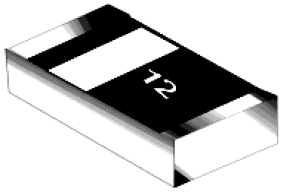
Zener Diodes
CDZ55C-M Series



FEATURES

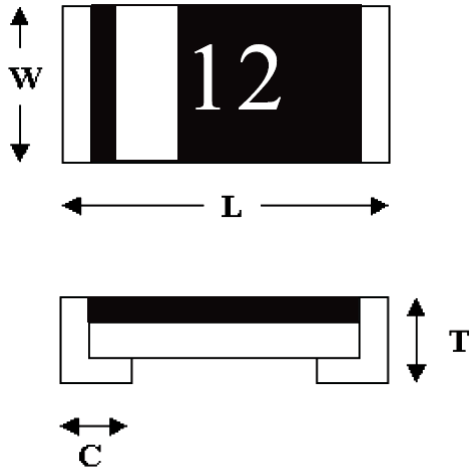
- Silicon planar power zener diodes
- SMD chip pattern, available in various dimension included 0805(CDZ55C-SM series) & 0603(CDZ55C-TM series)
- Leadfree and RoHS compliance components

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	0.75±0.1
C	0.55±0.2



MAXIMUM RATING & THERMAL CHARACTERISTICS[1)]

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	$R_{\theta JA}$	300	°C/W
Operating & Storage Temperature range	$T_{opr, stg}$	-55 to 150	°C

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

ELECTRICAL CHARACTERISTICS[1)]

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, 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_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
CDZ55C5V1M	5V1	4.85	5.36	50	5	550	1	0.1	1
CDZ55C5V6M	5V6	5.32	5.88	30	5	450	1	0.1	1

TYPICAL CHARACTERISTICS

Figure 1. Forward current vs Forward Voltage

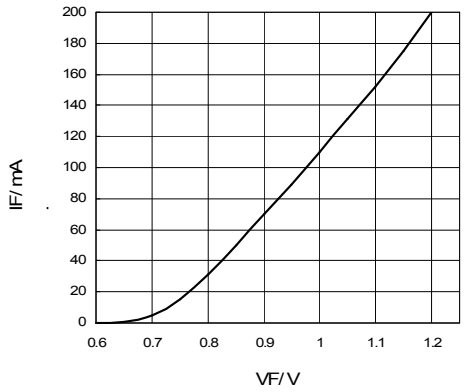
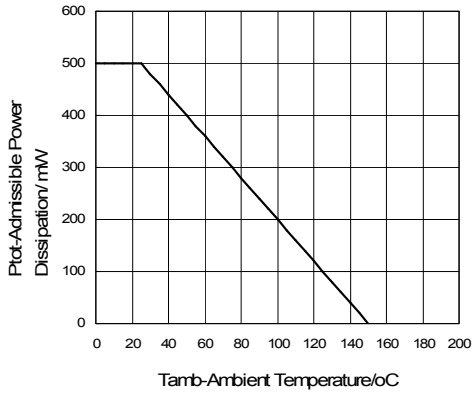


Figure 2. Power De-rating



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	△T<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

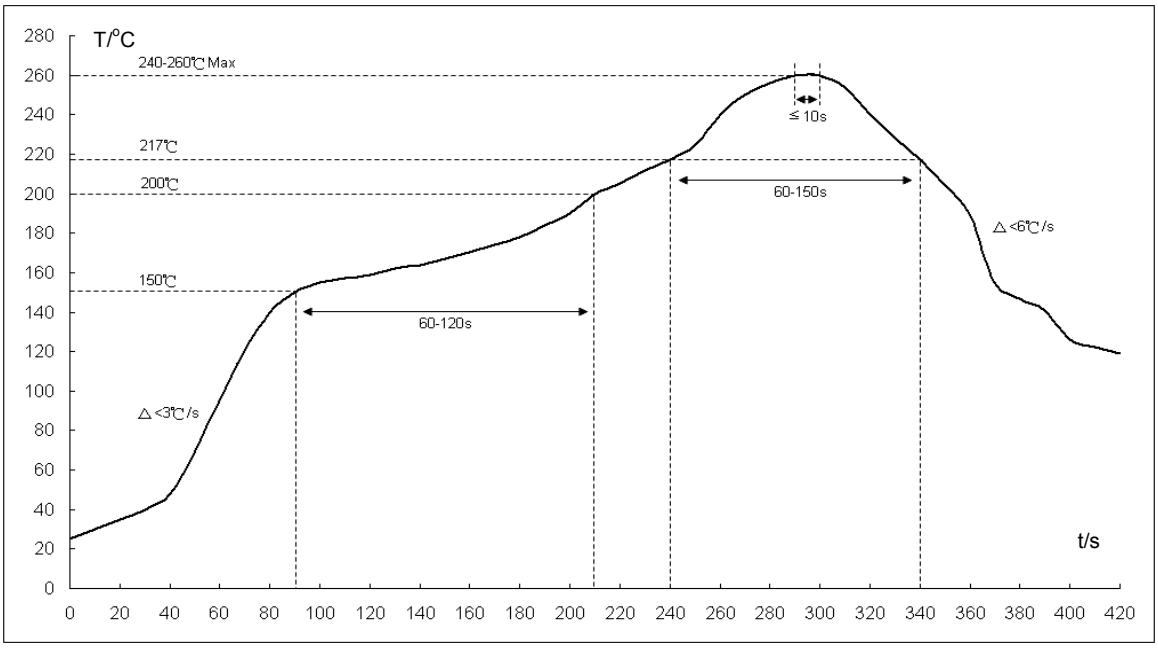


Fig1: Reflow soldering profile for lead-free solder (SnAgCu)

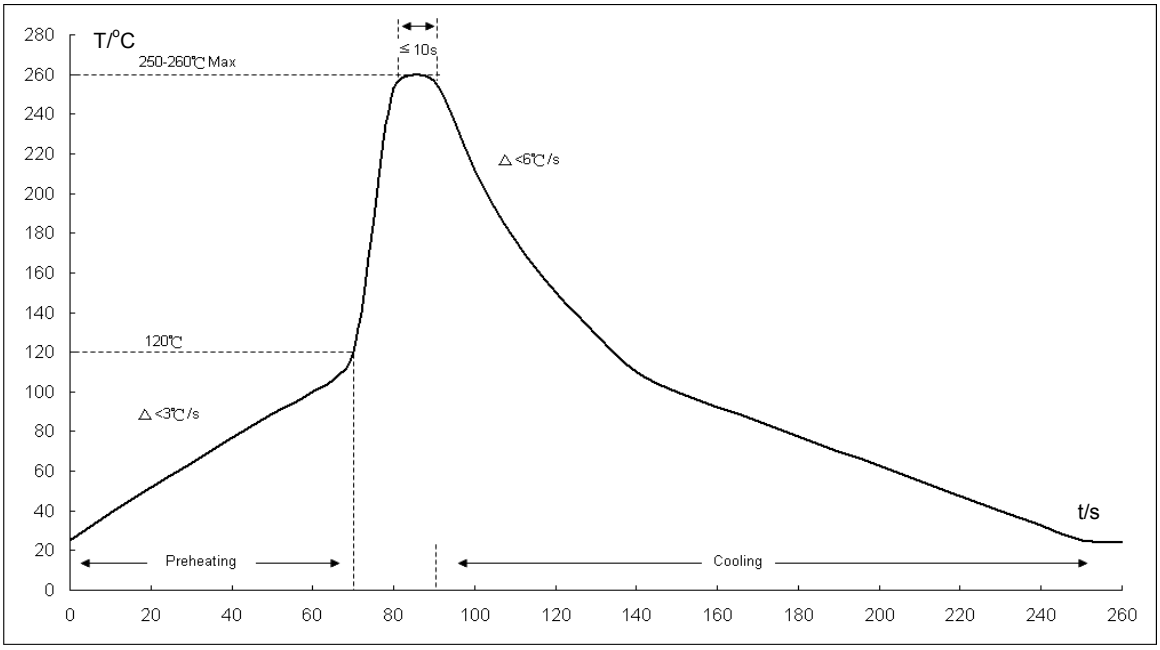
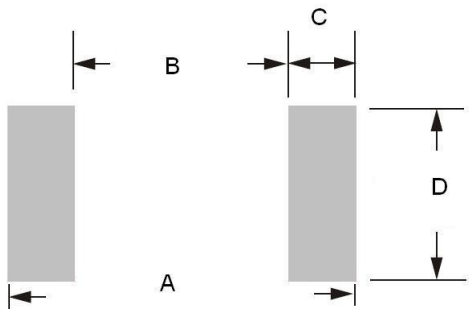


Fig2: Wave soldering profile

*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^{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 resulted in personal injury, death or severe property or environmental damage such as medical, military, aircraft, space or life support equipments.