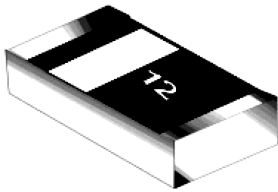


## Zener Diodes

### CDZ55C-T Series



#### FEATURES

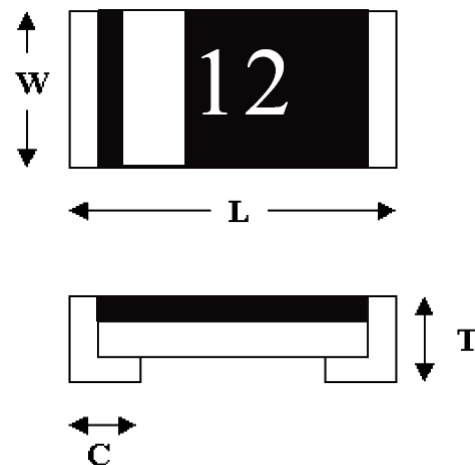
- Silicon planar power zener diodes
- SMD chip pattern, available in various dimension included 1206(CDZ55C series) & 0805(CDZ55C-S series)
- Leadfree and RoHS compliance components

#### MECHANICAL CHARACTERISTICS

- Size: 0603
- Weight: approx. 4mg
- Marking: Zener voltage & cathode terminal

#### DIMENSIONS

Dimension/mm	0603
L	1.55±0.1
W	0.80±0.1
T	0.65±0.1
C	0.35±0.1



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

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

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 <sub>MAX</sub>	V
Zener Voltage Tolerance, $C=\pm 5\%$			

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

Part Number	Marking Code	Nominal Zener Voltage		Max Zener Impedance				Max Reverse Leakage Current	
		$V_Z @ I_{ZT}$		$Z_{ZT} @ I_{ZT}$		$Z_{ZK} @ I_{ZK}$		$I_R @ V_R$	
		Min V	Max V	$\Omega$	mA	$\Omega$	mA	$\mu A$	V
CDZ55C2V0T	B	1.90	2.10	85	5	600	1	100	1
CDZ55C2V2T	B2	2.09	2.31	85	5	600	1	75	1
CDZ55C2V4T	B4	2.28	2.52	85	5	600	1	50	1
CDZ55C2V7T	B7	2.57	2.84	85	5	600	1	10	1
CDZ55C3V0T	C	2.85	3.15	85	5	600	1	4	1
CDZ55C3V3T	C3	3.14	3.47	85	5	600	1	2	1
CDZ55C3V6T	C6	3.42	3.78	85	5	600	1	2	1
CDZ55C3V9T	C9	3.71	4.10	85	5	600	1	2	1
CDZ55C4V3T	D3	4.09	4.52	80	5	600	1	1	1
CDZ55C4V7T	D7	4.47	4.94	70	5	600	1	0.5	1
CDZ55C5V1T	E1	4.85	5.36	50	5	550	1	0.1	1
CDZ55C5V6T	E6	5.32	5.88	30	5	450	1	0.1	1
CDZ55C6V2T	F2	5.89	6.51	10	5	200	1	0.1	2
CDZ55C6V8T	F8	6.46	7.14	8	5	150	1	0.1	3
CDZ55C7V5T	G5	7.13	7.88	7	5	50	1	0.1	5
CDZ55C8V2T	H2	7.79	8.61	7	5	50	1	0.1	6.2
CDZ55C9V1T	I1	8.65	9.56	10	5	50	1	0.1	6.8
CDZ55C10T	10	9.50	10.50	15	5	70	1	0.1	7.5
CDZ55C11T	11	10.45	11.55	20	5	70	1	0.1	8.2
CDZ55C12T	12	11.40	12.60	20	5	90	1	0.1	9.1
CDZ55C13T	13	12.35	13.65	26	5	110	1	0.1	10
CDZ55C15T	15	14.25	15.75	30	5	110	1	0.1	11
CDZ55C16T	16	15.20	16.80	40	5	170	1	0.1	12
CDZ55C18T	18	17.10	18.90	50	5	170	1	0.1	13
CDZ55C20T	20	19.00	21.00	55	5	220	1	0.1	15
CDZ55C22T	22	20.90	23.10	55	5	220	1	0.1	16
CDZ55C24T	24	22.80	25.20	80	5	220	1	0.1	18
CDZ55C27T	27	25.65	28.35	80	5	220	1	0.1	20
CDZ55C30T	30	28.50	31.50	80	5	220	1	0.1	22
CDZ55C33T	33	31.35	34.65	80	5	220	1	0.1	24
CDZ55C36T	36	34.20	37.80	80	5	220	1	0.1	27
CDZ55C39T	39	37.05	40.95	90	2.5	500	0.5	0.1	29.3
CDZ55C43T	43	40.85	45.15	90	2.5	600	0.5	0.1	32.3
CDZ55C47T	47	44.65	49.35	110	2.5	700	0.5	0.1	35.3
CDZ55C51T	51	48.45	53.55	125	2.5	700	0.5	0.1	38.3
CDZ55C56T	56	53.20	58.80	135	2.5	1000	0.5	0.1	42

CDZ55C62T	62	58.90	65.10	150	2.5	1000	0.5	0.1	46.5
CDZ55C68T	68	64.60	71.40	200	2.5	1000	0.5	0.1	51
CDZ55C75T	75	71.25	78.75	250	2.5	1500	0.5	0.1	56.3

**TYPICAL CHARACTERISTICS**

Figure 1. Forward current vs Forward Voltage

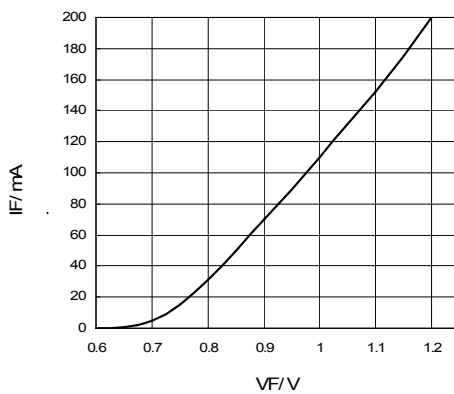
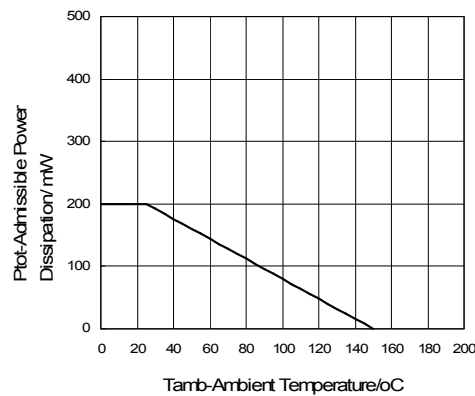


Figure 2. Power De-rating


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

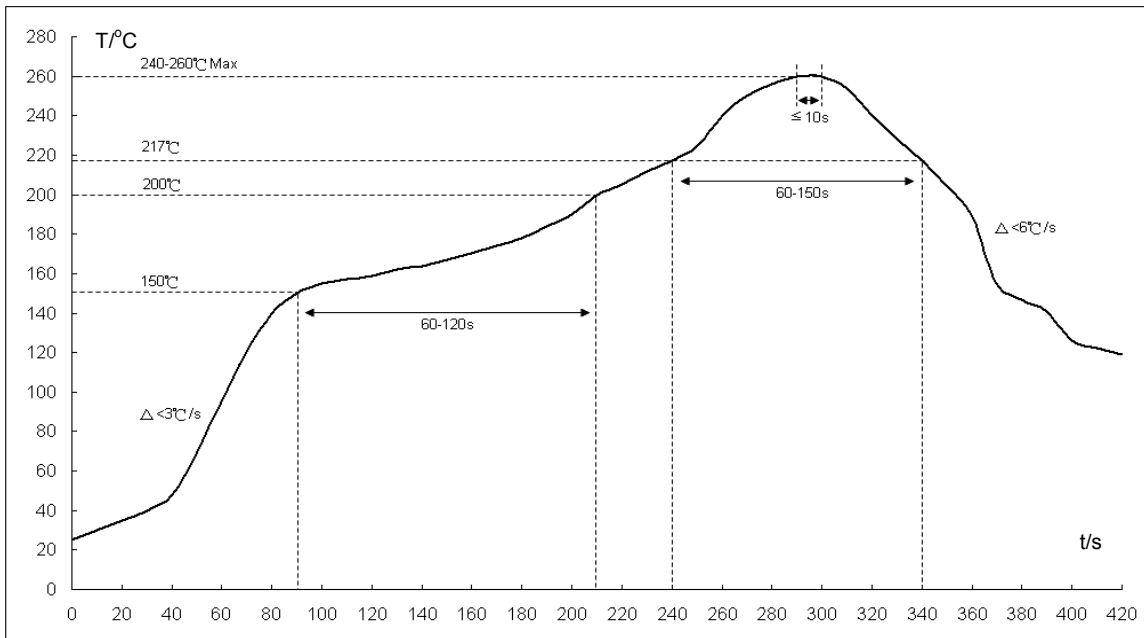
**Recommended Soldering Profile**


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

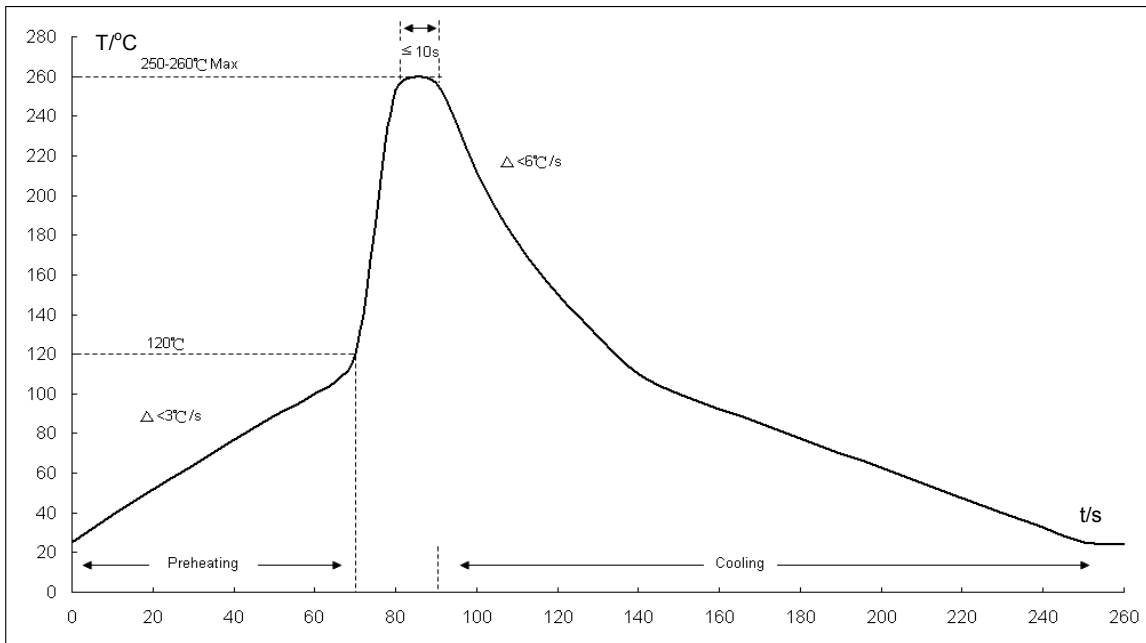
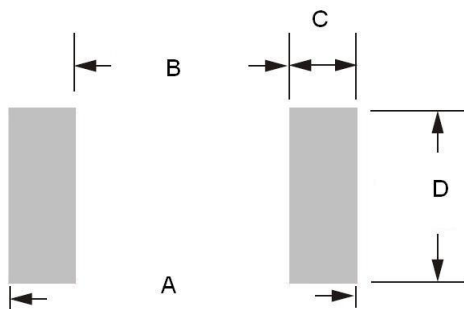


Fig2: Wave soldering profile

- \*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
0603	1.8-2.6	0.8	0.5-0.9	0.8-1.0

- 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.