



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

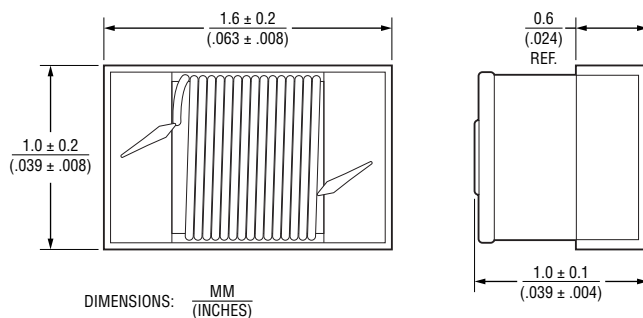
Electrical Specifications @ 25 °C

Bourns Part No.	Inductance L (μH)	Q Typ.	L & Q Test Freq. / Voltage	SRF (MHz) Typ.	DCR (Ω) ±30 %	Irms ² (mA) Typ.	Isat ³ (mA) Typ.	
CWF1610A-R10x ¹	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_{rms}: Heat rated current (I_{rms}) 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

* 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_{rms}¹

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

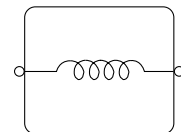
Core..... Ferrite

Wire Enameled copper

Terminal Finish Sn

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

Electrical Schematic



How to Order

CWF1610A - R10 K

Model _____

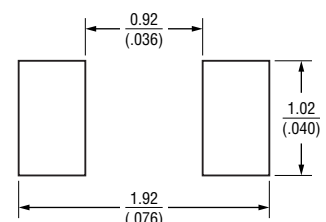
Value Code (see table) _____

Tolerance _____

K = ±10 %

M = ±20 %

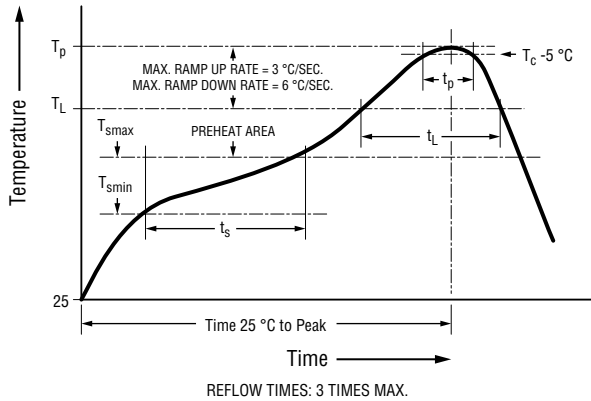
Recommended Layout



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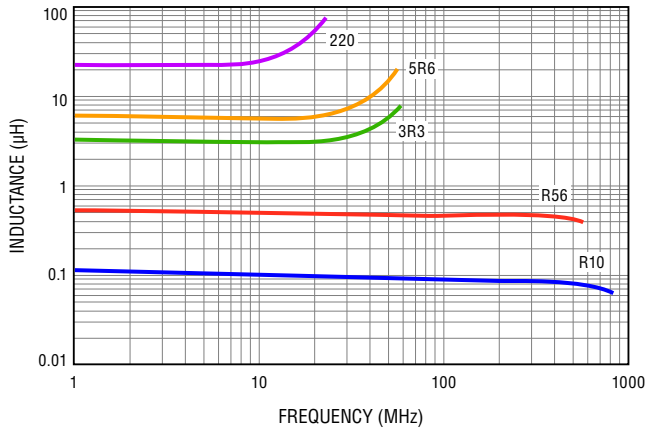
Soldering Profile



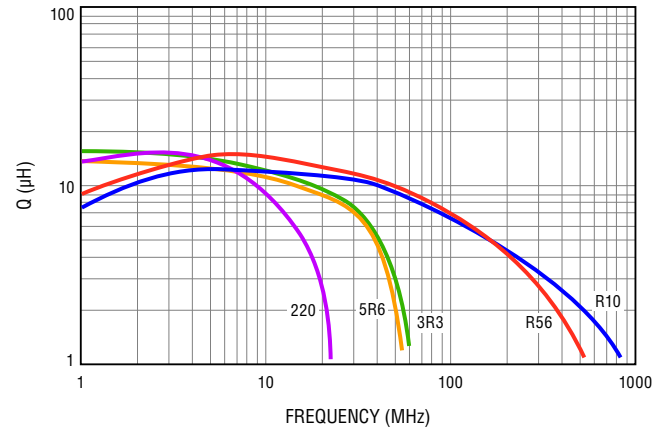
Profile Feature	Pb Free Assembly
Preheat - Temperature Min. (T_{smin}) - Temperature Max. (T_{smax}) - Time(t_s) from T_{smin} to T_{smax}	150 °C 200 °C 60-120 seconds
Ramp-up Rate (T_L to T_p)	3 °C/second max.
Liquidous temperature (T_L) Time (t_L) maintained above T_L	217 °C 60-150 seconds
Reflow temperature	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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Technical drawing of a 3-terminal SMD component showing top, bottom, and side views with dimensions in mm and inches.

Top View Dimensions:

- Overall width: 9.0 ± 0.5 mm ($.354 \pm .020$)
- Distance from left edge to first terminal: 178 ± 2 mm ($7.008 \pm .079$)
- Distance between terminals: 60 ± 2 mm ($2.362 \pm .079$)
- Distance from last terminal to right edge: 13.5 ± 0.5 mm ($.531 \pm .020$)

Bottom View Dimensions:

- Distance from left edge to first terminal: 1.75 ± 0.1 mm ($.069 \pm .004$)
- Distance between terminals: 2.0 ± 0.05 mm ($.079 \pm .002$)
- Distance from last terminal to right edge: 4.0 ± 0.1 mm ($.157 \pm .004$)
- Distance from left edge to first terminal (alternative): 3.5 ± 0.05 mm ($.138 \pm .002$)
- Distance from left edge to first terminal (alternative): 8.0 ± 0.1 mm ($.315 \pm .004$)
- Distance from last terminal to right edge (alternative): $1.5 + 0.1/-0$ mm ($.059 + .004/-0$) DIA.
- Distance from last terminal to right edge (alternative): 1.21 ± 0.1 mm ($.048 \pm .004$)
- Distance from last terminal to right edge (alternative): 0.7 ± 0.1 mm ($.028 \pm .004$) DIA.

Side View Dimensions:

- Distance from left edge to first terminal: 0.2 ± 0.05 mm ($.008 \pm .002$)
- Distance from left edge to first terminal: 1.78 ± 0.1 mm ($.070 \pm .004$)
- Distance from last terminal to right edge: 1.21 ± 0.1 mm ($.048 \pm .004$)

Other Features:

- COVER TAPE
- 5°

USER DIRECTION OF FEED

QTY: 4,000 PCS. PER REEL

DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$

USER DIRECTION OF FEED

QTY: 4,000 PCS. PER REEL

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