

MCL2V0603

Multilayer chip inductor



Product features

- 0201 (0603 metric) package
- Multilayer monolithic construction yields high reliability
- Core material: Ceramic
- Inductance range from 0.6 nH to 120 nH
- Moisture sensitivity level (MSL): 1

Applications

- Industrial connectivity (IoT)
- Wireless communications
 - Bluetooth
 - WiFi
 - Antenna
- Machine-to-machine (M2M)
- Mobile phones
- Wearable devices
- Wireless LAN
- Computing/gaming consoles
- Broadband components
- RF transceiver modules

Environmental compliance and general specifications

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



Product specifications

Part number ¹	Ls ¹ rated (nH)	Ls ¹ (nH)	Ls ¹ tolerance	Q minimum	DCR (Ω) @ +25 °C maximum	Test frequency ² (MHz)	Test voltage ² (mV)	SRF (MHz) minimum	I Rated ³ (mA) maximum
MCL2V0603-R60-R	0.6	0.35	±0.3nH	14	0.06	500	50	10000	600
MCL2V0603-R70-R	0.7	0.45	±0.3nH	14	0.06	500	50	10000	600
MCL2V0603-R80-R	0.8	0.55	±0.3nH	14	0.07	500	50	10000	600
MCL2V0603-R90-R	0.9	0.65	±0.3nH	14	0.07	500	50	10000	600
MCL2V0603-1R0-R	1.0	0.52	±0.3nH	14	0.08	500	50	10000	600
MCL2V0603-1R1-R	1.1	0.62	±0.3nH	14	0.11	500	50	10000	550
MCL2V0603-1R2-R	1.2	0.72	±0.3nH	14	0.12	500	50	10000	550
MCL2V0603-1R3-R	1.3	0.82	±0.3nH	14	0.12	500	50	10000	550
MCL2V0603-1R4-R	1.4	0.92	±0.3nH	14	0.12	500	50	10000	550
MCL2V0603-1R5-R	1.5	1.02	±0.3nH	14	0.12	500	50	10000	550
MCL2V0603-1R6-R	1.6	1.12	±0.3nH	14	0.13	500	50	10000	500
MCL2V0603-1R7-R	1.7	1.22	±0.3nH	14	0.15	500	50	10000	500
MCL2V0603-1R8-R	1.8	1.32	±0.3nH	14	0.15	500	50	10000	500
MCL2V0603-1R9-R	1.9	1.42	±0.3nH	14	0.15	500	50	10000	400
MCL2V0603-2R0-R	2.0	1.52	±0.3nH	14	0.23	500	50	10000	400
MCL2V0603-2R1-R	2.1	1.62	±0.3nH	14	0.25	500	50	10000	400
MCL2V0603-2R2-R	2.2	1.72	±0.3nH	14	0.25	500	50	10000	400
MCL2V0603-2R3-R	2.3	1.82	±0.3nH	14	0.25	500	50	10000	300
MCL2V0603-2R4-R	2.4	1.92	±0.3nH	14	0.25	500	50	10000	300
MCL2V0603-2R5-R	2.5	2.02	±0.3nH	14	0.25	500	50	10000	300
MCL2V0603-2R6-R	2.6	2.12	±0.3nH	14	0.25	500	50	9400	300
MCL2V0603-2R7-R	2.7	2.22	±0.3nH	14	0.25	500	50	9200	300
MCL2V0603-2R8-R	2.8	2.32	±0.3nH	14	0.26	500	50	8900	300
MCL2V0603-2R9-R	2.9	2.42	±0.3nH	14	0.26	500	50	8900	300
MCL2V0603-3R0-R	3.0	2.52	±0.3nH	14	0.26	500	50	8600	300
MCL2V0603-3R1-R	3.1	2.62	±0.3nH	14	0.30	500	50	8600	300
MCL2V0603-3R2-R	3.2	2.72	±0.3nH	14	0.30	500	50	8100	300
MCL2V0603-3R3-R	3.3	2.82	±0.3nH	14	0.30	500	50	8100	300
MCL2V0603-3R4-R	3.4	2.92	±0.3nH	14	0.38	500	50	8100	300
MCL2V0603-3R5-R	3.5	3.02	±0.3nH	14	0.38	500	50	8100	300
MCL2V0603-3R6-R	3.6	3.12	±0.3nH	14	0.38	500	50	7700	300
MCL2V0603-3R7-R	3.7	3.22	±0.3nH	14	0.42	500	50	7400	300
MCL2V0603-3R8-R	3.8	3.32	±0.3nH	14	0.42	500	50	7400	300
MCL2V0603-3R9-R	3.9	3.42	±0.3nH	14	0.44	500	50	7400	300
MCL2V0603-4R3-R	4.3	3.82	±0.3nH	14	0.44	500	50	6800	300
MCL2V0603-4R7-R	4.7	4.22	±0.3nH	14	0.45	500	50	6200	300
MCL2V0603-5R1-R	5.1	4.62	±0.3nH	14	0.46	500	50	5900	250
MCL2V0603-5R6-R	5.6	5.12	±0.3nH	14	0.46	500	50	5500	250
MCL2V0603-6R2-R	6.2	5.72	±0.3nH	14	0.48	500	50	5100	250
MCL2V0603-6R8-R	6.8	6.32	±5%	14	0.50	500	50	4900	250
MCL2V0603-7R5-R	7.5	7.02	±5%	14	0.50	500	50	4700	200

1. Ls= Inductance

2. Test frequency and voltage are for Ls and Q at +25 °C

3. Rated I: When rated I is applied to the product, self-temperature rise will be 20 °C or less

4. Part Number Definition: MCL2V0603-xxx-R

MCL2V0603 = Product code and size

xxx= Rated inductance value in nH, R= decimal point,

If no R is present then last character equals number of zeros

-R suffix = RoHS compliant

Product specifications (continued)

Part number ¹	Ls ¹ rated (nH)	Ls ¹ (nH)	Ls ¹ tolerance	Q minimum	DCR (Ω) @ +25 °C maximum	Test frequency ² (MHz)	Test voltage ² (mV)	SRF (MHz) minimum	I Rated ³ (mA) maximum
MCL2V0603-8R2-R	8.2	7.72	±5%	14	0.56	500	50	4300	200
MCL2V0603-9R1-R	9.1	8.62	±5%	14	0.72	500	50	4100	200
MCL2V0603-100-R	10	9.52	±5%	14	0.80	500	50	3800	200
MCL2V0603-120-R	12	11.52	±5%	14	0.80	500	50	3400	180
MCL2V0603-150-R	15	14.52	±5%	14	0.85	500	50	2600	180
MCL2V0603-180-R	18	17.52	±5%	14	1.00	500	50	2300	150
MCL2V0603-200-R	20	19.52	±5%	14	1.20	500	50	1900	150
MCL2V0603-220-R	22	21.52	±5%	14	1.20	500	50	1900	150
MCL2V0603-270-R	27	26.52	±5%	14	1.60	500	50	1800	120
MCL2V0603-330-R	33	32.52	±5%	12	2.20	300	50	1800	110
MCL2V0603-360-R	36	35.52	±5%	12	2.20	300	50	1700	110
MCL2V0603-390-R	39	38.52	±5%	12	2.30	300	50	1600	100
MCL2V0603-430-R	43	42.52	±5%	12	2.40	300	50	1600	100
MCL2V0603-470-R	47	46.52	±5%	12	2.60	300	50	1500	100
MCL2V0603-560-R	56	55.52	±5%	12	2.80	300	50	1400	80
MCL2V0603-680-R	68	67.52	±5%	12	3.20	300	50	1200	80
MCL2V0603-750-R	75	74.52	±5%	11	3.60	300	50	1200	70
MCL2V0603-820-R	82	81.52	±5%	11	3.80	300	50	1100	70
MCL2V0603-910-R	91	90.52	±5%	11	3.90	300	50	1100	60
MCL2V0603-101-R	100	99.52	±5%	11	4.00	300	50	1000	60
MCL2V0603-121-R	120	119.52	±5%	10	5.00	300	50	1000	50

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4. Part number definition: MCL2V0603-xxx-R

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xxx= Rated inductance value in nH, R= decimal point,

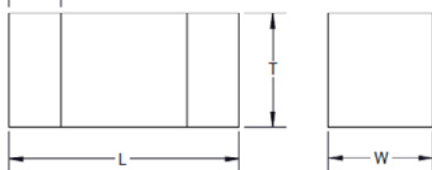
If no R is present then last character equals number of zeros

-R suffix = RoHS compliant

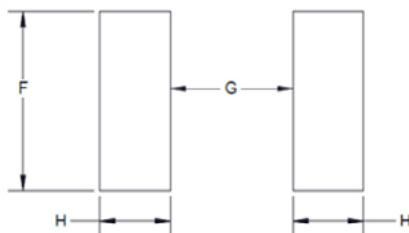
Dimensions (mm)



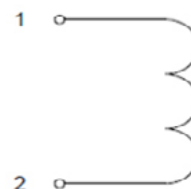
a 2pls



Recommended pad layout



Schematic



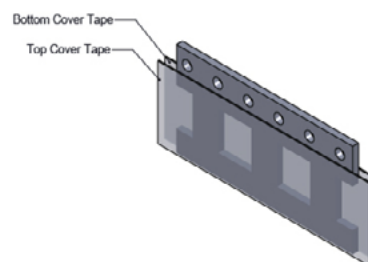
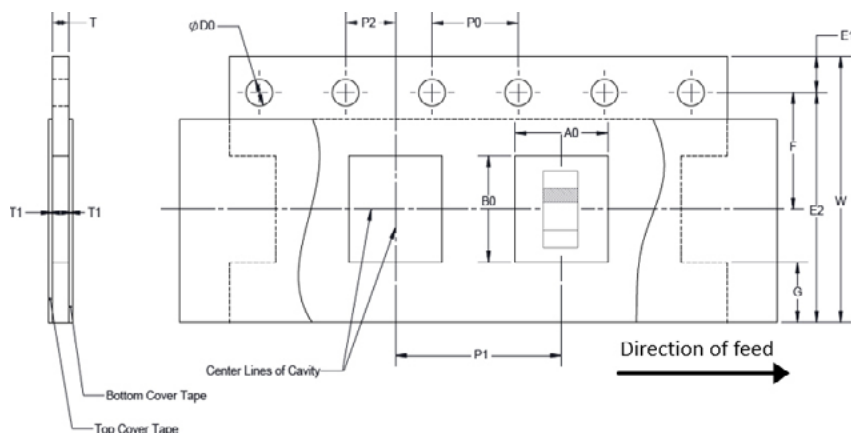
Part number	L	W	T	a	L1	F ref	G ref	H ref
MCL2V0603-xxx-R	0.6 ±0.03	0.3 ±0.03	0.30 ±0.03	0.15 ±0.05	0.3 ±0.03	0.55	0.15	0.6

No part 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)

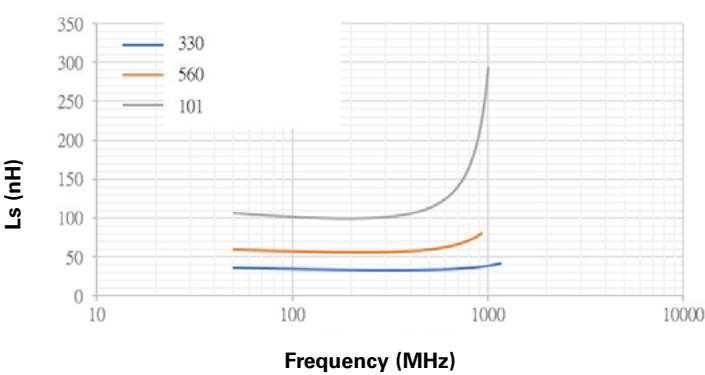
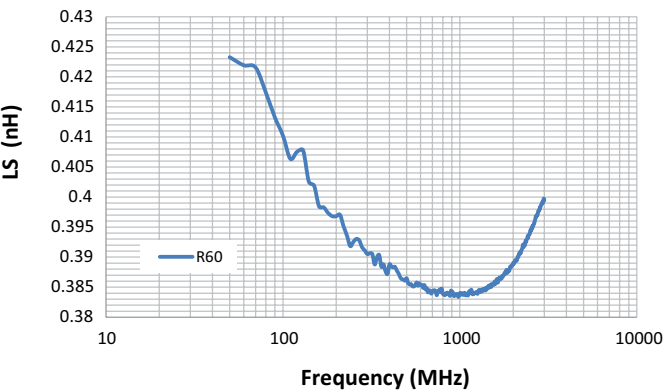
Drawing not to scale

Supplied in tape and reel packaging, 15000 parts per 7" diameter reel (EIA-481 compliant)

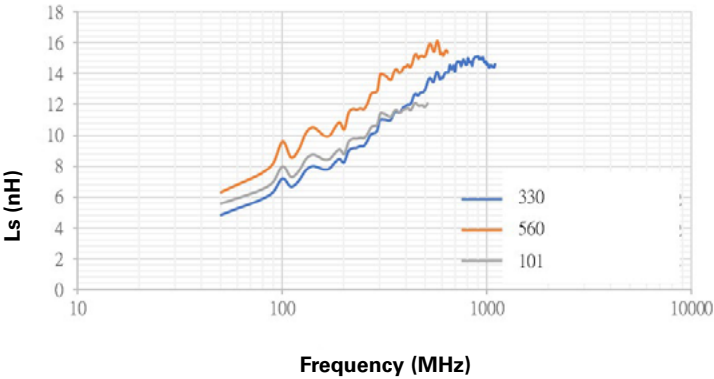
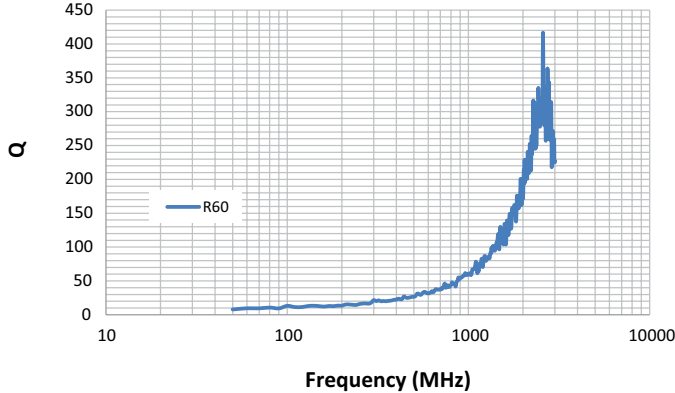


W	8±0.1
F	3.5±0.05
E1	1.75±0.05
E2 Min	N/A
P0	4±0.05
P1	2±0.05
P2	2±0.05
D0	1.55±0.05
A0	0.35±0.03
B0	0.66±0.03
T	0.42±0.03
T1 Max	N/A

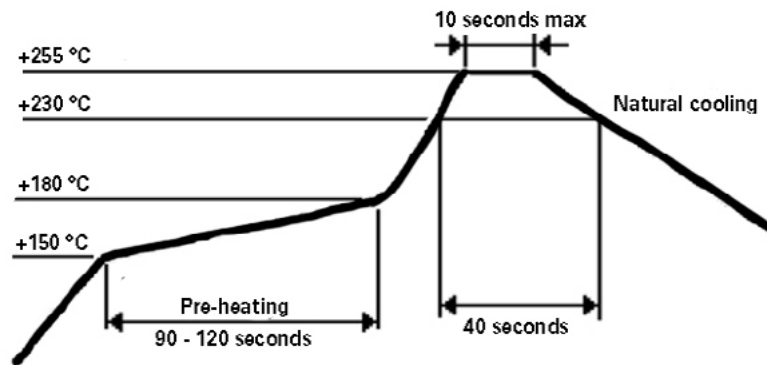
Inductance vs frequency



Q vs frequency



Solder reflow profile



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