

# Inductors for Power Circuits

Wound/STD • magnetic shielded

## VLCF series

Type:           VLCF4018-2 (4.0x4.0 mm)  
                  VLCF4020 (4.0x4.0 mm)  
                  VLCF4024-2 (4.0x4.0 mm)  
                  VLCF4028-2 (4.0x4.0 mm)  
                  VLCF5020 (5.0x5.0 mm)  
                  VLCF5020-1 (5.0x5.0 mm)  
                  VLCF5020-3 (5.0x5.0 mm)  
                  VLCF5024-2 (5.0x5.0 mm)  
                  VLCF5028-2 (5.0x5.0 mm)

Issue date:     October 2012

- All specifications are subject to change without notice.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLCF Series VLCF4018-2

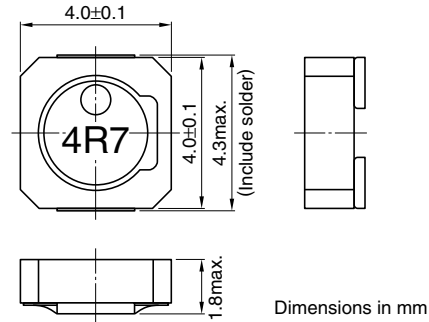
#### FEATURES

- Mount area: 4×4mm  
Low profile: 1.8mm max. height
- Generic use for portable DC to DC converter line.
- High magnetic shield construction should actualize high resolution for EMC protection.
- Available for automatic mounting in tape and reel package.
- The products contain no lead and also support lead-free soldering.
- It is a product conforming to RoHS directive.

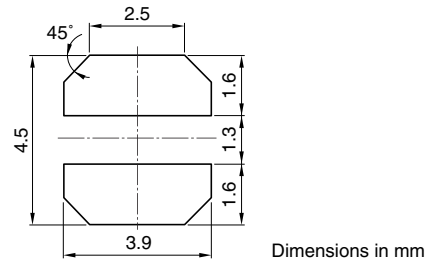
#### APPLICATIONS

Power source inductor for mobile devices such as mobile phones, HDDs, and DSCs

#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### ELECTRICAL CHARACTERISTICS

Part No.	Inductance (μH)	Inductance tolerance(%)	Test frequency (kHz)	DC resistance(Ω)		Rated current(A)*	
				max.	typ.	Based on inductance change max.	Based on temperature rise typ.
VLCF4018T-1R6N1R7-2	1.6	±30	100	0.051	0.044	1.72	2.42
VLCF4018T-2R2N1R4-2	2.2	±30	100	0.06	0.052	1.44	2.23
VLCF4018T-3R3N1R2-2	3.3	±30	100	0.079	0.069	1.26	1.93
VLCF4018T-4R7N1R0-2	4.7	±30	100	0.101	0.088	1.07	1.72
VLCF4018T-6R8NR94-2	6.8	±30	100	0.124	0.108	0.94	1.55
VLCF4018T-100MR74-2	10	±20	100	0.188	0.163	0.74	1.26
VLCF4018T-150MR59-2	15	±20	100	0.268	0.233	0.59	1.1
VLCF4018T-220MR49-2	22	±20	100	0.369	0.321	0.49	0.9
VLCF4018T-330MR42-2	33	±20	100	0.54	0.469	0.42	0.74
VLCF4018T-470MR34-2	47	±20	100	0.76	0.661	0.34	0.62

\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

- Operating temperature range: -40 to +105°C (Including self-temperature rise)

• Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

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# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLCF Series VLCF4020

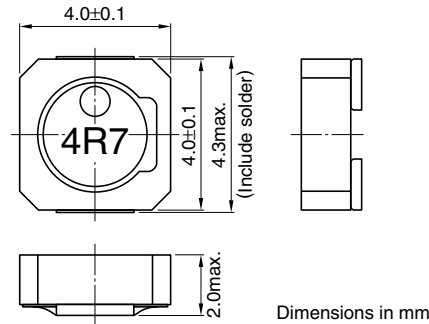
#### FEATURES

- Miniature size  
Mount area: 4×4mm  
Height: 2.0mm max.
- Generic use for portable DC to DC converter line
- High magnetic shield construction should actualize high resolution for EMC protection.
- Available for automatic mounting in tape and reel package.
- The products do not contain lead and support lead-free soldering.

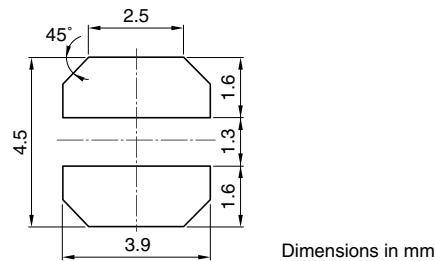
#### APPLICATIONS

DC to DC converters for DVC, DSC, PDA, MD, LCD displays, HDDs, etc.

#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### ELECTRICAL CHARACTERISTICS

Part No.	Inductance (μH)	Inductance tolerance(%)	Test frequency (kHz)	DC resistance(Ω)		Rated current(A)*	
				max.	typ.	Based on inductance change max.	Based on temperature rise typ.
VLCF4020T-1R8N1R9	1.8	±30	100	0.051	0.046	1.97	2.37
VLCF4020T-2R2N1R7	2.2	±30	100	0.059	0.054	1.72	2.19
VLCF4020T-3R3N1R5	3.3	±30	100	0.078	0.071	1.52	1.94
VLCF4020T-4R7N1R2	4.7	±30	100	0.098	0.089	1.24	1.71
VLCF4020T-6R8N1R0	6.8	±30	100	0.131	0.119	1.05	1.47
VLCF4020T-100MR85	10	±20	100	0.185	0.168	0.85	1.22
VLCF4020T-150MR68	15	±20	100	0.303	0.275	0.68	1.0
VLCF4020T-220MR56	22	±20	100	0.431	0.391	0.56	0.8
VLCF4020T-270MR48	27	±20	100	0.496	0.451	0.48	0.8
VLCF4020T-330MR47	33	±20	100	0.628	0.571	0.47	0.69
VLCF4020T-470MR39	47	±20	100	0.934	0.849	0.39	0.56
VLCF4020T-101MR26	100	±20	100	1.4	1.308	0.26	0.45

\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

- Operating temperature range: -40 to +105°C (Including self-temperature rise)

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# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLCF Series VLCF4024-2

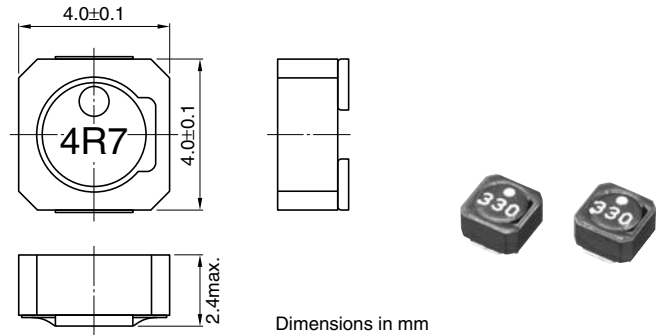
#### FEATURES

- Miniature size  
Mount area: 4×4mm  
Height: 2.4mm max.
- Generic use for portable DC to DC converter line
- High magnetic shield construction should actualize high resolution for EMC protection.
- Available for automatic mounting in tape and reel package.
- The products do not contain lead and support lead-free soldering.

#### APPLICATIONS

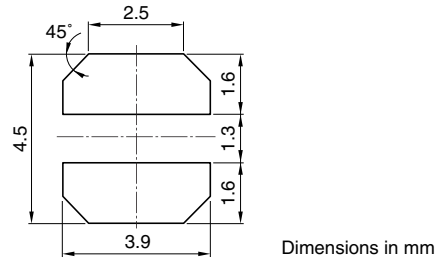
DC to DC converters for DVC, DSC, PDA, MD, LCD displays, HDDs, cellular phones, etc.

#### SHAPES AND DIMENSIONS



Dimensions in mm

#### RECOMMENDED PC BOARD PATTERN



Dimensions in mm

#### ELECTRICAL CHARACTERISTICS

Part No.	Inductance (μH)	Inductance tolerance	Test frequency (kHz)	DC resistance(Ω)		Rated current(A)*	
				max.	typ.	Based on inductance change max.	Based on temperature rise typ.
VLCF4024T-1R2N2R4-2	1.2	±30%	100	0.032	0.027	2.46	3.09
VLCF4024T-1R6N2R1-2	1.6	±30%	100	0.039	0.035	2.10	2.61
VLCF4024T-2R2N1R7-2	2.2	±30%	100	0.043	0.039	1.76	2.43
VLCF4024T-3R3N1R6-2	3.3	±30%	100	0.068	0.061	1.60	1.96
VLCF4024T-4R7N1R4-2	4.7	±30%	100	0.087	0.075	1.43	1.76
VLCF4024T-6R8N1R1-2	6.8	±30%	100	0.116	0.101	1.15	1.54
VLCF4024T-100MR90-2	10	±20%	100	0.136	0.119	0.90	1.37
VLCF4024T-150MR80-2	15	±20%	100	0.198	0.172	0.80	1.05
VLCF4024T-220MR65-2	22	±20%	100	0.332	0.28	0.65	0.90
VLCF4024T-330MR55-2	33	±20%	100	0.438	0.38	0.55	0.74
VLCF4024T-470MR44-2	47	±20%	100	0.644	0.56	0.44	0.64
VLCF4024T-101MR30-2	100	±20%	100	1.21	1.05	0.30	0.48

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- Operating temperature range: -40 to +105°C (Including self-temperature rise)

• Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

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# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLCF Series VLCF4028-2

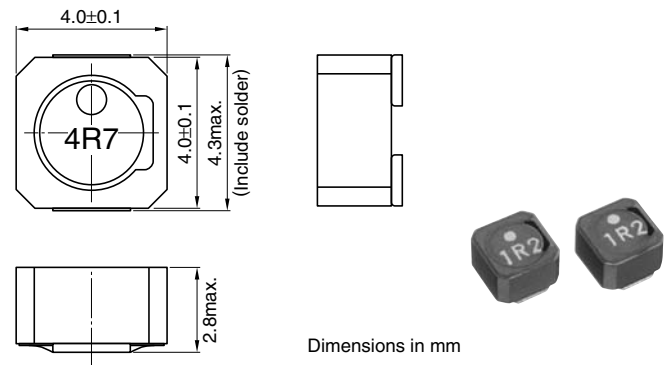
#### FEATURES

- Mount area: 4×4mm  
Low profile: 2.8mm max. height
- Generic use for portable DC to DC converter line.
- High magnetic shield construction should actualize high resolution for EMC protection.
- Available for automatic mounting in tape and reel package.
- The products contain no lead and also support lead-free soldering.
- It is a product conforming to RoHS directive.

#### APPLICATIONS

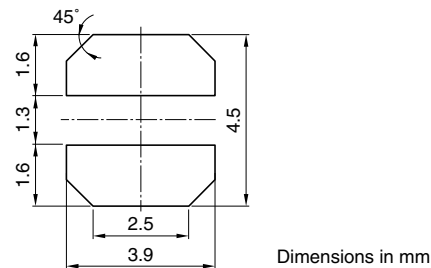
Power source inductor for mobile devices such as mobile phones, HDDs, and DSCs

#### SHAPES AND DIMENSIONS



Dimensions in mm

#### RECOMMENDED PC BOARD PATTERN



Dimensions in mm

#### ELECTRICAL CHARACTERISTICS

Part No.	Inductance (μH)	Inductance tolerance(%)	Test frequency (kHz)	DC resistance(Ω)		Rated current(A)*	
				max.	typ.	Based on inductance change max.	Based on temperature rise typ.
VLCF4028T-1R2N2R7-2	1.2	±30	100	0.032	0.027	2.71	3.11
VLCF4028T-1R6N2R3-2	1.6	±30	100	0.038	0.032	2.31	2.85
VLCF4028T-2R2N1R9-2	2.2	±30	100	0.043	0.037	1.94	2.63
VLCF4028T-2R7N1R8-2	2.7	±30	100	0.049	0.043	1.89	2.46
VLCF4028T-4R7N1R5-2	4.7	±30	100	0.062	0.054	1.57	2.18
VLCF4028T-6R8N1R3-2	6.8	±30	100	0.1	0.09	1.36	1.69
VLCF4028T-100M1R0-2	10	±20	100	0.14	0.12	1.06	1.45
VLCF4028T-150MR88-2	15	±20	100	0.17	0.15	0.88	1.05
VLCF4028T-220MR72-2	22	±20	100	0.24	0.21	0.72	0.9
VLCF4028T-330MR61-2	33	±20	100	0.35	0.3	0.61	0.74
VLCF4028T-470MR48-2	47	±20	100	0.49	0.42	0.48	0.78
VLCF4028T-101MR33-2	100	±20	100	1	0.87	0.33	0.55
VLCF4028T-471MR14-2	470	±20	100	4.58	3.98	0.14	0.25

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# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLCF Series VLCF5020

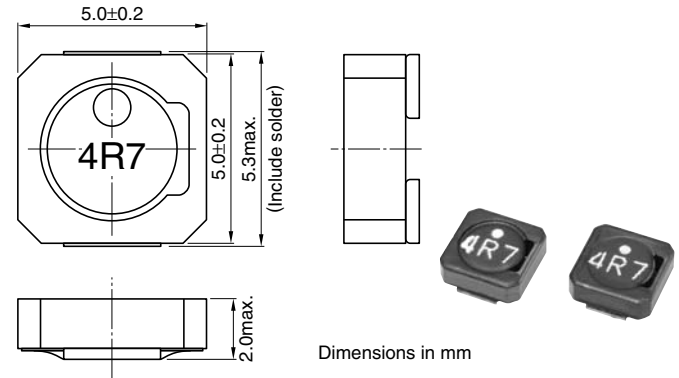
#### FEATURES

- Miniature size  
Mount area: 5×5mm  
Height: 2.0mm max.
- Generic use for portable DC to DC converter line
- High magnetic shield construction should actualize high resolution for EMC protection.
- Available for automatic mounting in tape and reel package.
- The products do not contain lead and support lead-free soldering.

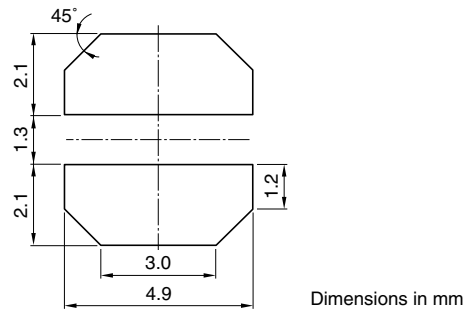
#### APPLICATIONS

DC to DC converters for DVC, DSC, PDA, MD, LCD displays, HDDs, etc.

#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### ELECTRICAL CHARACTERISTICS

Part No.	Inductance (μH)	Inductance tolerance	Test frequency (kHz)	DC resistance(Ω)		Rated current(A)*	
				max.	typ.	Based on inductance change max.	Based on temperature rise typ.
VLCF5020T-1R8N2R0	1.8	±30%	100	0.059	0.049	2.07	2.75
VLCF5020T-2R7N1R7	2.7	±30%	100	0.071	0.058	1.76	2.51
VLCF5020T-3R3N1R6	3.3	±30%	100	0.083	0.069	1.6	2.31
VLCF5020T-4R7N1R4	4.7	±30%	100	0.096	0.079	1.4	2.15
VLCF5020T-6R8N1R1	6.8	±30%	100	0.122	0.102	1.11	1.9
VLCF5020T-100MR87	10	±20%	100	0.182	0.151	0.87	1.56
VLCF5020T-150MR71	15	±20%	100	0.256	0.214	0.71	1.3
VLCF5020T-220MR58	22	±20%	100	0.373	0.311	0.58	1.1
VLCF5020T-330MR48	33	±20%	100	0.522	0.435	0.48	0.92
VLCF5020T-470MR40	47	±20%	100	0.748	0.623	0.40	0.77
VLCF5020T-101MR27	100	±20%	100	1.581	1.375	0.27	0.52

\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

- Operating temperature range: -40 to +105°C (Including self-temperature rise)

• Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

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# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLCF Series VLCF5020-1

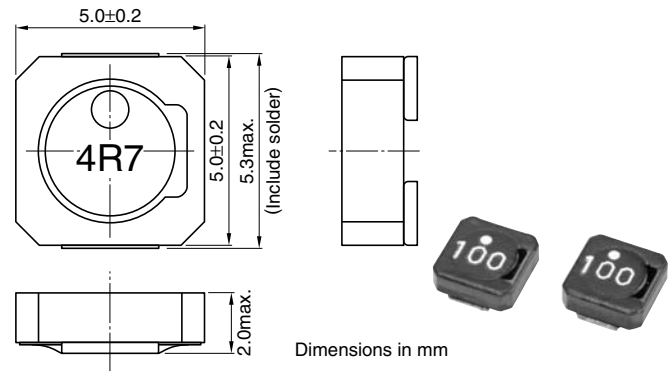
#### FEATURES

- Miniature size  
Mount area: 5×5mm  
Height: 2.0mm max.
- Generic use for portable DC to DC converter line
- High magnetic shield construction should actualize high resolution for EMC protection.
- Available for automatic mounting in tape and reel package.
- The products do not contain lead and support lead-free soldering.

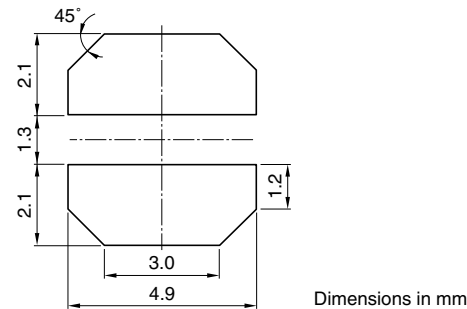
#### APPLICATIONS

DC to DC converters for DVC, DSC, PDA, MD, LCD displays, HDDs, etc.

#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### ELECTRICAL CHARACTERISTICS

Part No.	Inductance (μH)	Inductance tolerance	Test frequency (kHz)	DC resistance(Ω)		Rated current(A)*	
				max.	typ.	Based on inductance change max.	Based on temperature rise typ.
VLCF5020T-2R2N2R6-1	2.2	±30%	100	0.071	0.058	2.62	2.76
VLCF5020T-2R7N2R2-1	2.7	±30%	100	0.083	0.069	2.28	2.55
VLCF5020T-3R3N2R0-1	3.3	±30%	100	0.096	0.079	2.02	2.37
VLCF5020T-4R7N1R7-1	4.7	±30%	100	0.122	0.102	1.7	2.09
VLCF5020T-6R8N1R3-1	6.8	±30%	100	0.165	0.138	1.39	1.8
VLCF5020T-100M1R1-1	10	±20%	100	0.237	0.198	1.13	1.5
VLCF5020T-150MR90-1	15	±20%	100	0.35	0.292	0.90	1.2
VLCF5020T-220MR75-1	22	±20%	100	0.496	0.413	0.75	1.0
VLCF5020T-330MR62-1	33	±20%	100	0.717	0.597	0.62	0.86
VLCF5020T-470MR51-1	47	±20%	100	1.05	0.875	0.51	0.71

\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

- Operating temperature range: -40 to +105°C (Including self-temperature rise)

• Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

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# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLCF Series VLCF5020-3

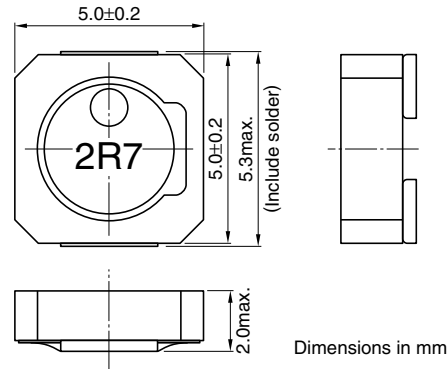
#### FEATURES

- Miniature size  
Mount area: 5×5mm  
Height: 2.0mm max.
- Generic use for portable DC to DC converter line
- High magnetic shield construction should actualize high resolution for EMC protection.
- Available for automatic mounting in tape and reel package.
- The products contain no lead and also support lead-free soldering.

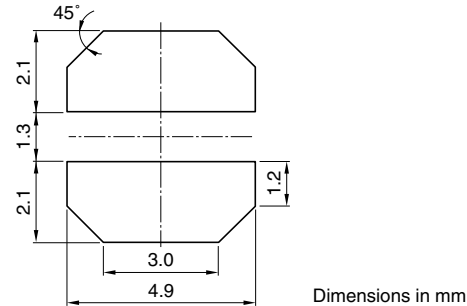
#### APPLICATIONS

DC to DC converters for DVC, DSC, PDA, MD, LCD displays, HDDs, cellular phones, etc.

#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### ELECTRICAL CHARACTERISTICS

Part No.	Inductance (μH)	Inductance tolerance	Test frequency (kHz)	DC resistance(Ω)		Rated current(A)*	
				max.	typ.	Based on inductance change max.	Based on temperature rise typ.
VLCF5020T-2R2N2R6-3	2.2	±30%	100	0.043	0.038	2.62	3.25
VLCF5020T-2R7N2R2-3	2.7	±30%	100	0.054	0.046	2.28	2.98
VLCF5020T-3R3N2R0-3	3.3	±30%	100	0.065	0.055	2.02	2.76

\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

- Operating temperature range: -40 to +105°C (Including self-temperature rise)

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# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLCF Series VLCF5024-2

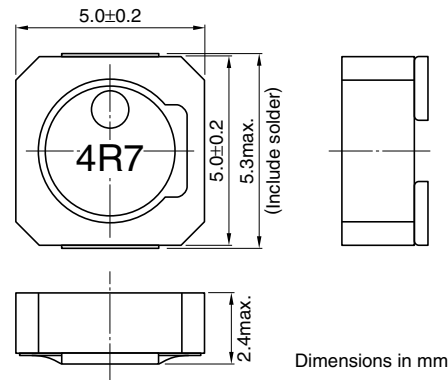
#### FEATURES

- Miniature size  
Mount area: 5×5mm  
Height: 2.4mm max.
- Generic use for portable DC to DC converter line
- High magnetic shield construction should actualize high resolution for EMC protection.
- Available for automatic mounting in tape and reel package.
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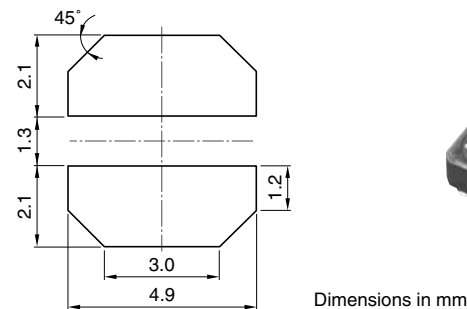
#### APPLICATIONS

DC to DC converters for DVC, DSC, PDA, MD, LCD displays, HDDs, etc.

#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### ELECTRICAL CHARACTERISTICS

Part No.	Inductance (μH)	Inductance tolerance	Test frequency (kHz)	DC resistance(Ω)		Rated current(A)*	
				max.	typ.	Based on inductance change max.	Based on temperature rise typ.
VLCF5024T-1R8N1R8-2	1.8	±30%	100	0.026	0.022	1.86	4.05
VLCF5024T-2R7N1R5-2	2.7	±30%	100	0.031	0.027	1.53	3.67
VLCF5024T-3R3N1R4-2	3.3	±30%	100	0.037	0.032	1.46	3.37
VLCF5024T-4R7N1R3-2	4.7	±30%	100	0.044	0.038	1.33	3.11
VLCF5024T-6R8N1R1-2	6.8	±30%	100	0.061	0.053	1.11	2.62
VLCF5024T-100MR88-2	10	±20%	100	0.092	0.080	0.88	2.14
VLCF5024T-150MR71-2	15	±20%	100	0.152	0.133	0.71	1.66
VLCF5024T-220MR59-2	22	±20%	100	0.188	0.164	0.59	1.50
VLCF5024T-330MR50-2	33	±20%	100	0.275	0.239	0.50	1.24
VLCF5024T-470MR40-2	47	±20%	100	0.383	0.333	0.40	1.05
VLCF5024T-101MR28-2	100	±20%	100	0.838	0.762	0.28	0.72

\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

- Operating temperature range: -40 to +105°C (Including self-temperature rise)

• Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

• All specifications are subject to change without notice.

# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLCF Series VLCF5028-2

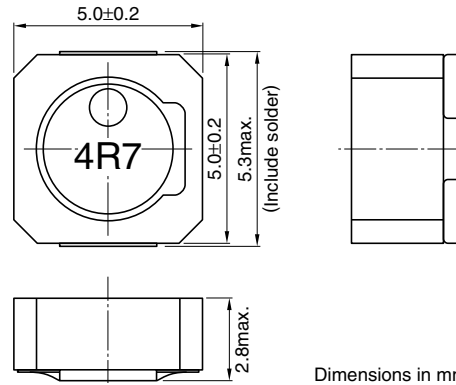
#### FEATURES

- Miniature size  
Mount area: 5×5mm  
Height: 2.8mm max.
- Generic use for portable DC to DC converter line.
- High magnetic shield construction should actualize high resolution for EMC protection.
- Available for automatic mounting in tape and reel package.
- The products do not contain lead and support lead-free soldering.

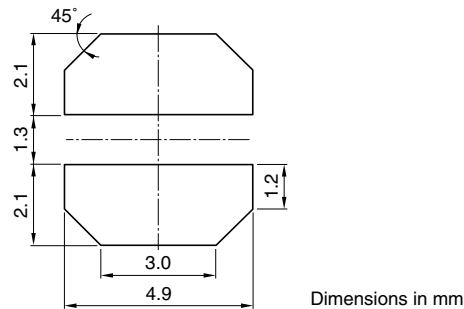
#### APPLICATIONS

DC to DC converters for DVCs, DSCs, PDAs, MDs, LCD displays, HDDs, etc.

#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### ELECTRICAL CHARACTERISTICS

Part No.	Inductance (μH)	Inductance tolerance(%)	Test frequency (kHz)	DC resistance(Ω)		Rated current(A)*	
				max.	typ.	Based on inductance change max.	Based on temperature rise typ.
VLCF5028T-1R3N2R5-2	1.3	±30	100	0.022	0.019	2.56	4.32
VLCF5028T-1R8N2R2-2	1.8	±30	100	0.028	0.023	2.22	3.88
VLCF5028T-2R7N1R8-2	2.7	±30	100	0.033	0.028	1.82	3.53
VLCF5028T-3R3N1R7-2	3.3	±30	100	0.037	0.032	1.74	3.26
VLCF5028T-4R7N1R5-2	4.7	±30	100	0.043	0.038	1.58	3.03
VLCF5028T-6R8N1R3-2	6.8	±30	100	0.056	0.048	1.32	2.67
VLCF5028T-100M1R0-2	10	±20	100	0.083	0.072	1.05	2.19
VLCF5028T-150MR85-2	15	±20	100	0.12	0.1	0.85	1.85
VLCF5028T-220MR71-2	22	±20	100	0.14	0.13	0.71	1.66
VLCF5028T-330MR62-2	33	±20	100	0.24	0.21	0.62	1.3
VLCF5028T-470MR49-2	47	±20	100	0.33	0.29	0.49	1.1
VLCF5028T-560MR43-2	56	±20	100	0.41	0.36	0.43	0.98
VLCF5028T-680MR40-2	68	±20	100	0.46	0.4	0.4	0.93
VLCF5028T-101MR33-2	100	±20	100	0.67	0.58	0.33	0.77
VLCF5028T-221MR22-2	220	±20	100	1.38	1.2	0.22	0.54
VLCF5028T-471MR14-2	470	±20	100	3.12	2.71	0.14	0.35

\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

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