

Multi-Phase Power Inductors

CPL2-50 Series



Description

- Halogen free, lead free and RoHS compliant
- Designed exclusively for use with Volterra® VPR-Devices ^A
- High current multi-phase inductor applications
- Ferrite core material

- 50nH per phase coupled inductor
- 125°C maximum temperature operation
- Frequency range up to 2MHz
- Patents pending
- Low core loss, high efficiency

Applications

- For exclusive use with Volterra® VPR-Devices

Environmental Data

- Storage temperature range: -40°C to +125°C
- Operating temperature range: -40°C to +125°C (Range is application specific)
- Solder reflow temperature: J-STD-020D compliant

Packaging

- Supplied in tape and reel packaging, 750 (CPL2-2), 600 (CPL2-3), 500 (CPL2-4) and 400 (CPL2-5) parts per reel, 13" diameter reel

Function Specifications						Test Specifications				
Part Number	Inductor Phases	DCR (Ω) $\pm 10\%$ @25°C	Rated Inductance per Phase (nH) ³	I Rated per Phase (Adc) ³	I _{max} Peak per Phase (Adc) ³	Pin Numbers	OCL (nH) ^{1,2}	Pin Numbers	OCL (nH) ^{1,2}	Magnetizing Inductance @ 10Adc (25°C)
CPL2-2-50TR-R	2	0.00028	50 $\pm$ 20%	50	80	(1-2)	380 $\pm$ 20%	(3-4)	380 $\pm$ 20%	300
CPL2-3-50TR-R	3	0.00028	50 $\pm$ 20%	50	80	(3-4)	400 $\pm$ 20%	(1-2), (5-6)	380 $\pm$ 20%	300
CPL2-4-50TR-R	4	0.00028	50 $\pm$ 20%	50	80	(3-4), (5-6)	400 $\pm$ 20%	(1-2), (7-8)	380 $\pm$ 20%	300
CPL2-5-50TR-R	5	0.00028	50 $\pm$ 20%	50	80	(3-4), (5-6), (7-8)	400 $\pm$ 20%	(1-2), (9-10)	380 $\pm$ 20%	300

1 OCL (Open Circuit Inductance)

2 Test parameters: 1MHz, 0.1V_{rms}, 0.0Adc.

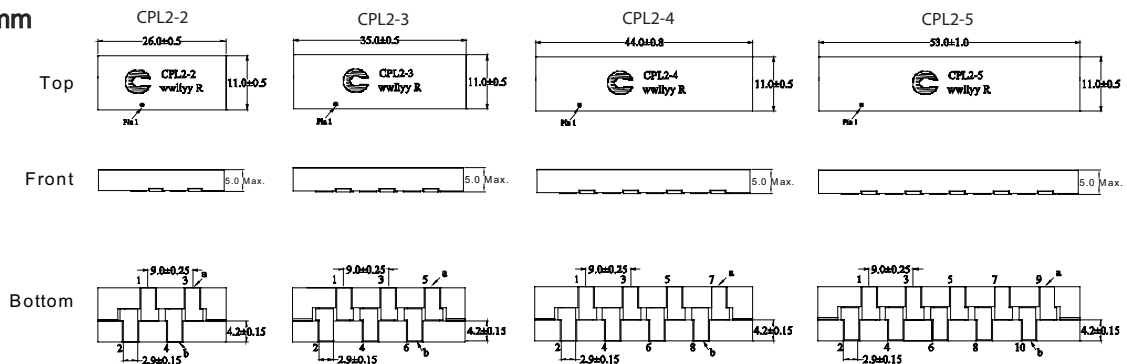
3 The rated current, I_{max} peak and rated inductance per phase is determined by Volterra's testing and circuit design. Additional information can be provided by contacting Volterra.

4 Part Number Definition: CPL2-x-50TR-R

- CPL2= Product code and size
- -x= number of phases
- -50 = rated inductance value per phase in nH
- TR= Tape and reel
- -R suffix= RoHS compliant

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

Dimensions - mm



The nominal DCR is measured from point "a" to point "b"

Part Marking: Coiltronics logo

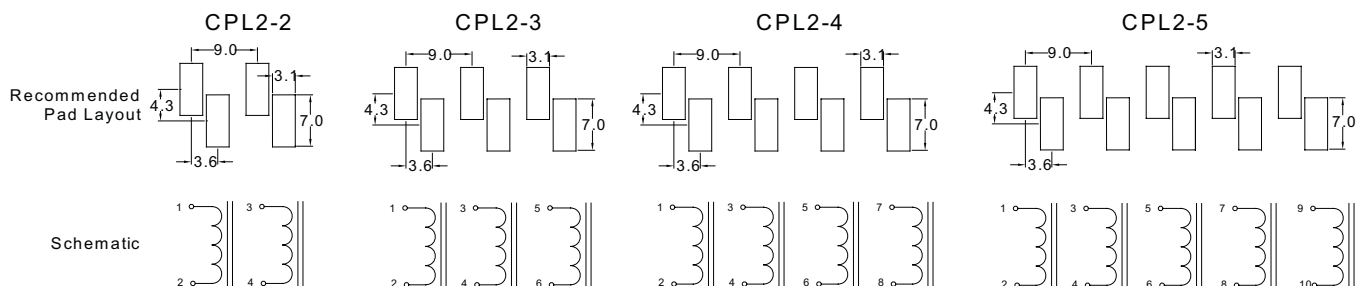
CPL2 = Product Code and Size

-x (-2, -3, -4 & -5) = Number of Phases

wwllyy = Date code

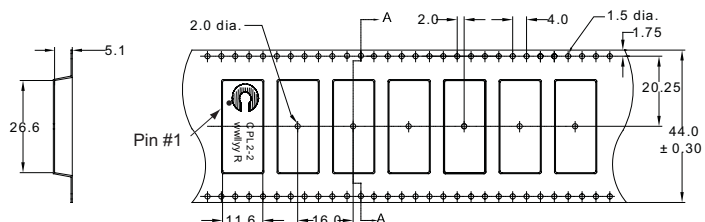
R = Revision level

Pad Layouts & Schematics - mm

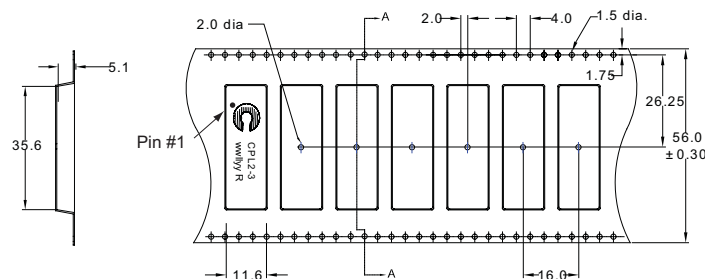


Packaging Information - mm

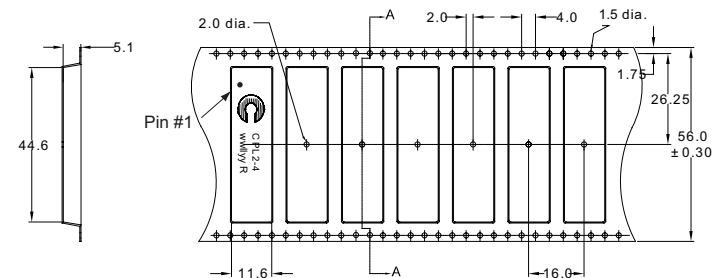
CPL2-2
750 parts per reel



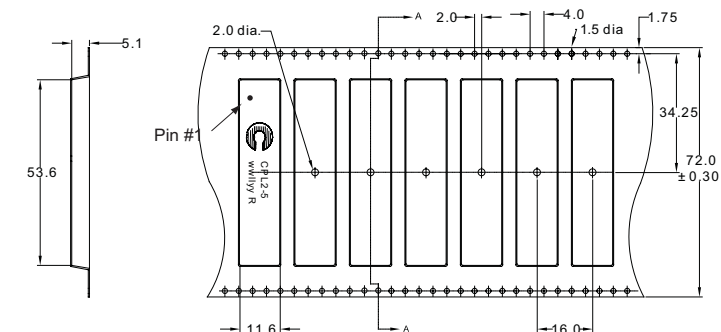
CPL2-3
600 parts per reel



CPL2-4
500 parts per reel



CPL2-5
400 parts per reel



Section A-A

User Direction of feed →

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

Solder Reflow Profile

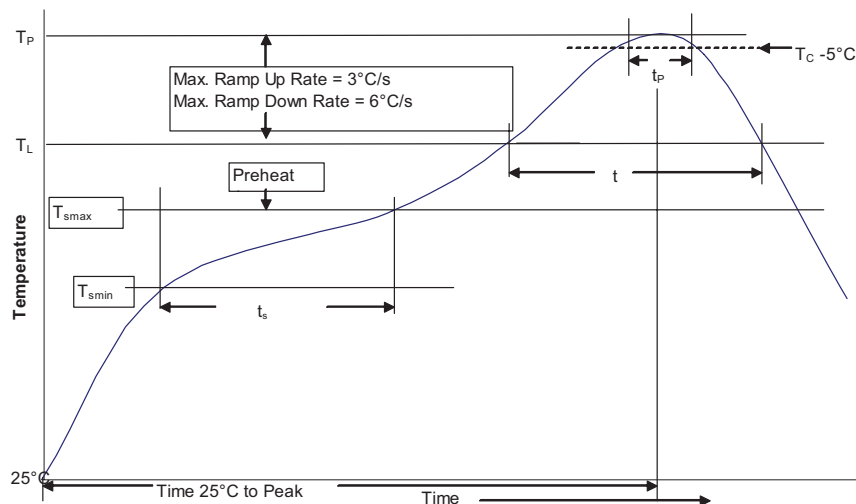


Table 1 - Standard SnPb Solder (T_P)

Package Thickness	Volume mm^3 <350	Volume mm^3 >350
<2.5mm	235°C	220°C
≥2.5mm	220°C	220°C

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

Package Thickness	Volume mm^3 <350	Volume mm^3 350 - 2000	Volume mm^3 >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)	183°C	217°C
Time at liquidous (t_L)	60-150 Seconds	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_P)	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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