

**200mW SOD-323 Zener Voltage Regulators**

# ZD02V4S2 Series

**Description**

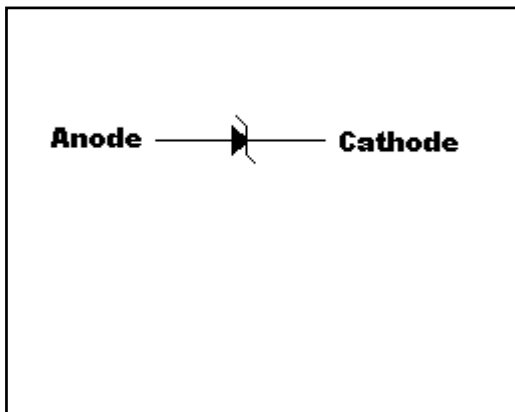
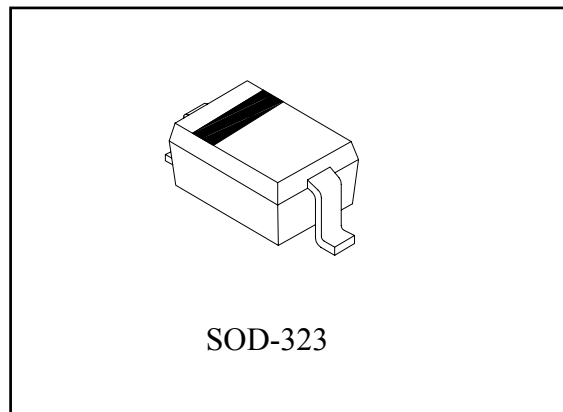
The ZD02V4S2 series zener diodes are packaged in a SOD-323 surface mount package that has a power dissipation of 200mW. They are designed to provide voltage regulation protection and are especially attractive in situations where space is at a premium. They are well suited for applications such as cellular phones, hand held portables, and high density PC boards.

**Features**

- Standard zener breakdown voltage range : 2.4V to 75V
- Steady state power rating of 200mW.
- Small body outline dimensions : 0.067 inches×0.049 inches (1.7mm×1.25mm)
- Low body height : 0.035 inches (0.9mm)
- Package weight : 4.507 mg/unit
- ESD rating of class 3 (>16kV) per human body model.

**Mechanical Data**

- Case : Void free , transfer molded plastic.
- Finish : All external surfaces are corrosion resistant
- Maximum case temperature for soldering purposes : 260 °C for 10 seconds
- Polarity : Cathode indicated by polarity band.
- Leads : Plated with Sn/Pb for ease of solderability.
- Flammability rating : UL94 V-0
- Mounting position : Any

**Symbol****Outline**



**Absolute Maximum Ratings**( $T_a=25^{\circ}\text{C}$ , unless otherwise specified)

- Maximum Temperatures
  - Storage Temperature  $T_{stg}$  ..... -65~+150  $^{\circ}\text{C}$
  - Junction Temperature  $T_j$ ..... -65~ +150  $^{\circ}\text{C}$
- Maximum Power Dissipation
  - Total Power Dissipation  $P_{tot}$  (Note)..... 200 mW
  - Derate above 25 $^{\circ}\text{C}$  ..... 1.5mW/ $^{\circ}\text{C}$
- Thermal Resistance, Junction to Ambient Air  $R_{\theta JA}$ .....635 $^{\circ}\text{C}/\text{W}$

Note : Parts mounted on FR-5 board with minimum pad.

**Electrical Characteristics** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted,  $V_F=0.9\text{V Max}$  @ $I_F=10\text{mA}$  for all types.)

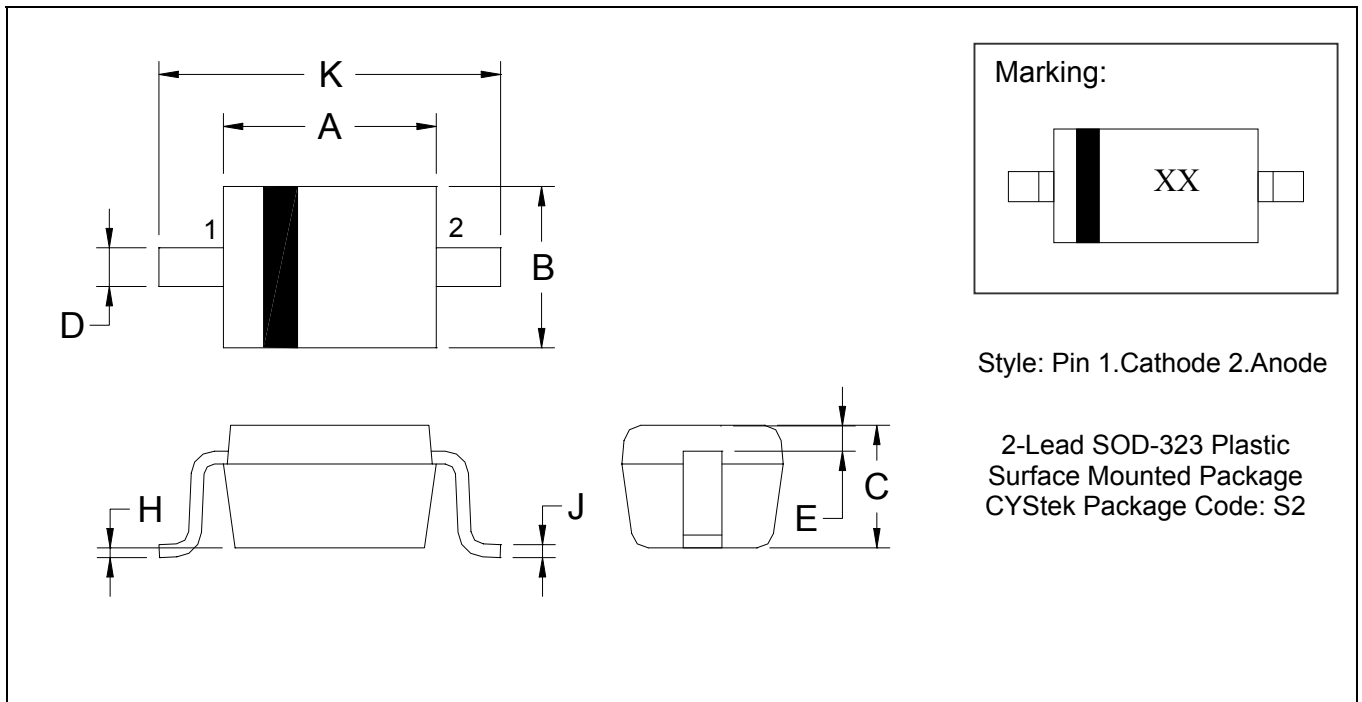
Symbol	Parameter
$V_Z$	Reverse zener voltage @ $I_{ZT}$
$I_{ZT}$	Reverse current
$Z_{ZT}$	Maximum zener impedance @ $I_{ZT}$
$I_{ZK}$	Reverse current
$Z_{ZK}$	Maximum zener impedance @ $I_{ZK}$
$I_R$	Reverse leakage current @ $V_R$
$V_R$	Reverse voltage
$I_F$	Forward current
$V_F$	Forward voltage @ $I_F$
$\Theta V_Z$	Maximum temperature coefficient of $V_Z$
C	Maximum capacitance @ $V_R=0\text{V}$ and $f=1\text{MHz}$



Device	Marking Code	Zener voltage(Note 2)				Zener impedance			Leakage Current		$\Theta_{VZ}$ (mV/K) @IZT		C @VR=0V f=1MHz
		Vz(volts)			@IZT	ZzT@ IZT	ZzK@IzK		IR@VR		min	max	pF
		min	nom	max	mA	$\Omega$	$\Omega$	mA	$\mu$ A	V			
ZD02V4	00	2.2	2.4	2.6	5	100	1000	0.5	50	1.0	-3.5	0	450
ZD02V7	01	2.5	2.7	2.9	5	100	1000	0.5	20	1.0	-3.5	0	450
ZD03V0	02	2.8	3.0	3.2	5	100	1000	0.5	10	1.0	-3.5	0	450
ZD03V3	05	3.1	3.3	3.5	5	95	1000	0.5	5	1.0	-3.5	0	450
ZD03V6	06	3.4	3.6	3.8	5	90	1000	0.5	5	1.0	-3.5	0	450
ZD03V9	07	3.7	3.9	4.1	5	90	1000	0.5	3	1.0	-3.5	-2.5	450
ZD04V3	08	4.0	4.3	4.6	5	90	1000	0.5	3	1.0	-3.5	0	450
ZD04V7	09	4.4	4.7	5.0	5	80	800	0.5	3	2.0	-3.5	0.2	260
ZD05V1	0A	4.8	5.1	5.4	5	60	500	0.5	2	2.0	-2.7	1.2	225
ZD05V6	0C	5.2	5.6	6.0	5	40	200	0.5	1	2.0	-2.0	2.5	200
ZD06V2	0E	5.8	6.2	6.6	5	10	100	0.5	3	4.0	0.4	3.7	185
ZD06V8	0F	6.4	6.8	7.2	5	15	160	0.5	2	4.0	1.2	4.5	155
ZD07V5	0G	7.0	7.5	7.9	5	15	160	0.5	1	5.0	2.5	5.3	140
ZD08V2	0H	7.7	8.2	8.7	5	15	160	0.5	0.7	5.0	3.2	6.2	135
ZD09V1	0K	8.5	9.1	9.6	5	15	160	0.5	0.2	7.0	3.8	7.0	130
ZD10V0	0L	9.4	10	10.6	5	20	160	0.5	0.1	8.0	4.5	8.0	130
ZD11V0	0M	10.4	11	11.6	5	20	160	0.5	0.1	8.0	5.4	9.0	130
ZD12V0	0N	11.4	12	12.7	5	25	80	0.5	0.1	8.0	6.0	10	130
ZD13V2	0P	12.4	13.25	14.1	5	30	80	0.5	0.1	8.0	7.0	11	120
ZD15V0	0T	14.3	15	15.8	5	30	80	0.5	0.05	10.5	9.2	13	110
ZD16V2	0U	15.3	16.2	17.1	5	40	80	0.5	0.05	11.2	10.4	14	105
ZD18V0	0W	16.8	18	19.1	5	45	80	0.5	0.05	12.6	12.4	16	100
ZD20V0	0Z	18.8	20	21.2	5	55	100	0.5	0.05	14.0	14.4	18	85
ZD22V0	10	20.8	22	23.3	5	55	100	0.5	0.05	15.4	16.4	20	85
ZD24V2	11	22.8	24.2	25.6	5	70	120	0.5	0.05	16.8	18.4	22	80
ZD27V0	12	25.1	27	28.9	2	80	300	0.5	0.05	18.9	21.4	25.3	70
ZD30V0	14	28	30	32	2	80	300	0.5	0.05	21.0	24.4	29.4	70
ZD33V0	18	31	33	35	2	80	300	0.5	0.05	23.2	27.4	33.4	70
ZD36V0	19	34	36	38	2	90	500	0.5	0.05	25.2	30.4	37.4	70
ZD39V0	20	37	39	41	2	130	500	0.5	0.05	27.3	33.4	41.2	45
ZD43V0	21	40	43	46	2	150	500	0.5	0.05	30.1	37.6	46.6	40
ZD47V0	1A	44	47	50	2	170	500	0.5	0.05	32.9	42.0	51.8	40
ZD51V0	1C	48	51	54	2	180	500	0.5	0.05	35.7	46.6	57.2	40
ZD56V0	1D	52	56	60	2	200	500	0.5	0.05	39.2	52.2	63.8	40
ZD62V0	1E	58	62	66	2	215	500	0.5	0.05	43.4	58.8	71.6	35
ZD68V0	1F	64	68	72	2	240	500	0.5	0.05	47.6	65.6	79.8	35
ZD75V0	1G	70	75	79	2	255	500	0.5	0.05	52.5	73.4	88.6	35

Note 2: Zener voltage is measured with a pulse test current IZ at an ambient temperature of 25°C.

**SOD-323 Dimension**



\*: 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: 42 Alloy ; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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