



## Zener Diodes

### CDZ55C Series



#### FEATURES

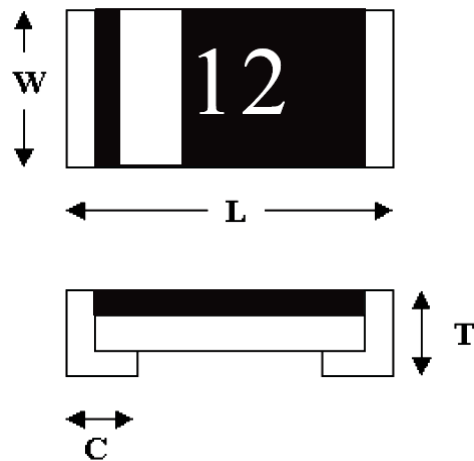
- Silicon planar power zener diodes
- SMD chip pattern, available in various dimension included 0805(CDZ55C-S series) & 0603(CDZ55C-T series)
- Leadfree and RoHS compliance components

#### 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 CHARACTERISTICS<sup>1)</sup>

Parameter at T <sub>amb</sub> =25°C <sup>1)</sup>	Symbol	Value	Unit
Power Dissipation	P <sub>tot</sub>	500	mW
Repetitive Peak Forward Current	I <sub>FRM</sub>	200	mA
Junction Temperature	T <sub>j</sub>	150	°C
Thermal Resistance Junction to Ambient air	R <sub>θJA</sub>	300	°C/W
Operating & Storage Temperature range	T <sub>opr, stg</sub>	-55 to 150	°C

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



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

Parameter at T <sub>amb</sub> =25°C <sup>1)</sup>	Symbol	Value	Unit
Forward Voltage at I <sub>F</sub> =200mA	V <sub>F</sub>	1.5 <sub>MAX</sub>	V
Zener Voltage Tolerance, C=±5%			

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 <sub>Z</sub> @ I <sub>ZT</sub>		Z <sub>ZT</sub> @ I <sub>ZT</sub>		Z <sub>ZK</sub> @ I <sub>ZK</sub>		I <sub>R</sub> @ V <sub>R</sub>	
		Min V	Max V	Ω	mA	Ω	mA	μA	V
CDZ55C2V0	2	1.90	2.10	85	5	600	1	100	1
CDZ55C2V2	2V2	2.09	2.31	85	5	600	1	75	1
CDZ55C2V4	2V4	2.28	2.52	85	5	600	1	50	1
CDZ55C2V7	2V7	2.57	2.84	85	5	600	1	10	1
CDZ55C3V0	3	2.85	3.15	85	5	600	1	4	1
CDZ55C3V3	3V3	3.14	3.47	85	5	600	1	2	1
CDZ55C3V6	3V6	3.42	3.78	85	5	600	1	2	1
CDZ55C3V9	3V9	3.71	4.10	85	5	600	1	2	1
CDZ55C4V3	4V3	4.09	4.52	80	5	600	1	1	1
CDZ55C4V7	4V7	4.47	4.94	70	5	600	1	0.5	1
CDZ55C5V1	5V1	4.85	5.36	50	5	550	1	0.1	1
CDZ55C5V6	5V6	5.32	5.88	30	5	450	1	0.1	1
CDZ55C6V2	6V2	5.89	6.51	10	5	200	1	0.1	2
CDZ55C6V8	6V8	6.46	7.14	8	5	150	1	0.1	3
CDZ55C7V5	7V5	7.13	7.88	7	5	50	1	0.1	5
CDZ55C8V2	8V2	7.79	8.61	7	5	50	1	0.1	6.2
CDZ55C9V1	9V1	8.65	9.56	10	5	50	1	0.1	6.8
CDZ55C10	10	9.50	10.50	15	5	70	1	0.1	7.5
CDZ55C11	11	10.45	11.55	20	5	70	1	0.1	8.2
CDZ55C12	12	11.40	12.60	20	5	90	1	0.1	9.1
CDZ55C13	13	12.35	13.65	26	5	110	1	0.1	10
CDZ55C15	15	14.25	15.75	30	5	110	1	0.1	11
CDZ55C16	16	15.20	16.80	40	5	170	1	0.1	12
CDZ55C18	18	17.10	18.90	50	5	170	1	0.1	13
CDZ55C20	20	19.00	21.00	55	5	220	1	0.1	15
CDZ55C22	22	20.90	23.10	55	5	220	1	0.1	16
CDZ55C24	24	22.80	25.20	80	5	220	1	0.1	18
CDZ55C27	27	25.65	28.35	80	5	220	1	0.1	20
CDZ55C30	30	28.50	31.50	80	5	220	1	0.1	22
CDZ55C33	33	31.35	34.65	80	5	220	1	0.1	24
CDZ55C36	36	34.20	37.80	80	5	220	1	0.1	27
CDZ55C39	39	37.05	40.95	90	2.5	500	0.5	0.1	29.3
CDZ55C43	43	40.85	45.15	90	2.5	600	0.5	0.1	32.3
CDZ55C47	47	44.65	49.35	110	2.5	700	0.5	0.1	35.3
CDZ55C51	51	48.45	53.55	125	2.5	700	0.5	0.1	38.3



CDZ55C56	56	53.20	58.80	135	2.5	1000	0.5	0.1	42
CDZ55C62	62	58.90	65.10	150	2.5	1000	0.5	0.1	46.5
CDZ55C68	68	64.60	71.40	200	2.5	1000	0.5	0.1	51
CDZ55C75	75	71.25	78.75	250	2.5	1500	0.5	0.1	56.3

**TYPICAL CHARACTERISTICS**

Figure 1. Forward current vs Forward Voltage

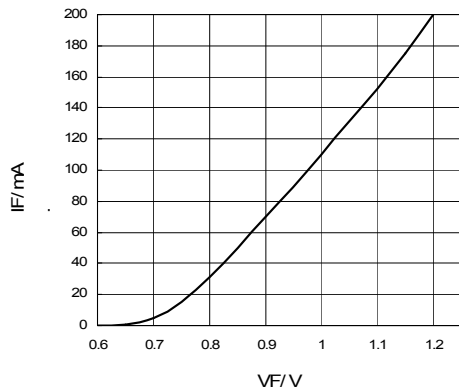
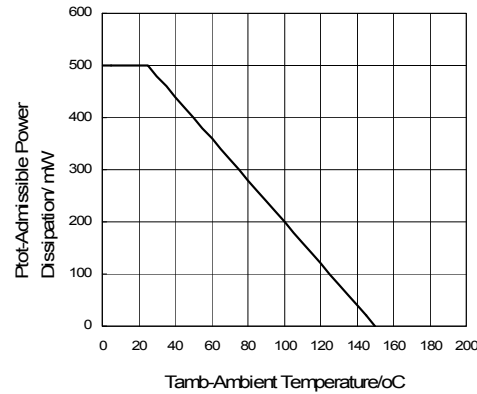


Figure 2. Power De-rating



**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 <sub>Z</sub> , Z <sub>ZT</sub> , Z <sub>ZK</sub> , I <sub>R</sub> & V <sub>F</sub> within spec; no mechanical damage
Humidity Steady State	At 85°C 85%RH for 168hrs	V <sub>Z</sub> , Z <sub>ZT</sub> , Z <sub>ZK</sub> , I <sub>R</sub> & V <sub>F</sub> within spec
Continue Forward Operating Life	At 25°C I <sub>F</sub> = 1.1I <sub>F</sub> for 1000hrs	V <sub>Z</sub> , Z <sub>ZT</sub> , Z <sub>ZK</sub> , I <sub>R</sub> & V <sub>F</sub> within spec
Thermal Shock	-55 ±5°C/5min to 150±5°C/5min for 10cycles	V <sub>Z</sub> , Z <sub>ZT</sub> , Z <sub>ZK</sub> , I <sub>R</sub> & V <sub>F</sub> within spec
Bending Strength	Bending up to 2mm for 1cycle	V <sub>Z</sub> , Z <sub>ZT</sub> , Z <sub>ZK</sub> , I <sub>R</sub> & V <sub>F</sub> 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	ΔT<150°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**

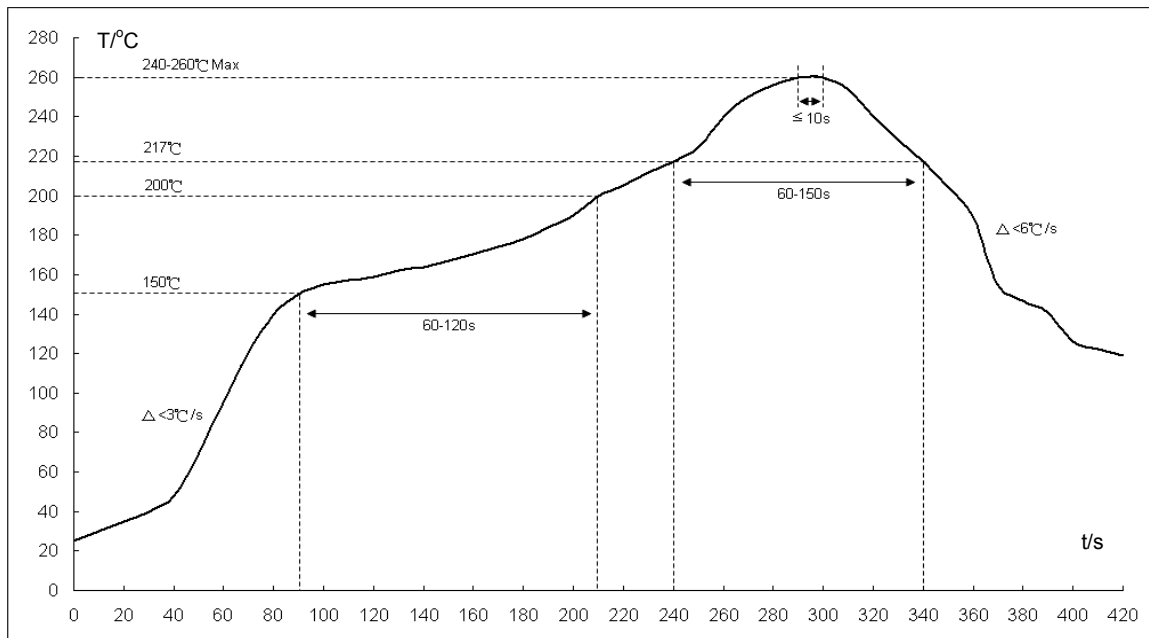


Fig1: Reflow soldering profile for lead-free solder (SnAgCu)

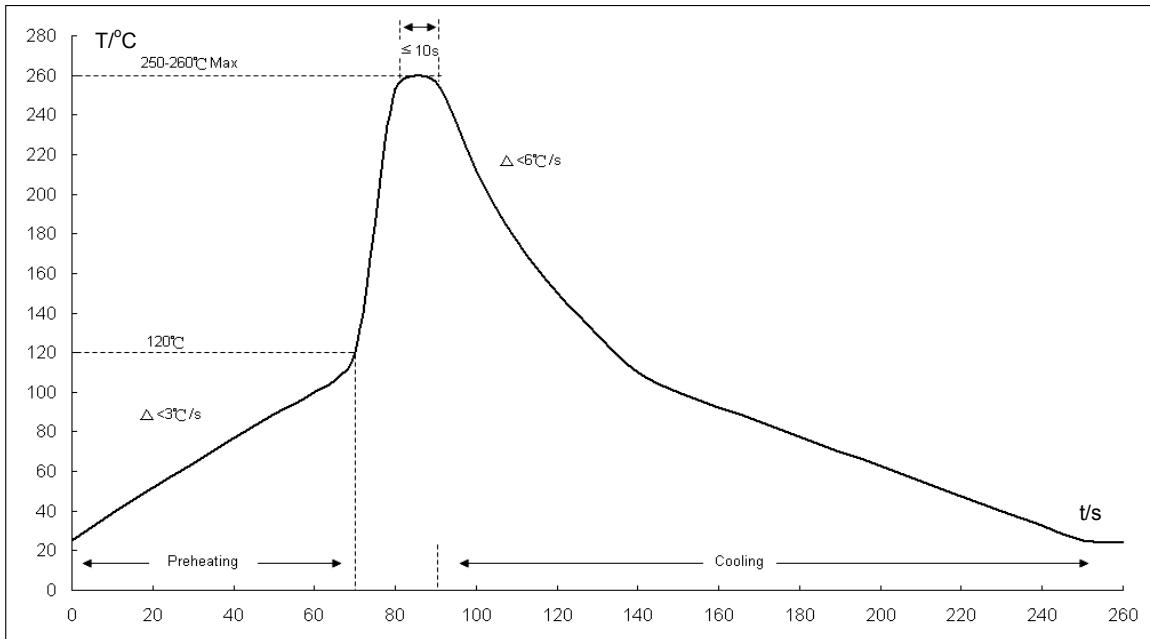
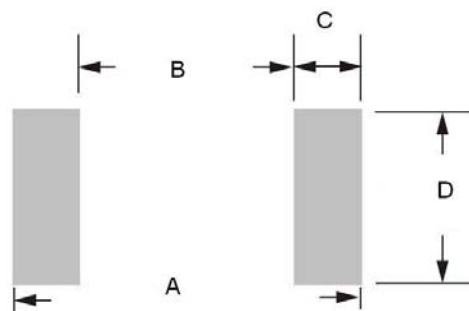


Fig2: Wave soldering profile

- \*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 <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.