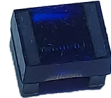


WCLA3225V1

Automotive grade wire wound chip inductor



Product features

- AEC-Q200 qualified
- 1210 (3225 metric) package
- Ferrite core wire wound construction
- Inductance range from 0.47 μ H to 680 μ H
- Moisture sensitivity level (MSL): 1

Applications

- ADAS
- Infotainment
- Wireless communications
- Wifi, bluetooth, satellite
- Antenna tuning
- On board computer

Environmental data

- Operating temperature range: -55 °C to +125 °C (ambient plus self-temperature rise)



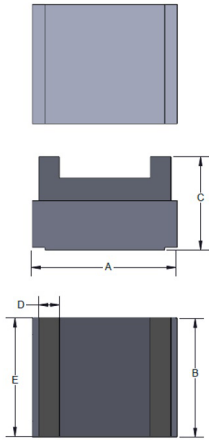
Product specifications

| Part number ² | OCL Tolerance (%) | OCL (µH) | OCL Test frequency (MHz) | Q minimum | Q Test frequency (MHz) | DCR (Ω) @ +25 °C maximum | Test voltage ¹ (mV) | SRF (MHz) minimum | I Rated (mA) |
|--------------------------|-------------------|----------|--------------------------|-----------|------------------------|--------------------------|--------------------------------|-------------------|--------------|
| WCLA3225V1-R47-R | ±10% | 0.47 | 25.2 | 30 | 25.2 | 0.5 | 500 | 350 | 800 |
| WCLA3225V1-1R0-R | ±10% | 1 | 7.96 | 10 | 7.96 | 0.12 | 500 | 290 | 1200 |
| WCLA3225V1-1R5-R | ±10% | 1.5 | 7.96 | 10 | 7.96 | 0.13 | 500 | 260 | 1000 |
| WCLA3225V1-2R2-R | ±10% | 2.2 | 7.96 | 10 | 7.96 | 0.17 | 500 | 190 | 880 |
| WCLA3225V1-3R3-R | ±10% | 3.3 | 7.96 | 10 | 7.96 | 0.22 | 500 | 64 | 775 |
| WCLA3225V1-4R7-R | ±10% | 4.7 | 7.96 | 10 | 7.96 | 0.26 | 500 | 54 | 710 |
| WCLA3225V1-6R8-R | ±10% | 6.8 | 7.96 | 10 | 7.96 | 0.3 | 500 | 34 | 660 |
| WCLA3225V1-100-R | ±10% | 10 | 2.52 | 10 | 2.52 | 0.39 | 500 | 25 | 570 |
| WCLA3225V1-150-R | ±10% | 15 | 2.52 | 10 | 2.52 | 0.66 | 500 | 17 | 440 |
| WCLA3225V1-220-R | ±10% | 22 | 2.52 | 10 | 2.52 | 0.82 | 500 | 16 | 400 |
| WCLA3225V1-330-R | ±10% | 33 | 2.52 | 10 | 2.52 | 1.5 | 500 | 12 | 285 |
| WCLA3225V1-390-R | ±10% | 39 | 2.52 | 10 | 2.52 | 1.66 | 500 | 12 | 270 |
| WCLA3225V1-470-R | ±10% | 47 | 2.52 | 10 | 2.52 | 1.9 | 500 | 10 | 260 |
| WCLA3225V1-680-R | ±10% | 68 | 2.52 | 10 | 2.52 | 2.29 | 500 | 9 | 235 |
| WCLA3225V1-101-R | ±10% | 100 | 1 | 10 | 1 | 3.48 | 500 | 7 | 190 |
| WCLA3225V1-151-R | ±10% | 150 | 1 | 10 | 1 | 6.55 | 500 | 5 | 140 |
| WCLA3225V1-221-R | ±10% | 220 | 1 | 10 | 1 | 8.23 | 500 | 4 | 115 |
| WCLA3225V1-331-R | ±10% | 330 | 1 | 10 | 1 | 13.7 | 500 | 2.8 | 98 |
| WCLA3225V1-471-R | ±10% | 470 | 1 | 10 | 1 | 18.1 | 500 | 2.6 | 86 |
| WCLA3225V1-681-R | ±10% | 680 | 1 | 10 | 1 | 22 | 500 | 2.3 | 76 |

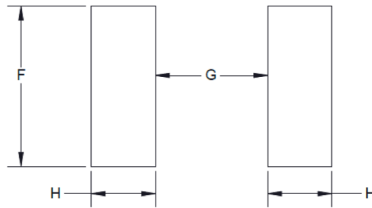
1. Test voltage is for open circuit inductance (OCL) and Q at +25 °C

2. Part Number Definition: WCLA3225V1-xxx-R
WCLA3225V1 = Product code and size
xxx= inductance value in µH, R= decimal point,
If no R is present then last character equals number of zeros
-R suffix = RoHS compliant

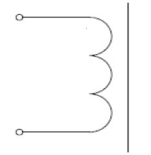
Dimensions (mm)



Recommended pad layout



Schematic



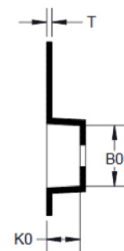
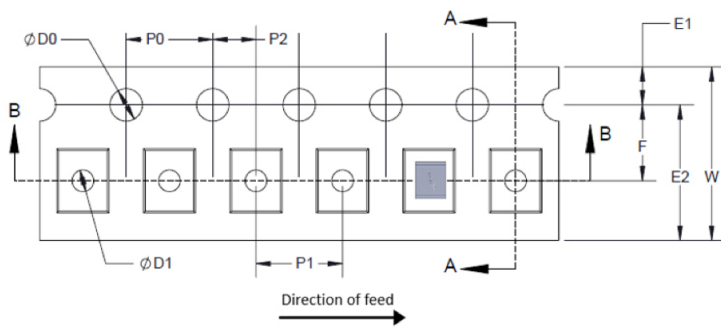
| Part Number | A | B | C | D | E | F | G | H |
|------------------|----------|----------|----------|-----------|----------|----------|----------|----------|
| WCLA3225V1-xxx-R | 3.60 max | 2.80 max | 2.40 max | 0.65±0.10 | 2.80 max | 2.80 ref | 1.78 ref | 1.02 ref |

Part marking: No marking
All soldering surfaces to be coplanar within 0.1 millimeters
Tolerances are ±0.1 millimeters unless stated otherwise
Pad layout dimensions are reference only
Traces or vias underneath the inductor is not recommended

Packaging information (mm)

Drawing not to scale

Supplied in tape and reel packaging, 2000 parts per 7" diameter reel (EIA-481 compliant)

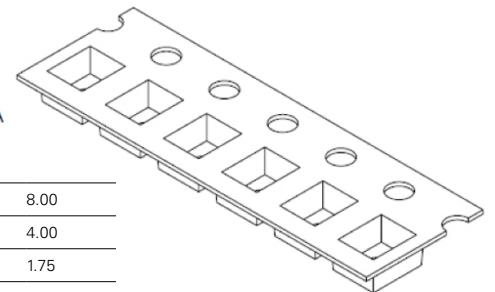


SECTION A-A

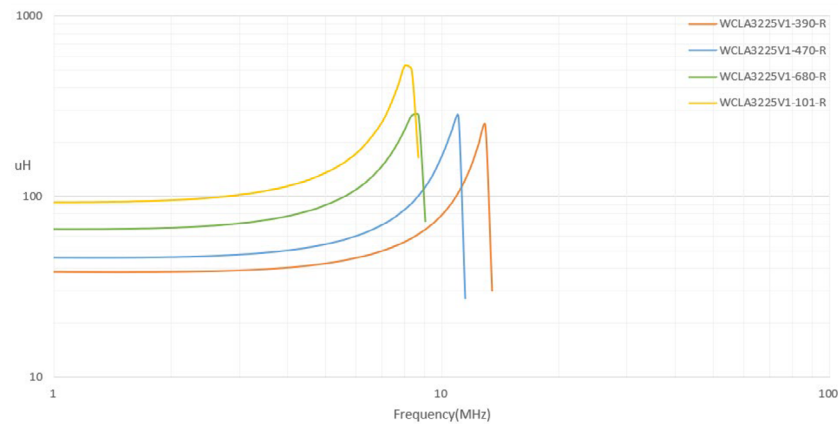
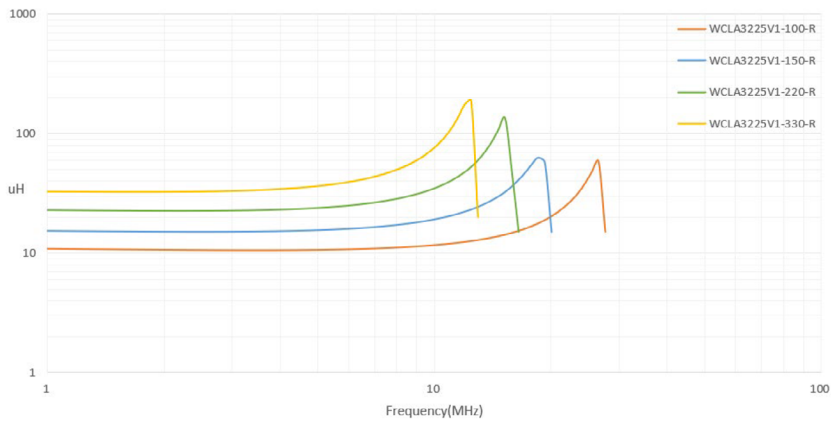
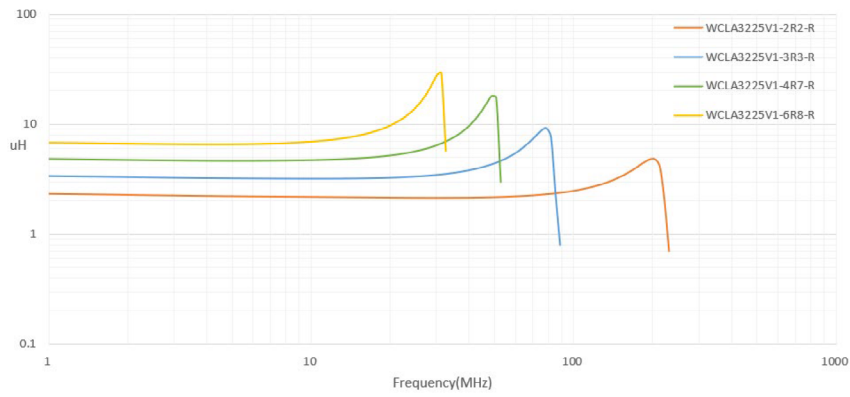
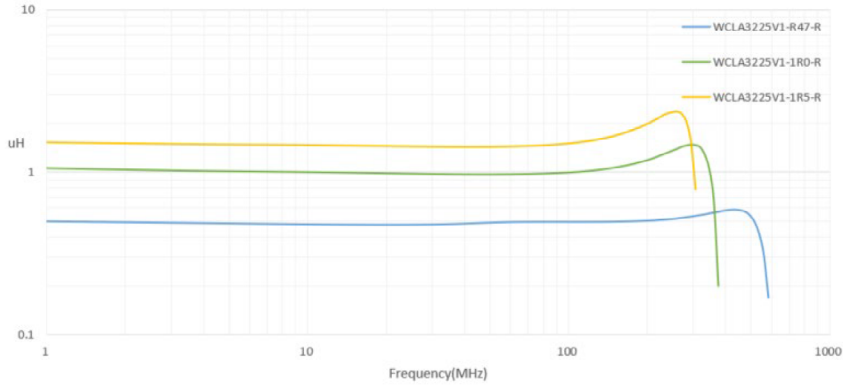


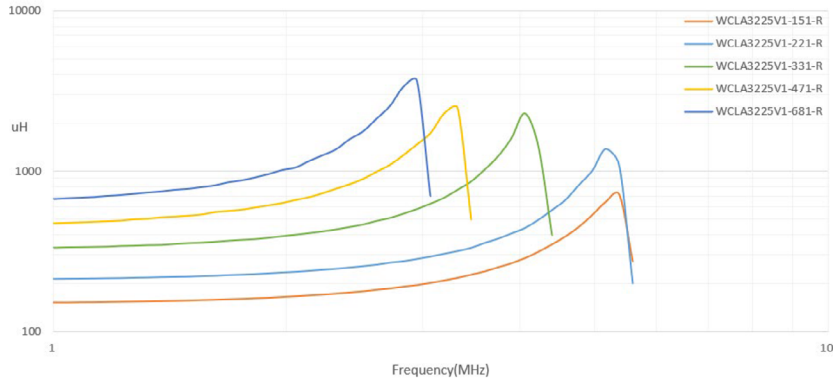
SECTION B-B

| | |
|------------|------|
| W±0.1 | 8.00 |
| P1±0.1 | 4.00 |
| E1±0.1 | 1.75 |
| F±0.05 | 3.50 |
| P2±0.05 | 2.00 |
| D0+0.10/-0 | 1.50 |
| D1±0.10 | 1.00 |
| B0±0.10 | 3.72 |
| A0±0.10 | 2.88 |
| K0±0.10 | 2.50 |
| P0±0.10 | 4.00 |
| T±0.05 | 0.26 |

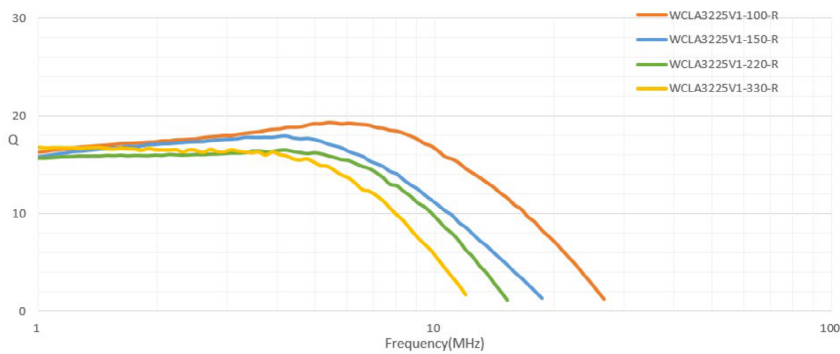
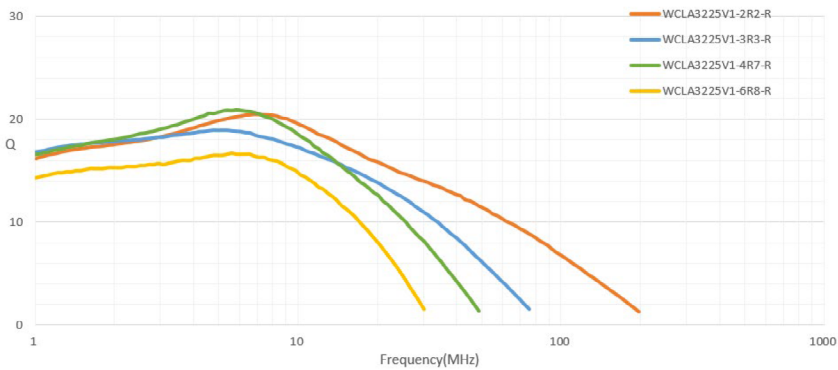
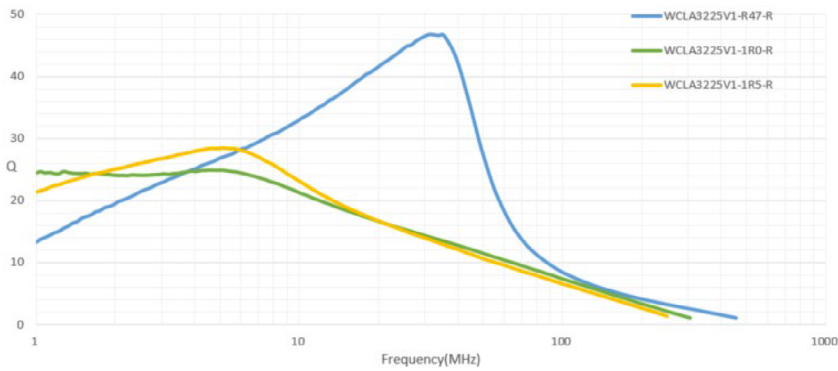


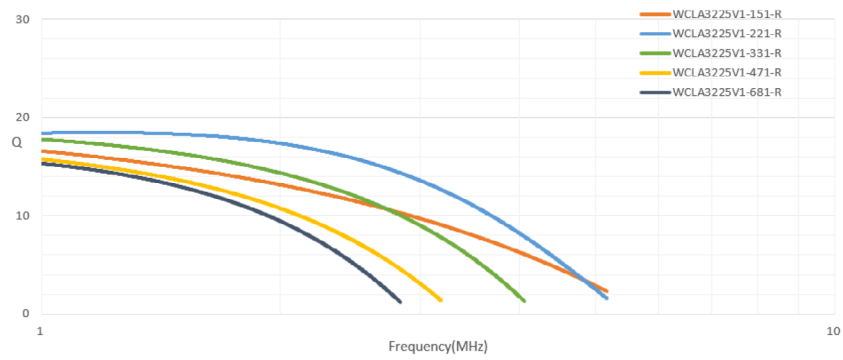
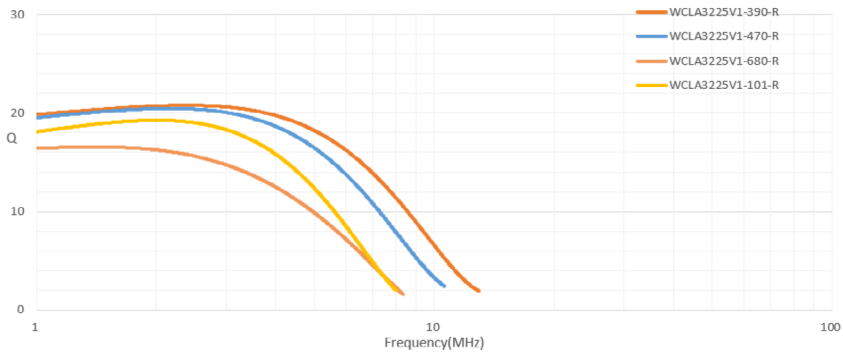
Inductance vs frequency





Q vs frequency





Solder reflow profile

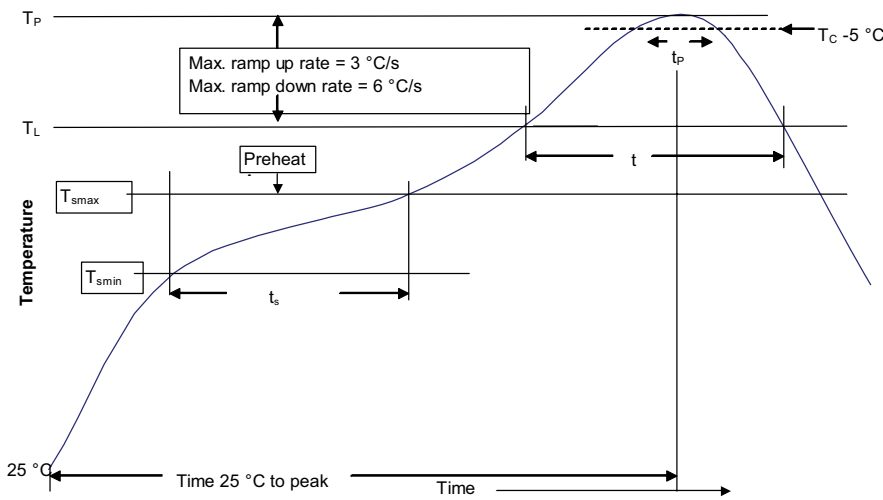


Table 1 - Standard SnPb solder (T_C)

| Package thickness | Volume mm ³ <350 | Volume mm ³ ≥350 |
|-------------------|-----------------------------|-----------------------------|
| <2.5 mm | 235 °C | 220 °C |
| ≥2.5 mm | 220 °C | 220 °C |

Table 2 - Lead (Pb) free solder (T_C)

| Package thickness | Volume mm ³ <350 | Volume mm ³ 350 - 2000 | Volume mm ³ >2000 |
|-------------------|-----------------------------|-----------------------------------|------------------------------|
| <1.6 mm | 260 °C | 260 °C | 260 °C |
| 1.6 – 2.5 mm | 260 °C | 250 °C | 245 °C |
| >2.5 mm | 250 °C | 245 °C | 245 °C |

Reference J-STD-020

| Profile feature | Standard SnPb solder | Lead (Pb) free solder |
|---|---|--|
| Preheat and soak | <ul style="list-style-type: none"> Temperature min. (T_{smin}) Temperature max. (T_{smax}) Time (T_{smin} to T_{smax}) (t_s) | <ul style="list-style-type: none"> 100 °C 150 °C 60-120 seconds |
| Ramp up rate T _L to T _p | 3 °C/ second max. | 3 °C/ second max. |
| Liquidous temperature (T _L) Time (t _L) maintained above T _L | <ul style="list-style-type: none"> 183 °C 60-150 seconds | <ul style="list-style-type: none"> 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* |
| Ramp-down rate (T _p to T _L) | 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.

Manual solder

Use a 20 watt soldering iron with tip diameter of 1.0 mm maximum. +350 °C, 4-5 seconds maximum, generally manual, hand soldering is not recommended..

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Printed in USA
Publication No. ELX1153 BU-ELX22012
March 2022

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