CLB1108

Multi-phase power inductors

Product features

- High current multi-phase inductor
- 50 nH per phase coupled inductor
- 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

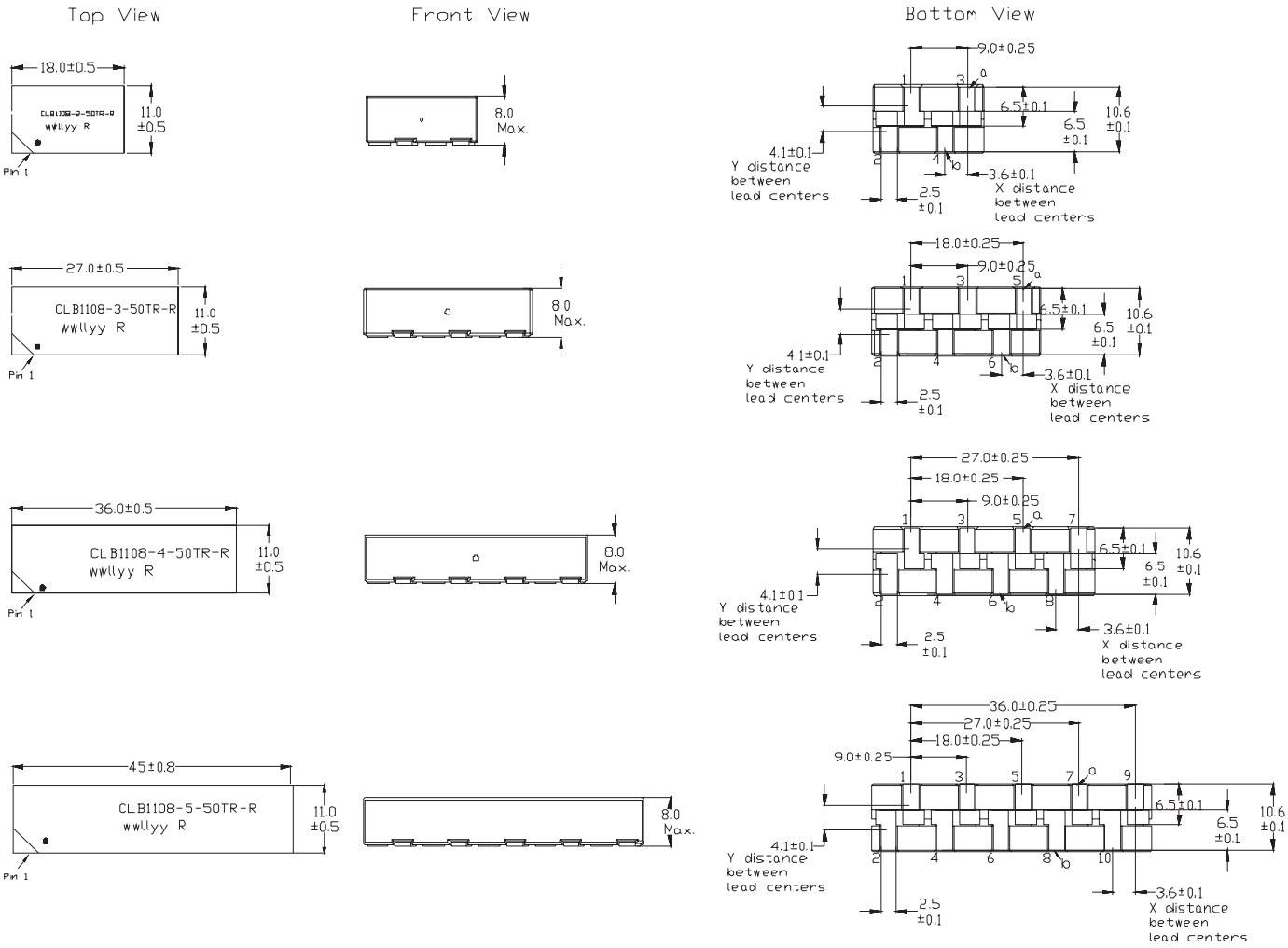
Powering Business Worldwide

Product specifications

Part number[4,5]	Inductor phases	OCL min[1] @ 0.0 Adc (nH)	OCL min[1] @ Isat1	Isat1[2] (A)	OCL min[1A] @ Isat2	Isat2[2] (A)	SCL[3] (nH)	Isat3[2] (A)	DCR ±10% (mΩ) @ +20 °C
CLB1108-2-50TR-R	2	200	150	25	100	23	50	110	0.28
CLB1108-3-50TR-R	3	200	150	25	100	23	50	110	0.28
CLB1108-4-50TR-R	4	200	150	25	100	23	50	110	0.28
CLB1108-5-50TR-R	5	200	150	25	100	23	50	110	0.28

1. Open Circuit Inductance (OCL) Test Parameters: 1 MHz, 0.1 Vrms, @ +25 °C
1A. Open Circuit Inductance (OCL) Test Parameters: 1 MHz, 0.1 Vrms, @ +105 °C
2. Isat1: Peak current at which OCL drops to 150 nH min @ +25 °C
   Isat2: Peak current at which OCL drops to 100 nH min @ +105 °C
   Isat3: Peak current where SCL drops approximately 20% @ +105 °C
3. Short Circuit Inductance (SCL) Test Parameters: 1 MHz, 0.1 Vrms, 0.0 Adc @ +25 °C, ±20%
   - CLB1108-2-50TR-R, short 1 & 4, Measure 2 & 3 and divide by 2.
   - CLB1108-3-50TR-R, short 1 & 4, 3 & 6, Measure 2 & 5 and divide by 3
   - CLB1108-4-50-TR-R, short 1 & 4, 3 & 6, 5 & 8 , Measure 2 & 7, and divide by 4
   - CLB1108-5-50-TR-R, short 1 & 4, 3 & 6, 5 & 8, 7 & 10, Measure 2 & 9 and divide by 5
4. Part Number Definition: CLB1108-X-50TR-R
   CLB1108 = Product code and size
   X = 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, CLB1108= (product code and size), -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

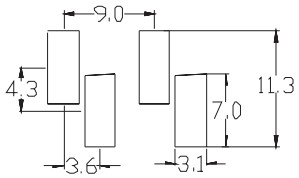
Pad layouts & schematics (mm)

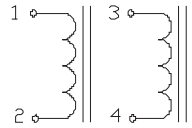
Tolerances are ± 0.1 millimeters unless stated otherwise.

Recommended Pad Layout

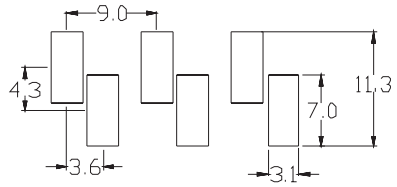
Schematic

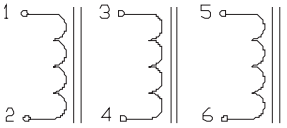
CLB1108-2-50TR-R



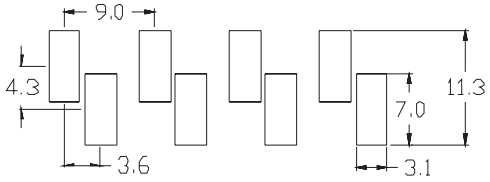


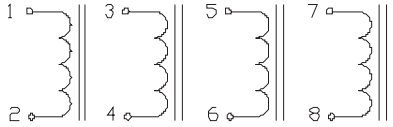
CLB1108-3-50TR-R



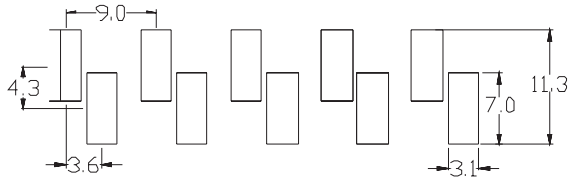


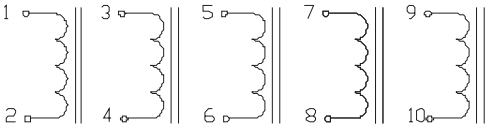
CLB1108-4-50TR-R





CLB1108-5-50TR-R

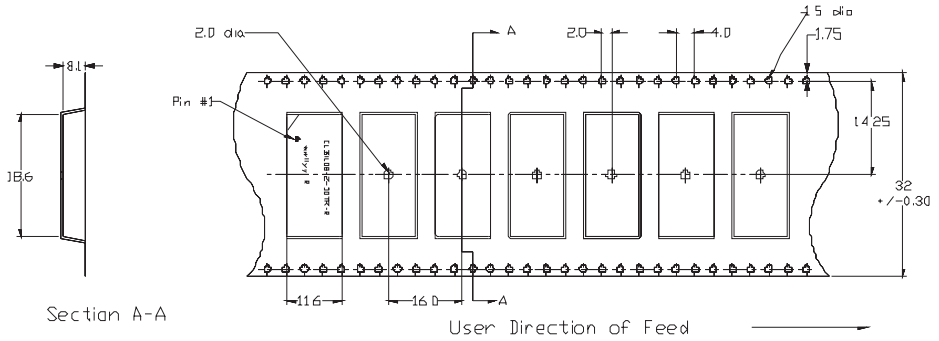




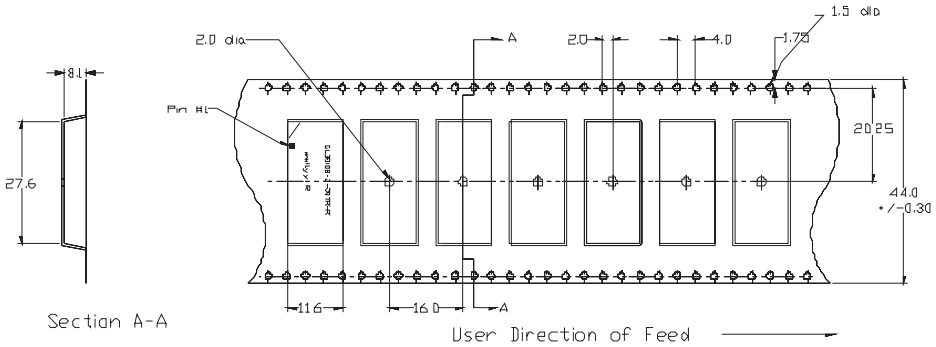
Packaging Information (mm)

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

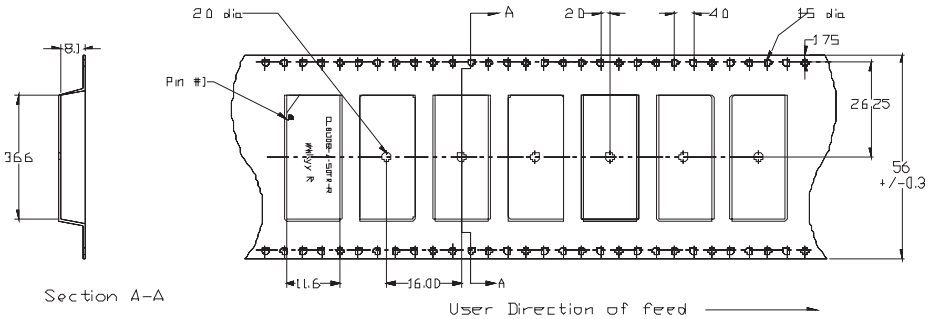
CLB1108-2-50TR-R
500 parts per reel



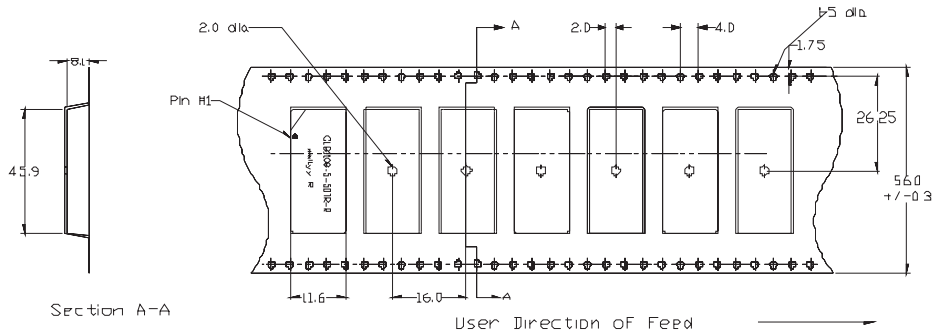
CLB1108-3-50TR-R
200 parts per reel



CLB1108-4-50TR-R
200 parts per reel



CLB1108-5-50TR-R
150 parts per reel



Solder reflow profile

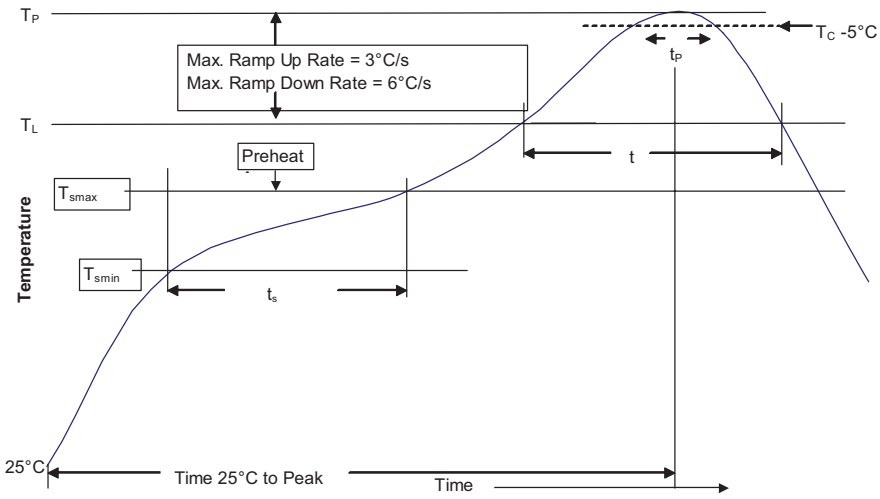


Table 1 - Standard SnPb Solder (T_C)

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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