

# Inductors for Power Circuits

Wound/STD • magnetic shielded

## CLF series

Type:            **CLF7045 (6.9x7.2 mm)**  
                      **CLF10040 (9.7x10.0 mm)**

Issue date:      September 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.
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# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### CLF Series CLF7045

This product offers superb EMC handling enabled by the construction of a high magnetic shield.

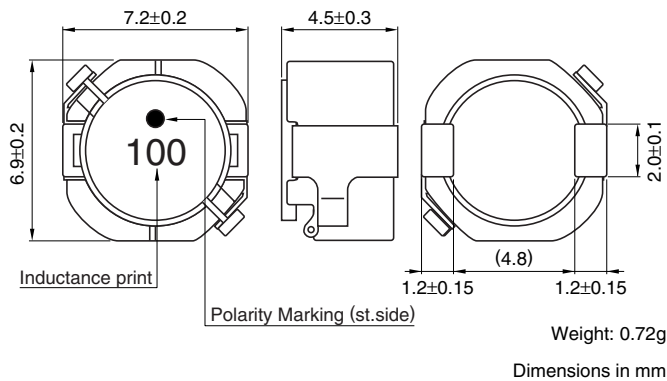
#### FEATURES

- Miniature size  
Mount area: 6.9×7.2mm  
Height: 4.5±0.3mm
- Generic use for portable DC to DC converter line.
- Available for automatic mounting in tape and reel package.
- The products do not contain lead and support lead-free soldering.

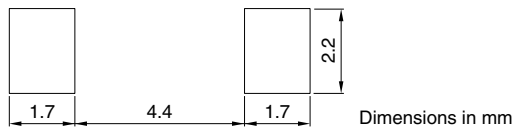
#### APPLICATIONS

LCD-TVs, PDP-TVs, LCD displays, BD recorders, DVD recorders, STB, etc.

#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### CIRCUIT DIAGRAM



#### PRODUCT IDENTIFICATION

CLF 7045 T ○○○ □  
(1) (2) (3) (4) (5)

(1) Series name

(2) Dimensions □ ×H mm

(3) Packaging style

T	Taping (Embossed carrier tape)
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(4) Inductance value

1R0	1.0μH
100	10μH
101	100μH

(5) Inductance tolerance

M	±20%
N	±30%

#### PACKAGING STYLE AND QUANTITIES

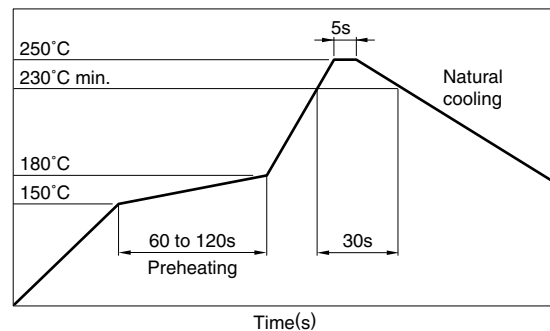
Packaging style	Quantity
Taping	1000 pieces/reel

#### HANDLING AND PRECAUTIONS

- Before soldering, be sure to preheat components.  
The preheating temperature should be set so that the temperature difference between the solder temperature and product temperature does not exceed 150°C.
- When hand soldering, apply the soldering iron to the printed circuit board only. Temperature of the iron tip should not exceed 350±10°C. Soldering time should not exceed 3 seconds.

#### RECOMMENDED SOLDERING CONDITION

##### REFLOW SOLDERING



• 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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## ELECTRICAL CHARACTERISTICS

Part No.	Inductance ( $\mu\text{H}$ )	Inductance tolerance(%)	Test frequency (kHz)	DC resistance ( $\Omega$ )	Rated current(A)	
					Idc1*	Idc2**
CLF7045T-1R0N	1.0	$\pm 30$	100	$9.6\text{m}\pm 30\%$	8.9	5.2
CLF7045T-1R5N	1.5	$\pm 30$	100	$11.0\text{m}\pm 30\%$	7.3	4.9
CLF7045T-2R2N	2.2	$\pm 30$	100	$14.6\text{m}\pm 30\%$	5.5	4.3
CLF7045T-3R3N	3.3	$\pm 30$	100	$16.4\text{m}\pm 30\%$	5.0	4.1
CLF7045T-4R7N	4.7	$\pm 30$	100	$20\text{m}\pm 30\%$	4.1	3.6
CLF7045T-6R8N	6.8	$\pm 30$	100	$27\text{m}\pm 30\%$	3.3	3.0
CLF7045T-100M	10	$\pm 20$	100	$38\text{m}\pm 20\%$	2.7	2.5
CLF7045T-150M	15	$\pm 20$	100	$51\text{m}\pm 20\%$	2.3	2.1
CLF7045T-220M	22	$\pm 20$	100	$69\text{m}\pm 20\%$	1.9	1.8
CLF7045T-330M	33	$\pm 20$	100	$0.11\pm 20\%$	1.55	1.40
CLF7045T-470M	47	$\pm 20$	100	$0.15\pm 20\%$	1.30	1.20
CLF7045T-680M	68	$\pm 20$	100	$0.21\pm 20\%$	1.10	0.95
CLF7045T-101M	100	$\pm 20$	100	$0.33\pm 20\%$	0.90	0.75
CLF7045T-151M	150	$\pm 20$	100	$0.48\pm 20\%$	0.67	0.61
CLF7045T-221M	220	$\pm 20$	100	$0.66\pm 20\%$	0.62	0.52
CLF7045T-331M	330	$\pm 20$	100	$1.03\pm 20\%$	0.49	0.42
CLF7045T-471M	470	$\pm 20$	100	$1.42\pm 20\%$	0.43	0.37

\* Idc1: Current based on inductance variation(Current when inductance decreases by 10% of the initial value)

\*\* Idc2: Current based on increasing product temperature(Current when temperature of the product reaches +30°C)

\*\*\* Between Idc1 and Idc2, the smaller of the two will be made the rated current.

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

• Test equipment

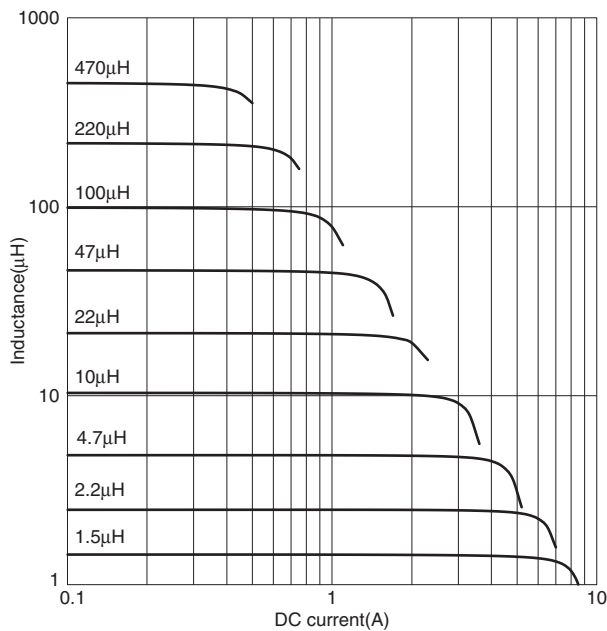
Inductance: 4285A PRECISION LCR METER, HP or equivalent

Rdc: MILLIOHM METER VP-2941A, MATSUSHITA or equivalent

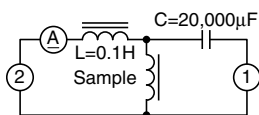
Rated current: 4285A PRECISION LCR METER, HP with 42841A BIAS CURRENT SOURCE, HP/42842C TEST FIXTURE, HP or equivalent

## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS



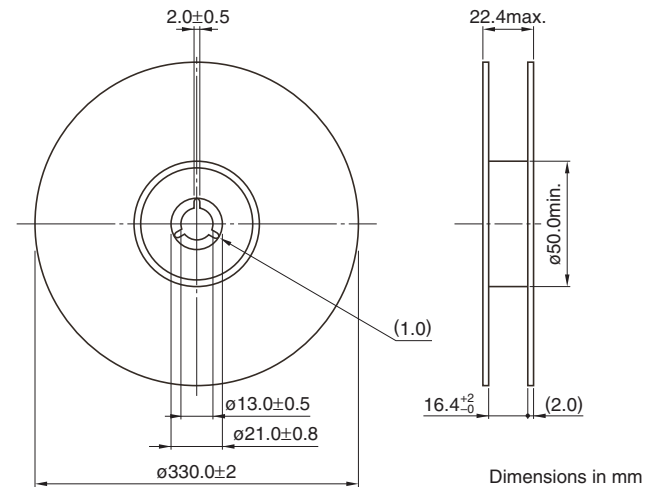
### TEST CIRCUIT



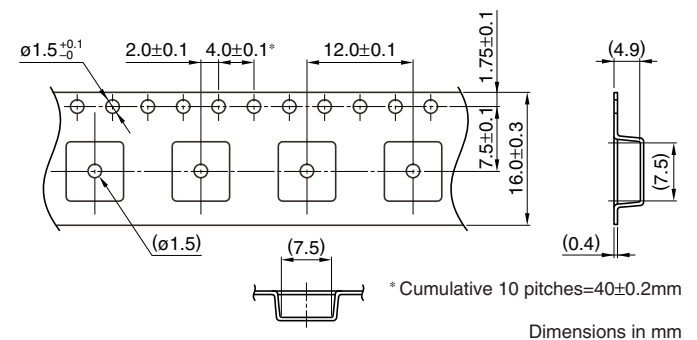
1: LCR meter 4285A  $f=100\text{kHz}$   
2: DC constant current source

## PACKAGING STYLES

### REEL DIMENSIONS



### TAPE DIMENSIONS



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Conformity to RoHS Directive

### CLF Series CLF10040

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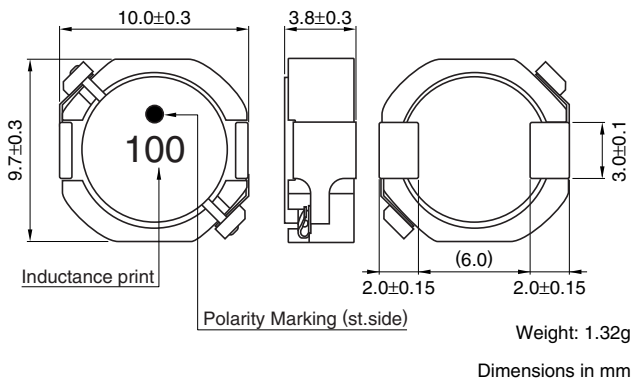
#### FEATURES

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Mount area: 9.7×10mm  
Height: 3.8±0.3mm
- Generic use for portable DC to DC converter line.
- Available for automatic mounting in tape and reel package.
- The products do not contain lead and support lead-free soldering.

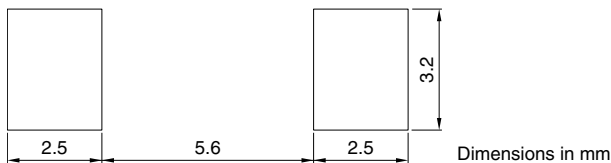
#### APPLICATIONS

LCD-TV's, PDP-TV's, LCD displays, DVD recorders, etc.

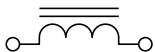
#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### CIRCUIT DIAGRAM



#### PRODUCT IDENTIFICATION

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(1) (2) (3) (4) (5)

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(2) Dimensions □ ×H mm

(3) Packaging style

T	Taping (Embossed carrier tape)
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(4) Inductance value

1R0	1.0μH
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101	100μH

(5) Inductance tolerance

M	±20%
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#### PACKAGING STYLE AND QUANTITIES

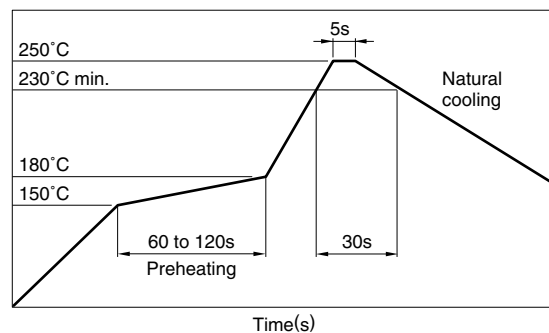
Packaging style	Quantity
Taping	800 pieces/reel

#### HANDLING AND PRECAUTIONS

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- When hand soldering, apply the soldering iron to the printed circuit board only. Temperature of the iron tip should not exceed 350±10°C. Soldering time should not exceed 3 seconds.

#### RECOMMENDED SOLDERING CONDITION

##### REFLOW SOLDERING



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					Idc1*	Idc2**
CLF10040T-1R0N	1.0	$\pm 30$	100	5.7m $\pm 30\%$	12.0	6.3
CLF10040T-1R5N	1.5	$\pm 30$	100	7.1m $\pm 30\%$	10.6	5.8
CLF10040T-2R2N	2.2	$\pm 30$	100	9.7m $\pm 30\%$	7.5	5.0
CLF10040T-3R3N	3.3	$\pm 30$	100	11.0m $\pm 30\%$	6.6	4.8
CLF10040T-4R7N	4.7	$\pm 30$	100	14.5m $\pm 30\%$	5.4	4.2
CLF10040T-6R8N	6.8	$\pm 30$	100	18.5m $\pm 30\%$	4.8	3.7
CLF10040T-100M	10	$\pm 20$	100	26m $\pm 20\%$	4.0	3.3
CLF10040T-150M	15	$\pm 20$	100	40m $\pm 20\%$	3.2	2.5
CLF10040T-220M	22	$\pm 20$	100	55m $\pm 20\%$	2.7	2.2
CLF10040T-330M	33	$\pm 20$	100	80m $\pm 20\%$	2.2	1.7
CLF10040T-470M	47	$\pm 20$	100	125m $\pm 20\%$	1.9	1.3
CLF10040T-680M	68	$\pm 20$	100	0.18 $\pm 20\%$	1.6	1.1
CLF10040T-101M	100	$\pm 20$	100	0.24 $\pm 20\%$	1.3	1.0
CLF10040T-151M	150	$\pm 20$	100	0.38 $\pm 20\%$	1.0	0.8
CLF10040T-221M	220	$\pm 20$	100	0.52 $\pm 20\%$	0.88	0.70
CLF10040T-331M	330	$\pm 20$	100	0.86 $\pm 20\%$	0.70	0.53
CLF10040T-471M	470	$\pm 20$	100	1.21 $\pm 20\%$	0.56	0.44

\* Idc1: Current based on inductance variation(Current when inductance decreases by 10% of the initial value)

\*\* Idc2: Current based on increasing product temperature(Current when temperature of the product reaches +30°C)

\*\*\* Between Idc1 and Idc2, the smaller of the two will be made the rated current.

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

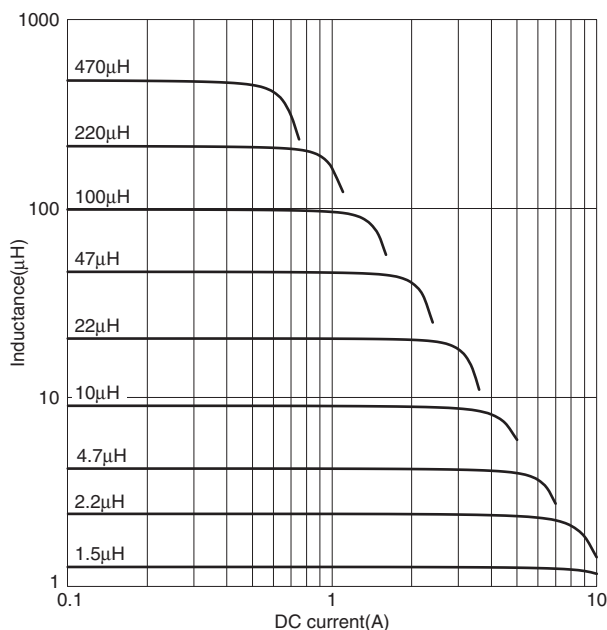
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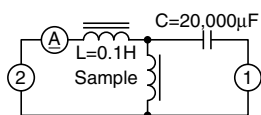
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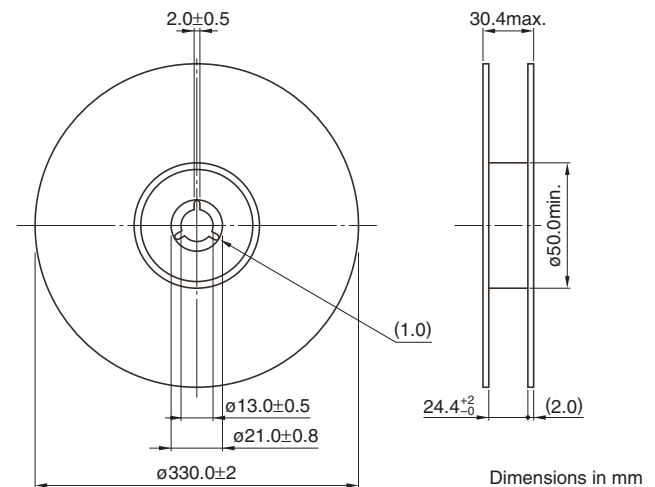
### TEST CIRCUIT



- 1: LCR meter 4285A f=100kHz
- 2: DC constant current source

## PACKAGING STYLES

### REEL DIMENSIONS



### TAPE DIMENSIONS

