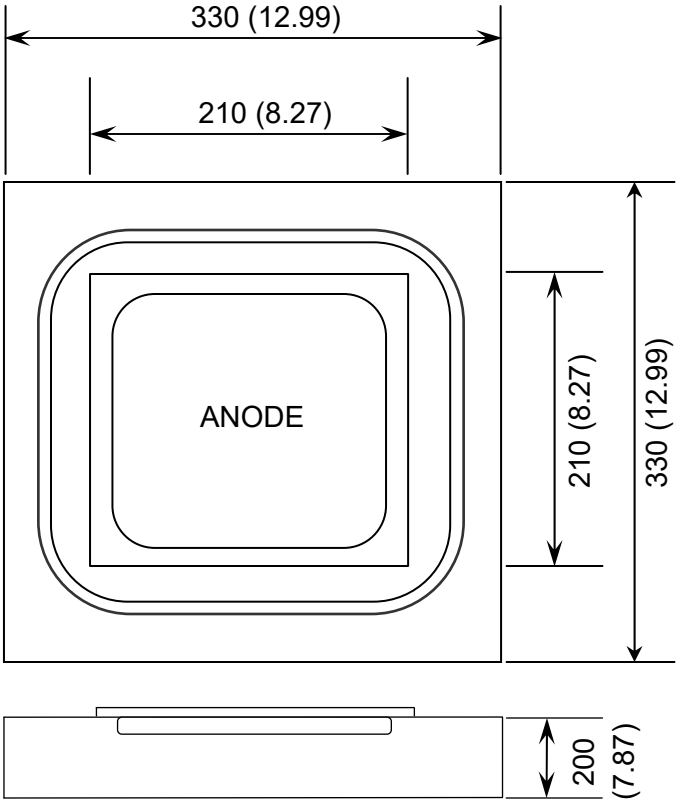
Rev 1.0
27/1/21

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 - MIL-STD-750 /2073 Visual Inspection
- "**H**" - MIL-STD-750 /2073 Visual Inspection
  + MIL-PRF-38534 Class H LAT
- "**K**" - MIL-STD-750 /2073 Visual Inspection
  + MIL-PRF-38534 Class K LAT

LAT = Lot Acceptance Test.

For further information on LAT process flows see below.

www.siliconsupplies.com\quality\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
- Tighter V_Z tolerances:

  2% - B grade, 1% - A grade – Specific request

Mechanical Specification

Die Size (Unsawn)	330 x 330 12.99 x 12.99	µm mils
Anode Pad Size	210 x 210 8.27 x 8.27	µm mils
Die Thickness	200 7.87	µm mils
Top Metal Composition	Al	
Back Metal Composition	Au	

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Absolute Maximum Ratings[1] T_A = 25°C unless otherwise stated

PARAMETER	SYMBOL	VALUE	UNIT
Power Dissipation[2]	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		MAXIMUM VOLTAGE REGULATION[3]	MAXIMUM DC ZENER CURRENT
	V_Z @ I_{ZT}			I_{ZT}	I_R @ V_R		ΔV_Z	I_{ZM}
	V			µA	µA	V	V	mA
	Min.	Nom.	Max.					
1N4678	1.71	1.8	1.89	50	7.5	1	0.70	120.0
1N4679	1.9	2	2.1	50	5.0	1	0.70	110.0
1N4680	2.09	2.2	2.31	50	4.0	1	0.75	100.0
1N4681	2.28	2.4	2.52	50	2.0	1	0.80	95.0
1N4682	2.565	2.7	2.835	50	1.0	1	0.80	90.0
1N4683	2.85	3	3.15	50	0.8	1	0.90	85.0
1N4684	3.135	3.3	3.465	50	7.5	1.5	0.95	80.0
1N4685	3.42	3.6	3.78	50	7.5	2	0.95	75.0
1N4686	3.705	3.9	4.095	50	5.0	2	0.97	70.0
1N4687	4.085	4.3	4.515	50	4.0	2	0.99	65.0
1N4688	4.465	4.7	4.935	50	10	3	0.99	60.0
1N4689	4.845	5.1	5.355	50	10	3	0.97	55.0
1N4690	5.32	5.6	5.88	50	10	4	0.96	50.0
1N4691	5.89	6.2	6.51	50	10	5	0.95	45.0
1N4692	6.46	6.8	7.14	50	10	5.1	0.90	35.0
1N4693	7.125	7.5	7.875	50	10	5.7	0.75	31.8
1N4694	7.79	8.2	8.61	50	1.0	6.2	0.50	29.0
1N4695	8.265	8.7	9.135	50	1.0	6.6	0.10	27.4
1N4696	8.645	9.1	9.555	50	1.0	6.9	0.08	26.2
1N4697	9.5	10	10.5	50	1.0	7.6	0.10	24.8
1N4698	10.45	11	11.55	50	0.05	8.4	0.11	21.6
1N4699	11.4	12	12.6	50	0.05	9.1	0.12	20.4
1N4700	12.35	13	13.65	50	0.05	9.8	0.13	19.0

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Electrical Characteristics T_A = 25°C unless otherwise stated

DEVICE	ZENER VOLTAGE RANGE[3]			TEST CURRENT	REVERSE LEAKAGE CURRENT		MAXIMUM VOLTAGE REGULATION[4]	MAXIMUM DC ZENER CURRENT
	V_Z @ I_{ZT}			I_{ZT}	I_R @ V_R		ΔV_Z	I_{ZM}
	V			µA	µA	V	V	mA
	Min.	Nom.	Max.					
1N4701	13.3	14	14.7	50	0.05	10.6	0.14	17.5
1N4702	14.25	15	15.75	50	0.05	11.4	0.15	16.3
1N4703	15.2	16	16.8	50	0.05	12.1	0.16	15.4
1N4704	16.15	17	17.85	50	0.05	12.9	0.17	14.5
1N4705	17.1	18	18.9	50	0.05	13.6	0.18	13.2
1N4706	18.05	19	19.95	50	0.05	14.4	0.19	12.5
1N4707	19	20	21	50	0.01	15.2	0.20	11.9
1N4708	20.9	22	23.1	50	0.01	16.7	0.22	10.8
1N4709	22.8	24	25.2	50	0.01	18.2	0.24	9.9
1N4710	23.75	25	26.25	50	0.01	19.0	0.25	9.5
1N4711	25.65	27	28.35	50	0.01	20.4	0.27	8.8
1N4712	26.6	28	29.4	50	0.01	21.2	0.28	8.5
1N4713	28.5	30	31.5	50	0.01	22.8	0.30	7.9
1N4714	31.35	33	34.65	50	0.01	25.0	0.33	7.2
1N4715	34.2	36	37.8	50	0.01	27.3	0.36	6.6
1N4716	37.05	39	40.95	50	0.01	29.8	0.39	6.1
1N4717	40.85	43	45.15	50	0.01	32.6	0.43	5.5

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.
3. Zener voltage is read using a pulse measurement, 10 milliseconds maximum.
4. V_Z @ 100µA minus V_Z @ 10µA.