



Zener Diodes

CDZ55B Series



FEATURES

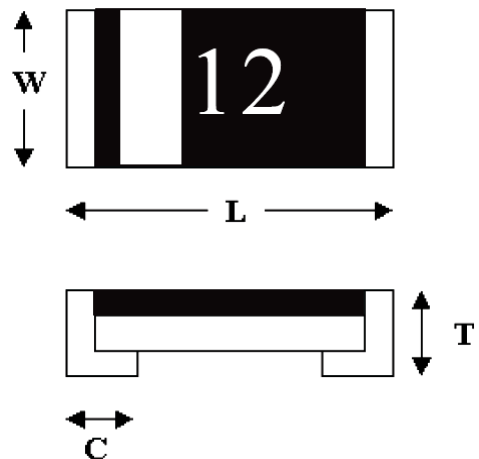
- Silicon planar power zener diodes
- SMD chip pattern, available in various dimension included 0805 (CDZ55B-S series)
- Leadfree and RoHS compliance components

MECHANICAL CHARACTERISTICS

- Size: 1206
- Weight: approx. 10mg
- Marking: Zener voltage & cathode terminal

DIMENSIONS

Dimension/mm	1206
L	3.2±0.2
W	1.5±0.2
T	0.85±0.1
C	0.55±0.2



MAXIMUM RATING & THERMAL CHARACTERISTICS¹⁾

Parameter at T _{amb} =25°C ¹⁾	Symbol	Value	Unit
Power Dissipation	P _{tot}	500	mW
Repetitive Peak Forward Current	I _{FRM}	200	mA
Junction Temperature	T _j	150	°C
Thermal Resistance Junction to Ambient air	R _{θJA}	300	°C/W
Operating & Storage Temperature range	T _{opr. sta}	-55 to 150	°C

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

**ELECTRICAL CHARACTERISTICS¹⁾**

Parameter at T _{amb} =25°C ¹⁾	Symbol	Value	Unit
Forward Voltage at I _F =200mA	V _F	1.5 _{MAX}	V
Zener Voltage Tolerance, B=±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	Ω	mA	Ω	mA	μA	V
CDZ55B2V4	2V4	2.35	2.45	85	5	600	1	50	1
CDZ55B2V7	2V7	2.65	2.75	85	5	600	1	10	1
CDZ55B3V0	3	2.94	3.06	85	5	600	1	4	1
CDZ55B3V3	3V3	3.23	3.37	85	5	600	1	2	1
CDZ55B3V6	3V6	3.53	3.67	85	5	600	1	2	1
CDZ55B3V9	3V9	3.82	3.98	85	5	600	1	2	1
CDZ55B4V3	4V3	4.21	4.39	80	5	600	1	1	1
CDZ55B4V7	4V7	4.61	4.79	70	5	600	1	0.5	1
CDZ55B5V1	5V1	5.00	5.20	50	5	550	1	0.1	1
CDZ55B5V6	5V6	5.49	5.71	30	5	450	1	0.1	1
CDZ55B6V2	6V2	6.08	6.32	10	5	200	1	0.1	2
CDZ55B6V8	6V8	6.66	6.94	8	5	150	1	0.1	3
CDZ55B7V5	7V5	7.35	7.65	7	5	50	1	0.1	5
CDZ55B8V2	8V2	8.04	8.36	7	5	50	1	0.1	6.2
CDZ55B9V1	9V1	8.92	9.28	10	5	50	1	0.1	6.8
CDZ55B10	10	9.80	10.20	15	5	70	1	0.1	7.5
CDZ55B11	11	10.78	11.22	20	5	70	1	0.1	8.2
CDZ55B12	12	11.76	12.24	20	5	90	1	0.1	9.1
CDZ55B13	13	12.74	13.26	26	5	110	1	0.1	10
CDZ55B15	15	14.70	15.30	30	5	110	1	0.1	11
CDZ55B16	16	15.68	16.32	40	5	170	1	0.1	12
CDZ55B18	18	17.64	18.36	50	5	170	1	0.1	13
CDZ55B20	20	19.60	20.40	55	5	220	1	0.1	15
CDZ55B22	22	21.56	22.44	55	5	220	1	0.1	16
CDZ55B24	24	23.52	24.48	80	5	220	1	0.1	18
CDZ55B27	27	26.46	27.54	80	5	220	1	0.1	20
CDZ55B30	30	29.40	30.60	80	5	220	1	0.1	22
CDZ55B33	33	32.34	33.66	80	5	220	1	0.1	24
CDZ55B36	36	35.28	36.72	80	5	220	1	0.1	27
CDZ55B39	39	38.22	39.78	90	2.5	500	0.5	0.1	29.3
CDZ55B43	43	42.14	43.86	90	2.5	600	0.5	0.1	32.3
CDZ55B47	47	46.06	47.94	110	2.5	700	0.5	0.1	35.3
CDZ55B51	51	49.98	52.02	125	2.5	700	0.5	0.1	38.3
CDZ55B56	56	54.88	57.12	135	2.5	1000	0.5	0.1	42
CDZ55B62	62	60.76	63.24	150	2.5	1000	0.5	0.1	46.5



CDZ55B68	68	66.64	69.36	200	2.5	1000	0.5	0.1	51
CDZ55B75	75	73.50	76.50	250	2.5	1500	0.5	0.1	56.3

TYPICAL CHARACTERISTICS

Figure 1. Forward current vs Forward Voltage

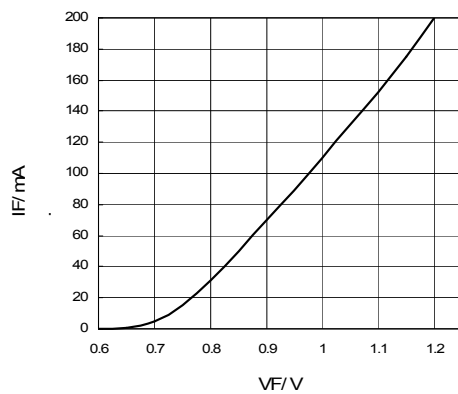
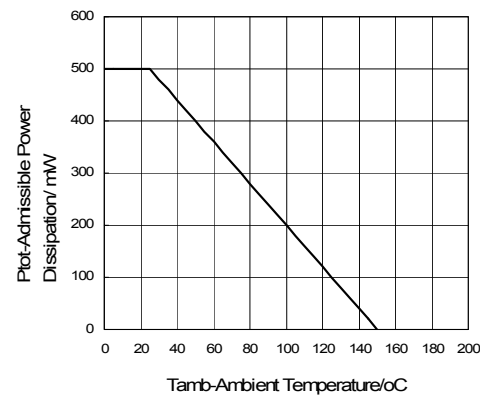


Figure 2. Power De-rating



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

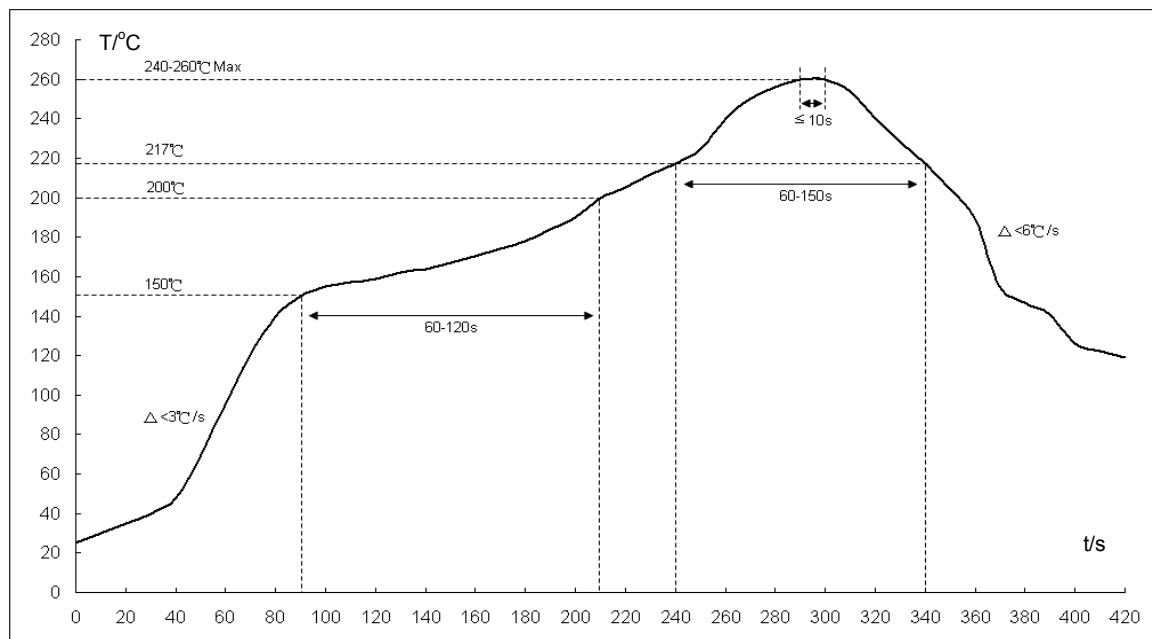


Fig1: Reflow soldering profile for lead-free solder (SnAgCu)

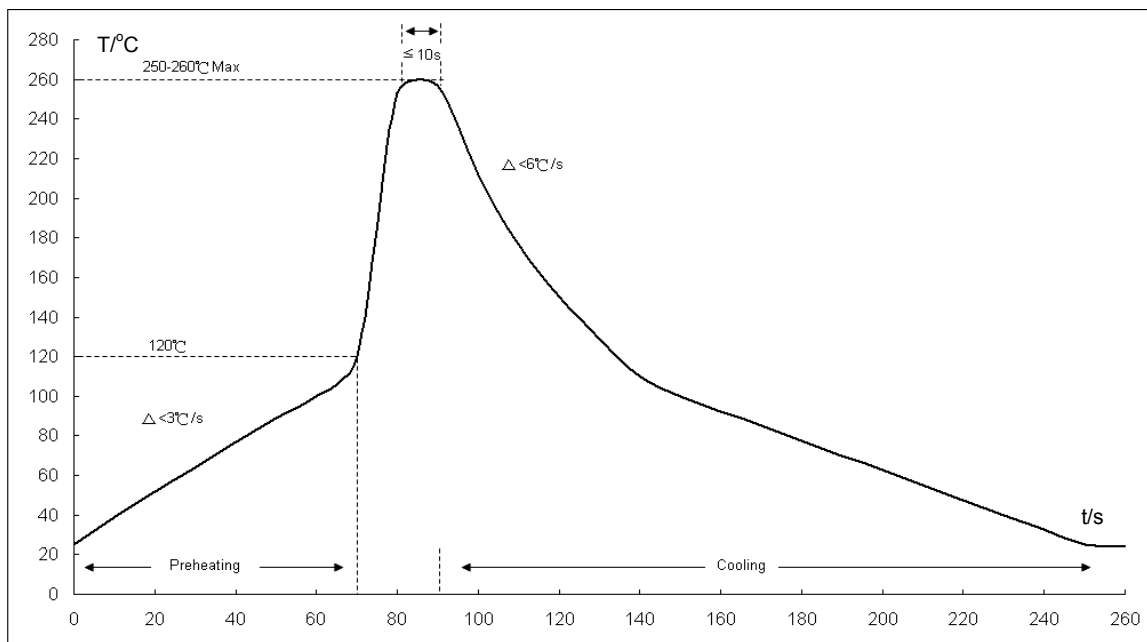
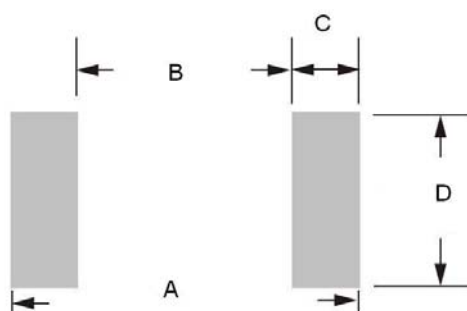


Fig2: Wave soldering profile

- *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
1206	3.8-4.6	2.2	0.8-1.2	1.5-1.7

- 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 ⁶⁺	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	Quality/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.