

# CL1 108 and CLA1 108

## Multi-phase power inductors



### Product description

- High current multi-phase inductor applications
- 50nH per phase coupled inductor
- CLA Family features acoustic noise dampening properties
- Ferrite core material
- Patents pending
- Halogen free, lead free and RoHS compliant

### 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-020D compliant



Volterra® is a registered trademark of Volterra Semiconductor, LLC.

Maxim® is a registered trademark of Maxim Integrated Devices, Inc.

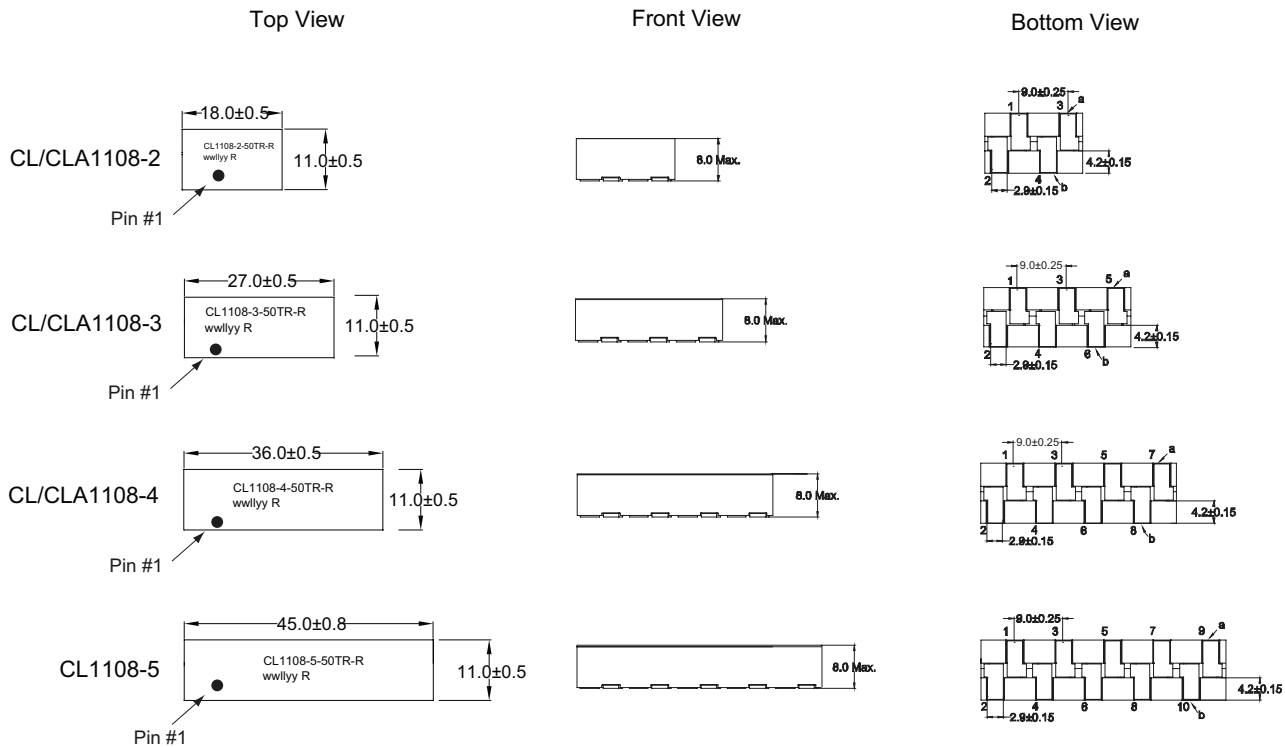
Product Specifications

Part Number <sup>4,5</sup>	Functional					Test				
	Inductor phases	DCR (mΩ) ±10% @20°C	Rated Inductance per Phase <sup>3</sup> (nH)	I Rated per Phase <sup>3</sup> (ADC)	I <sub>max</sub> Peak per Phase <sup>3</sup> (ADC)	Pin numbers	OCL <sup>1,2</sup> (nH)	Pin numbers	OCL <sup>1,2</sup> (nH)	Magnetizing Inductance <sup>2</sup> (nH) @ 10ADC (25°C)
<b>CL1108 Family—Standard</b>										
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
<b>CLA1108 Family—Acoustic Noise Dampening</b>										
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

- Open Circuit Inductance (OCL)
- Test parameters: 1MHz, 0.1Vrms, 0.0Adc, @25°C
- The rated current, I<sub>max</sub> peak current, and rated inductance per phase is determined by Volterra's testing and circuit design. Additional information can be provided by contacting Volterra.
- Part Number Definition: CL1108-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

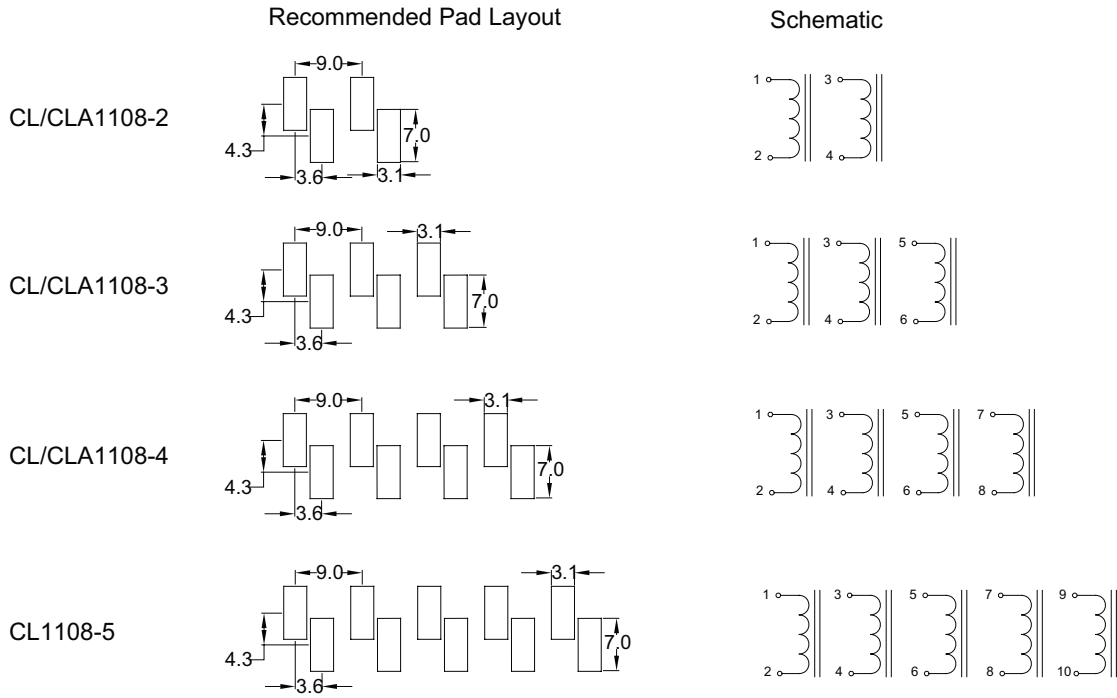
5. This device is licensed for use only when incorporated within a voltage regulator employing power regulating devices manufactured by Volterra Semiconductor, LLC or Maxim Integrated Devices, Inc. No license is granted expressly or by implication to use this device with power regulating devices manufactured 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  
wwllly = 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

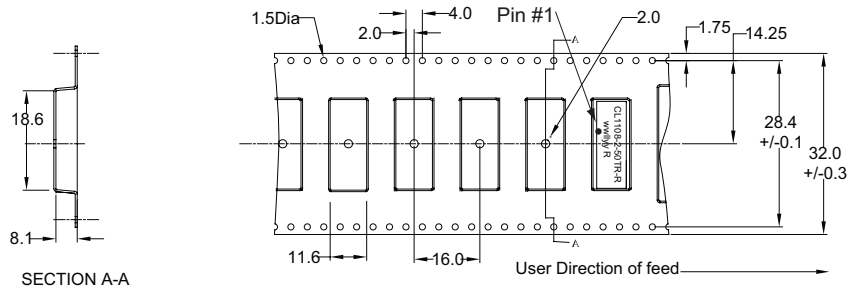
Pad layouts & schematics (mm)



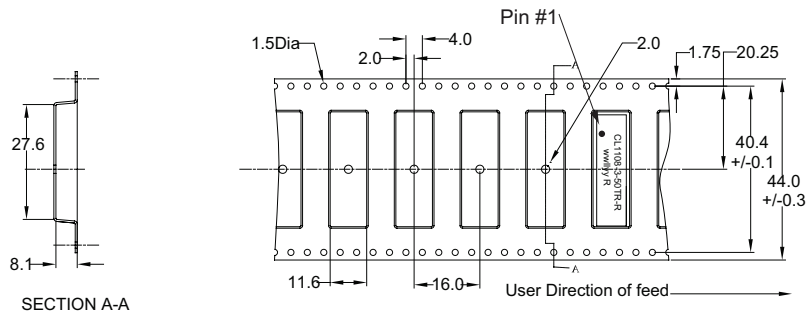
**Packaging Information (mm)**

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

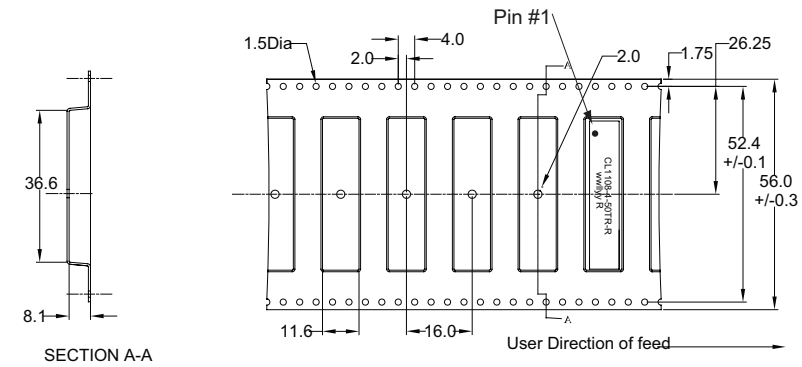
CL/CLA1108-2  
500 parts per reel



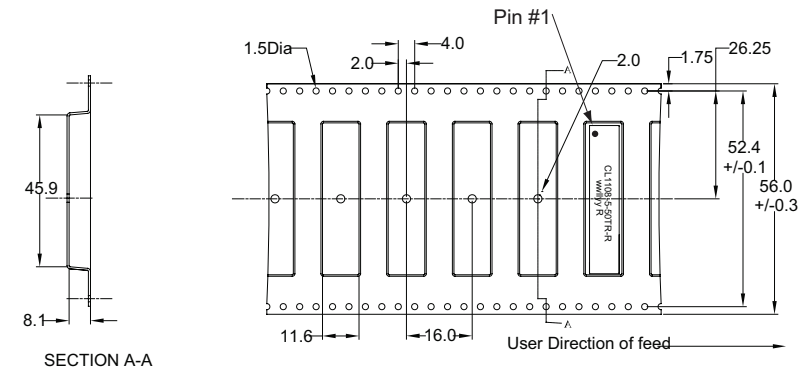
CL/CLA1108-3  
500 parts per reel



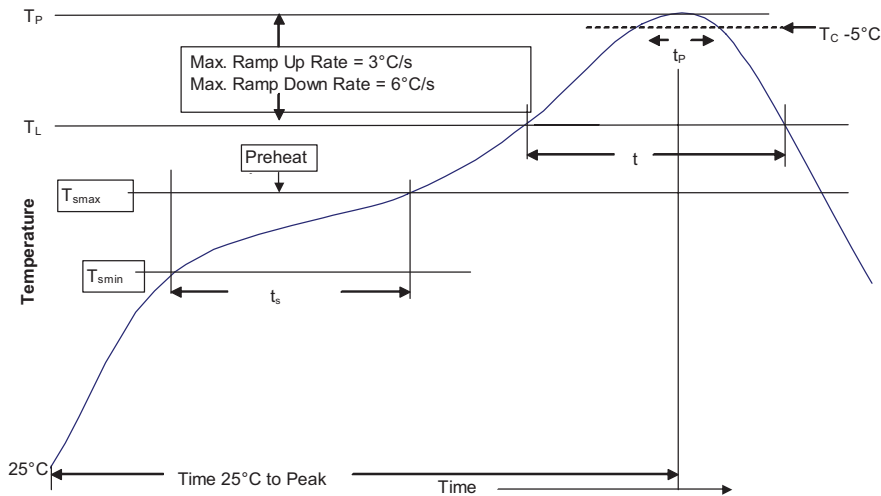
CL/CLA1108-4  
400 parts per reel



CL1108-5  
300 parts per reel



**Solder reflow profile**



**Table 1 - Standard SnPb Solder (T<sub>C</sub>)**

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥350
<2.5mm)	235°C	220°C
≥2.5mm	220°C	220°C

**Table 2 - Lead (Pb) Free Solder (T<sub>C</sub>)**

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >2000
<1.6mm	260°C	260°C	260°C
1.6 – 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

**Reference JDEC J-STD-020D**

Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak		
• Temperature min. (T <sub>smin</sub> )	100°C	150°C
• Temperature max. (T <sub>smax</sub> )	150°C	200°C
• Time (T <sub>smin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> )	60-120 Seconds	60-120 Seconds
Average ramp up rate T <sub>smax</sub> to T <sub>p</sub>	3°C/ Second Max.	3°C/ Second Max.
Liquidous temperature (T <sub>L</sub> )	183°C	217°C
Time at liquidous (t <sub>L</sub> )	60-150 Seconds	60-150 Seconds
Peak package body temperature (T <sub>p</sub> )*	Table 1	Table 2
Time (t <sub>p</sub> )** within 5 °C of the specified classification temperature (T <sub>C</sub> )	20 Seconds**	30 Seconds**
Average ramp-down rate (T <sub>p</sub> to T <sub>smax</sub> )	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<sub>p</sub>) is defined as a supplier minimum and a user maximum.  
\*\* Tolerance for time at peak profile temperature (t<sub>p</sub>) is defined as a supplier minimum and a user maximum.

Life Support Policy: Eaton does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

Eaton reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this bulletin.

**Eaton**  
**Electronics Division**  
1000 Eaton Boulevard  
Cleveland, OH 44122  
United States  
www.eaton.com/elx

© 2015 Eaton  
All Rights Reserved  
Printed in USA  
Publication No. 4380 BU-SB12069  
December 2015

Eaton is a registered trademark.  
All other trademarks are property of their respective owners.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Eaton:](#)

[CL1108-3-50TR-R](#)