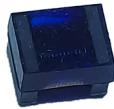


# WCLA2520V1

## Automotive grade wire wound chip inductor



### Product features

- AEC-Q200 qualified
- 1008 (2520 metric) package
- Ferrite core wire wound construction
- Inductance range from 0.22  $\mu$ H to 47  $\mu$ 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)



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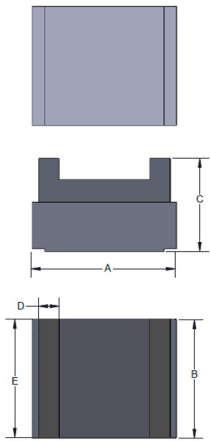
**Product specifications**

Part number <sup>2</sup>	OCL Tolerance (%)	OCL (μH)	OCL Test frequency (MHz)	Q minimum	Q Test frequency (MHz)	DCR (Ω) @ +25 °C maximum	Test voltage <sup>1</sup> (mV)	SRF (MHz) minimum	I Rated (mA)
WCLA2520V1-R22-R	±10%	0.22	25.2	30	25.2	0.5	500	450	1100
WCLA2520V1-1R0-R	±10%	1	7.96	12	7.96	0.13	500	345	1000
WCLA2520V1-1R5-R	±10%	1.5	7.96	12	7.96	0.17	500	100	850
WCLA2520V1-2R2-R	±10%	2.2	7.96	12	7.96	0.21	500	78	775
WCLA2520V1-3R3-R	±10%	3.3	7.96	12	7.96	0.26	500	48	715
WCLA2520V1-4R7-R	±10%	4.7	7.96	12	7.96	0.52	500	46	505
WCLA2520V1-6R8-R	±10%	6.8	7.96	12	7.96	0.72	500	33	432
WCLA2520V1-8R2-R	±10%	8.2	2.52	12	2.52	0.76	500	30	410
WCLA2520V1-100-R	±10%	10	2.52	12	2.52	0.86	500	28	392
WCLA2520V1-150-R	±10%	15	2.52	12	2.52	1.09	500	21	342
WCLA2520V1-220-R	±10%	22	2.52	12	2.52	1.96	500	18	260
WCLA2520V1-330-R	±10%	33	2.52	12	2.52	2.47	500	15	236
WCLA2520V1-470-R	±10%	47	2.52	20	2.52	8.34	500	18	100

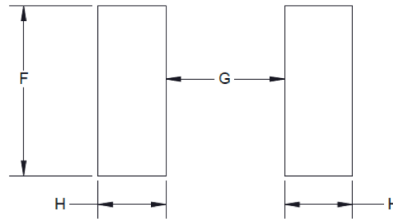
1. Test voltage is for open circuit inductance (OCL) and Q at +25 °C

2. Part Number Definition: WCLA2520V1-xxx-R  
WCLA2520V1 = 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



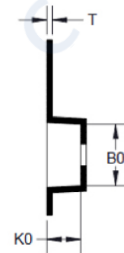
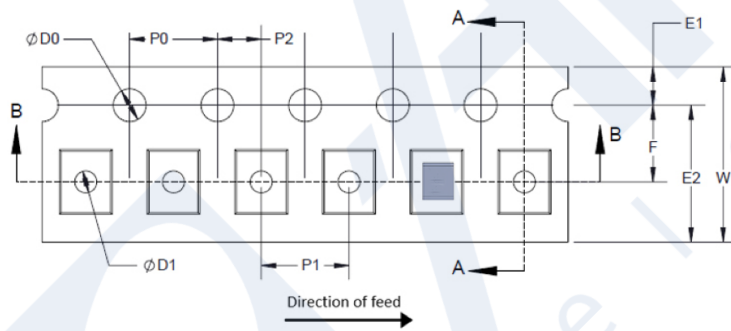
Part Number	A	B	C	D	E	F	G	H
WCLA2520V1-xxx-R	2.90 max	2.50 max	2.10 max	0.60 ±0.10	2.50 max	2.54 ref	1.27 ref	1.02 ref

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

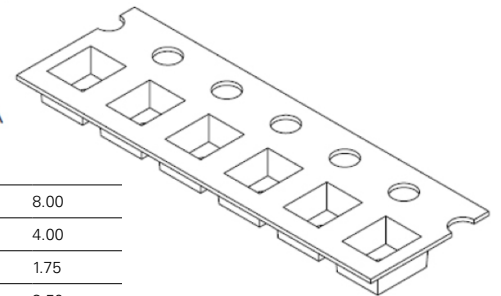
Packaging information (mm)

Drawing not to scale

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



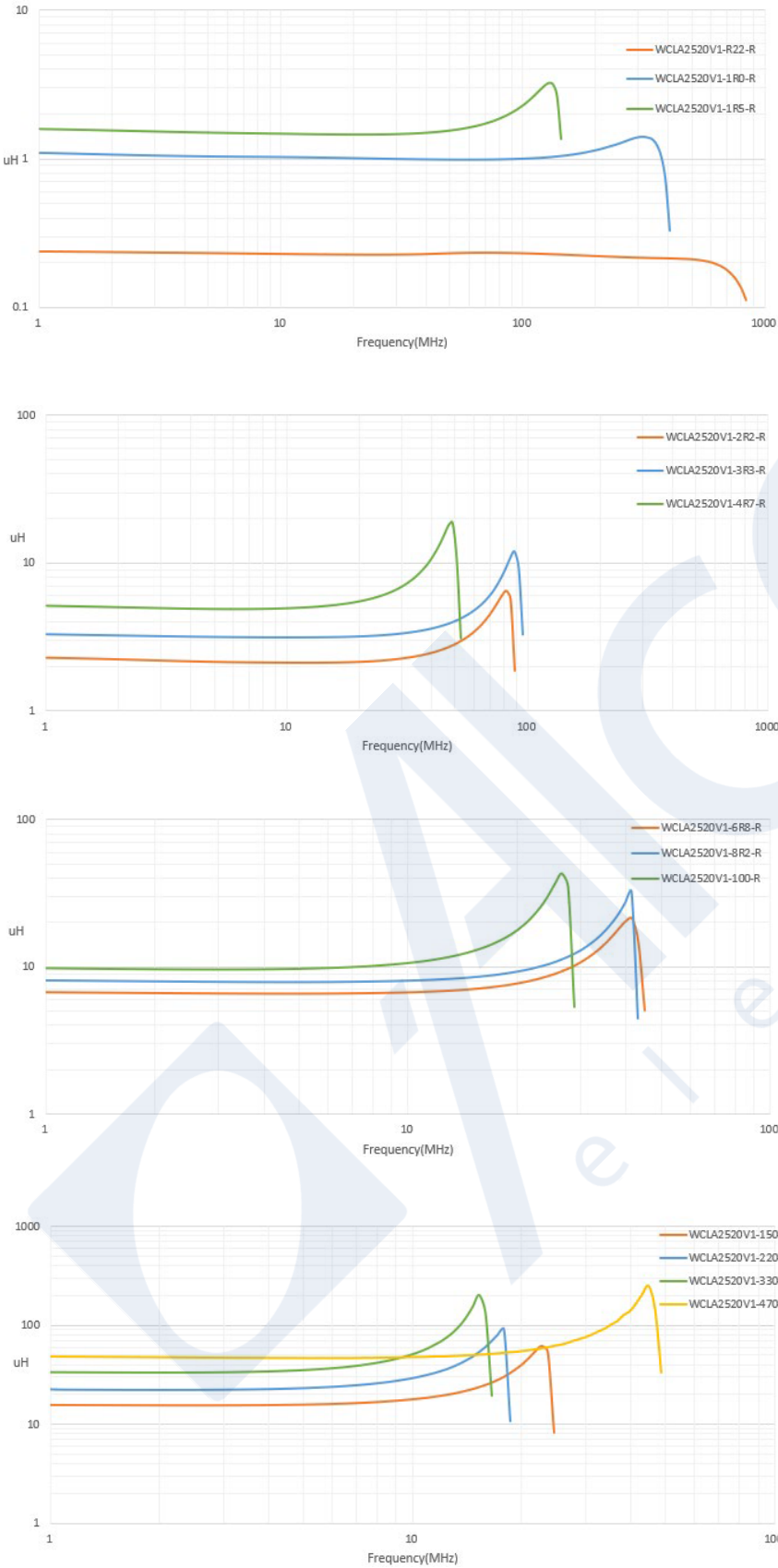
SECTION A-A



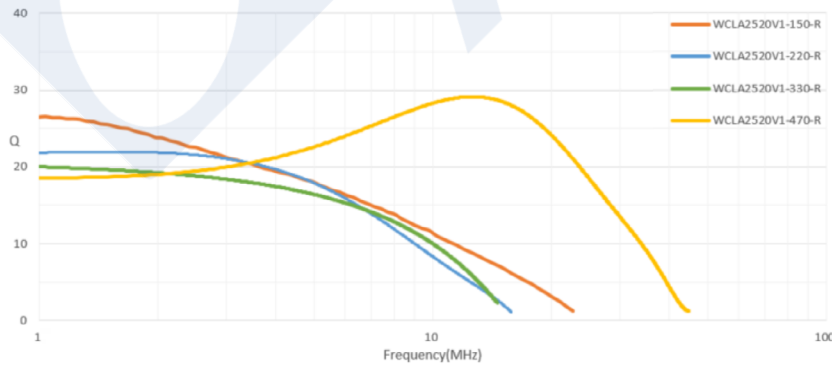
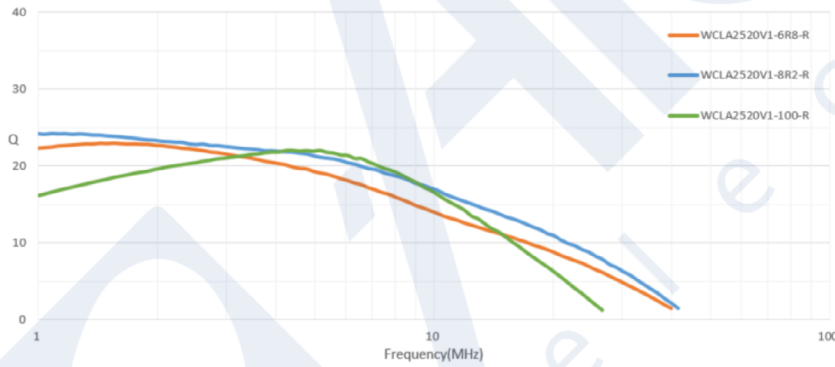
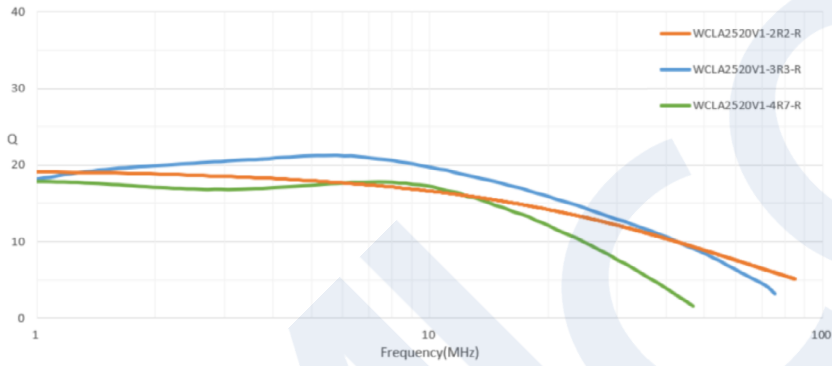
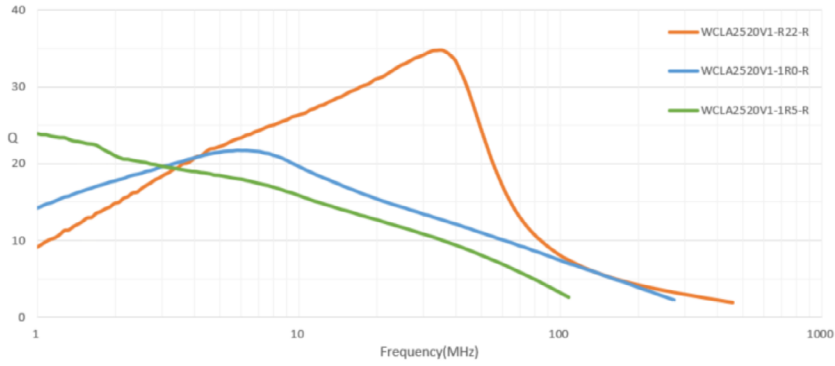
SECTION B-B

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	2.61
A0±0.10	2.93
K0±0.10	2.25
P0±0.10	4.00
T±0.05	0.26

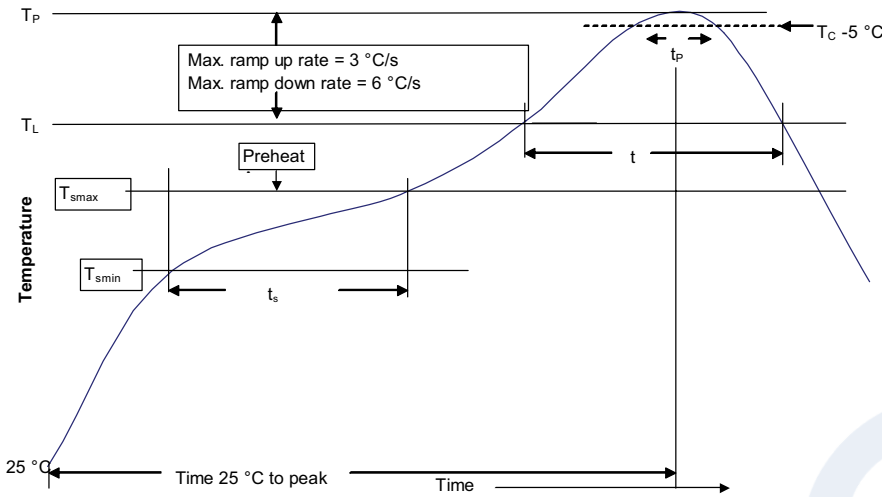
Inductance vs frequency



**Q vs frequency**



### Solder reflow profile



**Table 1 - Standard SnPb solder ( $T_C$ )**

Package thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ $\geq$ 350
<2.5 mm	235 °C	220 °C
$\geq$ 2.5 mm	220 °C	220 °C

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

Package thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ 350 - 2000	Volume $\text{mm}^3$ >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		
• 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
Ramp up rate $T_L$ to $T_p$	3 °C/ second max.	3 °C/ second max.
Liquidous temperature ( $T_L$ )	183 °C	217 °C
Time ( $t_L$ ) maintained above $T_L$	60-150 seconds	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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