150mW SOD-523 Zener Voltage Regulators

ZD5221BC2 thru ZD5260BC2

Description

The ZD5221BC2 series zener diodes are packaged in a SOD-523 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.

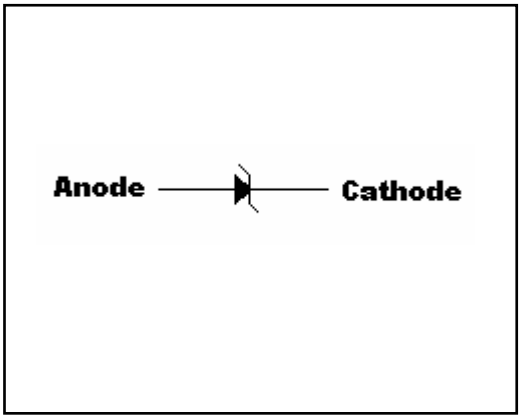
Features

- Standard zener breakdown voltage range : 2.4V to 43V
- Steady state power rating of 200mW..
- Small body outline dimensions
- Low body height : 0.031 inches (0.77mm) max.

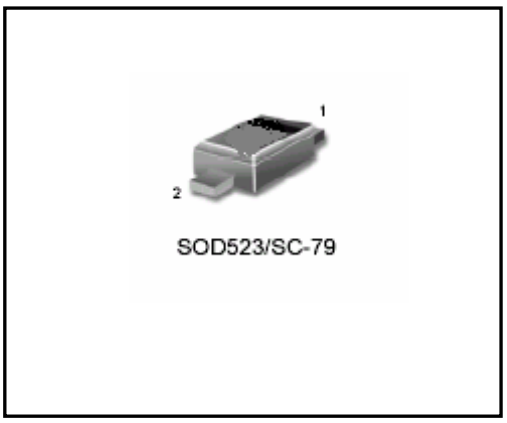
Mechanical Data

- Case : SOD-523 , molded plastic
- Terminals : Solderable per MIL-STD-750 method 2026
- Polarity : Cathode indicated by polarity band.
- Flammability rating : UL94 V-0
- Mounting position : Any

Symbol



Outline



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

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.)

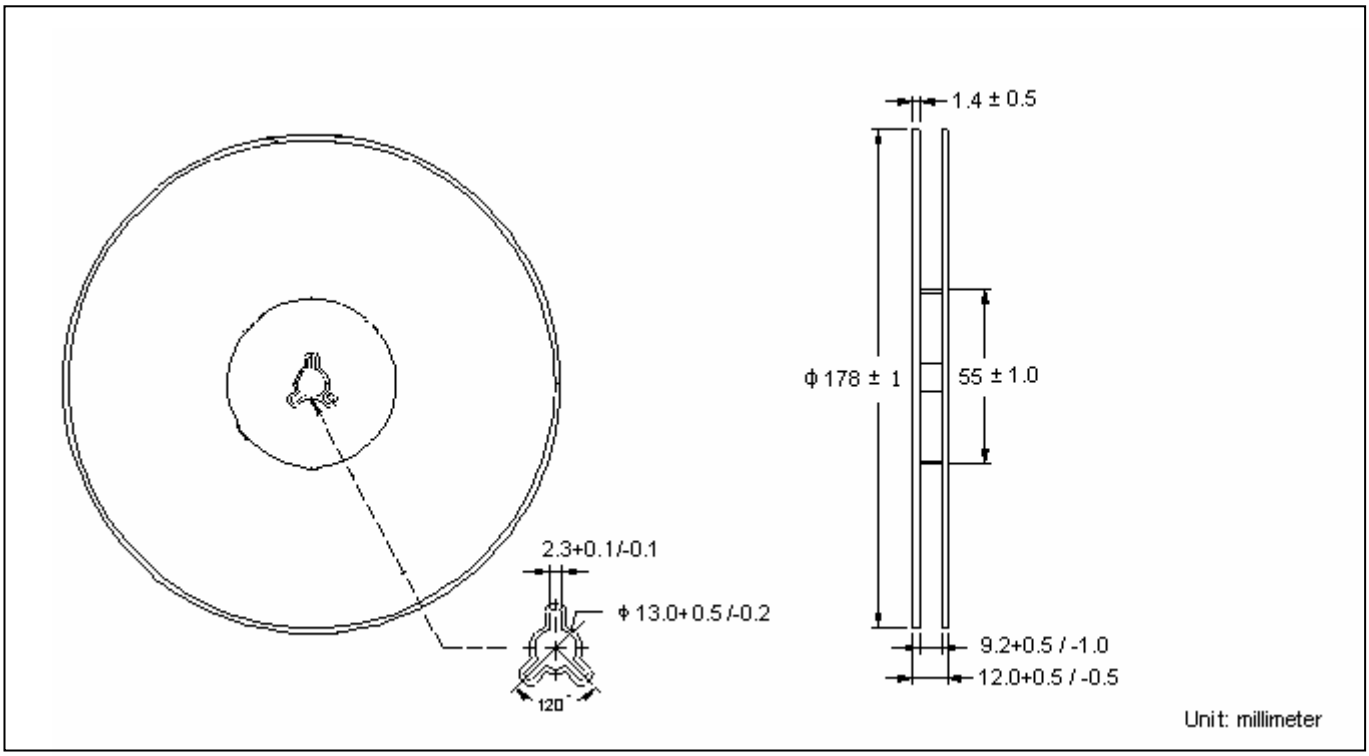
Symbol	Parameter
V_Z	Reverse zener voltage @ I_{ZT}
I_{ZT}	Reverse current
Z_{ZT}	Maximum zener impedance @ I_{ZT}
I_{ZK}	Reverse current
Z_{ZK}	Maximum zener impedance @ I_{ZK}
I_R	Reverse leakage current @ V_R
V_R	Reverse voltage

Electrical Characteristic (Ta=25℃, unless otherwise noted)

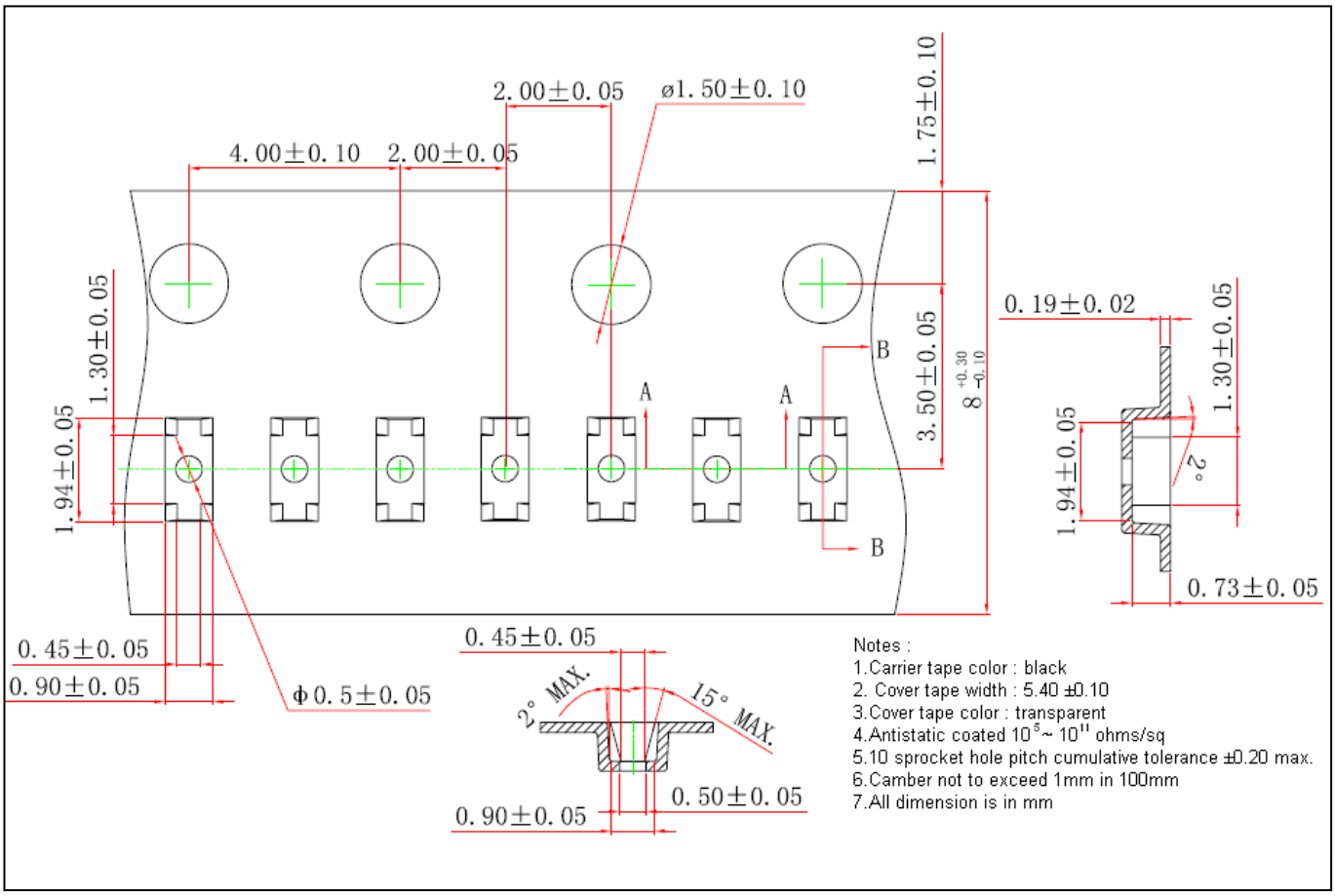
Device	Type Code	Nom. Zener Voltage				Max. Zener Impedance				Max. Zener Current	Max. Reverse Leakage Current	
		Vz@Izt				Zzt@ Izt		Zzk@ Izk				
		Nom.	Min.	Max.	Izt	Zzt	Izt	Zzk	Izk	Izm@Ta	Ir	Vr
		(V)	(V)	(V)	(mA)	(Ω)	(mA)	(Ω)	(mA)	(mA)	(μA)	(V)
ZD5221B	C1	2.4	2.28	2.52	20	30	20	1200	0.25	188	100	1.0
ZD5223B	C3	2.7	2.57	2.84	20	30	20	1300	0.25	167	75	1.0
ZD5225B	C5	3.0	2.85	3.15	20	30	20	1600	0.25	150	50	1.0
ZD5226B	G1	3.3	3.14	3.47	20	28	20	1600	0.25	138	25	1.0
ZD5227B	G2	3.6	3.42	3.78	20	24	20	1700	0.25	126	15	1.0
ZD5228B	G3	3.9	3.71	4.10	20	23	20	1900	0.25	115	10	1.0
ZD5229B	G4	4.3	4.09	4.52	20	22	20	2000	0.25	106	5.0	1.0
ZD5230B	G5	4.7	4.47	4.94	20	19	20	1900	0.25	97	5.0	2.0
ZD5231B	E1	5.1	4.85	5.36	20	17	20	1600	0.25	89	5.0	2.0
ZD5232B	E2	5.6	5.32	5.88	20	11	20	1600	0.25	81	5.0	3.0
ZD5233B	E3	6.0	5.70	6.30	20	7.0	20	1600	0.25	76	5.0	3.5
ZD5234B	E4	6.2	5.89	6.51	20	7.0	20	1000	0.25	73	5.0	4.0
ZD5235B	E5	6.8	6.46	7.14	20	5.0	20	750	0.25	67	3.0	5.0
ZD5236B	F1	7.5	7.13	7.88	20	6.0	20	500	0.25	61	3.0	6.0
ZD5237B	F2	8.2	7.79	8.61	20	8.0	20	500	0.25	55	3.0	6.5
ZD5238B	F3	8.7	8.27	9.14	20	8.0	20	600	0.25	55	3.0	6.5
ZD5239B	F4	9.1	8.65	9.56	20	10	20	600	0.25	50	3.0	7.0
ZD5240B	F5	10	9.5	10.5	20	17	20	600	0.25	45	3.0	8.0
ZD5241B	H1	11	10.45	11.55	20	22	20	600	0.25	41	2.0	8.4
ZD5242B	H2	12	11.4	12.6	20	30	20	600	0.25	38	1.0	9.1
ZD5243B	H3	13	12.35	13.65	9.5	13	9.5	600	0.25	35	0.5	9.9
ZD5245B	H5	15	14.25	15.75	8.5	16	8.5	600	0.25	30	0.1	11
ZD5246B	J1	16	15.2	16.8	7.8	17	7.8	600	0.25	28	0.1	12
ZD5248B	J3	18	17.1	18.9	7.0	21	7.0	600	0.25	25	0.1	14
ZD5250B	J5	20	19	21	6.2	25	6.2	600	0.25	23	0.1	15
ZD5251B	K1	22	20.9	23.1	5.6	29	5.6	600	0.25	21	0.1	17
ZD5252B	K2	24	22.8	25.2	5.2	33	5.2	600	0.25	19.1	0.1	18
ZD5254B	K4	27	25.65	28.35	5.0	41	5.0	600	0.25	16.8	0.1	21
ZD5255B	K5	28	26.6	29.4	4.5	44	4.5	600	0.25	16.2	0.1	21
ZD5256B	M1	30	28.5	31.5	4.2	49	4.2	600	0.25	15.1	0.1	23
ZD5257B	M2	33	31.35	34.65	3.8	58	3.8	700	0.25	13.8	0.1	25
ZD5258B	M3	36	34.2	37.8	3.4	70	3.4	700	0.25	12.6	0.1	27
ZD5259B	M4	39	37.05	40.95	3.2	80	3.2	800	0.25	11.6	0.1	30
ZD5260B	M5	43	40.85	45.15	3	93	3	900	0.25	10.6	0.1	33

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

Reel Dimension



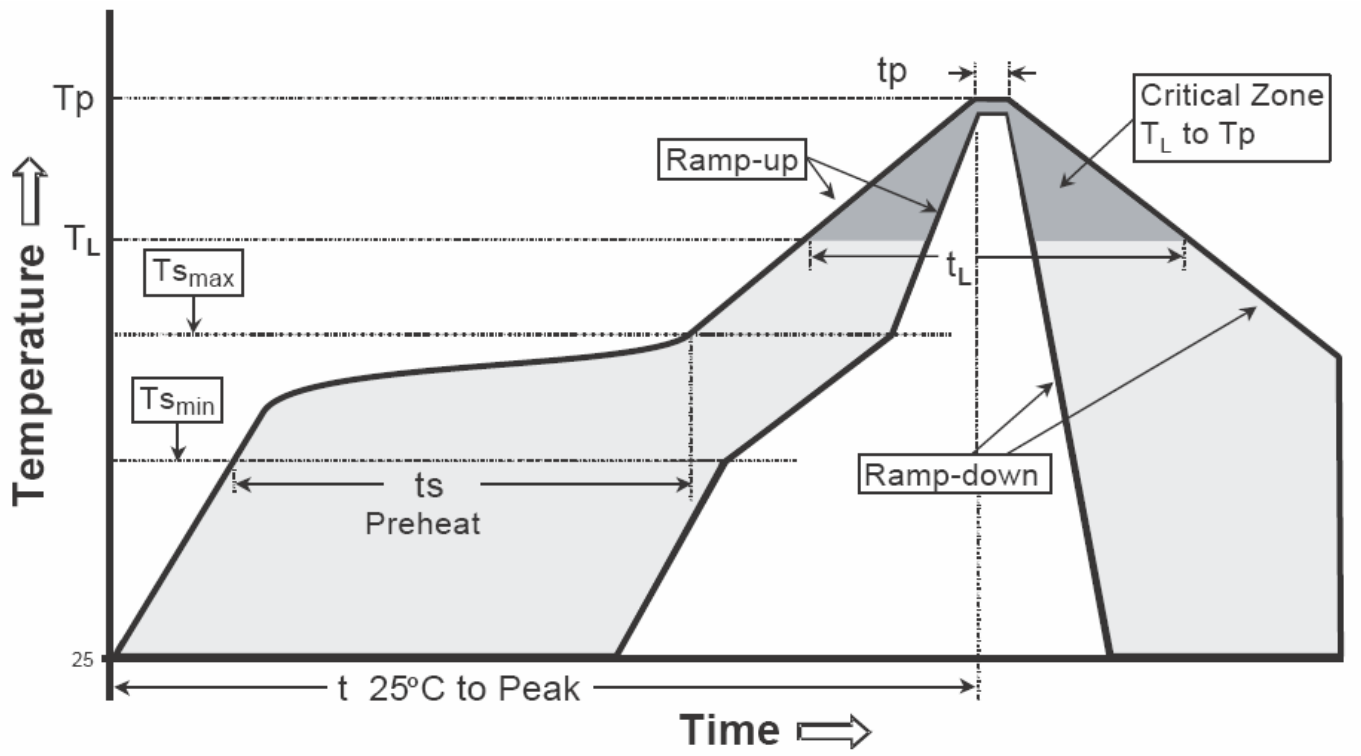
Carrier Tape Dimension



Recommended wave soldering condition

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

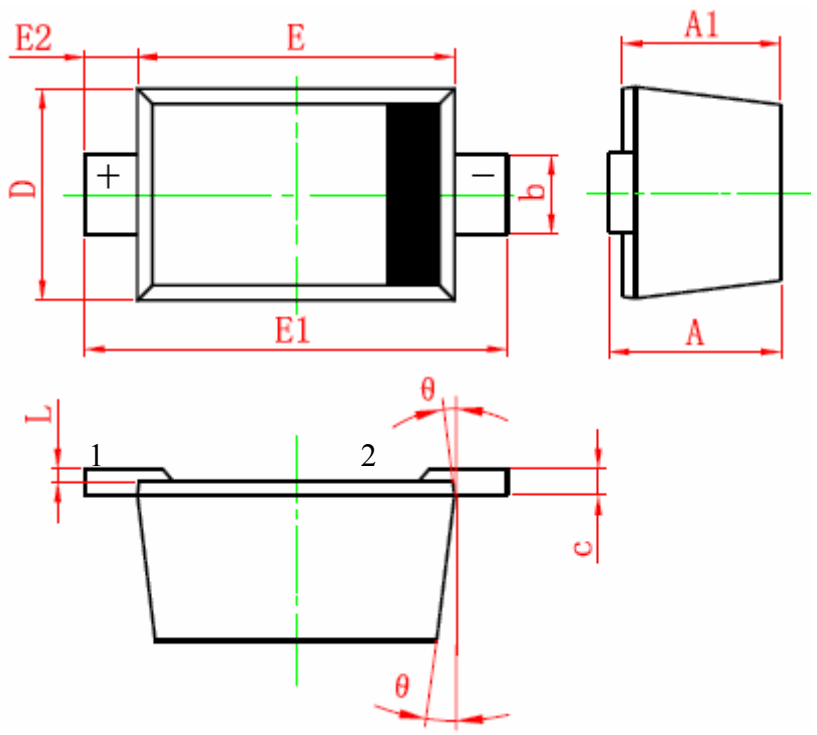
Recommended temperature profile for IR reflow



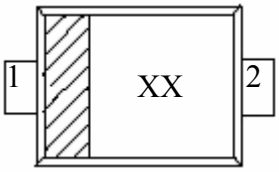
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (TL) − 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-523 Dimension



Marking Code :



Style : Pin 1. Cathode 2. Anode

2-lead SOD-523 Plastic Package
CYStek Package Code : C2

*: Typical

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.	Min.	Min.	Max.	Min.	Max.
A	0.510	0.770	0.020	0.031	E	1.100	1.300	0.043	0.051
A1	0.500	0.700	0.020	0.028	E1	1.500	1.700	0.059	0.067
b	0.250	0.350	0.010	0.014	E2	0.200 REF		0.008 REF	
c	0.080	0.150	0.003	0.006	L	0.010	0.070	0.001	0.003
D	0.750	0.850	0.030	0.033	θ	7° REF		7° REF	

Notes: 1.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
2.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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