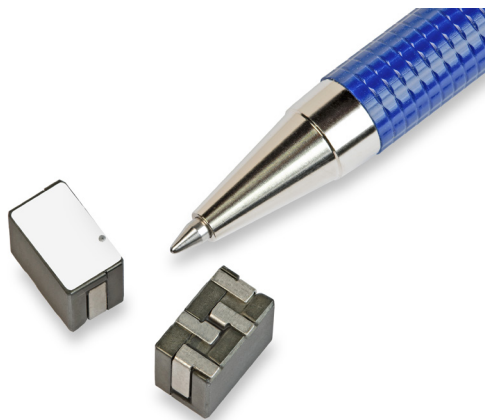


# CL0608

## Multi-phase power inductors



### Product features

- High current multi-phase inductor
- 100 nH per phase coupled inductor
- 10.8 mm x 6.35 mm footprint surface mount package in an 8.2 mm height
- Ferrite core material
- Moisture Sensitivity Level (MSL): 1

### Applications

- For exclusive use with Maxim® Multi-phase controllers
- Voltage Regulator Modules (VRMs) and high power density VRMs
  - Server and desktop
  - Central processing unit (CPU)
  - Graphics processing unit (GPU)
  - Application specific integrated circuit (ASIC)
- Data networking and storage systems
- High current Point-of-Load (POL) modules
- Vcore regulators

### 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
- Halogen free, lead free, RoHS compliant



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## Product specifications

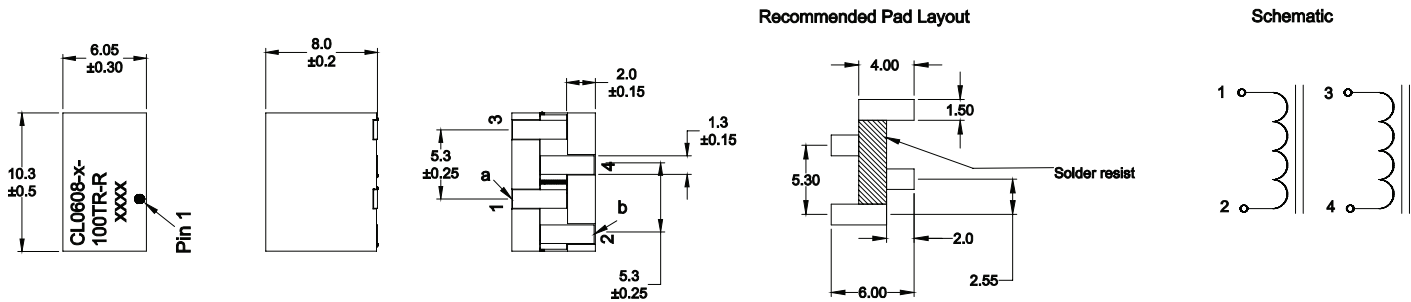
Part Number <sup>5</sup>	Inductor Phases	OCL <sup>1</sup> (nH) $\pm 20\%$	FLL <sup>2</sup> (nH) minimum	$I_{sat}$ <sup>1,2</sup> (A)	DCR (m $\Omega$ ) $\pm 10\%$ @ 20 °C	SCL <sup>3</sup> (nH) $\pm 20\%$	$I_{sat}$ <sup>2,4</sup> (A)
CL0608-2-100TR-R	2	380	300	15	0.89	100	38

1. Open Circuit Inductance (OCL) Test Parameters: 1.0 MHz, 0.1 V<sub>rms</sub>, 0.0 Adc, +25 °C
2. Full Load Inductance (FLL) Test Parameters: 1.0 MHz, 0.1 V<sub>rms</sub>,  $I_{sat}$ , +25 °C
3. Short Circuit Inductance (SCL) Test Parameters: 1.0 MHz, 0.1 V<sub>rms</sub>, 0.0 Adc, +25 °C  
CL0608-2-100TR-R short (1 & 4), measure (2 & 3), and divide by 2.
4.  $I_{sat}$ : Peak current where SCL drops approximately 20% @ +25 °C

8. Part Number Definition: CL0608-x-100TR-R  
CL0608 = Product code and size  
x = Number of phases  
100 = Inductance value per phase in nH  
TR = Tape and reel packaging  
-R suffix = RoHS compliant

Note: This device is licensed for use only when incorporated within a voltage regulator employing power regulating devices manufactured by 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 Maxim.

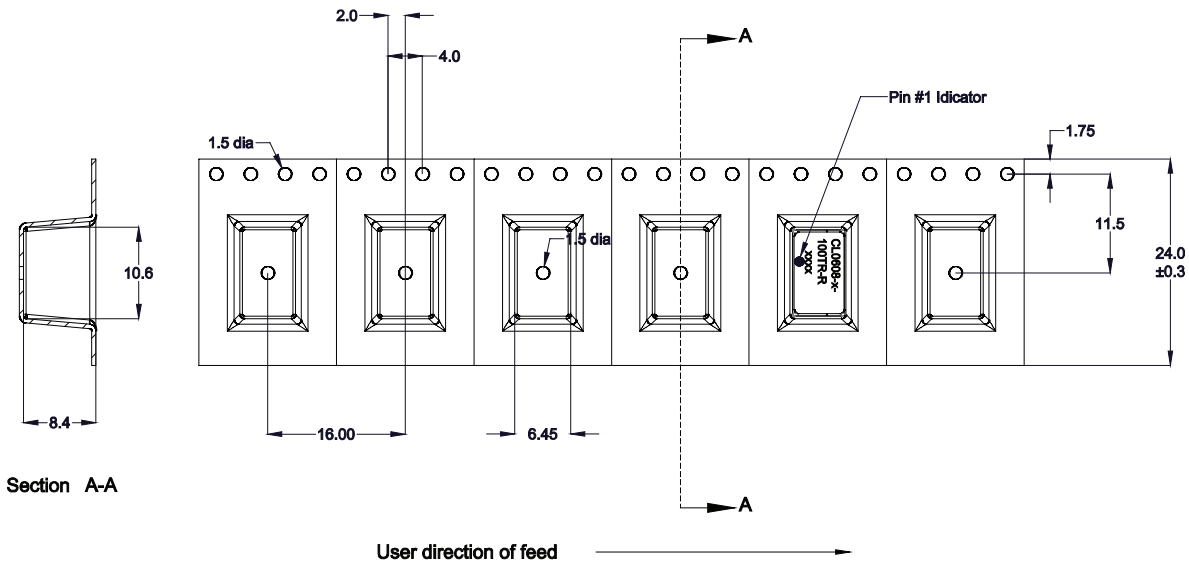
## Dimensions (mm)



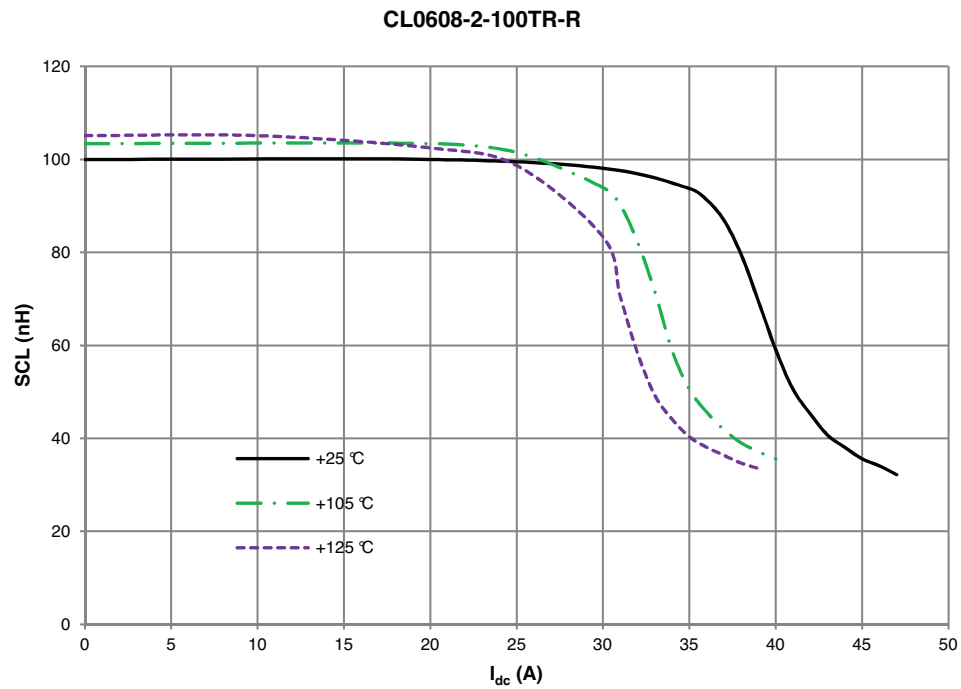
Part marking: CL0608-x-100TR-R (x = number of phases), xxxx = lot code  
Tolerances are  $\pm 0.25$  millimeters unless stated otherwise  
All soldering surfaces to be coplanar within 0.13 millimeters  
PCB tolerances are  $\pm 0.1$  millimeters unless stated otherwise  
DCR measured from point "a" to point "b"  
Do not route traces or vias underneath the inductor

## Packaging information (mm)

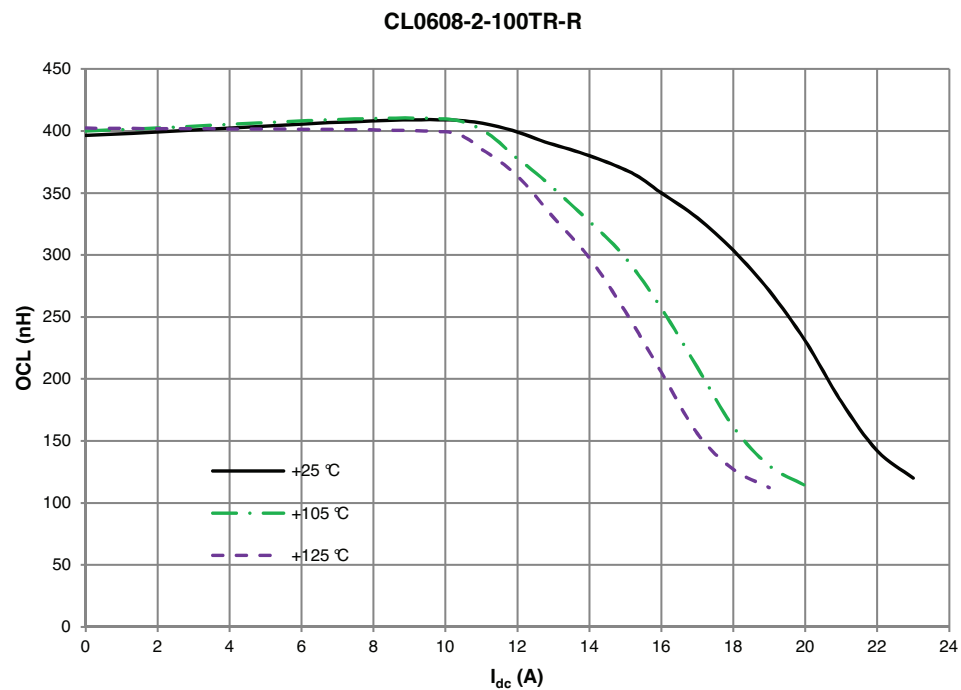
Supplied in tape and reel packaging , 500 parts per 13" diameter reel  
Drawing not to scale



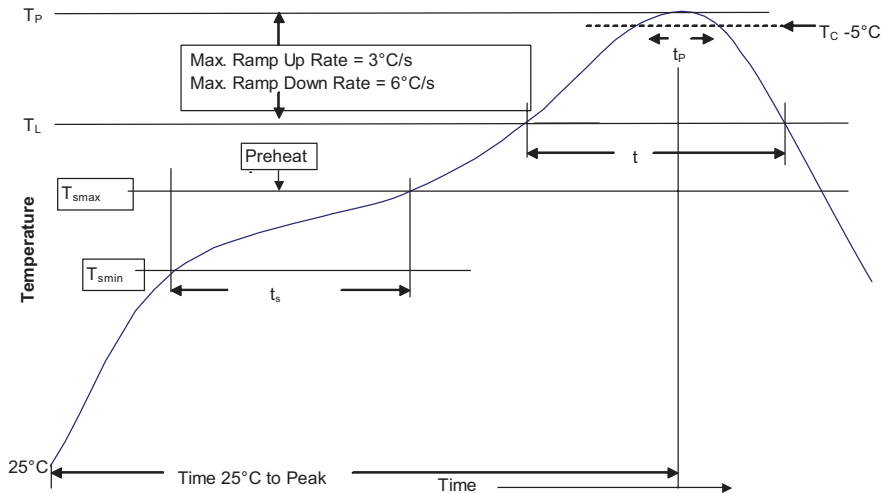
**Inductance characteristics – SCL vs. current**



**Inductance characteristics – OCL vs. current**



## Solder reflow profile



**Table 1 - Standard SnPb Solder ( $T_C$ )**

Package Thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ $\geq 350$
<2.5mm)	235 °C	220 °C
$\geq 2.5\text{mm}$	220 °C	220 °C

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

Package Thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ 350 - 2000	Volume $\text{mm}^3$ >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-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 ( $T_L$ )	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 ( $T_C$ )	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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