200mW SOD-323 Zener Voltage Regulators

ZD5221AS2 thru ZD5259AS2

Description

The ZD52XXAS2 series zener diodes are packaged in a SOD-323 surface mount package that has a power dissipation of 200mW. They are designed to provide voltage regulation protection and are especially attractive in situations where space is at a premium. They are well suited for applications such as cellular phones, hand held portables, and high density PC boards.

Features

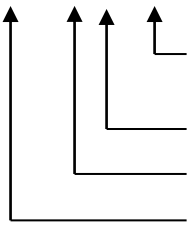
- Vz tolerance : ±2%
- Standard zener breakdown voltage range : 2.4V to 39V
- Steady state power rating of 200mW..
- Small body outline dimensions
- Low body height : 0.035 inches (0.9mm) max.

Mechanical Data

- Case : SOD-323 , molded plastic
- Terminals : Solderable per MIL-STD-750 method 2026
- Polarity : Cathode indicated by polarity band.
- Flammability rating : UL94 V-0
- Package weight : approx. 4.507 mg/unit
- Mounting position : Any

Ordering Information

Device	Package	Shipping
ZD52XXAS2-0-T1-G	SOD-323 (Pb-free lead plating and halogen-free package)	3000 pcs / tape & reel



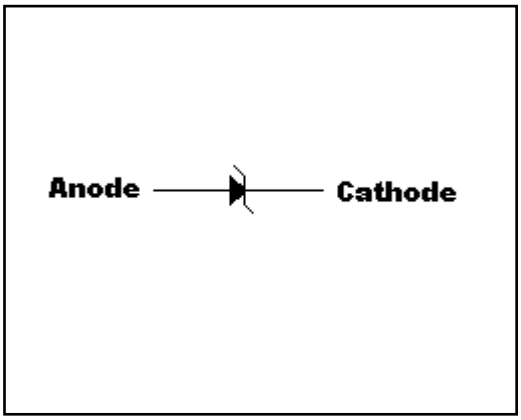
Environment friendly grade : S for RoHS compliant products, G for RoHS compliant and green compound products

Packing spec, T1 : 3000 pcs / tape & reel, 7” reel

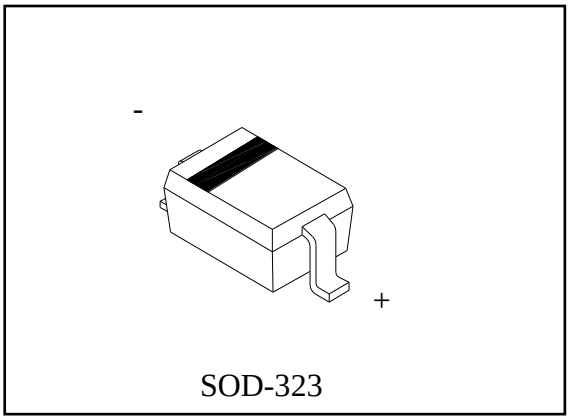
Product rank, zero for no rank products

Product name

Symbol



Outline



SOD-323

Absolute Maximum Ratings(Ta=25℃, unless otherwise specified)

- Maximum Temperatures
  Storage Temperature Tstg..... -65~+150 °C
  Junction Temperature Tj..... -65~ +150 °C
- Maximum Power Dissipation
  Total Power Dissipation Ptot (Note 1) ..... 200 mW
- Thermal Resistance, Junction to Ambient Air $R_{\theta JA}$.....625℃/W
- Thermal Resistance, Junction to Case $R_{\theta JC}$.....400℃/W

Note 1: Parts mounted on ceramic board with area of 25mm².

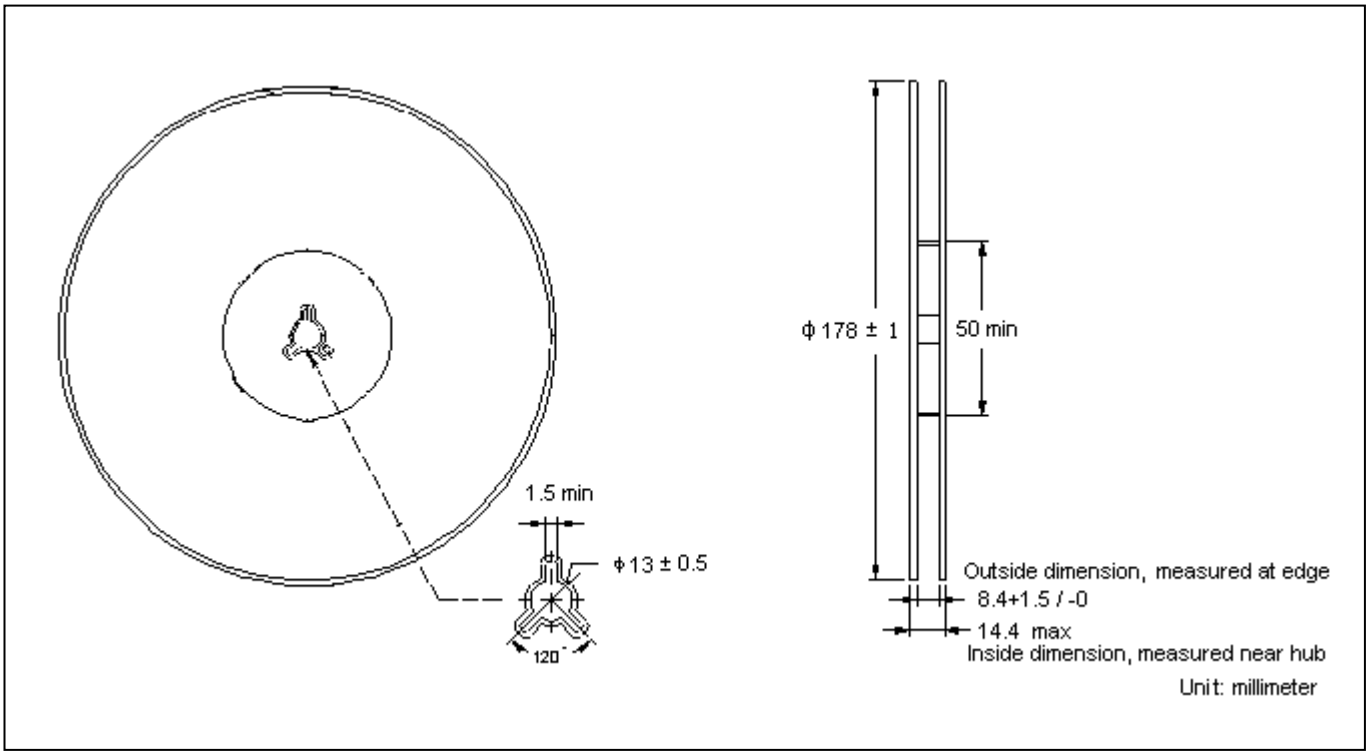
Electrical Characteristics (T_A=25℃ unless otherwise noted, V_F=0.9V Max @I_F=10mA for all types.)

Symbol	Parameter
V_Z	Reverse zener voltage @ I_{ZT}
I_{ZT}	Reverse current
Z_{ZT}	Maximum zener impedance @ I_{ZT}
I_{ZK}	Reverse current
Z_{ZK}	Maximum zener impedance @ I_{ZK}
I_R	Reverse leakage current @ V_R
V_R	Reverse voltage

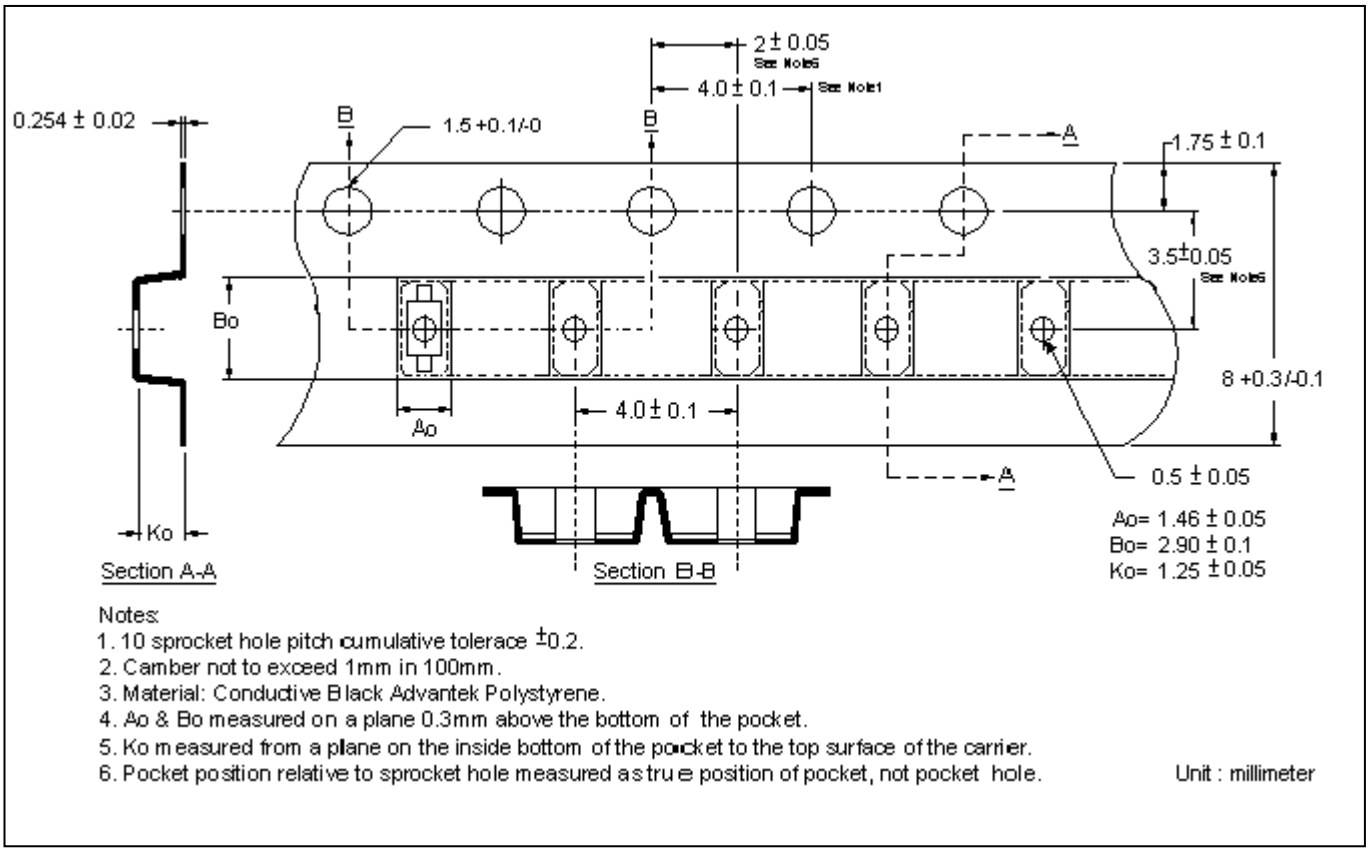
Device	Marking Code	Zener voltage(Note 2)				Maximum Zener impedance			Maximum Reverse Leakage Current	
		V_Z(volts)			@I_{ZT}	Z_{ZT}@ I_{ZT}	Z_{ZK}@I_{ZK}		I_R@V_R	
		min	nom	max	mA	Ω	Ω	mA	μA	V
ZD5221A	C1	2.35	2.4	2.45	20	30	1200	0.25	100	1.0
ZD5223A	C3	2.65	2.7	2.75	20	30	1300	0.25	75	1.0
ZD5225A	C5	2.94	3.0	3.06	20	30	1600	0.25	50	1.0
ZD5226A	G1	3.23	3.3	3.37	20	28	1600	0.25	25	1.0
ZD5227A	G2	3.53	3.6	3.67	20	24	1700	0.25	15	1.0
ZD5228A	G3	3.82	3.9	3.98	20	23	1900	0.25	10	1.0
ZD5229A	G4	4.21	4.3	4.39	20	22	2000	0.25	5	1.0
ZD5230A	G5	4.61	4.7	4.79	20	19	1900	0.25	5	2.0
ZD5231A	E1	5.00	5.1	5.20	20	17	1600	0.25	5	2.0
ZD5232A	E2	5.49	5.6	5.71	20	11	1600	0.25	5	3.0
ZD5233A	E3	5.88	6.0	6.12	20	7	1600	0.25	5	3.5
ZD5234A	E4	6.08	6.2	6.32	20	7	1000	0.25	5	4.0
ZD5235A	E5	6.66	6.8	6.94	20	5	750	0.25	3	5.0
ZD5236A	F1	7.35	7.5	7.65	20	6	500	0.25	3	6.0
ZD5237A	F2	8.04	8.2	8.36	20	8	500	0.25	3	6.5
ZD5238A	F3	8.53	8.7	8.87	20	8	600	0.25	3	6.5
ZD5239A	F4	8.92	9.1	9.28	20	10	600	0.25	3	7.0
ZD5240A	F5	9.80	10	10.20	20	17	600	0.25	3	8.0
ZD5241A	H1	10.78	11	11.22	20	22	600	0.25	2	8.4
ZD5242A	H2	11.76	12	12.24	20	30	600	0.25	1	9.1
ZD5243A	H3	12.74	13	13.26	9.5	13	600	0.25	0.5	9.9
ZD5245A	H5	14.70	15	15.30	8.5	16	600	0.25	0.1	11
ZD5246A	J1	15.68	16	16.32	7.8	17	600	0.25	0.1	12
ZD5248A	J3	17.64	18	18.36	7.0	21	600	0.25	0.1	14
ZD5250A	J5	19.60	20	20.40	6.2	25	600	0.25	0.1	15
ZD5251A	K1	21.56	22	22.44	5.6	29	600	0.25	0.1	17
ZD5252A	K2	23.52	24	24.48	5.2	33	600	0.25	0.1	18
ZD5254A	K4	26.46	27	27.54	5.0	41	600	0.25	0.1	21
ZD5255A	K5	27.44	28	28.56	4.5	44	600	0.25	0.1	21
ZD5256A	M1	29.40	30	30.60	4.2	49	600	0.25	0.1	23
ZD5257A	M2	32.34	33	33.66	3.8	58	700	0.25	0.1	25
ZD5258A	M3	35.28	36	36.72	3.4	70	700	0.25	0.1	27
ZD5259A	M4	38.22	39	39.78	3.2	80	800	0.25	0.1	30

Note 2: Zener voltage is measured with a pulse test current Iz at an ambient temperature of 25℃.

Reel Dimension



Carrier Tape Dimension



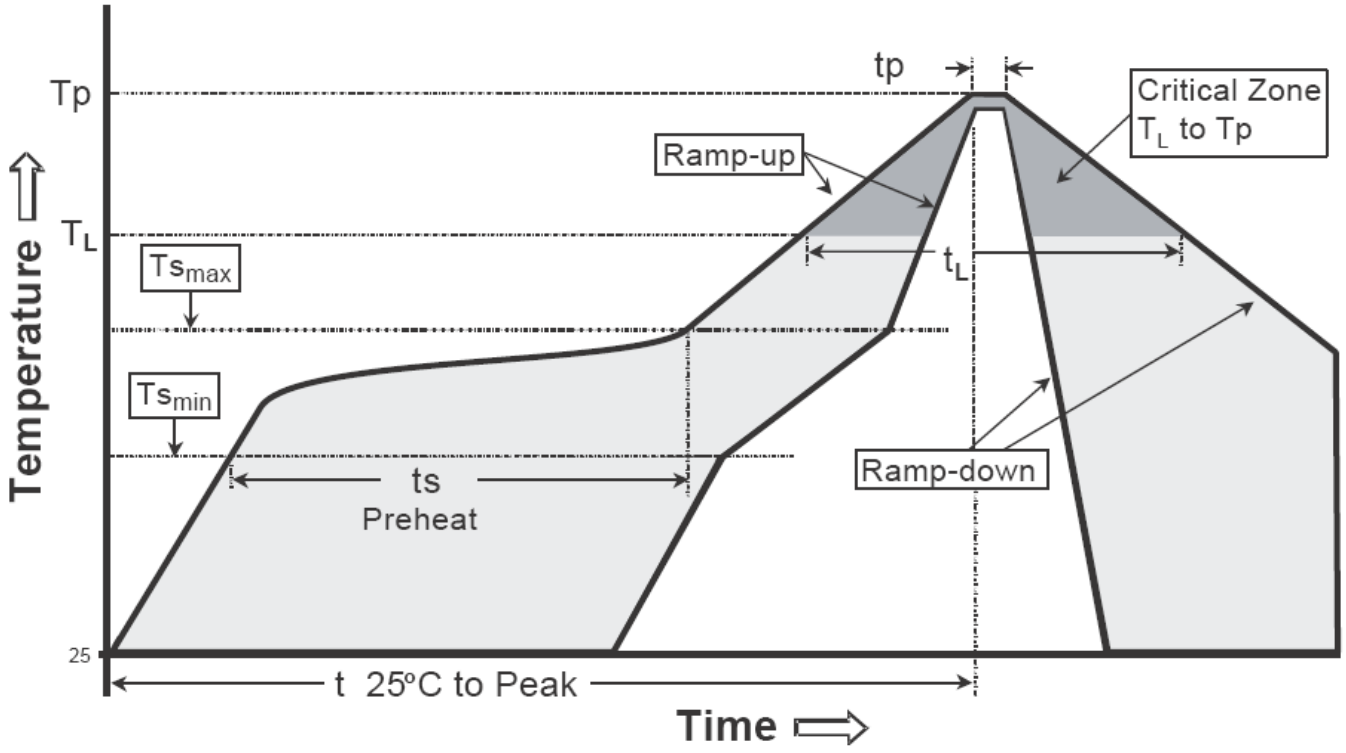
Notes:
1. 10 sprocket hole pitch cumulative tolerace ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive Black Advantek Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter

Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

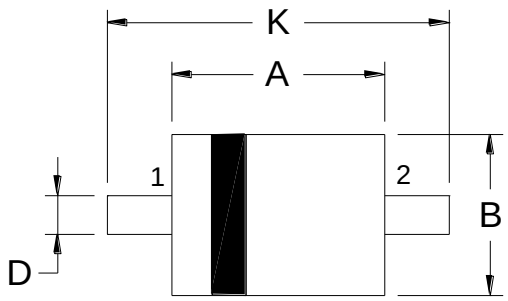
Recommended temperature profile for IR reflow

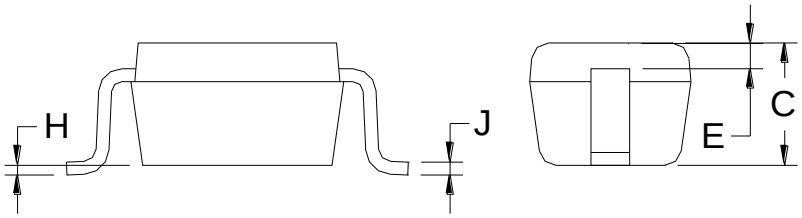


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (TL) − Time (tL)	 183°C 60-150 seconds	 217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

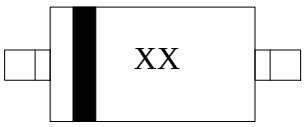
Note : All temperatures refer to topside of the package, measured on the package body surface.

SOD-323 Dimension





Marking:



Style: Pin 1.Cathode 2.Anode

2-Lead SOD-323 Plastic
Surface Mounted Package
CYStek Package Code: S2

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0630	0.0709	1.60	1.80	E	0.0060	-	0.15	-
B	0.0453	0.0531	1.15	1.35	H	0.0000	0.0040	0.00	0.10
C	0.0315	0.0394	0.80	1.00	J	0.0035	0.0070	0.089	0.177
D	0.0098	0.0157	0.25	0.40	K	0.0906	0.1063	2.30	2.70

Notes: 1.Controlling dimension : millimeters.
2.Lead thickness specified per L/F drawing with solder plating.
3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

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