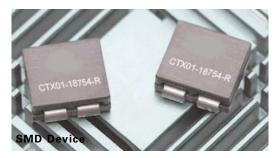
Effective June 2017 Supersedes February 2012

# CTX01-18754-R Coupled power inductor



#### **Product features**

- 12.7x12.05x3.0mm maximum surface mount package
- Ferrite core material
- Halogen free, lead free and RoHS compliant

#### Applications

For exclusive use with  $\ensuremath{\mathsf{Maxim}}\xspace{\mathbbmath{\mathbb{R}}}$  Multi-phase controllers

#### **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



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	Functional Specifications			Test Specifications				
Part	Inductor	Rated	I <sub>max</sub> Peak per	I <sub>rms</sub> per	OCL (nH) <sup>2</sup>	SCL (nH) <sup>3</sup>	FLL for SCL (nH) <sup>₄</sup>	DCR (m $\Omega$ )
Number <sup>6</sup>	Phases	Inductance (nH) <sup>1</sup>	Phase (Adc) <sup>1</sup>	Phase (Adc) <sup>₅</sup>	(1-4) (2-3)	(1-2) Short (3-4)	(1-2) Short (3-4)	±8% @ 20°C
CTX01-18754-R	2	60	50	32	200 ±20%	120 ±20%	96 min.	0.245

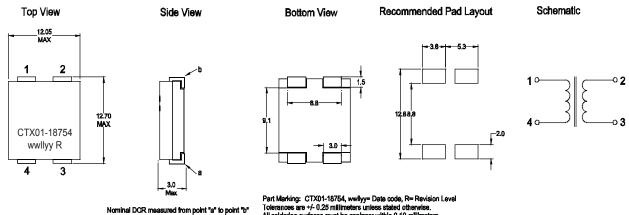
1. The rated inductance per phase is determined by Volterra's testing and circuit design. Additional information can be provided by contacting Volterra.

Open Circuit Inductance (OCL) Test Parameters: 100kHz, 1.0V<sub>rms</sub>, 0.0Adc, @ 25°C
 Short-Circuit Inductance (SCL) Test Parameters: 100kHz, 1.0V<sub>rms</sub>, 0.0Adc, @ 25°C
 Full Load Inductance (FLL) for (SCL), 100kHz, 1.0Vrms, 50 Adc, @ 25°C

5. I<sub>rms</sub> DC current per phase that will cause a 40°C temperature rise without core loss at 25°C ambient. It is recommended the temperature not exceed 125°C under worse case operating conditions verified in the end application.

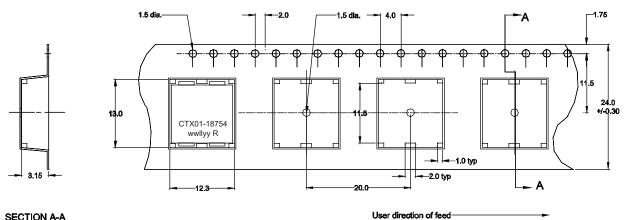
A This device is licensed for use only when incorporated within a voltage regulator employing power regulating devices manufactured by Maxim Integrated Devices. No license is granted expressly or by implication to use this device with power regulating devices manufactured by any company other than Maxim.

#### **Dimensions- mm**



Part Marking: CTX01-18754, wwllyy= Date code, R= Revision Level Tolerances are +/ 0.25 millimeters unless stated otherwise. All soldering surfaces must be coplanar within 0.10 millimeters. PCB tolerances are +/-0.1 millimeters unless stated otherwise

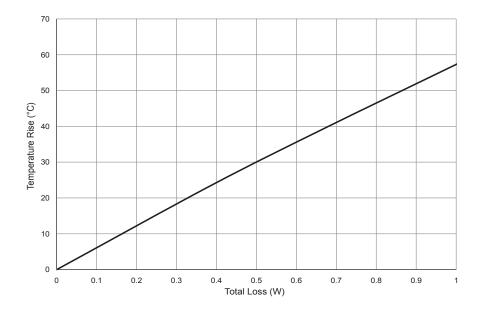
#### **Packaging information - mm**



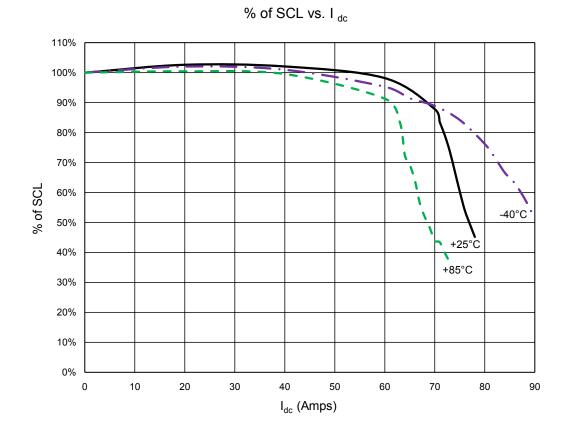
SECTION A-A Supplied in tape and reel packaging, 1000 parts per 13" diameter reel.

## CTX01-18754-R Coupled power inductor

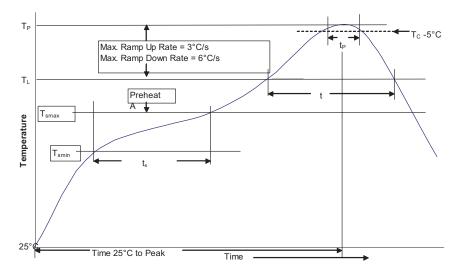
## Temperature rise vs total loss



## Inductance characteristics



## **Solder Reflow Profile**



		'b Solder (1 <sub>C</sub> )	
	Volume	Volume	
Package	mm <sup>3</sup>	mm <sup>3</sup>	
Thickness	<350	≥350	
<2.5mm	235°C	220°C	
≥2.5mm	220°C	220°C	
Table 2 - Lea	d (Pb) Fre	e Solder (T_)	
		0.001001 (10)	
	Volume	Volume	Volume
Package			Volume mm <sup>3</sup>
	Volume	Volume	
Package	Volume mm <sup>3</sup>	Volume mm <sup>3</sup>	mm <sup>3</sup>

250°C

245°C

245°C

>2.5mm

Toble 1 Ctandard CnDb Calder (T.)

## Reference JDEC J-STD-020

Powerina Business Worldwide

Profile Feature		Standard SnPb Solder	Lead (Pb) Free Solder 150°C	
Preheat and Soak	<ul> <li>Temperature min. (T<sub>smin</sub>)</li> </ul>	100°C		
	<ul> <li>Temperature max. (T<sub>smax</sub>)</li> </ul>	150°C	200°C	
	<ul> <li>Time (T<sub>smin</sub> to T<sub>smax</sub>) (t<sub>s</sub>)</li> </ul>	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 (TL)		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 $(t_p)^{\star\star}$ within 5 °C of the specified classification temperature $(T_c)$		20 Seconds**	30 Seconds**	
Average ramp-down rate (Tp to Tsmax)		6°C/ Second Max.	6°C/ Second Max.	
Time 25°C to Peak Temperature		6 Minutes Max.	8 Minutes Max.	

 $^{\ast}$  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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