0.5W, 250µA I_{ZT} , Bare Die Zener Diode

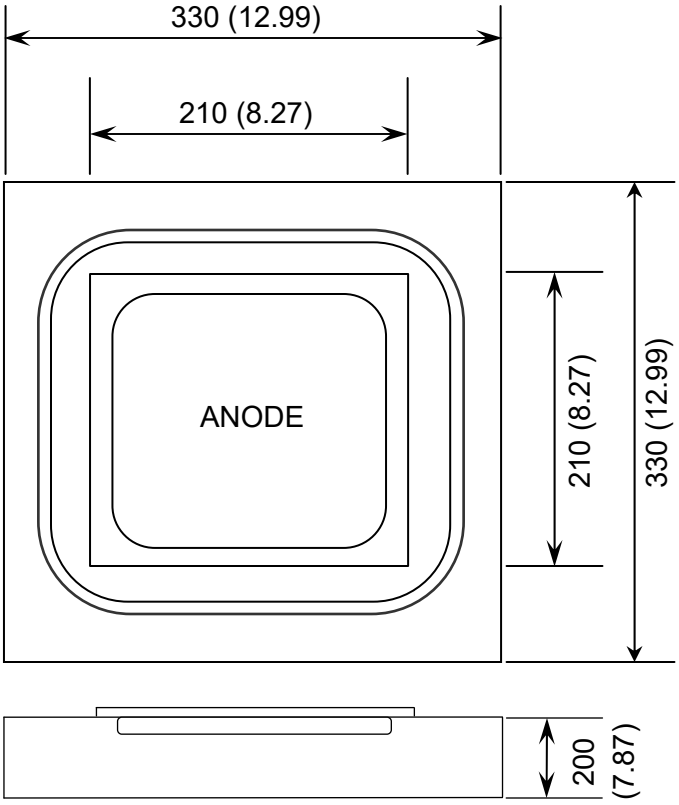
Rev 1.0
07/07/17

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		DYNAMIC RESISTANCE[3]	MAXIMUM DC ZENER CURRENT
	V_Z @ I_{ZT}			I_{ZT}	I_R @ V_R		Z_Z @ I_{ZT}	I_{ZM}
	V			µA	µA	V	Ω	mA
	Min.	Nom.	Max.					
1N4099	6.46	6.8	7.14	250	10	5.17	200	56.0
1N4100	7.13	7.5	7.88	250	10	5.70	200	51.0
1N4101	7.79	8.2	8.61	250	1	6.24	200	46.0
1N4102	8.27	8.7	9.14	250	1	6.61	200	44.0
1N4103	8.65	9.1	9.56	250	1	6.92	200	42.0
1N4104	9.50	10	10.50	250	1	7.60	200	38.0
1N4105	10.45	11	11.55	250	0.05	8.44	200	35.0
1N4106	11.40	12	12.60	250	0.05	9.12	200	32.0
1N4107	12.35	13	13.65	250	0.05	9.87	200	29.0
1N4108	13.30	14	14.70	250	0.05	10.65	200	27.0
1N4109	14.25	15	15.75	250	0.05	11.40	100	25.0
1N4110	15.20	16	16.80	250	0.05	12.15	100	24.0
1N4111	16.15	17	17.85	250	0.05	12.92	100	22.0
1N4112	17.10	18	18.90	250	0.05	13.67	100	21.0
1N4113	18.05	19	19.95	250	0.05	14.44	150	20.0
1N4114	19.00	20	21.00	250	0.01	15.20	150	19.0
1N4115	20.90	22	23.10	250	0.01	16.72	150	17.0
1N4116	22.80	24	25.20	250	0.01	18.25	150	16.0
1N4117	23.75	25	26.25	250	0.01	19.00	150	15.0
1N4118	25.65	27	28.35	250	0.01	20.46	150	14.0
1N4119	26.60	28	29.40	250	0.01	21.28	200	14.0
1N4120	28.50	30	31.50	250	0.01	22.80	200	13.0

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	V_Z @ I_{ZT}			I_{ZT}	I_R @ V_R		Z_Z @ I_{ZT}	I_{ZM}
	V			µA	µA	V	Ω	mA
	Min.	Nom.	Max.					
1N4121	31.35	33	34.65	250	0.01	25.08	200	12.0
1N4122	34.20	36	37.80	250	0.01	27.38	200	11.0
1N4123	37.05	39	40.95	250	0.01	29.65	200	9.8
1N4124	40.85	43	45.15	250	0.01	32.65	250	8.9
1N4125	44.65	47	49.35	250	0.01	35.75	250	8.1
1N4126	48.45	51	53.55	250	0.01	38.76	300	7.5
1N4127	53.20	56	58.80	250	0.01	42.6	300	6.7
1N4128	57.00	60	63.00	250	0.01	45.6	400	6.4
1N4129	58.90	62	65.10	250	0.01	47.1	500	6.1
1N4130	64.60	68	71.40	250	0.01	51.68	700	5.6
1N4131	71.25	75	78.75	250	0.01	57	700	5.1

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 impedance is derived by superimposing on I_{ZT} a 60Hz rms AC current equal to 10% of I_{ZT}.