Power Inductors, Shielded
LPM Series

The Shielded Power LPM Series are low profile, surface-mount inductors. They are designed for power applications or high current applications.

Key Features

- High reliability and easy surface mount assembly
- Low loss due to design of low DC resistance
- Low profile with max thickness 3.0 mm
- Frequency Application Up to 3MHz
- Suitable for reflow soldering
- 100% Lead Free

Applications

- Low profile and high current power supplies
- DC/DC Converters

Product Range Summary

SIZE CODE	INDUCTANCE RANGE	RATED CURRENT RANGE BASED ON INDUCTANCE CHANGE	RATED CURRENT RANGE BASED ON TEMPERATURE RISE	DC RESISTANCE RANGE (TYPICAL)	OPERTING TEMPERATURE RANGE
0520	1.00 - 10.0 µH	2.10 - 8.00 A	2.30 - 7.50 A	16.80 mΩ - 140.00 mΩ	-55°C to+125°C
0530	0.60 - 5.6 µH	4.00 - 18.00 A	4.00 - 9.80 A	11.00 mΩ - 55.00 mΩ	
0630	0.47 - 22 µH	2.50 - 20.50 A	2.50 - 16.50 A	3.50 mΩ - 152.00 mΩ	

Consult Factory for values not listed in the product range

How To Order

LPM	0520	LR	1R0	M	E
INDUCTOR POWER SHIELDED	SIZE CODE	APPLICATION TYPE	INDUCTANCE	TOLERANCE	PACKING
LPM (Shielded)	0520 0530 0630	LR = Power application with lower DC resistance and lower power loss design requirement HI = High performance application with high saturation current requirement	1R0 = 1.00 µH See chart	M = ± 20%	E = Embossed Tape & Reel

Example P/N: **LPM0520LR1R0ME** is shielded power inductor, size 0520 for low power applications, 1.00µH, ±20%, embossed tape & reel

Note: See our website for Saturation Current and Heat Rating Current Performance graphs.

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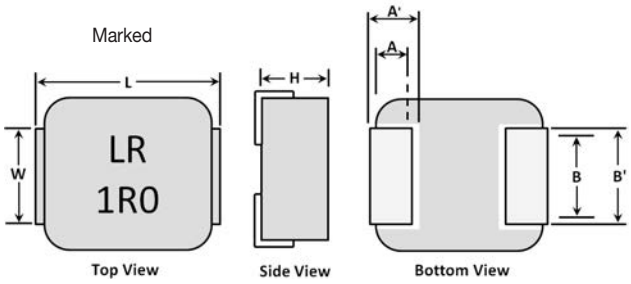
0520 Size

Units	Inches	mm
L	0.220 ± 0.001	5.60 ± 0.35
W	0.205 ± 0.008	5.20 ± 0.20
H	0.079 ± 0.004	2.00 ± 0.10
A	0.039 ± 0.016	1.00 ± 0.40
A'	0.059 ± 0.004	1.50 ± 0.10
B	0.079 ± 0.012	2.00 ± 0.30
B'	0.098 ± 0.008	2.50 ± 0.20

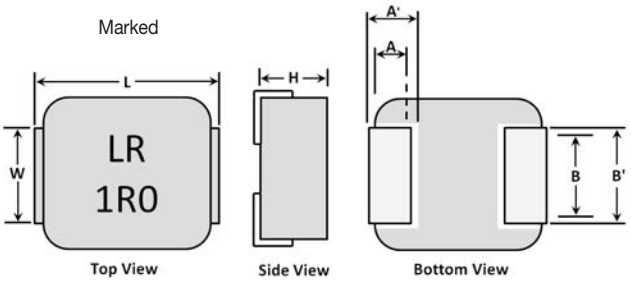


Application Type	Marking
LR	LR 1R0
HI	1R0

Part Number	Inductance	Rated Current Based on Inductance Change *1	Rated Current Based on Temperature Rise *2	SRF (Typ)	DC Resistance Typ	DC Resistance Max	Marking
LPM0520LR1R0ME	1.00 µH, ±20%	8.00 A	7.50 A	65 MHz	16.8 mΩ	18.5 mΩ	LR 1R0
LPM0520LR1R5ME	1.50 µH, ±20%	6.80 A	5.80 A	46 MHz	19.0 mΩ	24.0 mΩ	LR 1R5
LPM0520LR2R2ME	2.20 µH, ±20%	5.00 A	5.50 A	38 MHz	33.0 mΩ	36.0 mΩ	LR 2R2
LPM0520LR3R3ME	3.30 µH, ±20%	4.20 A	4.50 A	34 MHz	45.0 mΩ	50.0 mΩ	LR 3R3
LPM0520LR4R7ME	4.70 µH, ±20%	3.70 A	3.70 A	27 MHz	52.0 mΩ	58.0 mΩ	LR 4R7
LPM0520LR5R6ME	5.60 µH, ±20%	3.30 A	3.50 A	22 MHz	65.0 mΩ	75.0 mΩ	LR 5R6
LPM0520LR100ME	10.00 µH, ±20%	2.10 A	3.00 A	17 MHz	130.0 mΩ	145.0 mΩ	LR 100
LPM0520HI100ME	10.00 µH, ±20%	4.00 A	2.30 A	16 MHz	140.0 mΩ	150.0 mΩ	100

0530 Size

Units	Inches	mm
L	0.220 ± 0.001	5.60 ± 0.35
W	0.205 ± 0.008	5.20 ± 0.20
H	0.118	3.00 (max)
A	0.039 ± 0.016	1.00 ± 0.40
A'	0.059 ± .004	1.50 ± 0.10
B	0.079 ± 0.012	2.00 ± 0.30
B'	0.098 ± 0.079	2.50 ± 0.20



Application Type	Marking
LR	LR 1R0
HI	1R0

Part Number	Inductance	Rated Current Based on Inductance Change *1	Rated Current Based on Temperature Rise *2	SRF (Typ)	DC Resistance Typ	DC Resistance Max	Marking
LPM0530HIR60ME	0.60 µH, ±20%	18.00 A	9.80 A	84 MHz	11.0 mΩ	12.0 mΩ	R60
LPM0530HIR68ME	0.68 µH, ±20%	16.00 A	9.50 A	63 MHz	11.0 mΩ	12.0 mΩ	R68
LPM0530HIR82ME	0.82 µH, ±20%	12.50 A	9.00 A	53 MHz	14.0 mΩ	15.0 mΩ	R82
LPM0530HI1R0ME	1.00 µH, ±20%	14.00 A	7.00 A	52 MHz	13.0 mΩ	14.0 mΩ	1R0
LPM0530HI1R2ME	1.20 µH, ±20%	13.00 A	6.80 A	48 MHz	15.5 mΩ	16.5 mΩ	1R2
LPM0530HI1R5ME	1.50 µH, ±20%	10.00 A	6.00 A	44 MHz	20.0 mΩ	25.0 mΩ	1R5
LPM0530HI2R2ME	2.20 µH, ±20%	9.00 A	5.50 A	30 MHz	29.0 mΩ	35.0 mΩ	2R2
LPM0530LR1R5ME	1.50 µH, ±20%	7.00 A	8.00 A	44 MHz	18.50 mΩ	20.0 mΩ	LR 1R5

*1. Isat: Based on inductance change (ΔL/Lo: -20% TYP.)
*2. Irms: Based on temperature rise (ΔT: 40°C TYP.)

Notes: Inductance is measured in HP-4284A Precision LCR Meter.
RDC measured in HP 4338B milliohm meter (or equivalent)

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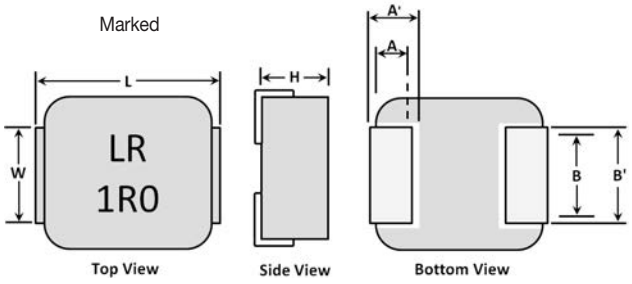
0530 Size (Continued)

Part Number	Inductance	Rated Current Based on Inductance Change *1	Rated Current Based on Temperature Rise *2	SRF (Typ)	DC Resistance Typ	DC Resistance Max	Marking
LPM0530LR2R2ME	2.20 µH, ±20%	5.50 A	7.00 A	38 MHz	24.0 mΩ	26.0 mΩ	LR 2R2
LPM0530LR3R3ME	3.30 µH, ±20%	5.00 A	6.50 A	28 MHz	32.0 mΩ	36.0 mΩ	LR 3R3
LPM0530LR4R7ME	4.70 µH, ±20%	4.50 A	4.50 A	25 MHz	54.0 mΩ	60.0 mΩ	LR 4R7
LPM0530LR5R6ME	5.60 µH, ±20%	4.00 A	4.50 A	19 MHz	55.0 mΩ	65.0 mΩ	LR 5R6

0630 Size

Units	Inches	mm
L	0.283 ± 0.012	7.20 ± 0.30
W	0.262 ± 0.008	6.65 ± 0.20
H	0.119	3.00 (max)
A	0.063 ± 0.016	1.60 ± 0.40
A'	0.079 ± 0.004	2.00 ± 0.10
B	0.119 ± 0.013	3.00 ± 0.30
B'	0.134 ± 0.008	3.40 ± 0.20



Application Type	Marking
LR	LR 1R0
HI	1R0

Part Number	Inductance	Rated Current Based on Inductance Change *1	Rated Current Based on Temperature Rise *2	SRF (Typ)	DC Resistance Typ	DC Resistance Max	Marking
LPM0630LRR47ME	0.47 µH, ±20%	20.00 A	16.50 A	79 MHz	3.5 mΩ	4.1 mΩ	LR R47
LPM0630LRR56ME	0.56 µH, ±20%	18.00 A	15.50 A	61 MHz	4.7 mΩ	5.0 mΩ	LR R56
LPM0630LRR68ME	0.68 µH, ±20%	17.00 A	14.00 A	68 MHz	6.0 mΩ	6.5 mΩ	LR R68
LPM0630LRR82ME	0.82 µH, ±20%	16.00 A	12.50 A	49 MHz	7.0 mΩ	7.5 mΩ	LR R82
LPM0630LR1R0ME	1.00 µH, ±20%	15.00 A	12.00 A	52 MHz	8.5 mΩ	9.0 mΩ	LR 1R0
LPM0630LR1R5ME	1.50 µH, ±20%	14.00 A	10.00 A	30 MHz	10.5 mΩ	12.0 mΩ	LR 1R5
LPM0630LR2R2ME	2.20 µH, ±20%	10.00 A	8.00 A	30 MHz	16.0 mΩ	18.5 mΩ	LR 2R2
LPM0630LR3R3ME	3.30 µH, ±20%	10.00 A	6.50 A	24 MHz	25.0 mΩ	28.0 mΩ	LR 3R3
LPM0630LR4R7ME	4.70 µH, ±20%	6.50 A	5.50 A	19 MHz	32.5 mΩ	35.0 mΩ	LR 4R7
LPM0630LR5R6ME	5.60 µH, ±20%	5.00 A	6.00 A	17 MHz	32.5 mΩ	35.5 mΩ	LR 5R6
LPM0630LR6R8ME	6.80 µH, ±20%	6.00 A	4.50 A	16 MHz	54.0 mΩ	60.0 mΩ	LR 6R8
LPM0630LR100ME	10.00 µH, ±20%	5.50 A	4.00 A	13 MHz	62.0 mΩ	68.0 mΩ	LR 100
LPM0630LR150ME	15.00 µH, ±20%	5.00 A	3.00 A	12 MHz	110.0 mΩ	120.0 mΩ	LR 150
LPM0630LR220ME	22.00 µH, ±20%	2.50 A	2.50 A	8 MHz	152.0 mΩ	167.0 mΩ	LR 220
LPM0630HI1R0ME	1.00 µH, ±20%	20.50 A	11.00 A	40 MHz	9.0 mΩ	10.00mΩ	1R0
LPM0630HI1R5ME	1.50 µH, ±20%	17.00 A	9.00 A	35 MHz	14.0 mΩ	15.0 mΩ	1R5
LPM0630HI2R2ME	2.20 µH, ±20%	14.00 A	8.00 A	29 MHz	18.0 mΩ	20.0 mΩ	2R2
LPM0630HI3R3ME	3.30 µH, ±20%	13.50 A	6.80 A	22 MHz	28.0 mΩ	30.0 mΩ	3R3
LPM0630HI4R7ME	4.70 µH, ±20%	10.00 A	5.50 A	17 MHz	37.0 mΩ	40.0 mΩ	4R7
LPM0630HI6R8ME	6.80 µH, ±20%	8.00 A	4.50 A	15 MHz	54.0 mΩ	60.0 mΩ	6R8
LPM0630HI8R2ME	8.20 µH, ±20%	7.50 A	4.00 A	16 MHz	64.0 mΩ	68.0 mΩ	8R2
LPM0630HI100ME	10.00 µH, ±20%	7.00 A	3.00 A	14 MHz	102.0 mΩ	105.0 mΩ	100

*1. Idc1: Based on inductance change
ΔL/Lo: -30% for LR ΔL/Lo: -20% for HI
*2. Idc2: Based on temperature rise (ΔT: 40°C TYP.)

Notes: Inductance is measured in HP-4285A Precision LCR Meter under 100KHz, 0.25V
RDC measured in HP 4338B milliohm meter (or equivalent).

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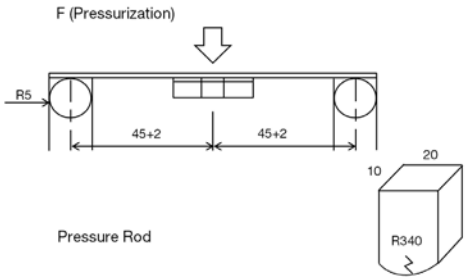
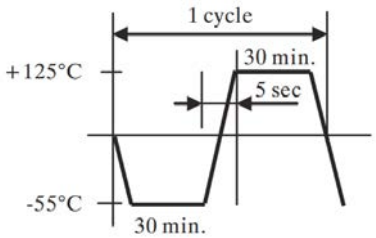
Environmental Performance

	SPECIFICATION	TEST PARAMETERS
VIBRATION	ΔL/Lo : ≤ ± 5% There shall be no mechanical damage	Solder specimen inductor on the test printed circuit board. Apply vibrations in each of the x, y and z directions for 2 house for a total of 6 hours. Frequency : 10~55~10Hz in 60sec as a period Amplitude : 1.5mm
SOLDERABILITY	The metalized area must have 90% minimum solder coverage.	Preheating at 160±10°C 90sec. 245°C ±5°C for 2 ±1sec.
HIGH TEMPERATURE STORAGE	ΔL/Lo : ≤ ± 5% There shall be no mechanical damage or electrical damage.	The sample shall be left for 96 hours in an atmosphere with a temperature of 85±2°C and a normal humidity. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour.
LOW TEMPERATURE STORAGE	ΔL/Lo : ≤ ± 5% There shall be no mechanical damage or electrical damage.	The sample shall be left for 96 hours in an atmosphere with a temperature of –40±2°C. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour.
MOISTURE STORAGE	ΔL/Lo : ≤ ± 5% There shall be no mechanical damage	The sample shall be left for 96 hours in a temperature of 40±2°C and a humidity(RH) of 90~95%. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity more than 1 hour.
SUBSTRATE BENDING	ΔL/Lo : ≤ ± 5% There shall be no mechanical damage or electrical damage	The sample shall be soldered onto the printed circuit board and a load applied until the figure in the arrow direction is made approximately 2mm (keep time 5 ±1 seconds). 
THERMAL SHOCK	ΔL/Lo : ≤ ± 5% There shall be no damage or problems.	The sample shall be subject to 10 continous cycles, such as shown in the following temperature cycle. Measure the test items after leaving the inductors at room temperature and humidity for 1 hour. 

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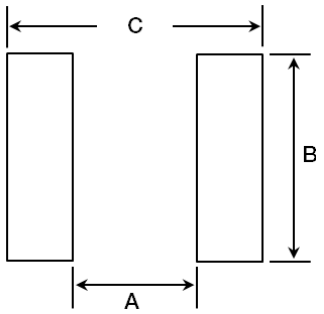
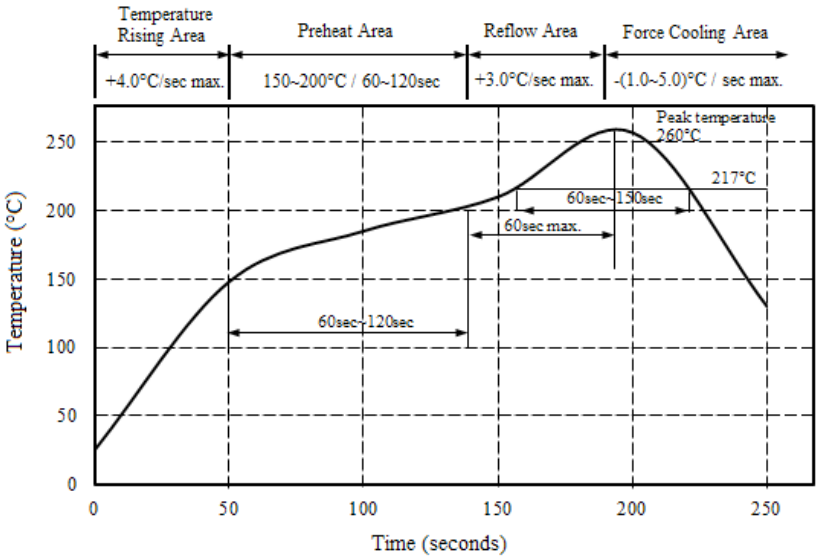
Soldering Information

RECOMMENDED FOOTPRINT:

		SIZE CODES		
Dimensions	Units	0520	0530	0630
A	In	0.236	0.236	0.331
	mm	5.990	5.990	8.400
B	In	0.098	0.098	0.134
	mm	2.500	2.500	3.400
C	In	0.087	0.087	0.146
	mm	2.200	2.200	3.700



RECOMMENDED SOLDER ATTACHMENT: REFLOW SOLDERING



Peak Temperature: 260ºC max
Max Peak Temperature: -5ºC: 30sec max.
Max Time above 217ºC: 60sec ~150 sec max.

If hand soldering must be used, follow these precautions:
Use solder iron of less than 30W when soldering.
Do not allow soldering iron tip to directly touch the ferrite body outside of the terminal electrode.
2 seconds maximum at 260ºC.

* This datasheet is subject to change without notice