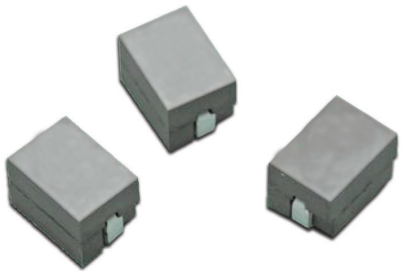
CTX01-18738-R

High current, high frequency power inductors



Description

- High current carrying capacity, low core losses
- Tight tolerance DCR for sensing circuits
- 11 x 8.0mm footprint surface mount package in a 7.5mm height
- Frequency range up to 2MHz
- Halogen free, lead free, RoHS compliant

Applications

- Voltage Regulator Module (VRM)
- Multi-phase and Vcore regulators
- Point-of-load modules
- Desktop and server VRMs and EVRDs
- Base station equipment
- Battery power systems
- Graphics cards
- Data networking and storage systems

Environmental Data

- Storage temperature range: -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

Pb HALOGEN HF FREE RoHS

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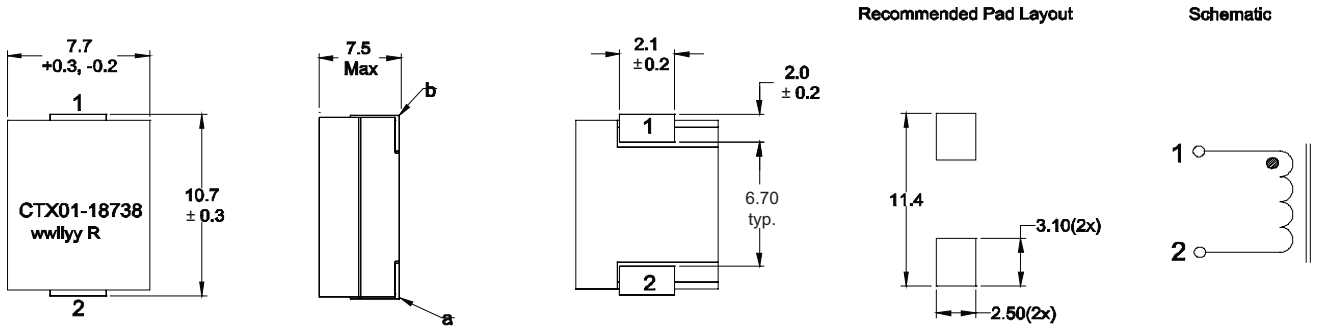
Product Specifications

Part Number[6]	OCL[1] (nH) ±10%	FLL[2] (nH) minimum	I_{rms}[3] (amps)	$I_{sat}1$[4] (amps)	$I_{sat}2$[5] (amps)	DCR (mΩ) @20°C
CTX01-18738-R	210	151	50	55	45	0.29 ± 5%

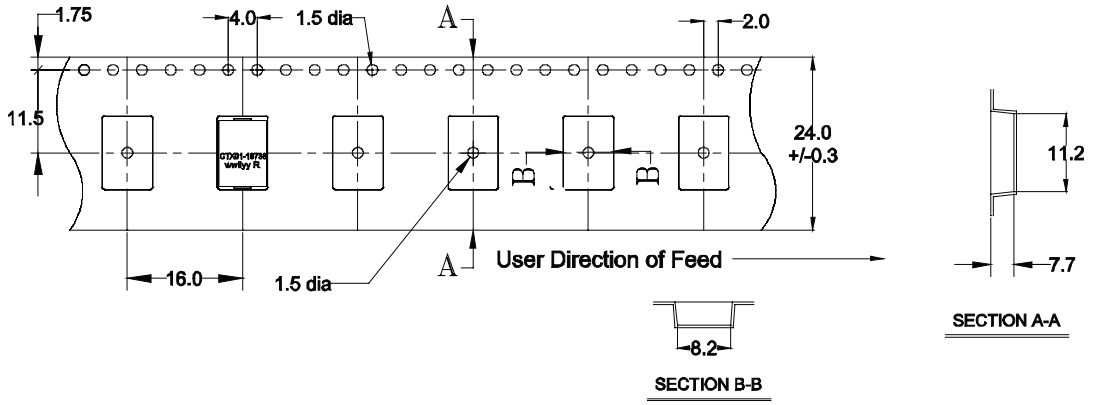
1.Open Circuit Inductance (OCL) Test Parameters: 300kHz, 0.10V_{rms}, 0.0Adc @ 25°C.
2. Full Load Inductance (FLL) Test Parameters: 300kHz, 0.10V_{rms}, $I_{sat}1$ @ 25°C.
3. I_{rms}: DC current for an approximate temperature rise of 20°C without core loss. Derating is necessary for AC currents. PCB layout, trace thickness and width, air-flow and proximity of other heat generating components will affect the temperature rise. It is recommended that the temperature of the part not exceed 125°C under worst case operating conditions verified in the end application.
4. $I_{sat}1$: Peak current for approximately 20% rolloff at +25°C.
5. $I_{sat}2$: Peak current for approximately 20% rolloff at +125°C.
6. Part Number Definition: CTX01-18738-R
- CTX01-18738 = Product code and size
- "-R" suffix = RoHS compliant

Dimensions (mm)



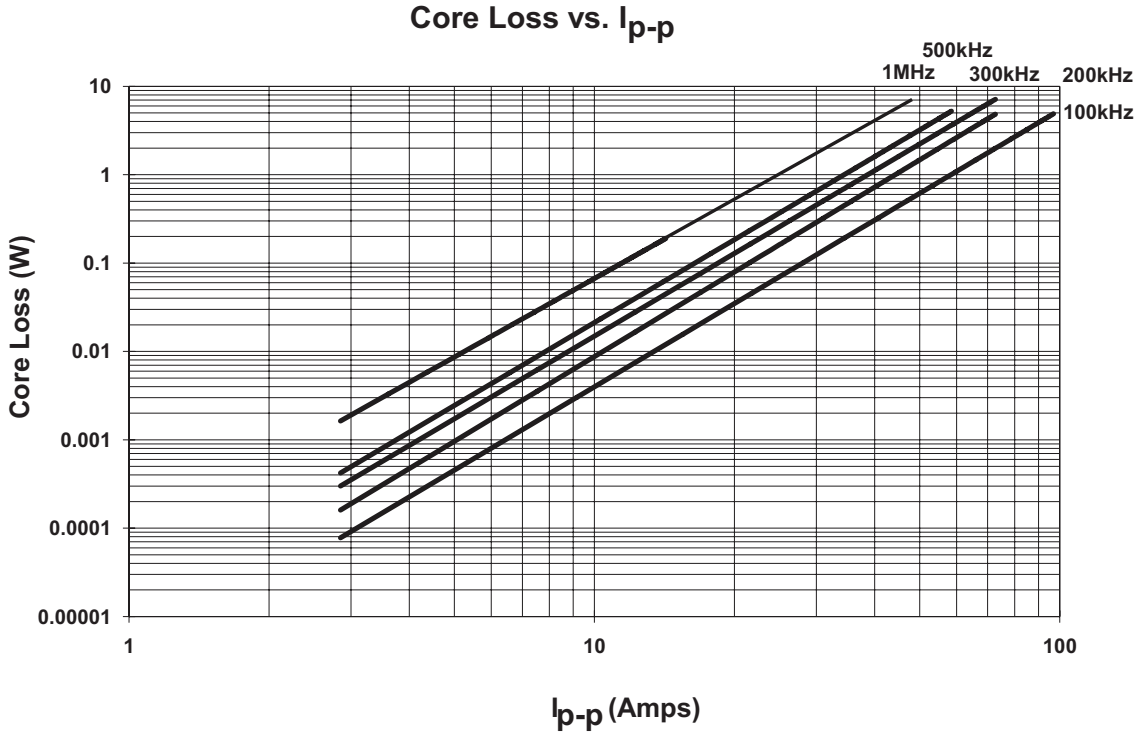
Part marking: CTX01-18738, wwllyy = Date Code, R = Revision Level
All soldering surfaces must be coplanar within 0.102 millimeters.
Tolerances are ±0.1 millimeters unless stated otherwise.
The DCR is measured from point "a" to point "b"

Packaging information (mm)

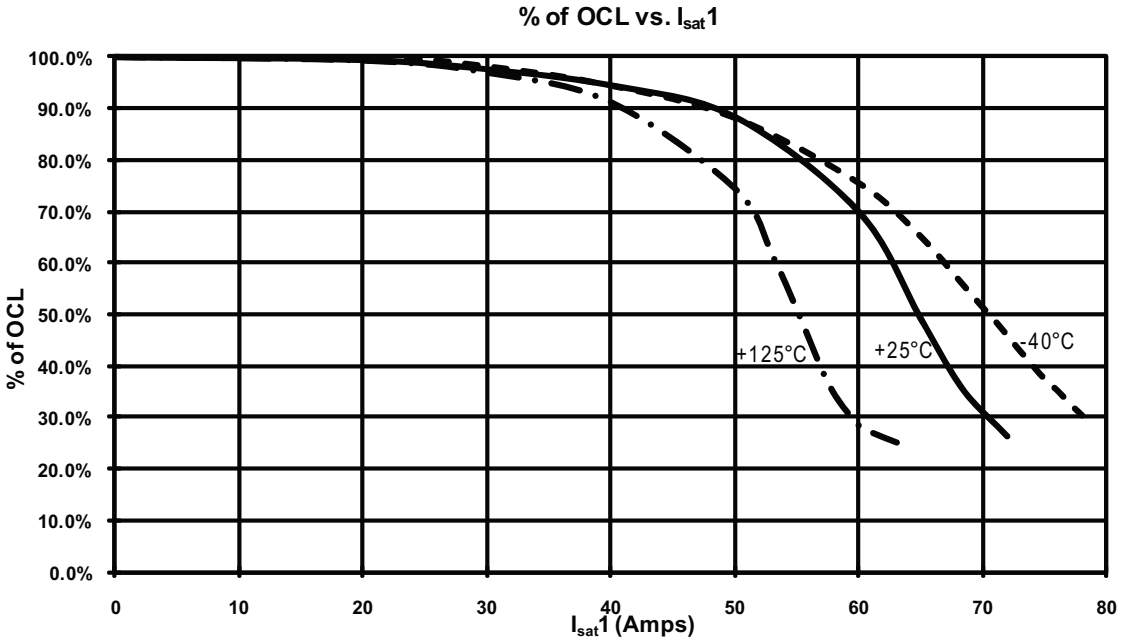


Temperature rise vs. total loss

Core loss



Inductance characteristics



Solder reflow profile

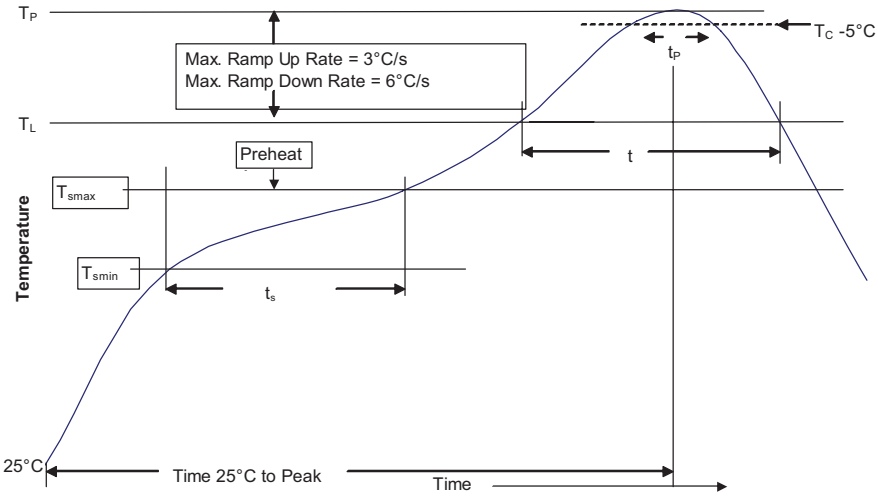


Table 1 - Standard SnPb Solder (T_C)

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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