200mW SOD-323 Zener Voltage Regulators

ZD5221BS2 thru ZD5259BS2

Description

The ZD5221BS2 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

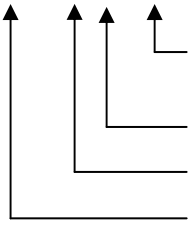
- Standard zener breakdown voltage range : 2.4V to 39V
- Steady state power rating of 200mW..
- Small body outline dimensions
- Low body height : 0.035 inches (0.9mm) max.

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
ZD52XXBS2-0-T1-G	SOD-323 (Pb-free lead plating and halogen-free package)	3000 pcs / tape & reel



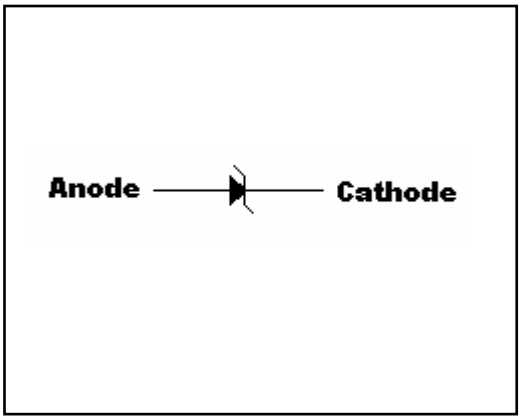
Environment friendly grade : S for RoHS compliant products, G for RoHS compliant and green compound products

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

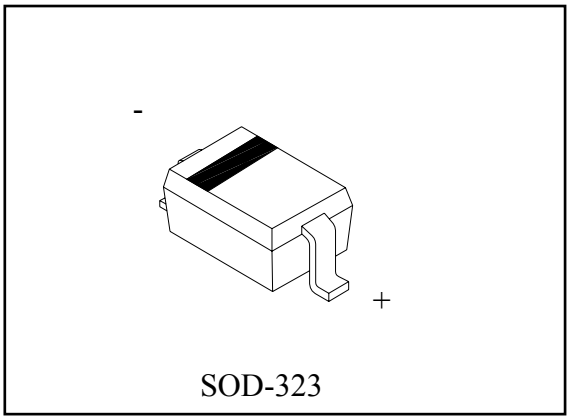
Product rank, zero for no rank products

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 toCase $R_{\theta JC}$……..400℃/W

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

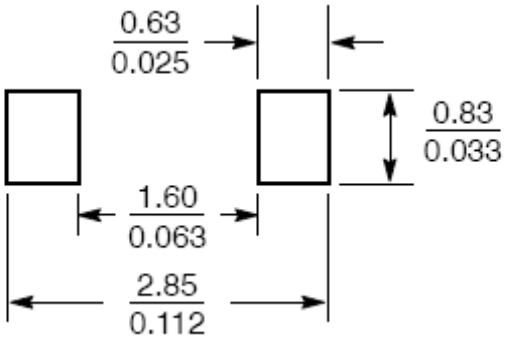
Electrical Characteristics (T_A=25℃ unless otherwise noted, V_F=0.9V Max @I_F=10mA for all types.)

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	
		Vz(volts)			@Izt	Zzt@ Izt	Zzk@Izk		Ir@Vr	
		min	nom	max	mA	Ω	Ω	mA	μA	V
ZD5221B	C1	2.28	2.4	2.52	20	30	1200	0.25	100	1.0
ZD5223B	C3	2.57	2.7	2.84	20	30	1300	0.25	75	1.0
ZD5225B	C5	2.85	3.0	3.15	20	30	1600	0.25	50	1.0
ZD5226B	G1	3.14	3.3	3.47	20	28	1600	0.25	25	1.0
ZD5227B	G2	3.42	3.6	3.78	20	24	1700	0.25	15	1.0
ZD5228B	G3	3.71	3.9	4.10	20	23	1900	0.25	10	1.0
ZD5229B	G4	4.09	4.3	4.52	20	22	2000	0.25	5	1.0
ZD5230B	G5	4.47	4.7	4.94	20	19	1900	0.25	5	2.0
ZD5231B	E1	4.85	5.1	5.36	20	17	1600	0.25	5	2.0
ZD5232B	E2	5.32	5.6	5.88	20	11	1600	0.25	5	3.0
ZD5233B	E3	5.70	6.0	6.30	20	7	1600	0.25	5	3.5
ZD5234B	E4	5.89	6.2	6.51	20	7	1000	0.25	5	4.0
ZD5235B	E5	6.46	6.8	7.14	20	5	750	0.25	3	5.0
ZD5236B	F1	7.13	7.5	7.88	20	6	500	0.25	3	6.0
ZD5237B	F2	7.79	8.2	8.61	20	8	500	0.25	3	6.5
ZD5238B	F3	8.27	8.7	9.14	20	8	600	0.25	3	6.5
ZD5239B	F4	8.65	9.1	9.56	20	10	600	0.25	3	7.0
ZD5240B	F5	9.50	10	10.50	20	17	600	0.25	3	8.0
ZD5241B	H1	10.45	11	11.55	20	22	600	0.25	2	8.4
ZD5242B	H2	11.40	12	12.60	20	30	600	0.25	1	9.1
ZD5243B	H3	12.35	13	13.65	9.5	13	600	0.25	0.5	9.9
ZD5245B	H5	14.25	15	15.75	8.5	16	600	0.25	0.1	11
ZD5246B	J1	15.20	16	16.80	7.8	17	600	0.25	0.1	12
ZD5248B	J3	17.10	18	18.90	7.0	21	600	0.25	0.1	14
ZD5250B	J5	19.00	20	21.00	6.2	25	600	0.25	0.1	15
ZD5251B	K1	20.90	22	23.10	5.6	29	600	0.25	0.1	17
ZD5252B	K2	22.80	24	25.20	5.2	33	600	0.25	0.1	18
ZD5254B	K4	25.65	27	28.35	5.0	41	600	0.25	0.1	21
ZD5255B	K5	26.60	28	29.40	4.5	44	600	0.25	0.1	21
ZD5256B	M1	28.50	30	31.50	4.2	49	600	0.25	0.1	23
ZD5257B	M2	31.35	33	34.65	3.8	58	700	0.25	0.1	25
ZD5258B	M3	34.20	36	37.80	3.4	70	700	0.25	0.1	27
ZD5259B	M4	37.05	39	40.95	3.2	80	800	0.25	0.1	30

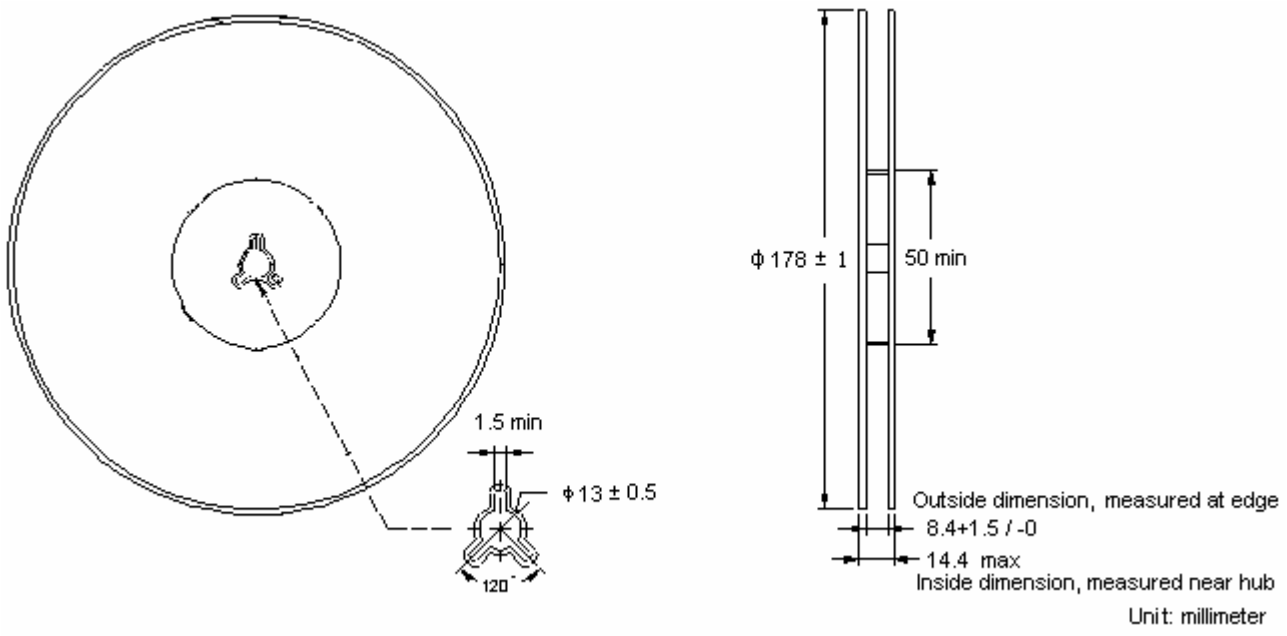
Note 2: Zener voltage is measured with a pulse test current Iz at an ambient temperature of 25℃.

Recommended Footprint

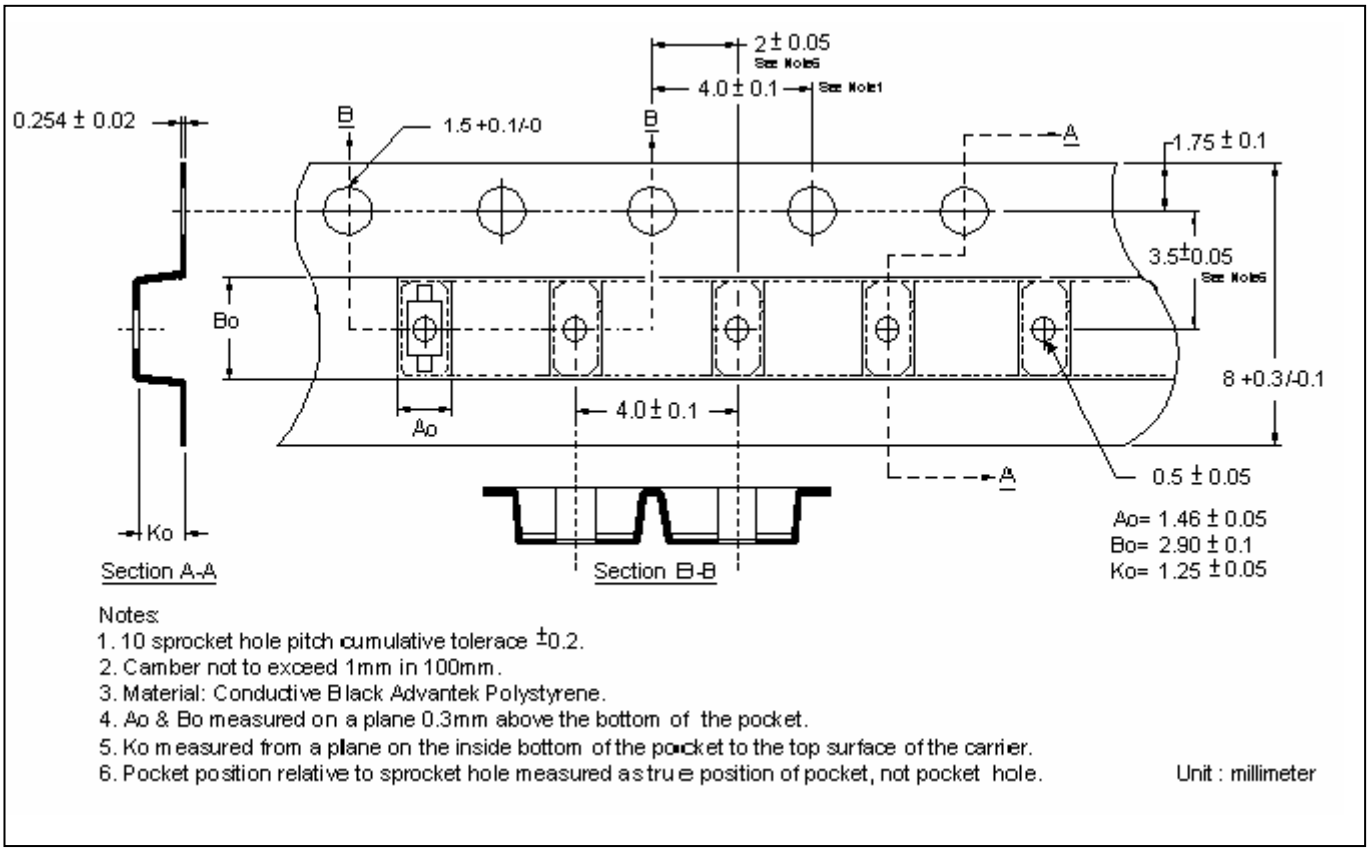


$\frac{\text{mm}}{\text{inch}}$

Reel Dimension



Carrier Tape Dimension



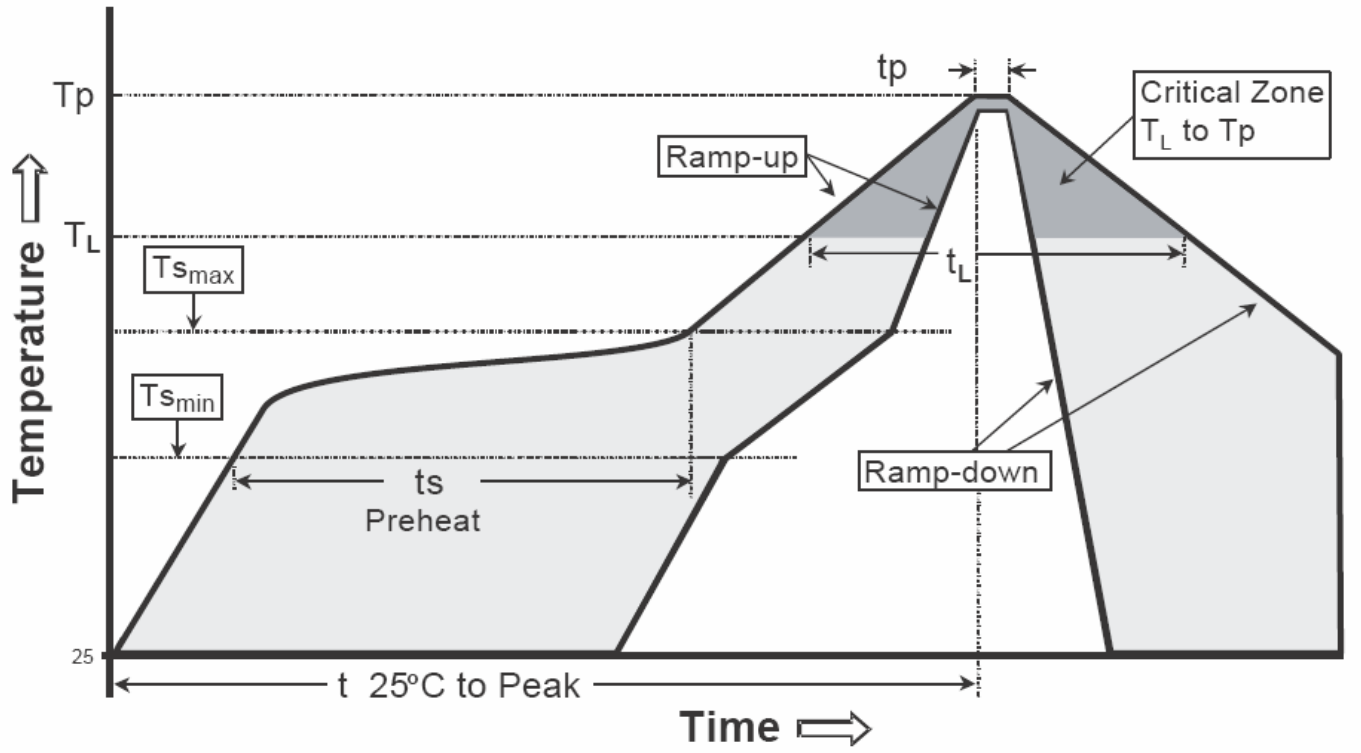
Notes:
1. 10 sprocket hole pitch cumulative tolerace ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive Black Advantek Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of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

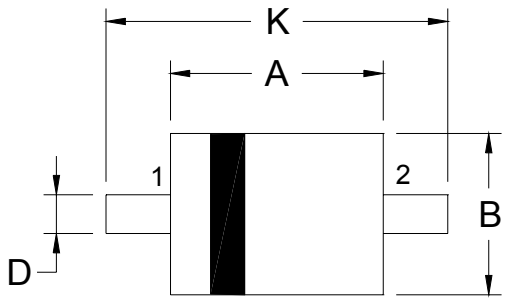
Recommended temperature profile for IR reflow

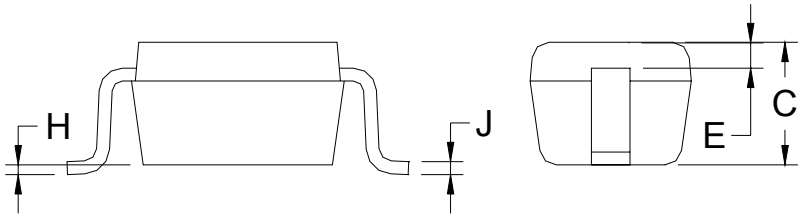


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (TL) − 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.

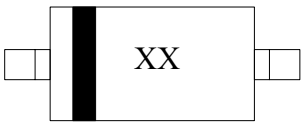
Note : All temperatures refer to topside of the package, measured on the package body surface.

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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