



## Features

- Miniature size
- High self-resonant frequency
- High current
- Low DCR
- AEC-Q200 compliant
- RoHS compliant\* and halogen free\*\*

## Applications

- Automotive systems
- Noise filters
- DC power lines

## CWF1610A Series – 0603 Chip Inductors

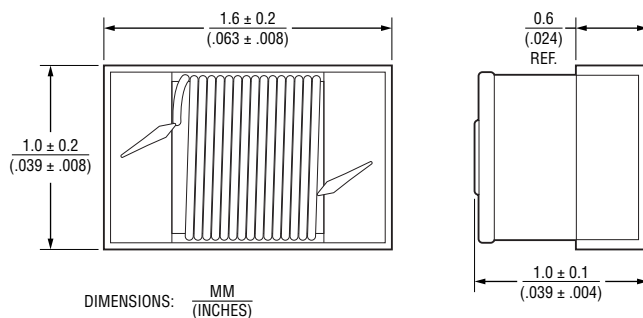
### Electrical Specifications @ 25 °C

Bourns Part No.	Inductance L (μH)	Q Typ.	L & Q Test Freq. / Voltage	SRF (MHz) Typ.	DCR (Ω) ±30 %	Irms <sup>2</sup> (mA) Typ.	Isat <sup>3</sup> (mA) Typ.	
CWF1610A-R10x <sup>1</sup>	0.10	13	7.9 MHz / 0.5 V	1150	0.063	1400	1700	
CWF1610A-R15x	0.15			1050	0.074	1300	1700	
CWF1610A-R27x	0.27			1000	0.12	1100	1400	
CWF1610A-R33x	0.33			1100	0.13	1000	1300	
CWF1610A-R47x	0.47			900	0.18	900	1100	
CWF1610A-R56x	0.56			630	0.20	800	1100	
CWF1610A-R68x	0.68			510	0.22	750	900	
CWF1610A-1R0x	1.0	16		390	0.32	700	860	
CWF1610A-1R5x	1.5			160	0.40	600	720	
CWF1610A-2R2x	2.2			103	0.56	580	600	
CWF1610A-3R3x	3.3			66	0.70	500	500	
CWF1610A-4R7x	4.7			51	0.97	420	400	
CWF1610A-5R6x	5.6			47	1.10	380	380	
CWF1610A-6R8x	6.8			43	1.50	340	340	
CWF1610A-8R2x	8.2	14		2.5 MHz / 0.5 V	40	1.68	300	300
CWF1610A-100x	10				36	1.85	280	280
CWF1610A-150x	15				29	2.60	240	240
CWF1610A-180x	18		28		2.90	220	220	
CWF1610A-220x	22			24	3.61	200	200	

#### Notes:

1. "x" indicates Inductance Tolerance: K = ±10 %, M = ±20 %.
2. I<sub>rms</sub>: Heat rated current (I<sub>rms</sub>) will cause the coil temperature rise ≤40 °C without core loss.
3. Isat: Applying the current to coils, the inductance change shall be less than 20 % of initial value.

### Product Dimensions



**WARNING**  
Cancer and Reproductive Harm  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

\* RoHS Directive 2015/863, Mar 31, 2015 and Annex.

\*\* Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

Specifications are subject to change without notice.

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### Additional Information

Click these links for more information:



### General Specifications

#### Operating Temperature

..... -55 °C to +125 °C  
(Temperature rise included)

#### Storage Temperature

..... -55 °C to +125 °C

#### Temperature Rise .. ≤40 °C at rated I<sub>rms</sub><sup>1</sup>

#### Saturation Current

..... Inductance drops ≤20 % at Isat

#### Moisture Sensitivity Level..... 1

#### ESD Classification (HBM)..... N/A

Note 1: Circuit design, component, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

### Materials

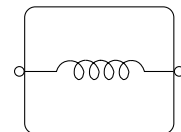
Core..... Ferrite

Wire ..... Enameled copper

Terminal Finish ..... Sn

Packaging..... 4000 pcs. per 7-inch reel

### Electrical Schematic



### How to Order

**CWF1610A - R10 K**

Model \_\_\_\_\_

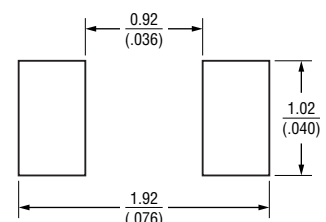
Value Code (see table) \_\_\_\_\_

Tolerance \_\_\_\_\_

K = ±10 %

M = ±20 %

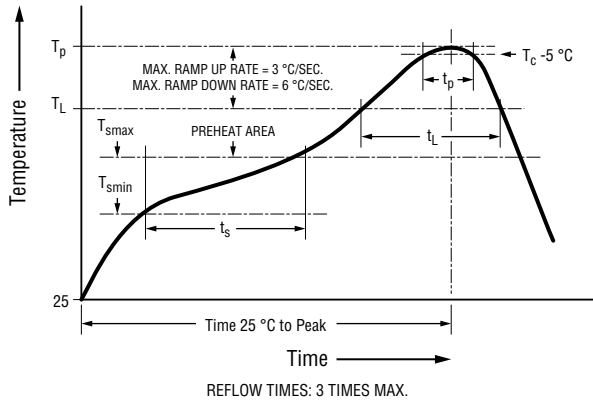
### Recommended Layout



## CWF1610A Series – 0603 Chip Inductors

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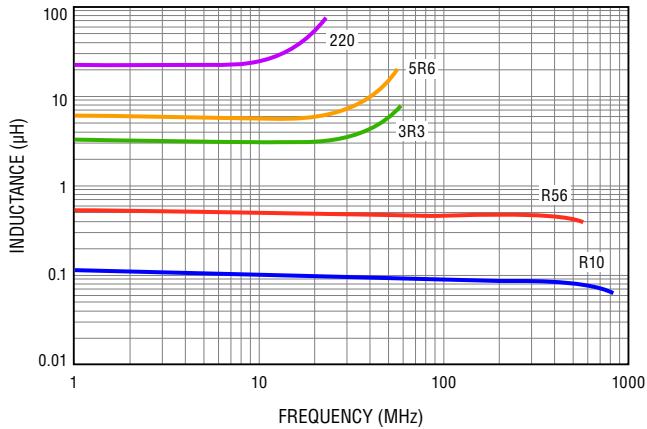
### Soldering Profile



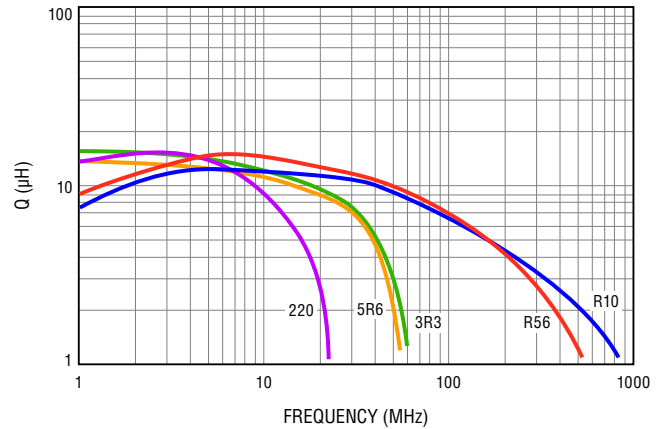
Profile Feature	Pb Free Assembly
Preheat <ul style="list-style-type: none"> <li>- Temperature Min. (<math>T_{smin}</math>)</li> <li>- Temperature Max. (<math>T_{smax}</math>)</li> <li>- Time(<math>t_s</math>) from <math>T_{smin}</math> to <math>T_{smax}</math></li> </ul>	150 °C 200 °C 60-120 seconds
Ramp-up Rate ( $T_L$ to $T_p$ )	3 °C/second max.
Liquidous temperature ( $T_L$ ) Time ( $t_L$ ) maintained above $T_L$	217 °C 60-150 seconds
Reflow temperature	260 °C
Time ( $t_p$ ) at $T_c - 5$ °C ( $T_p$ should be equal to or less than $T_c$ )	< 30 seconds
Ramp-Down Rate ( $T_p$ to $T_L$ )	6 °C/second max.
Time 25 °C to Peak Temperature	8 minutes max.

### Typical Curves

#### Inductance vs. Frequency



#### Q vs. Frequency



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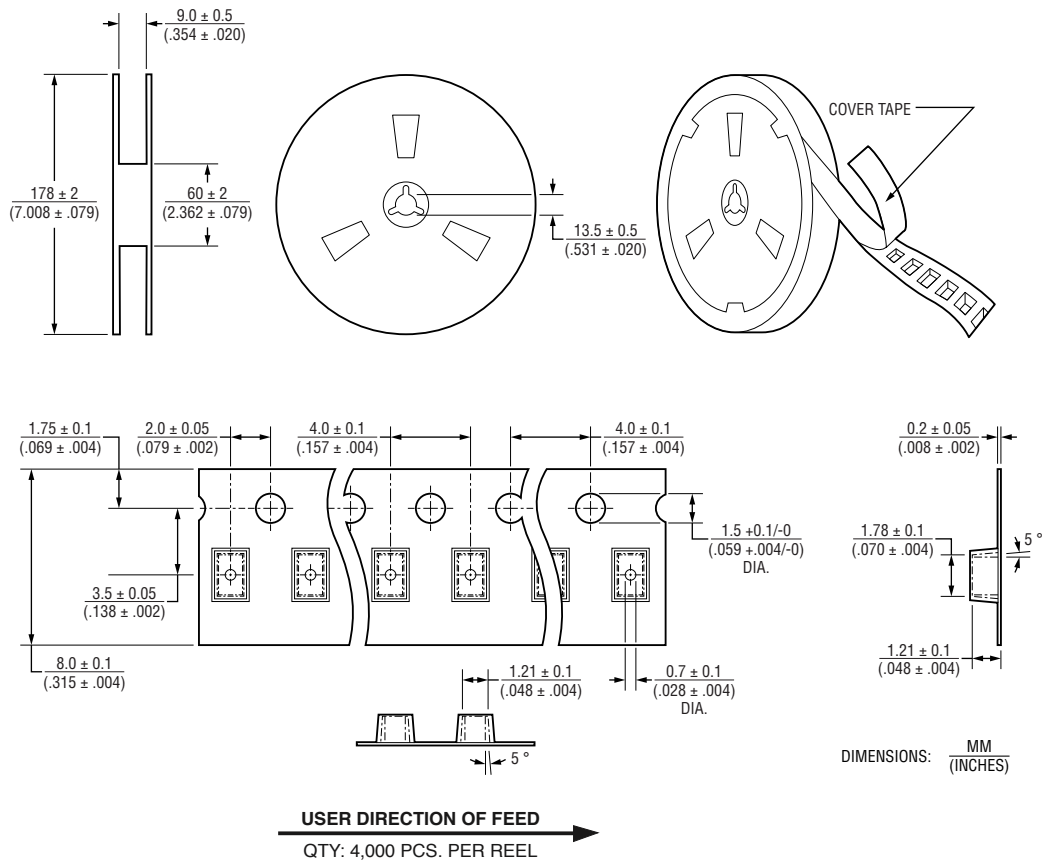
Users should verify actual device performance in their specific applications.

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# CWF1610A Series – 0603 Chip Inductors

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## Packaging Specifications



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