CL1108 and CLA1108

Multi-phase power inductors



Product features

- High current multi-phase inductor applications
- 50 nH per phase coupled inductor
- CLA Family features acoustic noise dampening properties
- Ferrite core material
- Patents pending
- Moisture Sensitivity Level (MSL): 1

Applications

- For exclusive use with Volterra® or Maxim® VPR-Devices

Environmental data

- Storage temperature range (component): -40 °C to +125 °C
- Operating temperature range: -40 °C to +125 °C (ambient plus self-temperature rise)
- Solder reflow temperature: J-STD-020 (latest revision) compliant

Pb HALOGEN HF FREE RoHS

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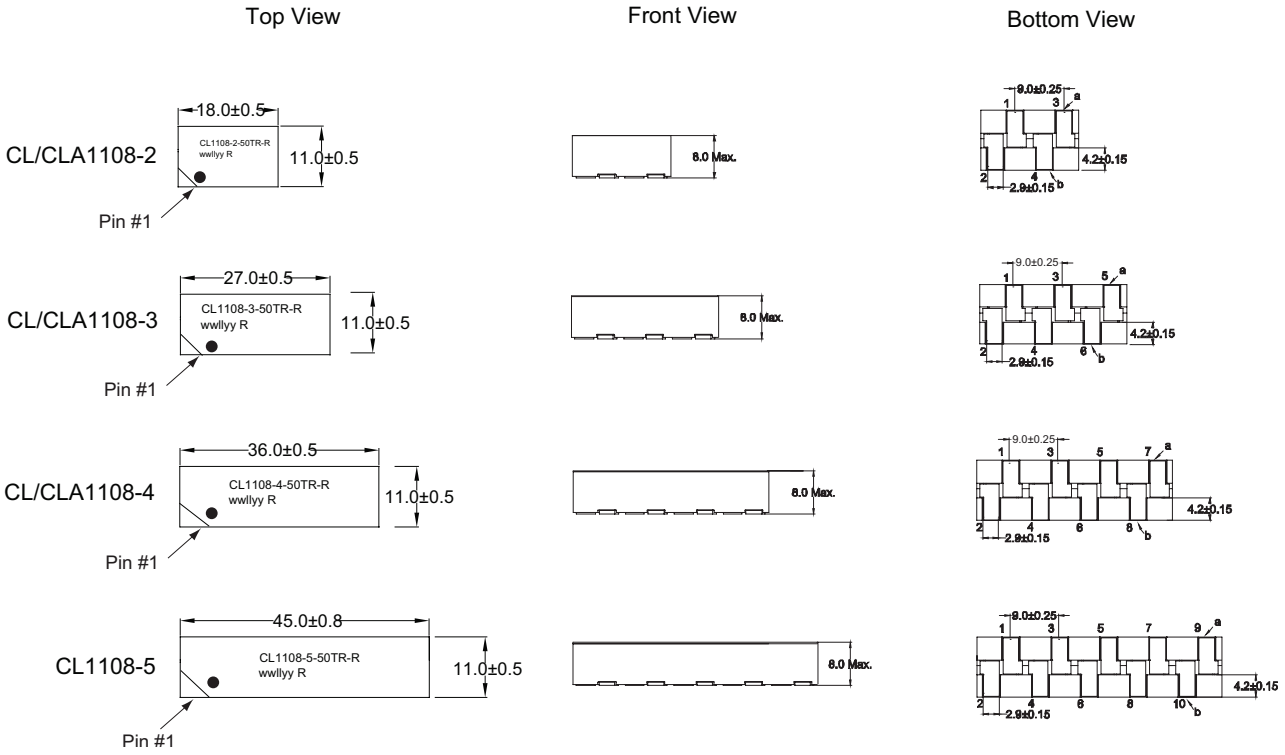
Product specifications

	Functional					Test				
Part number[4,5]	**Inductor phases**	**DCR (mΩ) ±10% @ +20 °C**	**Rated inductance per phase[3] (nH)**	**I Rated per phase[3] (Adc)**	**Imax Peak per phase[3] (Adc)**	**Pin numbers**	**OCL[1,2] (nH)**	**Pin numbers**	**OCL[1,2] (nH)**	**Magnetizing inductance[2] (nH) @ 10 Adc (+25 °C)**
CL1108 Family—Standard										
CL1108-2-50TR-R	2	0.28	50 ± 20%	50	80	(3-4)	380±20%	(1-2)	380±20%	300
CL1108-3-50TR-R	3	0.28	50 ± 20%	50	80	(3-4)	400±20%	(1-2), (5-6)	380±20%	300
CL1108-4-50TR-R	4	0.28	50 ± 20%	50	80	(3-4), (5-6)	400±20%	(1-2), (7-8)	380±20%	300
CL1108-5-50TR-R	5	0.28	50 ± 20%	50	80	(3-4), (5-6), (7-8)	400±20%	(1-2), (9-10)	380±20%	300
CLA1108 Family—Acoustic Noise Dampening										
CLA1108-2-50TR-R	2	0.28	50 ± 20%	50	80	(3-4)	380±20%	(1-2)	380±20%	300
CLA1108-3-50TR-R	3	0.28	50 ± 20%	50	80	(3-4)	400±20%	(1-2), (5-6)	380±20%	300
CLA1108-4-50TR-R	4	0.28	50 ± 20%	50	80	(3-4), (5-6)	400±20%	(1-2), (7-8)	380±20%	300

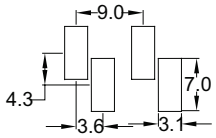
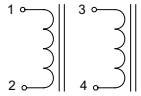
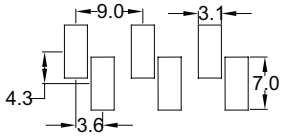
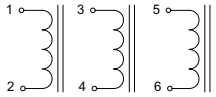
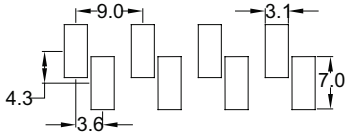
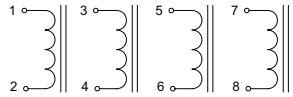
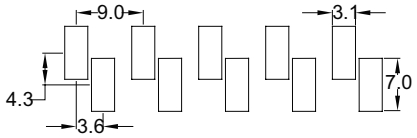
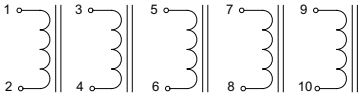
1. Open Circuit Inductance (OCL)
2. Test parameters: 1 MHz, 0.1 Vrms, 0.0 Adc. @ +25 °C
3. The rated current, Imax peak current, and rated inductance per phase is determined by Volterra/Maxim's testing and circuit design. Additional information can be provided by contacting Volterra/Maxim.
4. Part Number Definition: CLx1108-y-50TR-R
   - CL(x)1108 = Product code and size (CL= standard, CLA= Acoustic Noise Dampening)
   - y = number of phases
   - 50 = inductance value per phase nH
   - TR = Tape and reel packaging
   - -R suffix= RoHS compliant
5. This device is licensed for use only when incorporated within a voltage regulator employing power regulating devices manufactured by Volterra Semiconductor, LLC or Maxim Integrated Devices, Inc. No license is granted expressly or by implication to use this device with power regulating devices manufactured by any company other than Volterra or Maxim.

Dimensions (mm)



Part marking: Pin 1 dot, CL1108/CLA1108= (product code and size, CL= standard, CLA= acoustic noise dampening), -2,-3,-4,-5, = (number of phases), -50= inductance value per phase in nH, TR= tape and reel, -R = RoHS compliant
wwllyy = date code, R = revision level
Tolerances are ±0.25 millimeters unless stated otherwise
All soldering surfaces to be coplanar within 0.13 millimeter
Do not route traces or vias underneath the inductor

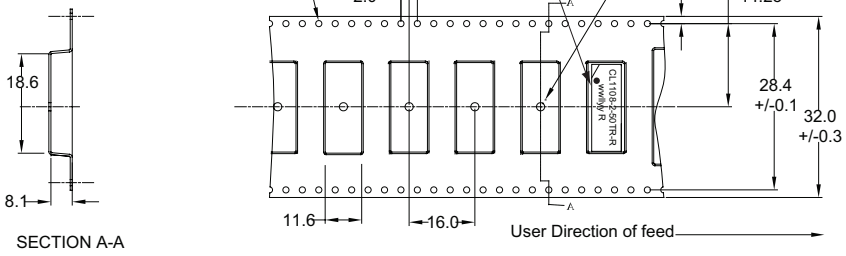
Pad layouts & schematics (mm)

	Recommended Pad Layout	Schematic
CL/CLA1108-2		
CL/CLA1108-3		
CL/CLA1108-4		
CL1108-5		

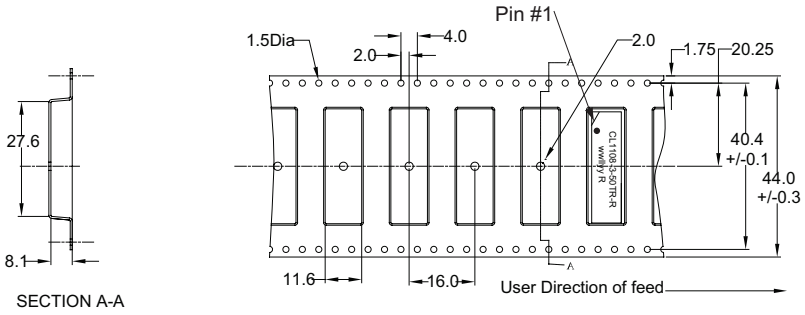
Packaging information (mm)

Supplied in tape and reel packaging on a 13" diameter reel.

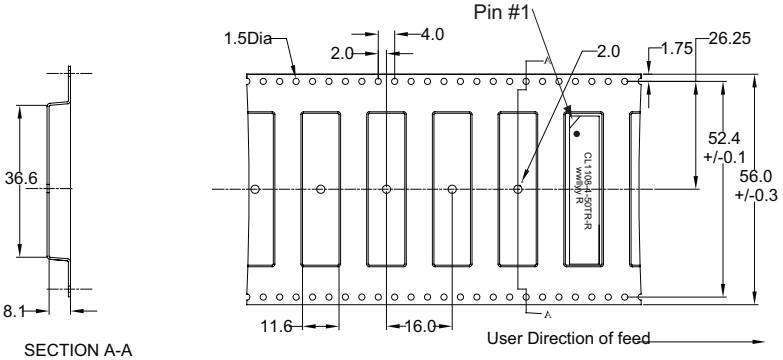
CL/CLA1108-2
500 parts per reel



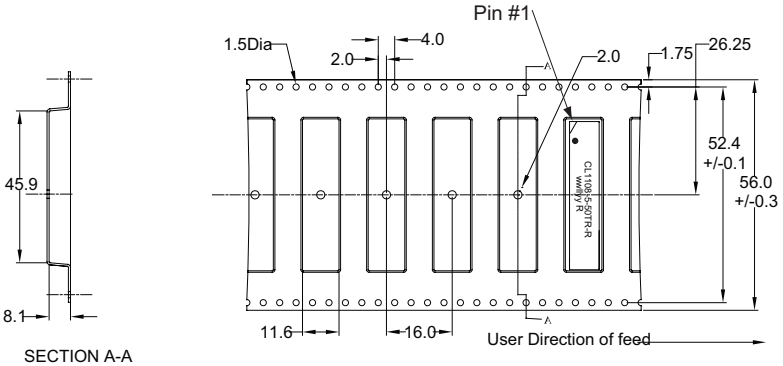
CL/CLA1108-3
200 parts per reel



CL/CLA1108-4
200 parts per reel



CL1108-5
150 parts per reel



Solder reflow profile

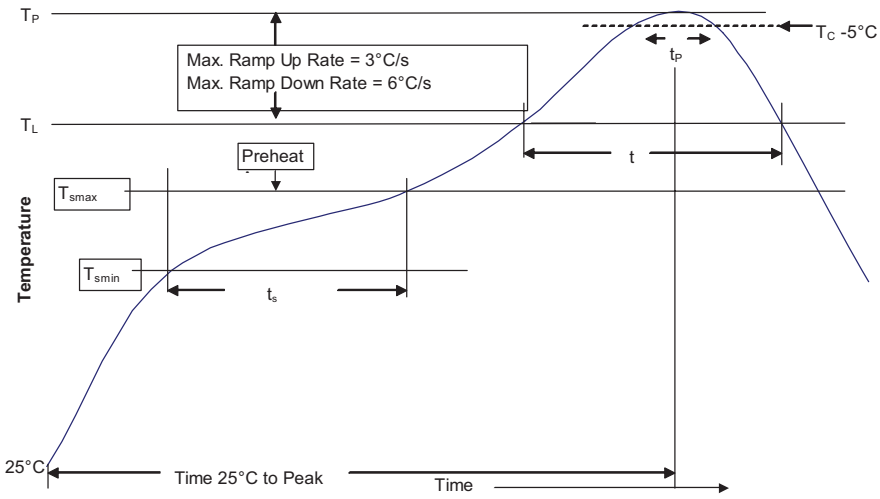


Table 1 - Standard SnPb Solder (T_C)

Package Thickness	Volume mm3 <350	Volume mm3 ≥350
<2.5 mm)	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2 - Lead (Pb) Free Solder (T_C)

Package Thickness	Volume mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 – 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Reference JDEC J-STD-020

Profile Feature		Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak	• Temperature min. (T_{smin})	100 °C	150 °C
	• Temperature max. (T_{smax})	150 °C	200 °C
	• Time (T_{smin} to T_{smax}) (t_s)	60-120 Seconds	60-120 Seconds
Average ramp up rate T_{smax} to T_p		3°C/ Second Max.	3 °C/ Second Max.
Liquidous temperature (T_L) Time at liquidous (t_L)		183 °C 60-150 Seconds	217 °C 60-150 Seconds
Peak package body temperature (T_P)*		Table 1	Table 2
Time (t_p)** within 5 °C of the specified classification temperature (T_C)		20 Seconds**	30 Seconds**
Average ramp-down rate (T_p to T_{smax})		6 °C/ Second Max.	6 °C/ Second Max.
Time 25 °C to Peak Temperature		6 Minutes Max.	8 Minutes Max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.
** Tolerance for time at peak profile temperature (t_p) is defined as a supplier minimum and a user maximum.

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