

# MCLA1005V2

## Automotive multilayer chip inductor



### Product features

- AEC-Q200 qualified
- 0402 (1005 metric) package
- Multilayer monolithic construction yields high reliability
- Inductance range from 1.0 nH to 330 nH
- Moisture sensitivity level (MSL): 1

### Applications

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

### Environmental data

- Operating temperature range: -40 °C to +125 °C (ambient plus self-temperature rise)



**Product specifications**

Part number	OCL Tolerance	OCL (nH)	Q minimum	DCR@ (Ω) @ +25 °C maximum	Test frequency (MHz)	Test voltage (mV)	SRF (MHz) minimum	I Rated (mA)
MCLA1005V2-1R0-R	±0.3nH	1.0	8	0.1	100	50	10000	400
MCLA1005V2-1R1-R	±0.3nH	1.1	8	0.1	100	50	10000	400
MCLA1005V2-1R2-R	±0.3nH	1.2	8	0.1	100	50	10000	400
MCLA1005V2-1R3-R	±0.3nH	1.3	8	0.1	100	50	10000	400
MCLA1005V2-1R5-R	±0.3nH	1.5	8	0.1	100	50	6000	300
MCLA1005V2-1R6-R	±0.3nH	1.6	8	0.12	100	50	6000	300
MCLA1005V2-1R8-R	±0.3nH	1.8	8	0.12	100	50	6000	300
MCLA1005V2-2R0-R	±0.3nH	2.0	8	0.15	100	50	6000	300
MCLA1005V2-2R2-R	±0.3nH	2.2	8	0.15	100	50	6000	300
MCLA1005V2-2R4-R	±0.3nH	2.4	8	0.15	100	50	6000	300
MCLA1005V2-2R7-R	±0.3nH	2.7	8	0.15	100	50	6000	300
MCLA1005V2-3R0-R	±0.3nH	3.0	8	0.2	100	50	6000	300
MCLA1005V2-3R3-R	±0.3nH	3.3	8	0.2	100	50	6000	300
MCLA1005V2-3R6-R	±0.3nH	3.6	8	0.2	100	50	4000	300
MCLA1005V2-3R9-R	±0.3nH	3.9	8	0.2	100	50	4000	300
MCLA1005V2-4R3-R	±0.3nH	4.3	8	0.2	100	50	4000	300
MCLA1005V2-4R7-R	±0.3nH	4.7	8	0.25	100	50	4000	300
MCLA1005V2-5R1-R	±0.3nH	5.1	8	0.25	100	50	4000	300
MCLA1005V2-5R6-R	±0.3nH	5.6	8	0.25	100	50	4000	300
MCLA1005V2-6R2-R	±0.3nH	6.2	8	0.3	100	50	3900	300
MCLA1005V2-6R8-R	±5%	6.8	8	0.3	100	50	3900	300
MCLA1005V2-7R5-R	±5%	7.5	8	0.4	100	50	3700	300
MCLA1005V2-8R2-R	±5%	8.2	8	0.4	100	50	3600	300
MCLA1005V2-9R1-R	±5%	9.1	8	0.4	100	50	3400	300
MCLA1005V2-100-R	±5%	10	8	0.4	100	50	3200	300
MCLA1005V2-120-R	±5%	12	8	0.5	100	50	2700	300
MCLA1005V2-150-R	±5%	15	8	0.5	100	50	2300	300
MCLA1005V2-180-R	±5%	18	8	0.6	100	50	2100	300
MCLA1005V2-200-R	±5%	20	8	0.6	100	50	2000	300
MCLA1005V2-220-R	±5%	22	8	0.6	100	50	1900	300
MCLA1005V2-270-R	±5%	27	8	0.7	100	50	1600	300
MCLA1005V2-330-R	±5%	33	8	0.8	100	50	1300	200
MCLA1005V2-390-R	±5%	39	8	1	100	50	1200	200
MCLA1005V2-430-R	±5%	43	8	1.1	100	50	1100	200
MCLA1005V2-470-R	±5%	47	8	1.1	100	50	1000	200
MCLA1005V2-560-R	±5%	56	8	1.2	100	50	750	200
MCLA1005V2-680-R	±5%	68	8	1.4	100	50	750	180
MCLA1005V2-820-R	±5%	82	8	2.4	100	50	750	150
MCLA1005V2-101-R	±5%	100	8	2.6	100	50	700	150
MCLA1005V2-121-R	±5%	120	8	2.8	100	50	600	150

1. Test frequency and voltage is for open circuit inductance (OCL) and Q at +25 °C  
2. Rated I: When rated I is applied to the product, self-temperature rise will be 20 °C or less.

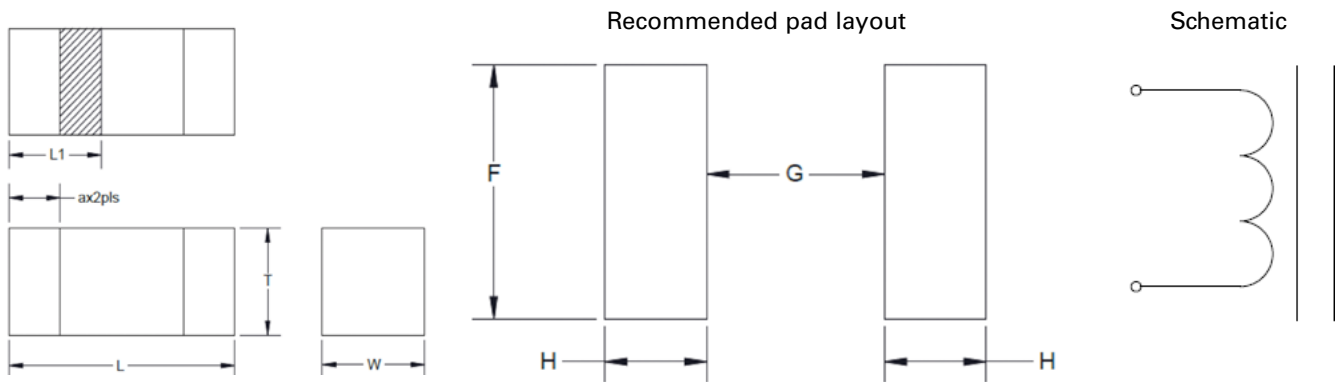
3. Part Number Definition: MCLA1005V2-xxx-R  
MCLA1005V2 = Product code and size  
xxx= inductance value in nH, R= decimal point,  
If no R is present then last character equals number of zeros  
-R suffix = RoHS compliant

Part number	OCL Tolerance	OCL (nH)	Q minimum	DCR@ (+25 °C) maximum	Test frequency (MHz)	Test voltage (mV)	SRF (MHz) minimum	I Rated (mA)
MCLA1005V2-151-R	±5%	150	8	3.2	100	50	550	100
MCLA1005V2-181-R	±5%	180	8	3.7	100	50	500	100
MCLA1005V2-221-R	±5%	220	8	4.0	100	50	450	100
MCLA1005V2-271-R	±5%	270	8	4.5	100	50	400	100
MCLA1005V2-331-R	±5%	330	6	7.0	50	50	350	50

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**Mechanical parameters, schematic, pad layout (mm)**



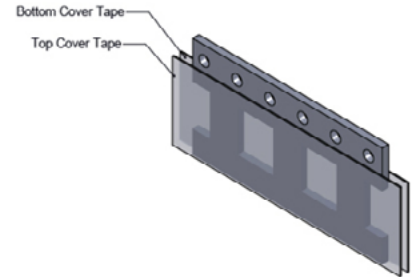
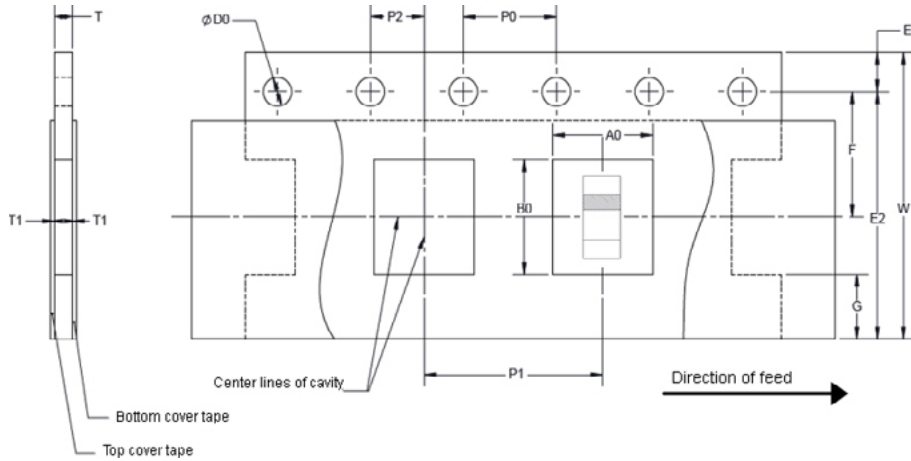
Part Number	L	W	T	A	L1	F	G	H
MCLA1005V2-xxx-R	1.00±0.15	0.50±0.15	0.50±0.15	0.25±0.10	0.50±0.15	0.85 ref	0.15 ref	0.75 ref

Part marking: No marking  
All soldering surfaces to be coplanar within 0.1 millimeters  
Tolerances are ±0.1 millimeters unless stated otherwise  
Dimension L1 is for orientation  
Pad layout dimensions are reference only  
Traces or vias underneath the inductor is not recommended

**Packaging information (mm)**

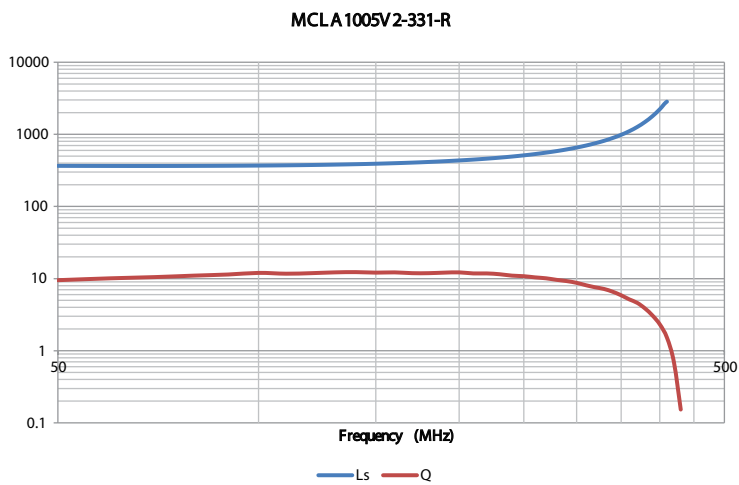
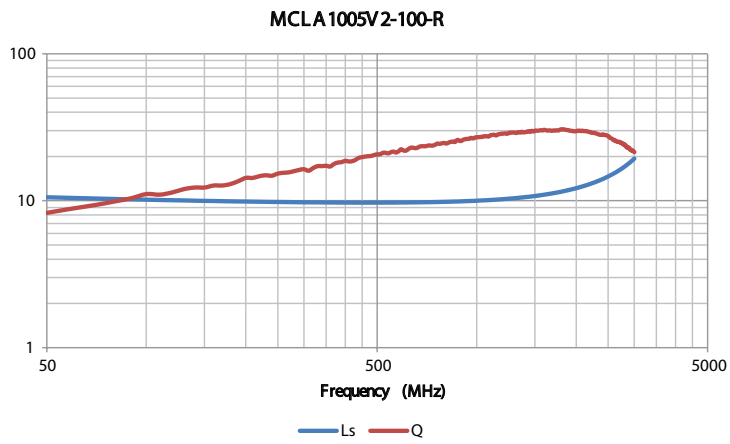
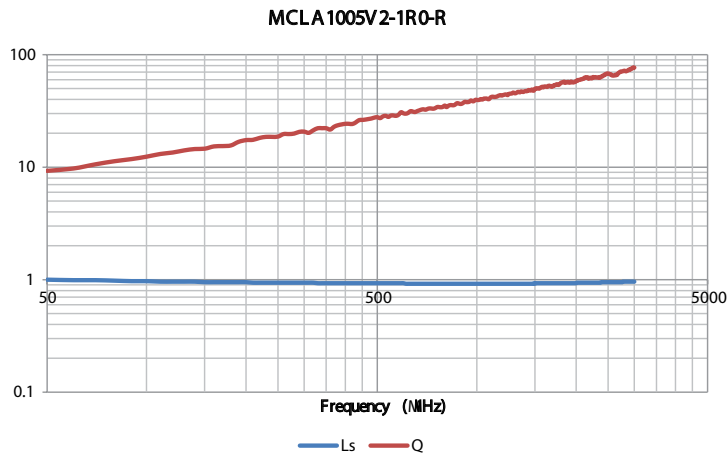
Drawing not to scale

Supplied in tape and reel packaging, 10000 parts per 7" diameter reel

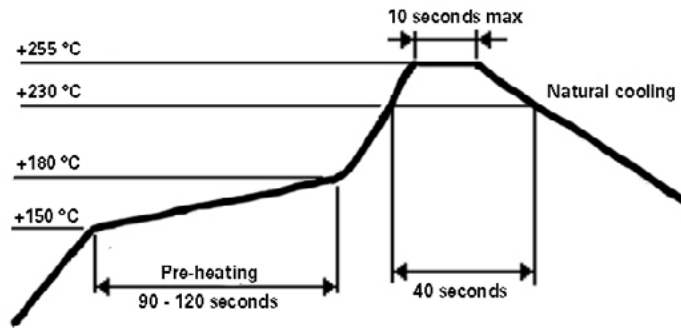


$W \pm 0.2$	8.00
$F \pm 0.1$	3.50
$E1 \pm 0.2$	1.75
E2 Min	na
$P0 \pm 0.2$	4.00
$P1 \pm 0.1$	2.00
$P2 \pm 0.1$	2.00
$D0 \pm 0.1$	1.55
A0	$0.65 \pm 0.1$
B0	$1.15 \pm 0.1$
T	$0.6 \pm 0.1$
T1 Max	na

Inductance and Q vs frequency



**Solder reflow profile**



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