COILTRONICS

Multi-Phase Power Inductors

CLB1108 Series

SMD Device

Description

- Halogen free, lead free and RoHS compliant
- 125°C maximum total temperature operation
- Designed exclusively for use with Volterra VPR-Devices*
- High current multi-phase inductor
- Ferrite core material
- 50nH per phase coupled inductor
- Patents pending

Applications

- For exclusive use with Volterra® 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

Packaging

- Supplied in tape and reel packaging on a 13" diameter reel:

Series/ Part Number	Reel Quantity
CLB1108-2	500
CLB1108-3	500
CLB1108-4	400
CLB1108-5	300

* This device is licensed for use only when incorporated within a voltage regulator employing power regulating devices manufactured by Volterra Semiconductor Corp. No license is granted expressly or by implication to use this device with power regulating devices manufactured by any company other than Volterra.

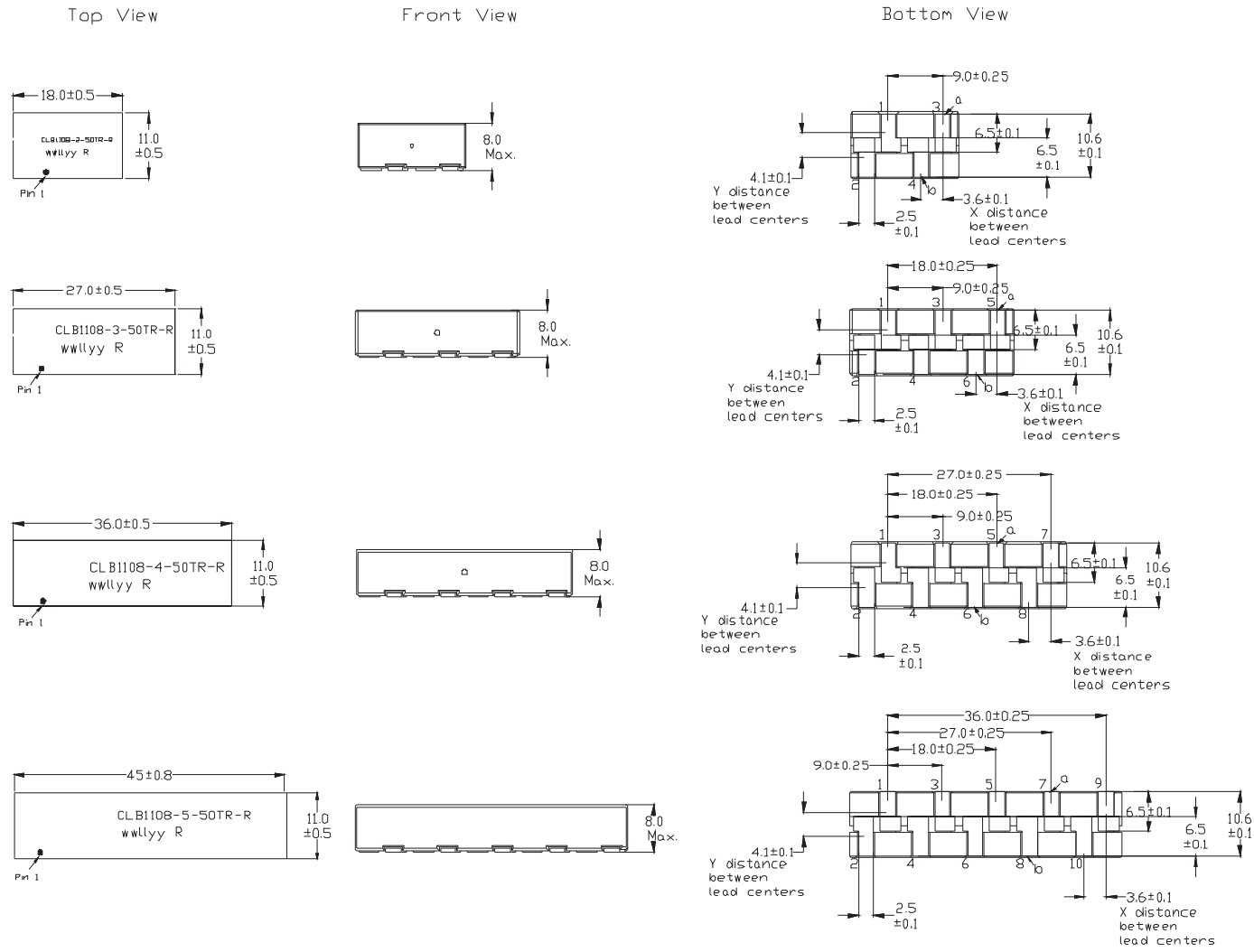
Specifications

Part Number[4]	Inductor Phases	OCL min[1] @0.0Adc (nH)	OCL min[1] @ $I_{sat}1$	Isat1[2] (Amps)	OCL min[1A] @ $I_{sat}2$	$I_{sat}2$[2] (Amps)	SCL[3] (nH)	$I_{sat}3$[2] (Amps)	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: 1MHz, 0.1V_{rms}, @ 25°C
1A. Open Circuit Inductance (OCL) Test Parameters: 1MHz, 0.1V_{rms}, @ 105°C
2. $I_{sat}1$: Peak current at which OCL drops to 150nH min @ 25°C
   $I_{sat}2$: Peak current at which OCL drops to 100nH min @ 105°C
   $I_{sat}3$: Peak current where SCL drops approximately 20% @ 105°C
3. Short Circuit Inductance (SCL) Test Parameters: 1MHz, 0.1V_{rms}, 0.0Adc @ 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

COOPER Bussmann

Dimensions - mm



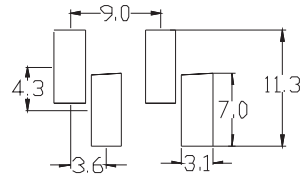
- DCR measured from point “a” to point “b”
- Part marking:
  - Pin 1 dot
  - CLB1108-x-50TR-R CLB1108 = Product code and size
  - x=number of phases
  - 50= inductance value in nH per phase,
  - TR= tape and reel
  - wwllyy= date code
  - R =revision level
- Tolerances are ± 0.25 millimeters unless stated otherwise.
- All soldering surfaces to be be coplanar within 0.13 millimeters.

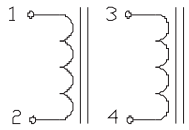
Pad Layouts & Schematics- mm

Recommended Pad Layout

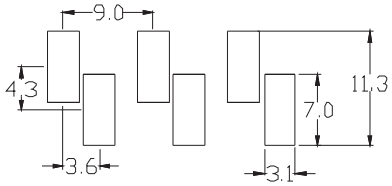
Schematic

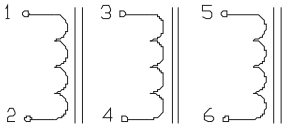
CLB1108-2-50TR-R



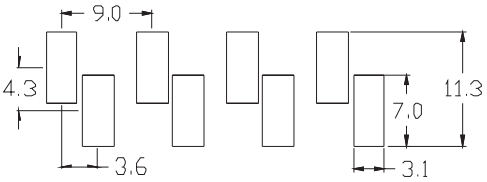


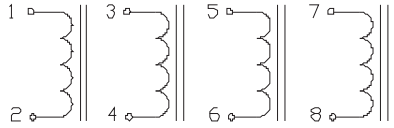
CLB1108-3-50TR-R





CLB1108-4-50TR-R





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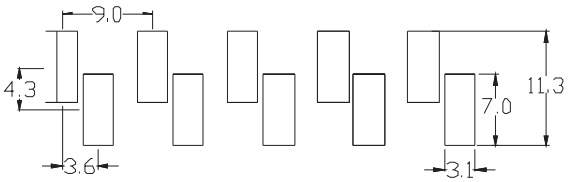
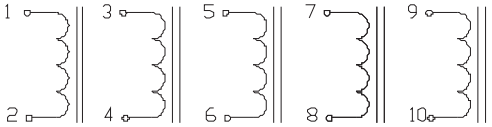
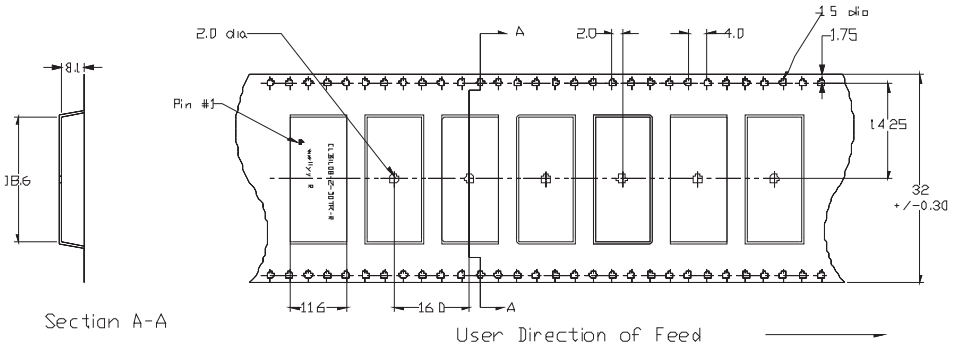




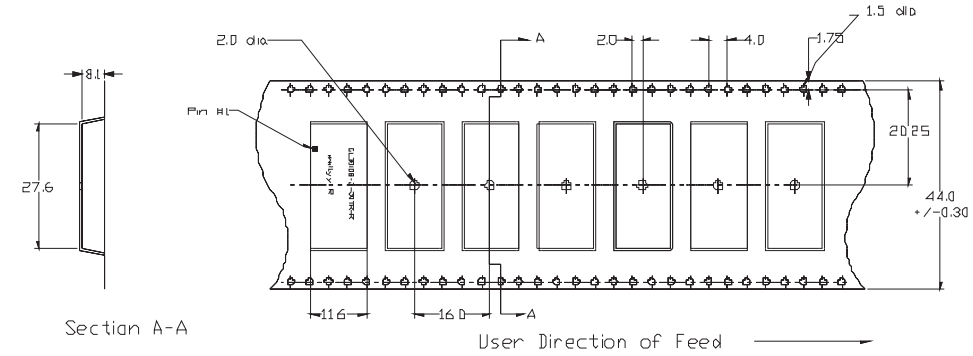
PCB Tolerances are ± 0.1 millimeters unless stated otherwise.

Packaging Information - mm

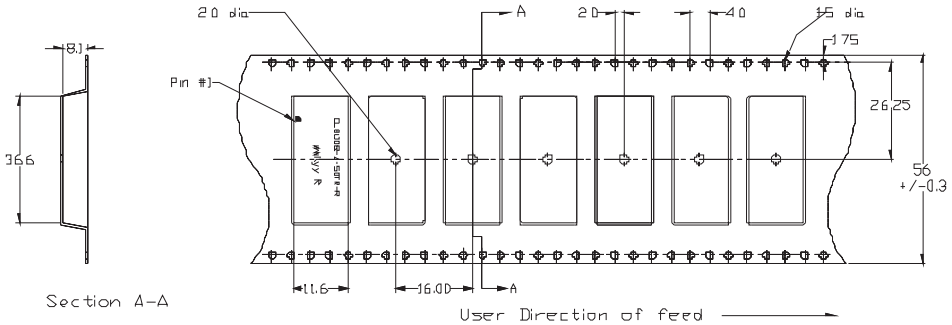
CLB110B-2-50TR-R
500 parts per reel



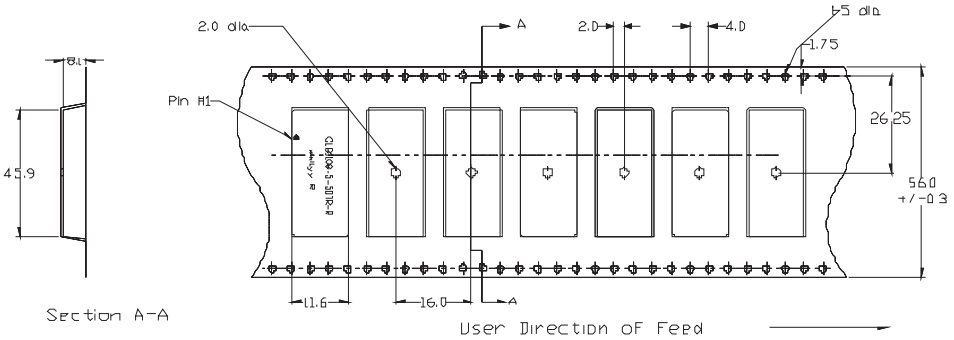
CLB110B-3-50TR-R
500 parts per reel



CLB110B-4-50TR-R
400 parts per reel



CLB110B-5-50TR-R
300 parts per reel



Solder Reflow Profile

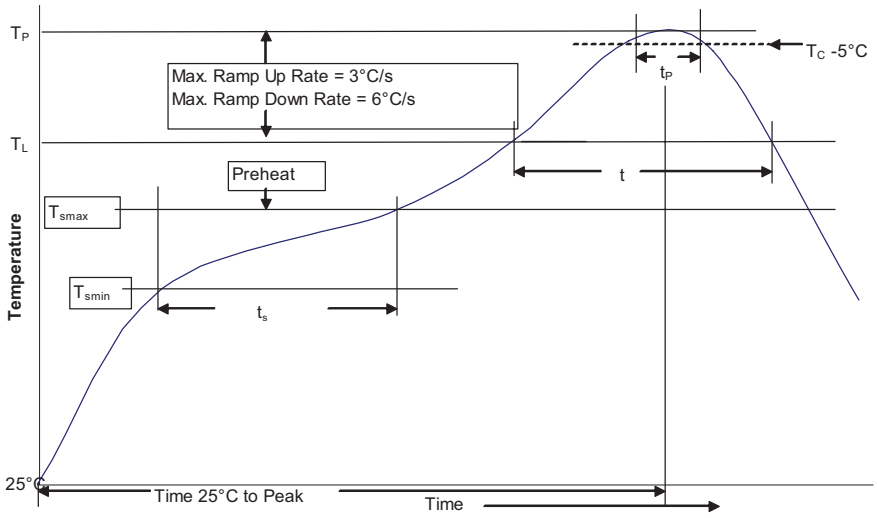


Table 1 - Standard SnPb Solder (T_C)

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

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

Package Thickness	Volume mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >2000
<1.6mm	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_{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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