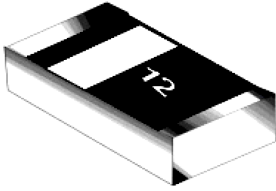


## Zener Diodes

### CDZ55B-S Series



#### FEATURES

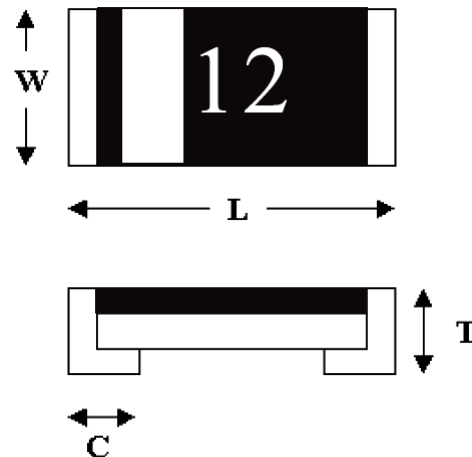
- Silicon planar power zener diodes
- SMD chip pattern, available in various dimension included 1206 (CDZ55B series)
- Leadfree and RoHS compliance components

#### MECHANICAL CHARACTERISTICS

- Size: 0805
- Weight: approx. 6mg
- Marking: Zener voltage & cathode terminal

#### DIMENSIONS

Dimension/mm	0805
L	2.0±0.2
W	1.25±0.2
T	0.75±0.1
C	0.45±0.2



#### MAXIMUM RATING & THERMAL CHARACTERISTICS<sup>1)</sup>

Parameter at $T_{amb}=25^{\circ}\text{C}^{1)}$	Symbol	Value	Unit
Power Dissipation	$P_{tot}$	500	mW
Repetitive Peak Forward Current	$I_{FRM}$	200	mA
Junction Temperature	$T_j$	150	$^{\circ}\text{C}$
Thermal Resistance Junction to Ambient air	$R_{\theta JA}$	300	$^{\circ}\text{C}/\text{W}$
Operating & Storage Temperature range	$T_{opr, stg}$	-55 to 150	$^{\circ}\text{C}$

1) Valid provided that electrodes are kept at ambient temperature.

**ELECTRICAL CHARACTERISTICS<sup>1)</sup>**

Parameter at $T_{amb}=25^{\circ}C^{1)}$	Symbol	Value	Unit
Forward Voltage at $I_F=200mA$	$V_F$	1.5 <small>MAX</small>	V
Zener Voltage Tolerance, $B=\pm 2\%$			

1) Valid provided that electrodes are kept at ambient temperature.

Part Number	Marking Code	Nominal Zener Voltage		Max Zener Impedance				Max Reverse Leakage Current	
		$V_Z @ I_{ZT}$		$Z_{ZT} @ I_{ZT}$		$Z_{ZK} @ I_{ZK}$		$I_R @ V_R$	
		Min V	Max V	$\Omega$	mA	$\Omega$	mA	$\mu A$	V
CDZ55B2V4S	2V4	2.35	2.45	85	5	600	1	50	1
CDZ55B2V7S	2V7	2.65	2.75	85	5	600	1	10	1
CDZ55B3V0S	3	2.94	3.06	85	5	600	1	4	1
CDZ55B3V3S	3V3	3.23	3.37	85	5	600	1	2	1
CDZ55B3V6S	3V6	3.53	3.67	85	5	600	1	2	1
CDZ55B3V9S	3V9	3.82	3.98	85	5	600	1	2	1
CDZ55B4V3S	4V3	4.21	4.39	80	5	600	1	1	1
CDZ55B4V7S	4V7	4.61	4.79	70	5	600	1	0.5	1
CDZ55B5V1S	5V1	5.00	5.20	50	5	550	1	0.1	1
CDZ55B5V6S	5V6	5.49	5.71	30	5	450	1	0.1	1
CDZ55B6V2S	6V2	6.08	6.32	10	5	200	1	0.1	2
CDZ55B6V8S	6V8	6.66	6.94	8	5	150	1	0.1	3
CDZ55B7V5S	7V5	7.35	7.65	7	5	50	1	0.1	5
CDZ55B8V2S	8V2	8.04	8.36	7	5	50	1	0.1	6.2
CDZ55B9V1S	9V1	8.92	9.28	10	5	50	1	0.1	6.8
CDZ55B10S	10	9.80	10.20	15	5	70	1	0.1	7.5
CDZ55B11S	11	10.78	11.22	20	5	70	1	0.1	8.2
CDZ55B12S	12	11.76	12.24	20	5	90	1	0.1	9.1
CDZ55B13S	13	12.74	13.26	26	5	110	1	0.1	10
CDZ55B15S	15	14.70	15.30	30	5	110	1	0.1	11
CDZ55B16S	16	15.68	16.32	40	5	170	1	0.1	12
CDZ55B18S	18	17.64	18.36	50	5	170	1	0.1	13
CDZ55B20S	20	19.60	20.40	55	5	220	1	0.1	15
CDZ55B22S	22	21.56	22.44	55	5	220	1	0.1	16
CDZ55B24S	24	23.52	24.48	80	5	220	1	0.1	18
CDZ55B27S	27	26.46	27.54	80	5	220	1	0.1	20
CDZ55B30S	30	29.40	30.60	80	5	220	1	0.1	22
CDZ55B33S	33	32.34	33.66	80	5	220	1	0.1	24
CDZ55B36S	36	35.28	36.72	80	5	220	1	0.1	27
CDZ55B39S	39	38.22	39.78	90	2.5	500	0.5	0.1	29.3
CDZ55B43S	43	42.14	43.86	90	2.5	600	0.5	0.1	32.3
CDZ55B47S	47	46.06	47.94	110	2.5	700	0.5	0.1	35.3
CDZ55B51S	51	49.98	52.02	125	2.5	700	0.5	0.1	38.3
CDZ55B56S	56	54.88	57.12	135	2.5	1000	0.5	0.1	42
CDZ55B62S	62	60.76	63.24	150	2.5	1000	0.5	0.1	46.5
CDZ55B68S	68	66.64	69.36	200	2.5	1000	0.5	0.1	51
CDZ55B75S	75	73.50	76.50	250	2.5	1500	0.5	0.1	56.3

**TYPICAL CHARACTERISTICS**

Figure 1. Forward current vs Forward Voltage

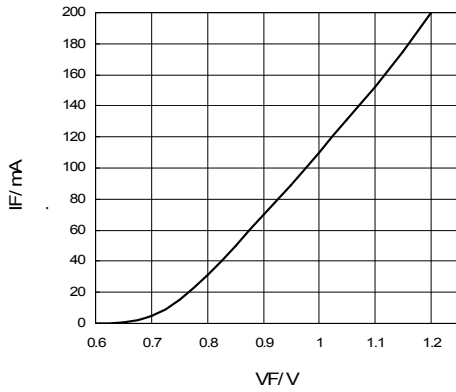
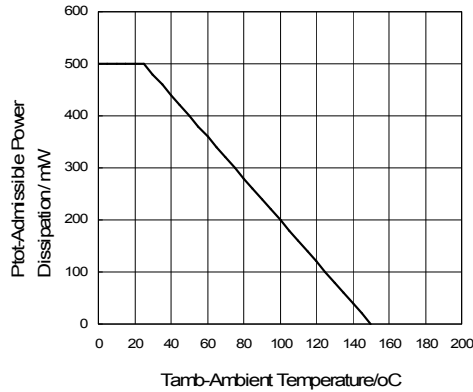


Figure 2. Power De-rating


**TEST CHARACTERISTICS**

Test Item	Test Condition	Requirement
Solderability	Sn bath at 245±5°C for 2±0.5s	>95% area tin covered
Resistance to Soldering Heat	Sn bath at 260±5°C for 10±2s	$V_Z, Z_{ZT}, Z_{ZK}, I_R$ & $V_F$ within spec; no mechanical damage
Humidity Steady State	At 85°C 85%RH for 168hrs	$V_Z, Z_{ZT}, Z_{ZK}, I_R$ & $V_F$ within spec
Continue Forward Operating Life	At 25°C $I_F = 1.1I_F$ for 1000hrs	$V_Z, Z_{ZT}, Z_{ZK}, I_R$ & $V_F$ within spec
Thermal Shock	-55 ±5°C/5min to 150±5°C/5min for 10cycles	$V_Z, Z_{ZT}, Z_{ZK}, I_R$ & $V_F$ within spec
Bending Strength	Bending up to 2mm for 1cycle	$V_Z, Z_{ZT}, Z_{ZK}, I_R$ & $V_F$ within spec; no mechanical damage

**APPLICATIONS**

- Function: constant voltage control
- Soldering Condition:

**Soldering Condition & Caution**

- Recommended Soldering Condition  
(Refer to IPC/JEDEC J-STD-020D 4-1&5.2)

Recommended Profile Condition	Sn-Pb Soldering	Leadfree Soldering	Wave Soldering
Ramp-up rate (from pre-heat stage)	<3°C/s	<3°C/s	$\Delta T < 150^\circ\text{C}$
Pre-heat Temperature & Time	100-150 °C 60-120s	150-200 °C 60-120s	100-150 °C 60-120s
Soldering Temperature & Time	183 °C 60-150s	217 °C 60-150s	260±5°C 5±2s
Peak Temperature	230±5°C <260°C	245±5°C <260°C	260±5°C
Time within 5°C of peak temperature	10-20s	20-30s	-
Ramp-down rate	<6°C/s	<6°C/s	<6°C/s
Time 25°C to peak temperature	<6min	<8min	-

Manual Soldering: Approx. 350°C for 3s, avoid solder iron tip direct touch the components body

**Recommended Soldering Profile**

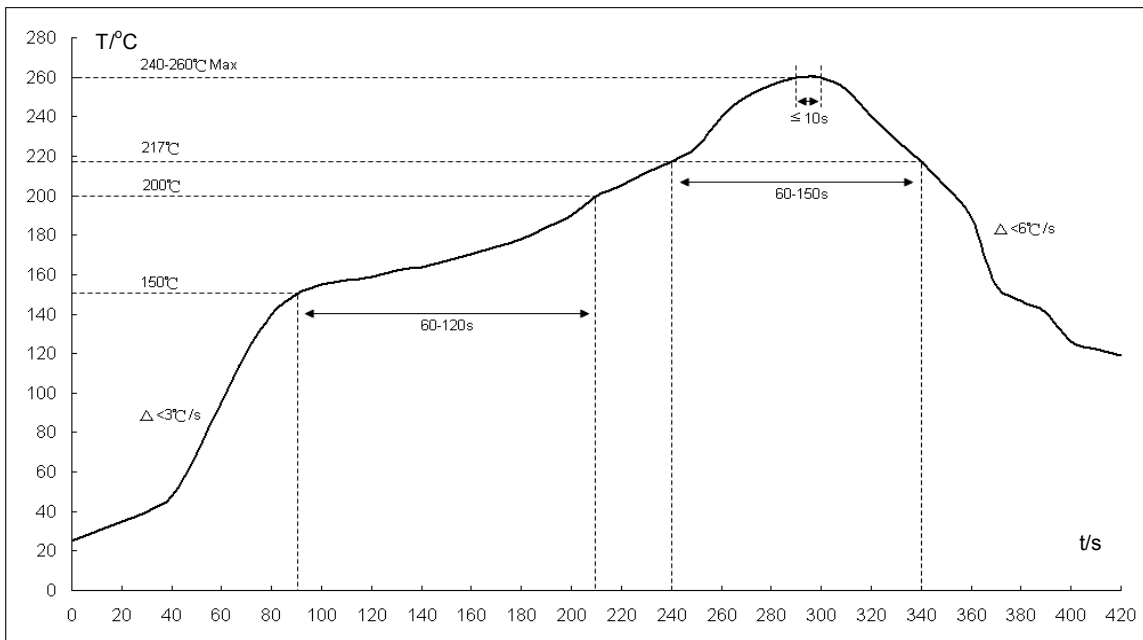


Fig1: Reflow soldering profile for lead-free solder (SnAgCu)

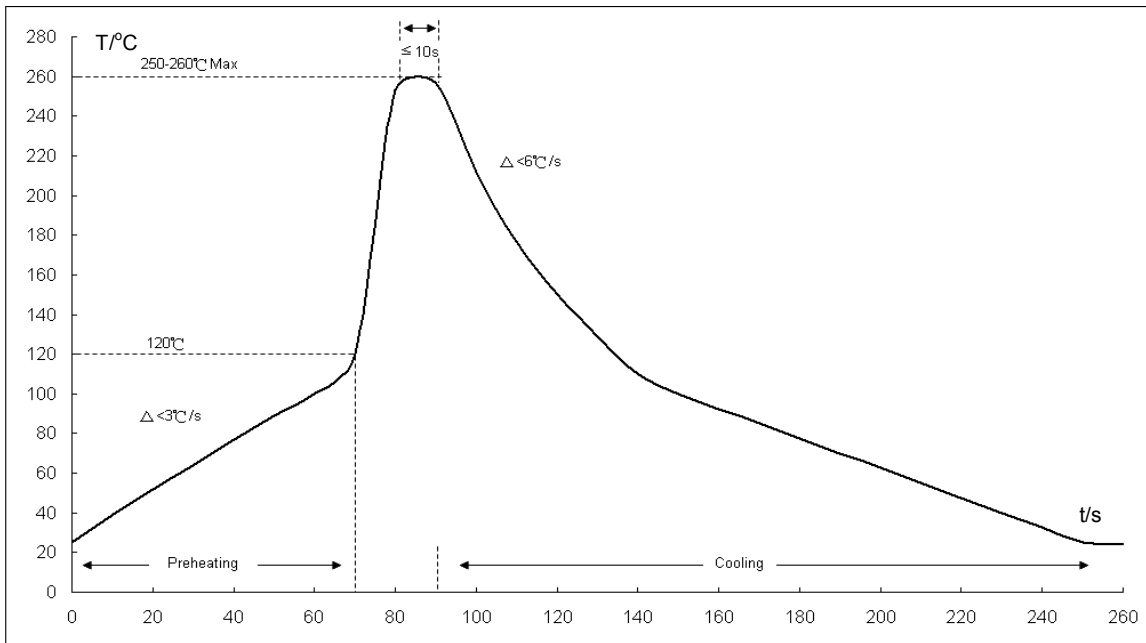
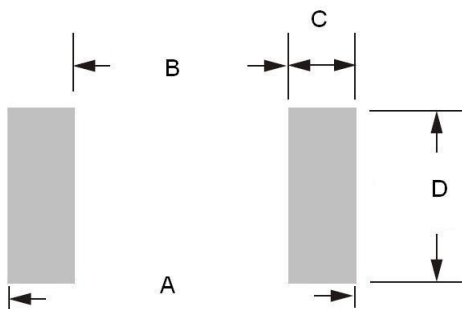


Fig2: Wave soldering profile

- \*1. The recommended profiles are referring to IPC/JEDEC J-STD-020D & IEC-60068-2-58
- \*2. Chip diodes are able to stand maximum soldering temperature up to 260°C max for 10s, and the soldering cycles with max 3 times, referring to IEC-60068-2-58

■ Recommended Soldering Footprint:



■ Reflow/Wave Soldering

Product Size	Dimension/ mm			
	A	B	C	D
0805	2.6-3.4	1.2	0.7-1.1	1.2-1.4

- Storage Condition: Product termination solderability can degrade due to high temperature and humidity or chemical environment. Storage condition must be in an ambient temperature of <40°C and ambient humidity of <75%RH, and free from chemical.

**ENVIRONMENTAL CHARACTERISTICS**

Product	Hazardous Substance or Element/ppm					
	Pb	Cd	Hg	Cr <sup>6+</sup>	PBB	PBDE
	<1000	<100	<1000	<1000	<1000	<1000

Product	Halogen Substance/ ppm				
	F	Cl	Br	I	Total
	<900	<900	<900	<900	<1500

**PACKING METHOD**

Product	Quantity/Reel	Reel Size	Tape
	5,000pcs	7"	Paper

**DISCLAIMERS**

These products are not designed for use in applications where any failure or malfunction may result in personal injury, death or severe property or environmental damage such as medical, military, aircraft, space or life support equipments.