

# Inductors for Power Circuits

Wound/STD • magnetic shielded

## VLS series

|       |            |
|-------|------------|
| Type: | VLS201610E |
|       | VLS201612E |
|       | VLS2010E   |
|       | VLS2012E   |
|       | VLS252008E |
|       | VLS252010E |
|       | VLS252012E |
|       | VLS252015E |
|       | VLS3010E   |
|       | VLS3012E   |
|       | VLS3015E   |
|       | VLS4012E   |

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

### VLS Series VLS201610E

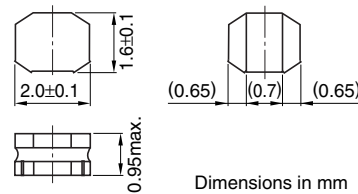
#### FEATURES

- Miniature size  
Mount area:  $2 \times 1.6\text{mm}$   
Height:  $0.95\text{mm}$  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

Cellular phones, DVCs, DSCs, PDAs, LCD displays, HDDs, etc.

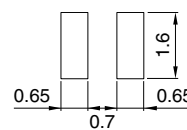
#### SHAPES AND DIMENSIONS



Dimensions in mm



#### RECOMMENDED PC BOARD PATTERN



Dimensions in mm

#### ELECTRICAL CHARACTERISTICS

| Part No.         | Inductance<br>( $\mu\text{H}$ ) | Inductance<br>tolerance<br>(%) | Test frequency<br>(MHz) | DC resistance<br>( $\Omega$ ) |       | Rated current(A)*<br>Based on inductance change |      | Based on<br>temperature rise<br>typ. |
|------------------|---------------------------------|--------------------------------|-------------------------|-------------------------------|-------|-------------------------------------------------|------|--------------------------------------|
|                  |                                 |                                |                         | max.                          | typ.  | max.                                            | typ. |                                      |
| VLS201610ET-R47N | 0.47                            | $\pm 30$                       | 1.0                     | 0.065                         | 0.054 | 1.85                                            | 2.10 | 1.95                                 |
| VLS201610ET-R68N | 0.68                            | $\pm 30$                       | 1.0                     | 0.086                         | 0.072 | 1.65                                            | 1.85 | 1.65                                 |
| VLS201610ET-1R0N | 1.0                             | $\pm 30$                       | 1.0                     | 0.119                         | 0.099 | 1.35                                            | 1.50 | 1.40                                 |
| VLS201610ET-1R5N | 1.5                             | $\pm 30$                       | 1.0                     | 0.181                         | 0.151 | 1.10                                            | 1.20 | 1.15                                 |
| VLS201610ET-2R2M | 2.2                             | $\pm 20$                       | 1.0                     | 0.276                         | 0.230 | 0.94                                            | 1.05 | 0.95                                 |
| VLS201610ET-3R3M | 3.3                             | $\pm 20$                       | 1.0                     | 0.458                         | 0.382 | 0.75                                            | 0.84 | 0.73                                 |
| VLS201610ET-4R7M | 4.7                             | $\pm 20$                       | 1.0                     | 0.554                         | 0.462 | 0.64                                            | 0.72 | 0.67                                 |
| VLS201610ET-6R8M | 6.8                             | $\pm 20$                       | 1.0                     | 0.840                         | 0.700 | 0.53                                            | 0.59 | 0.54                                 |
| VLS201610ET-100M | 10                              | $\pm 20$                       | 1.0                     | 1.380                         | 1.150 | 0.40                                            | 0.45 | 0.42                                 |

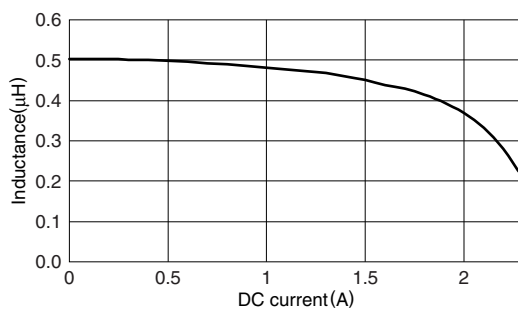
\* Rated current: Value obtained when current flows and the temperature has risen to  $40^\circ\text{C}$  or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

- Operating temperature range:  $-40$  to  $+105^\circ\text{C}$  (Including self-temperature rise)

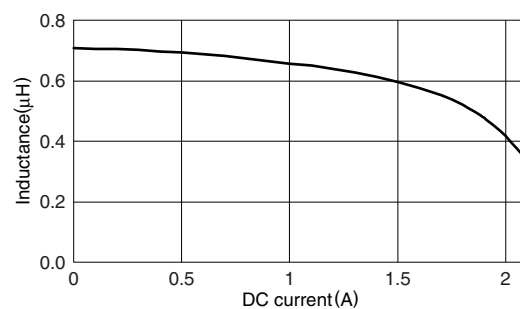
#### TYPICAL ELECTRICAL CHARACTERISTICS

##### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

###### VLS201610ET-R47N



###### VLS201610ET-R68N



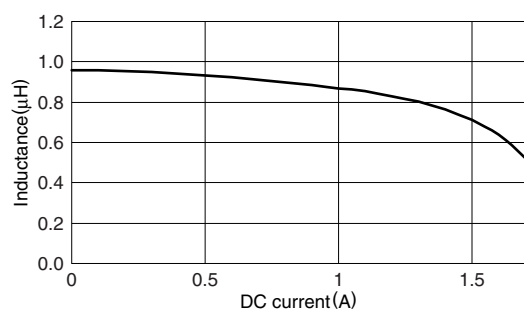
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

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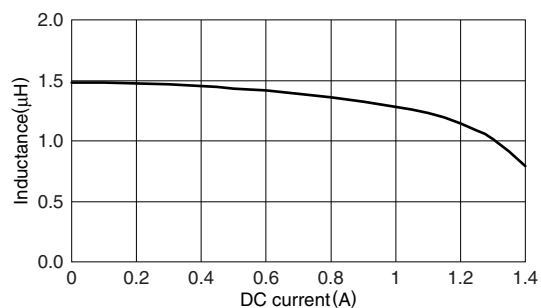
## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

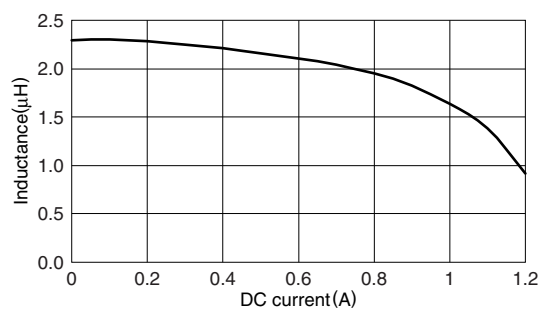
#### VLS201610ET-1R0N



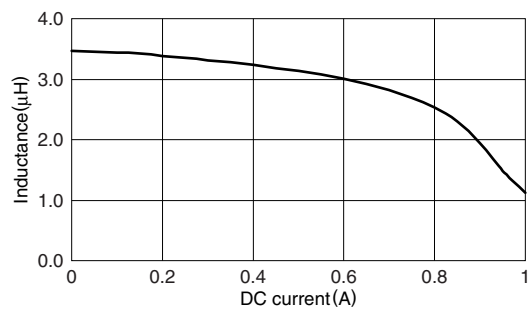
#### VLS201610ET-1R5N



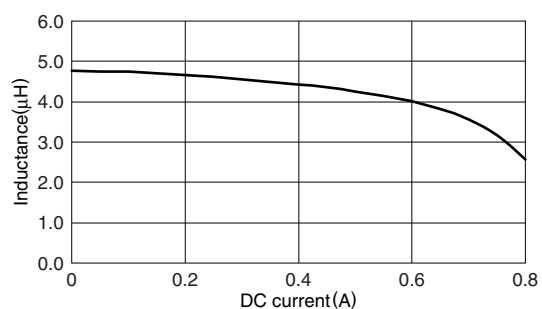
#### VLS201610ET-2R2M



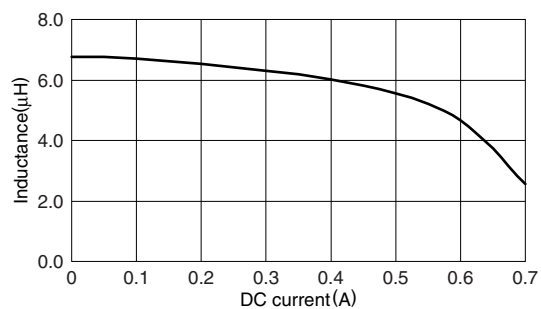
#### VLS201610ET-3R3M



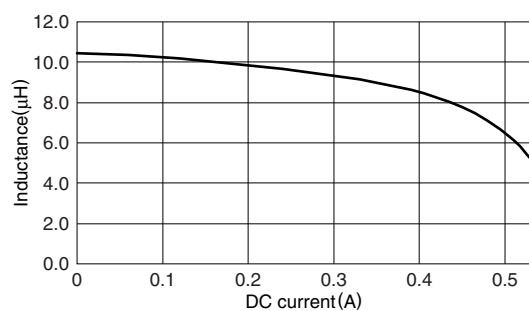
#### VLS201610ET-4R7M



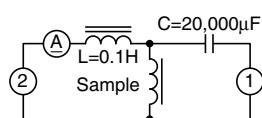
#### VLS201610ET-6R8M



#### VLS201610ET-100M



### TEST CIRCUIT



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

# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLS Series VLS201612E

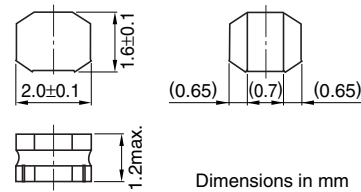
#### FEATURES

- Miniature size  
Mount area:  $2 \times 1.6\text{mm}$   
Height:  $1.2\text{mm max.}$
- 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.

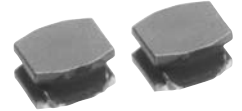
#### APPLICATIONS

Cellular phones, DVCs, DSCs, PDAs, LCD displays, HDDs, etc.

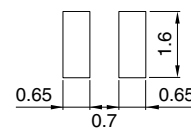
#### SHAPES AND DIMENSIONS



Dimensions in mm



#### RECOMMENDED PC BOARD PATTERN



Dimensions in mm

#### ELECTRICAL CHARACTERISTICS

| Part No.         | Inductance<br>( $\mu\text{H}$ ) | Inductance<br>tolerance<br>(%) | Test frequency<br>(MHz) | DC resistance<br>( $\Omega$ ) |       | Rated current(A)* |      | Based on<br>temperature rise<br>typ. |
|------------------|---------------------------------|--------------------------------|-------------------------|-------------------------------|-------|-------------------|------|--------------------------------------|
|                  |                                 |                                |                         | max.                          | typ.  | max.              | typ. |                                      |
| VLS201612ET-R47N | 0.47                            | $\pm 30$                       | 1.0                     | 0.063                         | 0.052 | 1.90              | 2.15 | 2.00                                 |
| VLS201612ET-R68N | 0.68                            | $\pm 30$                       | 1.0                     | 0.072                         | 0.060 | 1.70              | 1.90 | 1.85                                 |
| VLS201612ET-1R0N | 1.0                             | $\pm 30$                       | 1.0                     | 0.093                         | 0.077 | 1.50              | 1.65 | 1.65                                 |
| VLS201612ET-1R5N | 1.5                             | $\pm 30$                       | 1.0                     | 0.159                         | 0.132 | 1.20              | 1.30 | 1.25                                 |
| VLS201612ET-2R2M | 2.2                             | $\pm 20$                       | 1.0                     | 0.195                         | 0.162 | 1.05              | 1.15 | 1.15                                 |
| VLS201612ET-3R3M | 3.3                             | $\pm 20$                       | 1.0                     | 0.357                         | 0.297 | 0.79              | 0.88 | 0.85                                 |
| VLS201612ET-4R7M | 4.7                             | $\pm 20$                       | 1.0                     | 0.438                         | 0.365 | 0.70              | 0.78 | 0.75                                 |
| VLS201612ET-6R8M | 6.8                             | $\pm 20$                       | 1.0                     | 0.708                         | 0.590 | 0.58              | 0.65 | 0.60                                 |
| VLS201612ET-100M | 10                              | $\pm 20$                       | 1.0                     | 1.026                         | 0.855 | 0.47              | 0.53 | 0.50                                 |

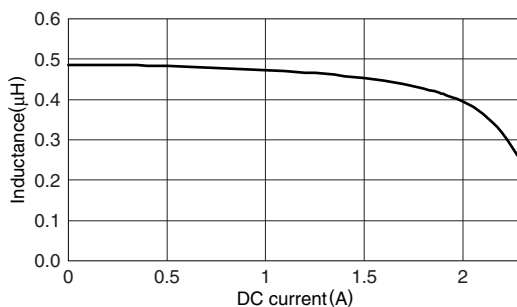
\* Rated current: Value obtained when current flows and the temperature has risen to  $40^\circ\text{C}$  or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

- Operating temperature range:  $-40$  to  $+105^\circ\text{C}$  (Including self-temperature rise)

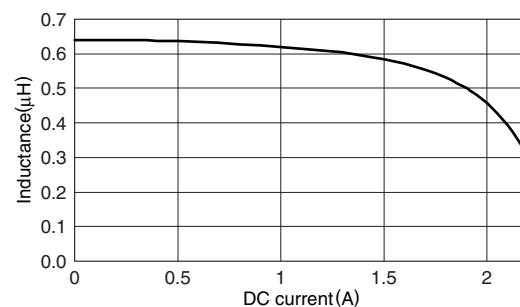
#### TYPICAL ELECTRICAL CHARACTERISTICS

##### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

###### VLS201612ET-R47N



###### VLS201612ET-R68N



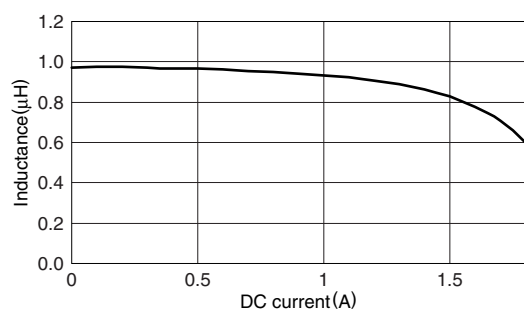
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

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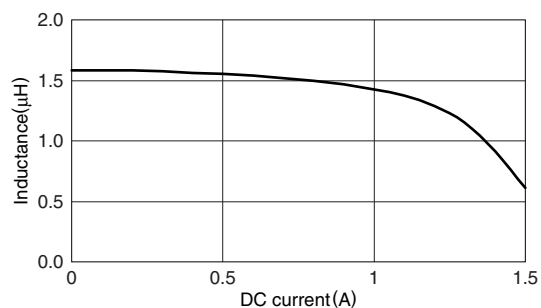
## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

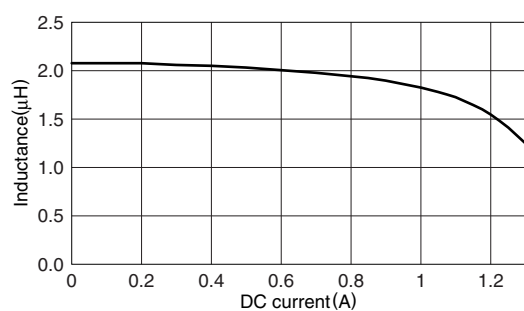
#### VLS201612ET-1R0N



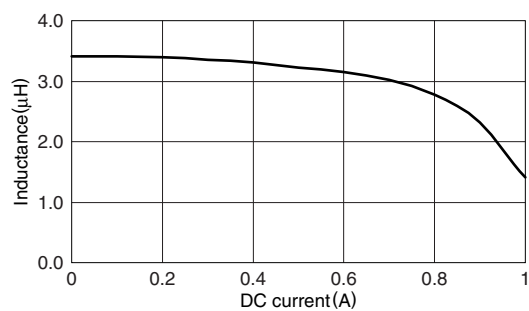
#### VLS201612ET-1R5N



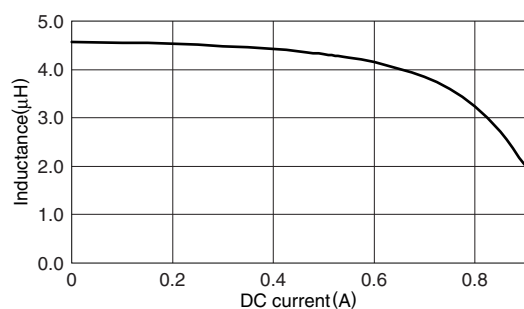
#### VLS201612ET-2R2M



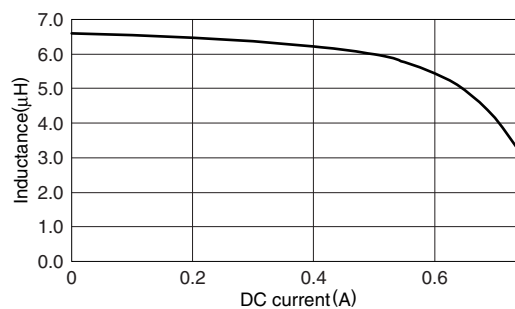
#### VLS201612ET-3R3M



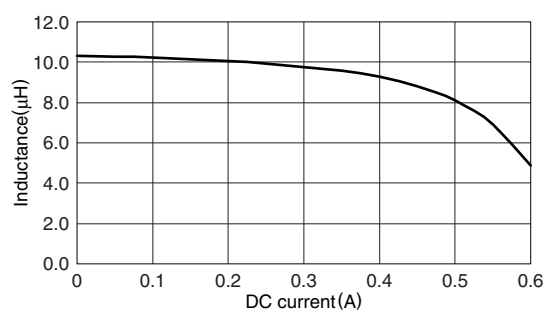
#### VLS201612ET-4R7M



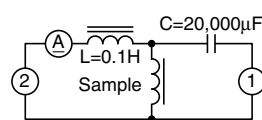
#### VLS201612ET-6R8M



#### VLS201612ET-100M



### TEST CIRCUIT



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

# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLS Series VLS2010E

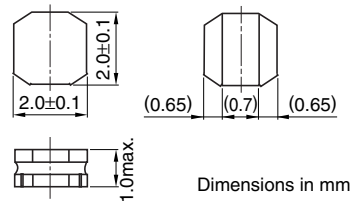
#### FEATURES

- Miniature size  
Mount area: 2×2mm  
Height: 1.0mm 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

Cellular phones, DVCs, DSCs, PDAs, LCD displays, HDDs, etc.

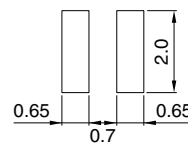
#### SHAPES AND DIMENSIONS



Dimensions in mm



#### RECOMMENDED PC BOARD PATTERN



Dimensions in mm

#### ELECTRICAL CHARACTERISTICS

| Part No.       | Inductance<br>( $\mu\text{H}$ ) | Inductance<br>tolerance<br>(%) | Test frequency<br>(MHz) | DC resistance<br>( $\Omega$ ) |       | Rated current(A)*<br>Based on inductance change |      | Based on<br>temperature rise<br>typ. |
|----------------|---------------------------------|--------------------------------|-------------------------|-------------------------------|-------|-------------------------------------------------|------|--------------------------------------|
|                |                                 |                                |                         | max.                          | typ.  | max.                                            | typ. |                                      |
| VLS2010ET-R56N | 0.56                            | $\pm 30$                       | 1.0                     | 0.060                         | 0.050 | 2.00                                            | 2.25 | 2.05                                 |
| VLS2010ET-1R0N | 1.0                             | $\pm 30$                       | 1.0                     | 0.108                         | 0.090 | 1.45                                            | 1.65 | 1.55                                 |
| VLS2010ET-1R5N | 1.5                             | $\pm 30$                       | 1.0                     | 0.156                         | 0.130 | 1.20                                            | 1.30 | 1.25                                 |
| VLS2010ET-2R2M | 2.2                             | $\pm 20$                       | 1.0                     | 0.228                         | 0.190 | 1.00                                            | 1.10 | 1.05                                 |
| VLS2010ET-3R3M | 3.3                             | $\pm 20$                       | 1.0                     | 0.348                         | 0.290 | 0.83                                            | 0.93 | 0.86                                 |
| VLS2010ET-4R7M | 4.7                             | $\pm 20$                       | 1.0                     | 0.408                         | 0.340 | 0.70                                            | 0.78 | 0.79                                 |
| VLS2010ET-6R8M | 6.8                             | $\pm 20$                       | 1.0                     | 0.648                         | 0.540 | 0.57                                            | 0.64 | 0.63                                 |
| VLS2010ET-100M | 10                              | $\pm 20$                       | 1.0                     | 0.936                         | 0.780 | 0.47                                            | 0.52 | 0.52                                 |
| VLS2010ET-150M | 15                              | $\pm 20$                       | 1.0                     | 1.476                         | 1.230 | 0.40                                            | 0.44 | 0.41                                 |
| VLS2010ET-220M | 22                              | $\pm 20$                       | 1.0                     | 2.040                         | 1.700 | 0.33                                            | 0.37 | 0.35                                 |

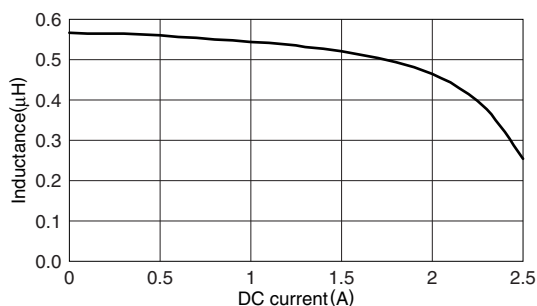
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- Operating temperature range: -40 to +105°C (Including self-temperature rise)

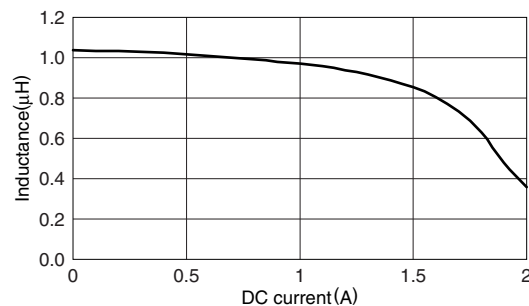
#### TYPICAL ELECTRICAL CHARACTERISTICS

##### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

###### VLS2010ET-R56N



###### VLS2010ET-1R0N



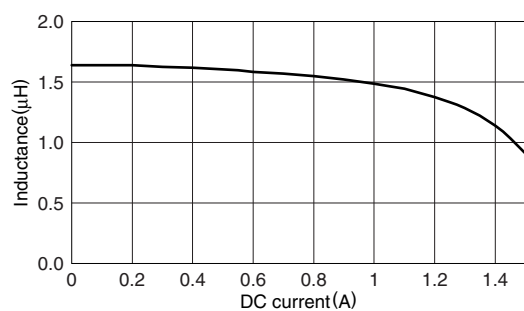
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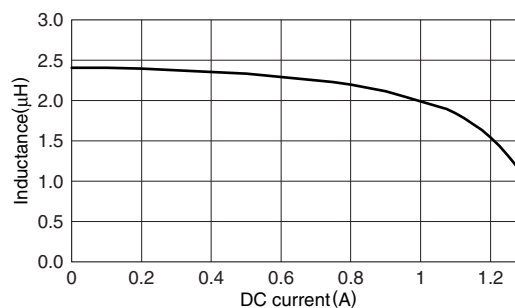
## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

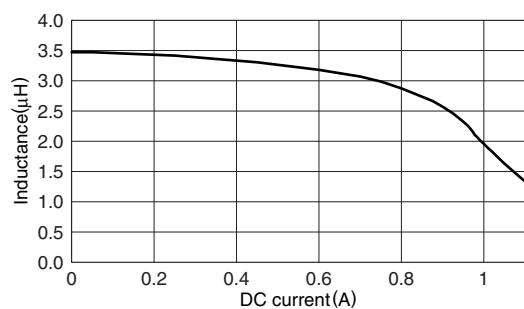
#### VLS2010ET-1R5N



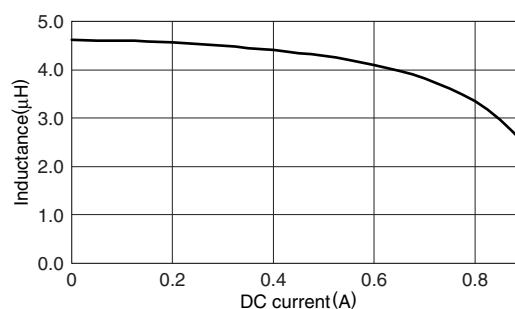
#### VLS2010ET-2R2M



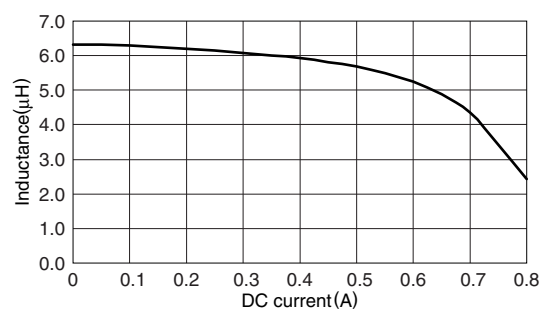
#### VLS2010ET-3R3M



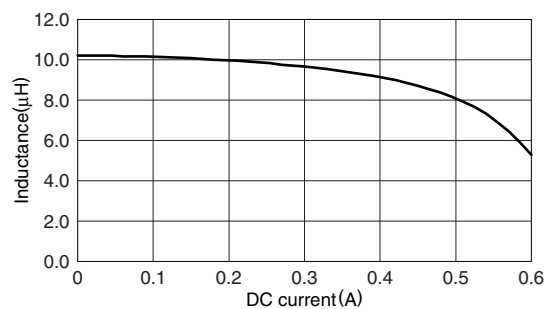
#### VLS2010ET-4R7M



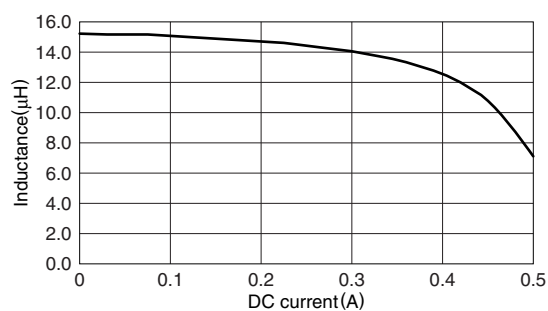
#### VLS2010ET-6R8M



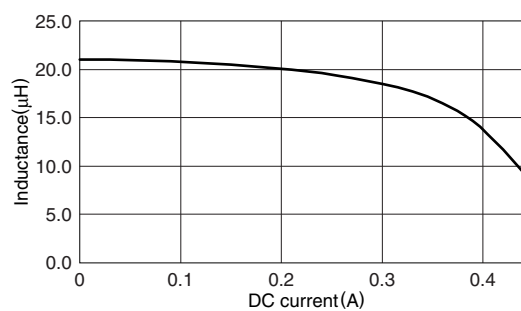
#### VLS2010ET-100M



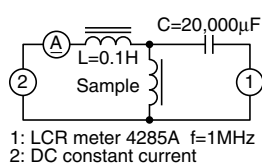
#### VLS2010ET-150M



#### VLS2010ET-220M



### TEST CIRCUIT



# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLS Series VLS2012E

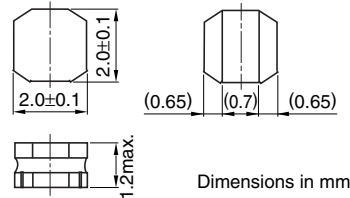
#### FEATURES

- Miniature size  
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Height: 1.2mm max.
- Generic use for portable DC to DC converter line.
- High magnetic shield construction should actualize high resolution for EMC protection.
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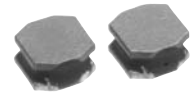
#### APPLICATIONS

Cellular phones, DVCs, DSCs, PDAs, LCD displays, HDDs, etc.

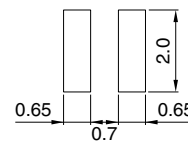
#### SHAPES AND DIMENSIONS



Dimensions in mm



#### RECOMMENDED PC BOARD PATTERN



Dimensions in mm

#### ELECTRICAL CHARACTERISTICS

| Part No.       | Inductance<br>( $\mu\text{H}$ ) | Inductance<br>tolerance<br>(%) | Test frequency<br>(MHz) | DC resistance<br>( $\Omega$ ) |       | Rated current(A)*<br>Based on inductance change |      | Based on<br>temperature rise<br>typ. |
|----------------|---------------------------------|--------------------------------|-------------------------|-------------------------------|-------|-------------------------------------------------|------|--------------------------------------|
|                |                                 |                                |                         | max.                          | typ.  | max.                                            | typ. |                                      |
| VLS2012ET-R47N | 0.47                            | $\pm 30$                       | 1.0                     | 0.059                         | 0.049 | 2.05                                            | 2.25 | 2.00                                 |
| VLS2012ET-R68N | 0.68                            | $\pm 30$                       | 1.0                     | 0.066                         | 0.055 | 1.70                                            | 1.90 | 1.85                                 |
| VLS2012ET-1R0N | 1.0                             | $\pm 30$                       | 1.0                     | 0.086                         | 0.071 | 1.45                                            | 1.65 | 1.65                                 |
| VLS2012ET-1R5N | 1.5                             | $\pm 30$                       | 1.0                     | 0.108                         | 0.090 | 1.20                                            | 1.30 | 1.45                                 |
| VLS2012ET-2R2M | 2.2                             | $\pm 20$                       | 1.0                     | 0.153                         | 0.127 | 1.00                                            | 1.10 | 1.25                                 |
| VLS2012ET-3R3M | 3.3                             | $\pm 20$                       | 1.0                     | 0.228                         | 0.190 | 0.84                                            | 0.93 | 1.00                                 |
| VLS2012ET-4R7M | 4.7                             | $\pm 20$                       | 1.0                     | 0.336                         | 0.280 | 0.70                                            | 0.78 | 0.84                                 |
| VLS2012ET-6R8M | 6.8                             | $\pm 20$                       | 1.0                     | 0.498                         | 0.415 | 0.57                                            | 0.64 | 0.69                                 |
| VLS2012ET-100M | 10                              | $\pm 20$                       | 1.0                     | 0.834                         | 0.695 | 0.47                                            | 0.52 | 0.53                                 |
| VLS2012ET-150M | 15                              | $\pm 20$                       | 1.0                     | 1.062                         | 0.885 | 0.40                                            | 0.44 | 0.47                                 |
| VLS2012ET-220M | 22                              | $\pm 20$                       | 1.0                     | 1.764                         | 1.470 | 0.33                                            | 0.37 | 0.35                                 |

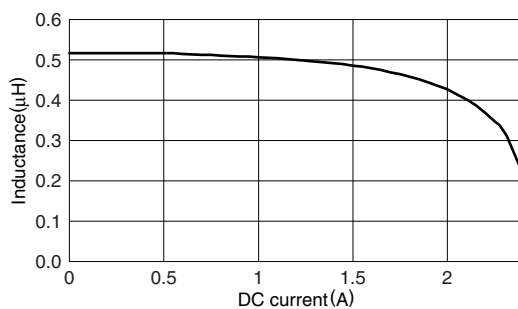
\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

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

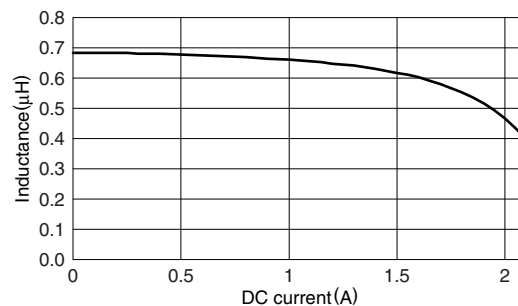
#### TYPICAL ELECTRICAL CHARACTERISTICS

##### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

###### VLS2012ET-R47N



###### VLS2012ET-R68N



- 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.

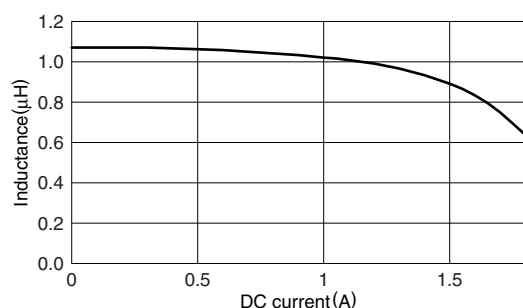
- All specifications are subject to change without notice.



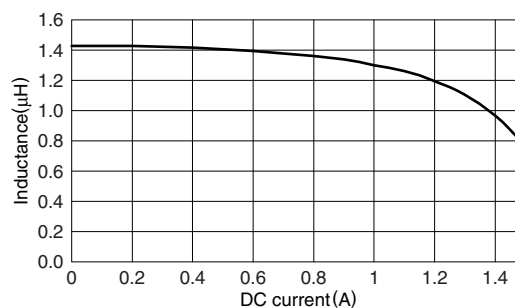
## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

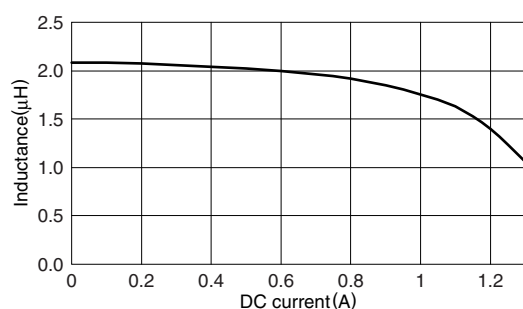
#### VLS2012ET-1R0N



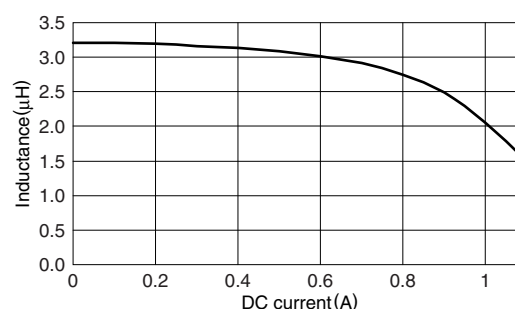
#### VLS2012ET-1R5N



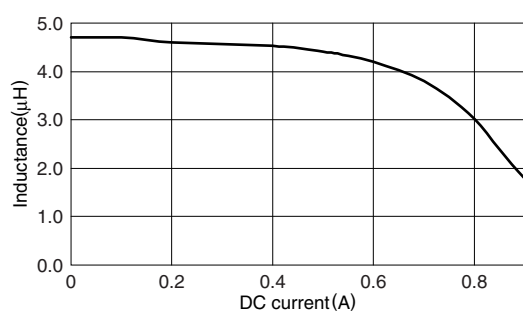
#### VLS2012ET-2R2M



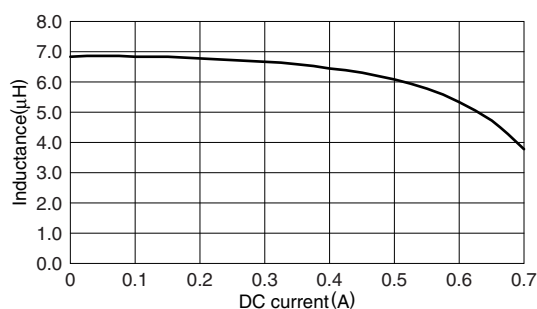
#### VLS2012ET-3R3M



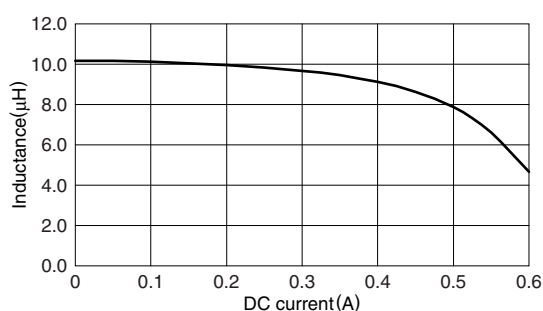
#### VLS2012ET-4R7M



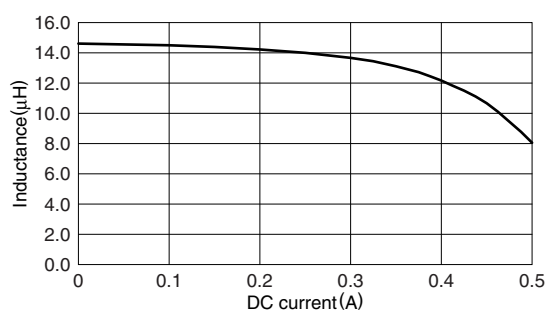
#### VLS2012ET-6R8M



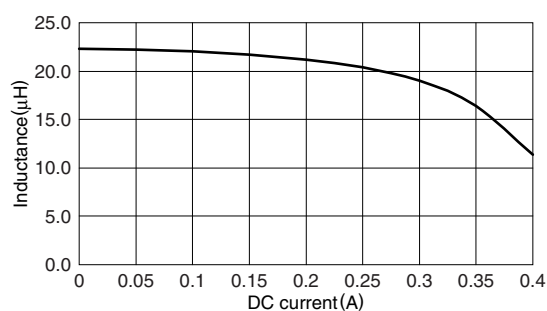
#### VLS2012ET-100M



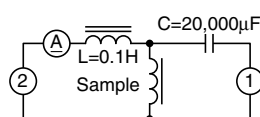
#### VLS2012ET-150M



#### VLS2012ET-220M



### TEST CIRCUIT



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

# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLS Series VLS252008E

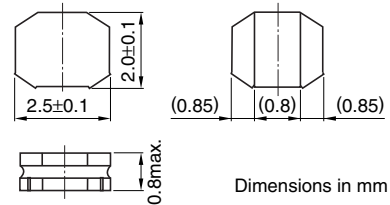
#### FEATURES

- Miniature size  
Mount area: 2.5×2mm  
Height: 0.8mm 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.

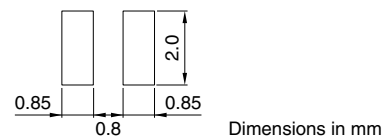
#### APPLICATIONS

Cellular phones, DVCs, DSCs, PDAs, LCD displays, HDDs, etc.

#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### ELECTRICAL CHARACTERISTICS

| Part No.         | Inductance (μH) | Inductance tolerance (%) | Test frequency (MHz) | DC resistance (Ω) |       | Rated current(A)* |      | Based on temperature rise typ. |
|------------------|-----------------|--------------------------|----------------------|-------------------|-------|-------------------|------|--------------------------------|
|                  |                 |                          |                      | max.              | typ.  | max.              | typ. |                                |
| VLS252008ET-R47N | 0.47            | ±30                      | 1.0                  | 0.140             | 0.116 | 1.65              | 1.80 | 1.20                           |
| VLS252008ET-1R0N | 1.0             | ±30                      | 1.0                  | 0.219             | 0.182 | 1.20              | 1.35 | 0.97                           |
| VLS252008ET-1R5N | 1.5             | ±30                      | 1.0                  | 0.248             | 0.206 | 1.00              | 1.10 | 0.91                           |
| VLS252008ET-2R2M | 2.2             | ±20                      | 1.0                  | 0.290             | 0.241 | 0.77              | 0.86 | 0.84                           |
| VLS252008ET-3R3M | 3.3             | ±20                      | 1.0                  | 0.416             | 0.346 | 0.73              | 0.82 | 0.70                           |
| VLS252008ET-4R7M | 4.7             | ±20                      | 1.0                  | 0.580             | 0.483 | 0.61              | 0.68 | 0.59                           |
| VLS252008ET-6R8M | 6.8             | ±20                      | 1.0                  | 0.818             | 0.681 | 0.49              | 0.55 | 0.50                           |
| VLS252008ET-100M | 10.0            | ±20                      | 1.0                  | 1.232             | 1.026 | 0.43              | 0.48 | 0.41                           |

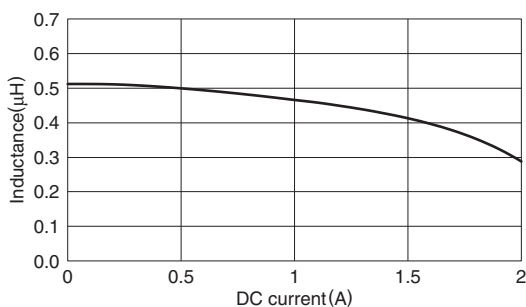
\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

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

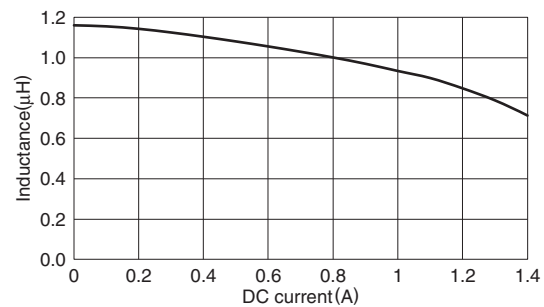
#### TYPICAL ELECTRICAL CHARACTERISTICS

##### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

###### VLS252008ET-R47N



###### VLS252008ET-1R0N



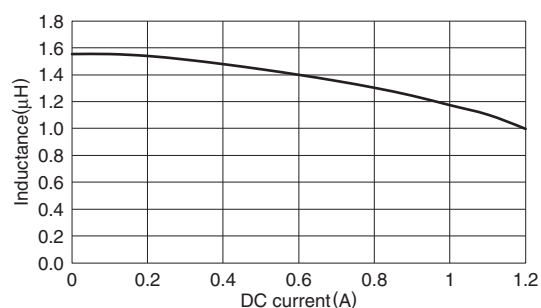
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

- All specifications are subject to change without notice.

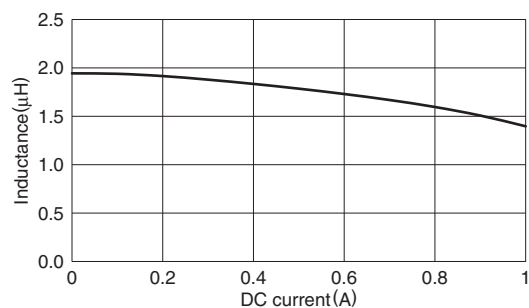
## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

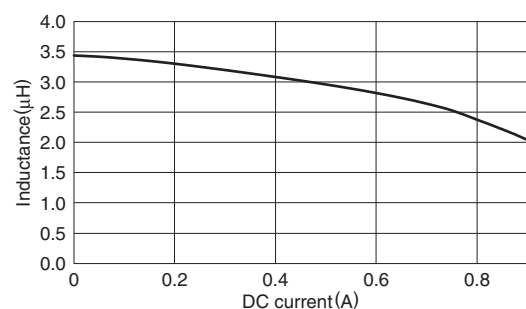
#### VLS252008ET-1R5N



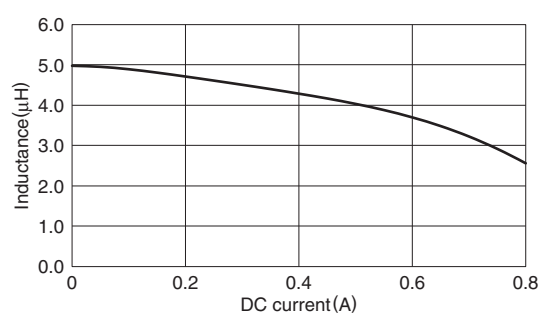
#### VLS252008ET-2R2M



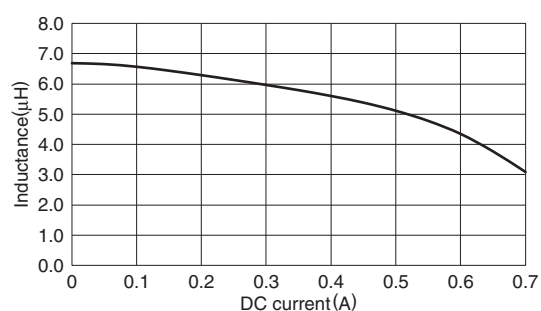
#### VLS252008ET-3R3M



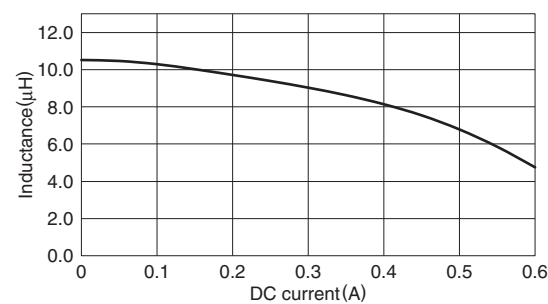
#### VLS252008ET-4R7M



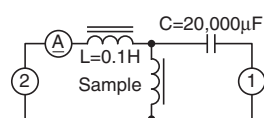
#### VLS252008ET-6R8M



#### VLS252008ET-100M



### TEST CIRCUIT



- 1: LCR meter 4285A  $f=1\text{MHz}$   
 2: DC constant current

# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLS Series VLS252010E

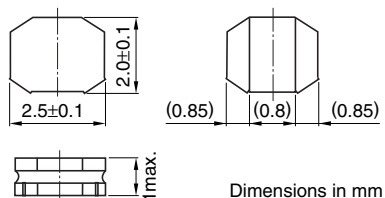
#### FEATURES

- Miniature size  
Mount area: 2.5×2mm  
Height: 1.0mm 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.

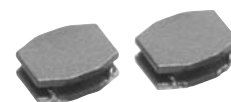
#### APPLICATIONS

Cellular phones, DVCs, DSCs, PDAs, LCD displays, HDDs, etc.

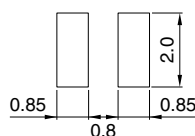
#### SHAPES AND DIMENSIONS



Dimensions in mm



#### RECOMMENDED PC BOARD PATTERN



Dimensions in mm

#### ELECTRICAL CHARACTERISTICS

| Part No.         | Inductance<br>( $\mu$ H) | Inductance<br>tolerance<br>(%) | Test frequency<br>(MHz) | DC resistance<br>( $\Omega$ ) |       | Rated current(A)*<br>Based on inductance change |      | Based on<br>temperature rise<br>typ. |
|------------------|--------------------------|--------------------------------|-------------------------|-------------------------------|-------|-------------------------------------------------|------|--------------------------------------|
|                  |                          |                                |                         | max.                          | typ.  | max.                                            | typ. |                                      |
| VLS252010ET-R47N | 0.47                     | ±30                            | 1.0                     | 0.046                         | 0.038 | 2.50                                            | 2.80 | 2.65                                 |
| VLS252010ET-R68N | 0.68                     | ±30                            | 1.0                     | 0.062                         | 0.052 | 2.05                                            | 2.30 | 2.20                                 |
| VLS252010ET-1R0N | 1.0                      | ±30                            | 1.0                     | 0.084                         | 0.070 | 1.75                                            | 1.90 | 1.90                                 |
| VLS252010ET-1R5N | 1.5                      | ±30                            | 1.0                     | 0.128                         | 0.107 | 1.45                                            | 1.60 | 1.50                                 |
| VLS252010ET-2R2M | 2.2                      | ±20                            | 1.0                     | 0.190                         | 0.158 | 1.20                                            | 1.30 | 1.20                                 |
| VLS252010ET-3R3M | 3.3                      | ±20                            | 1.0                     | 0.275                         | 0.229 | 0.94                                            | 1.05 | 1.00                                 |
| VLS252010ET-4R7M | 4.7                      | ±20                            | 1.0                     | 0.398                         | 0.332 | 0.80                                            | 0.89 | 0.82                                 |
| VLS252010ET-6R8M | 6.8                      | ±20                            | 1.0                     | 0.532                         | 0.443 | 0.68                                            | 0.76 | 0.71                                 |
| VLS252010ET-100M | 10                       | ±20                            | 1.0                     | 0.854                         | 0.712 | 0.56                                            | 0.63 | 0.55                                 |

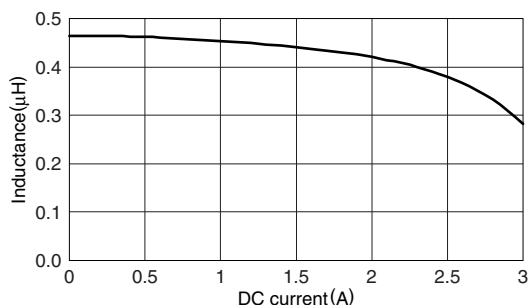
\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

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

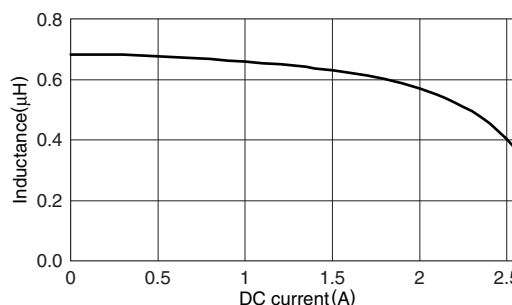
#### TYPICAL ELECTRICAL CHARACTERISTICS

##### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

###### VLS252010ET-R47N



###### VLS252010ET-R68N



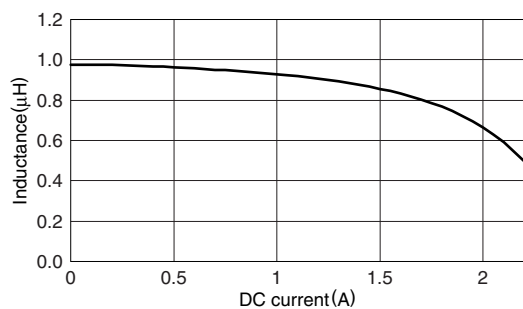
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

- All specifications are subject to change without notice.

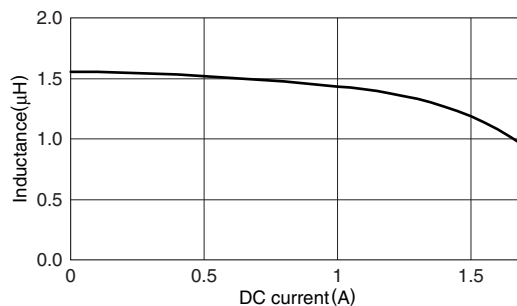
## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

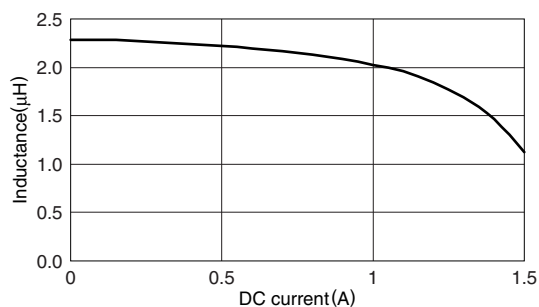
#### VLS252010ET-1R0N



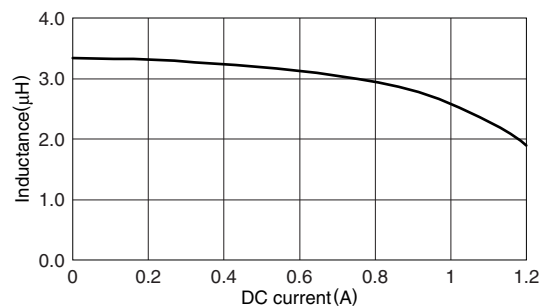
#### VLS252010ET-1R5N



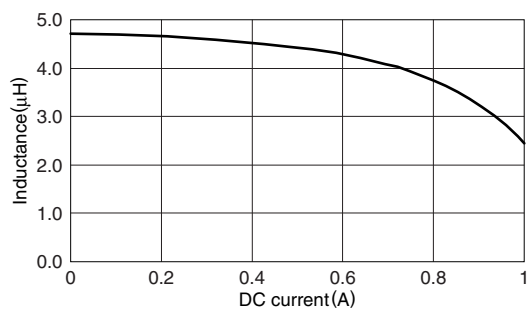
#### VLS252010ET-2R2M



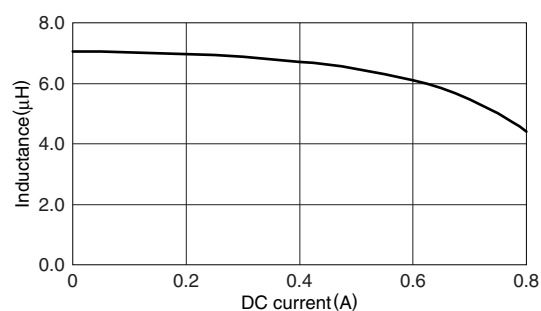
#### VLS252010ET-3R3M



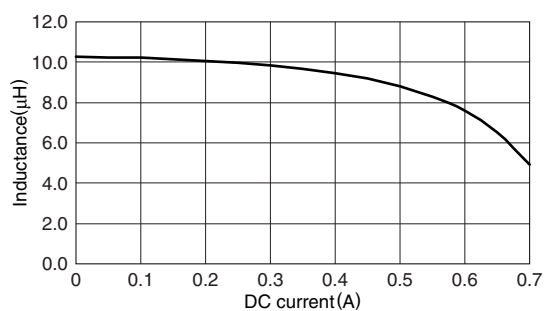
#### VLS252010ET-4R7M



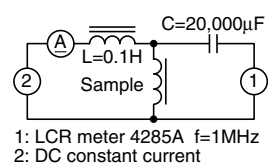
#### VLS252010ET-6R8M



#### VLS252010ET-100M



### TEST CIRCUIT



# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLS Series VLS252012E

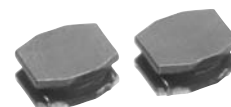
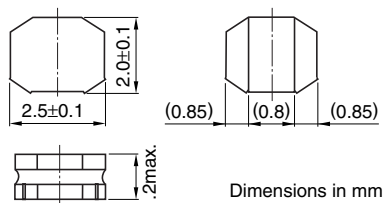
#### FEATURES

- Miniature size  
Mount area: 2.5×2mm  
Height: 1.2mm 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.

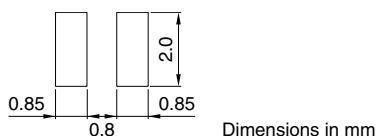
#### APPLICATIONS

DVCs, DSCs, PDAs, LCD displays, cellular phones, HDDs, etc.

#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### ELECTRICAL CHARACTERISTICS

| Part No.         | Inductance<br>(μH) | Inductance<br>tolerance<br>(%) | Test frequency<br>(MHz) | DC resistance<br>(Ω) |       | Rated current(A)*<br>Based on inductance change |      | Based on<br>temperature rise<br>typ. |
|------------------|--------------------|--------------------------------|-------------------------|----------------------|-------|-------------------------------------------------|------|--------------------------------------|
|                  |                    |                                |                         | max.                 | typ.  | max.                                            | typ. |                                      |
| VLS252012ET-R47N | 0.47               | ±30                            | 1.0                     | 0.056                | 0.047 | 2.75                                            | 3.10 | 2.15                                 |
| VLS252012ET-1R0N | 1.0                | ±30                            | 1.0                     | 0.087                | 0.073 | 2.20                                            | 2.45 | 1.70                                 |
| VLS252012ET-1R5N | 1.5                | ±30                            | 1.0                     | 0.126                | 0.105 | 1.80                                            | 2.00 | 1.45                                 |
| VLS252012ET-2R2M | 2.2                | ±20                            | 1.0                     | 0.154                | 0.129 | 1.55                                            | 1.75 | 1.30                                 |
| VLS252012ET-3R3M | 3.3                | ±20                            | 1.0                     | 0.272                | 0.227 | 1.25                                            | 1.40 | 0.98                                 |
| VLS252012ET-4R7M | 4.7                | ±20                            | 1.0                     | 0.405                | 0.338 | 1.05                                            | 1.20 | 0.81                                 |
| VLS252012ET-6R8M | 6.8                | ±20                            | 1.0                     | 0.612                | 0.510 | 0.85                                            | 0.95 | 0.65                                 |
| VLS252012ET-100M | 10                 | ±20                            | 1.0                     | 0.756                | 0.630 | 0.73                                            | 0.82 | 0.59                                 |

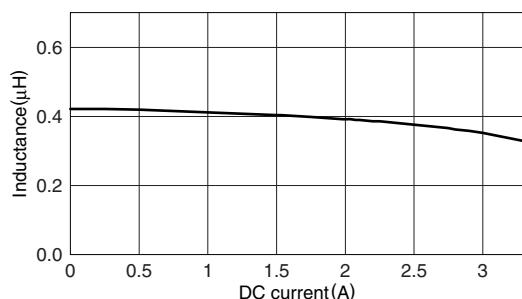
\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

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

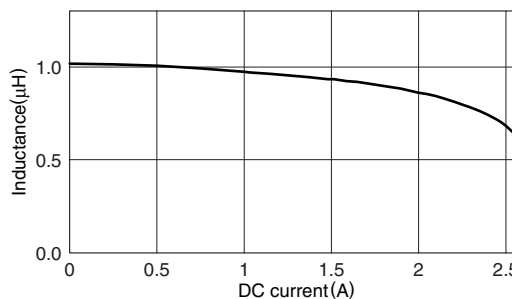
#### TYPICAL ELECTRICAL CHARACTERISTICS

##### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

###### VLS252012ET-R47N



###### VLS252012ET-1R0N



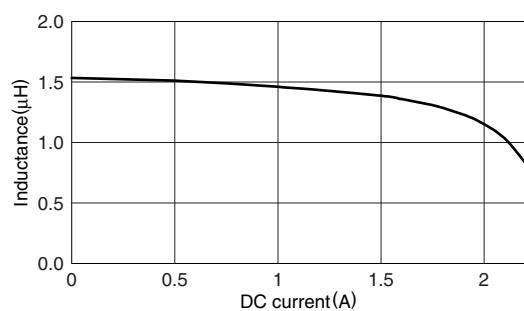
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

- All specifications are subject to change without notice.

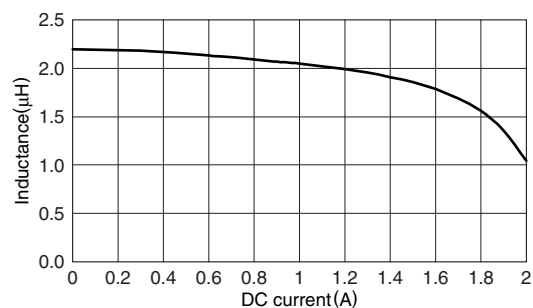
## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

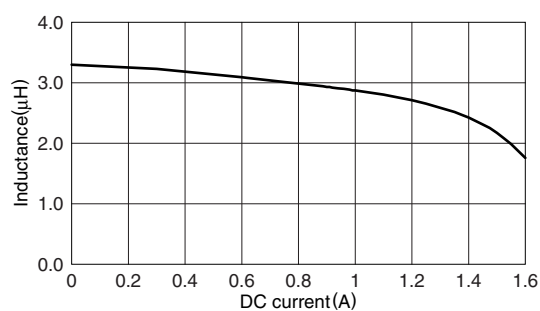
#### VLS252012ET-1R5N



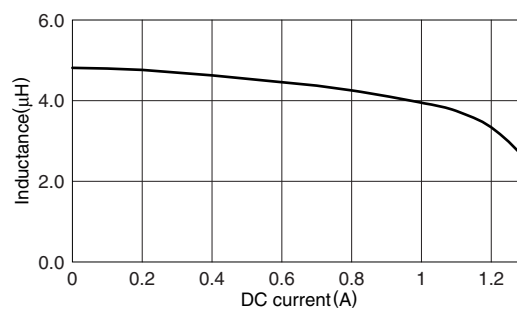
#### VLS252012ET-2R2M



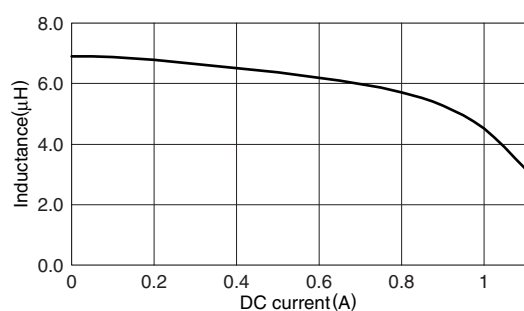
#### VLS252012ET-3R3M



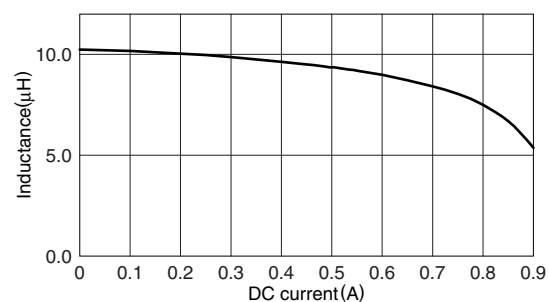
#### VLS252012ET-4R7M



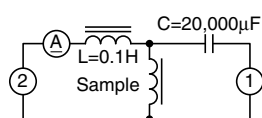
#### VLS252012ET-6R8M



#### VLS252012ET-100M



### TEST CIRCUIT



- 1: LCR meter 4285A  $f=1\text{MHz}$   
 2: DC constant current

# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLS Series VLS252015E

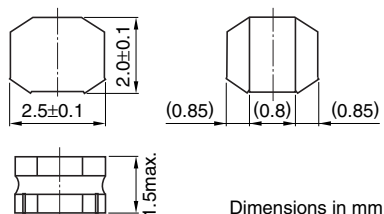
#### FEATURES

- Miniature size  
Mount area: 2.5×2mm  
Height: 1.5mm 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

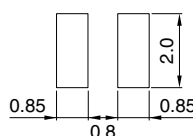
DVCs, DSCs, PDAs, LCD displays, cellular phones, HDDs, etc.

#### SHAPES AND DIMENSIONS



Dimensions in mm

#### RECOMMENDED PC BOARD PATTERN



Dimensions in mm

#### ELECTRICAL CHARACTERISTICS

| Part No.         | Inductance<br>(μH) | Inductance<br>tolerance<br>(%) | Test frequency<br>(MHz) | DC resistance<br>(Ω) |       | Rated current(A)*          |      |                                      |
|------------------|--------------------|--------------------------------|-------------------------|----------------------|-------|----------------------------|------|--------------------------------------|
|                  |                    |                                |                         | max.                 | typ.  | Based on inductance change |      | Based on<br>temperature rise<br>typ. |
| VLS252015ET-1R0N | 1.0                | ±30                            | 1.0                     | 0.082                | 0.068 | 1.95                       | 2.20 | 1.75                                 |
| VLS252015ET-1R5N | 1.5                | ±30                            | 1.0                     | 0.120                | 0.100 | 1.75                       | 1.95 | 1.45                                 |
| VLS252015ET-2R2M | 2.2                | ±20                            | 1.0                     | 0.160                | 0.133 | 1.50                       | 1.70 | 1.25                                 |
| VLS252015ET-3R3M | 3.3                | ±20                            | 1.0                     | 0.219                | 0.182 | 1.20                       | 1.35 | 1.05                                 |
| VLS252015ET-4R7M | 4.7                | ±20                            | 1.0                     | 0.318                | 0.265 | 1.00                       | 1.15 | 0.89                                 |
| VLS252015ET-6R8M | 6.8                | ±20                            | 1.0                     | 0.480                | 0.400 | 0.85                       | 0.95 | 0.73                                 |
| VLS252015ET-100M | 10                 | ±20                            | 1.0                     | 0.588                | 0.490 | 0.72                       | 0.80 | 0.66                                 |

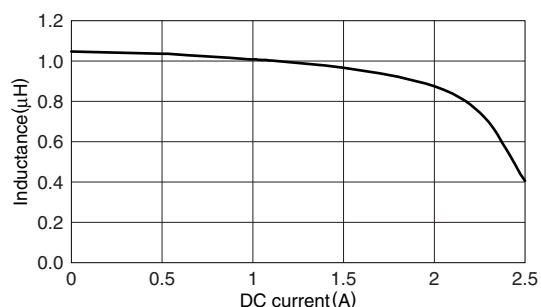
\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

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

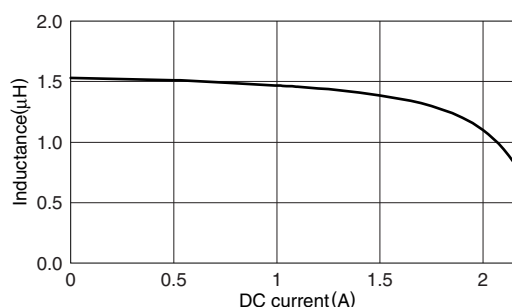
#### TYPICAL ELECTRICAL CHARACTERISTICS

##### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

###### VLS252015ET-1R0N



###### VLS252015ET-1R5N



- 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.

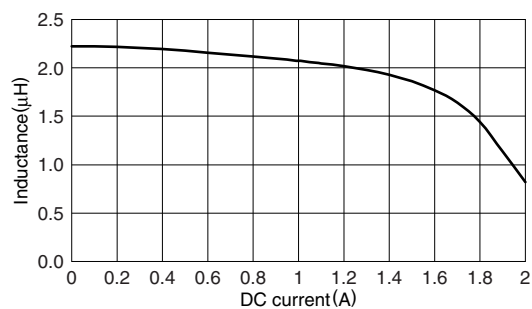
- All specifications are subject to change without notice.



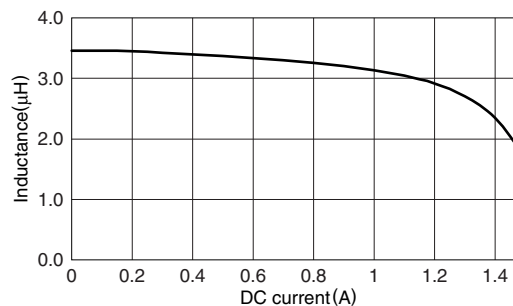
## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

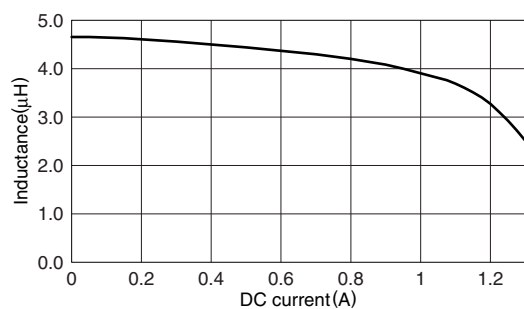
#### VLS252015ET-2R2M



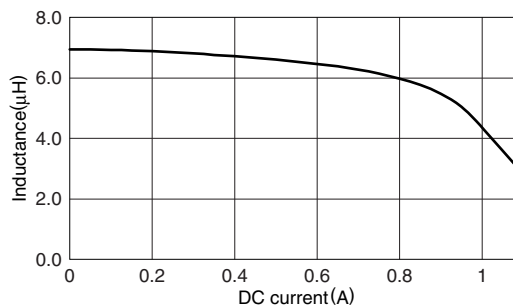
#### VLS252015ET-3R3M



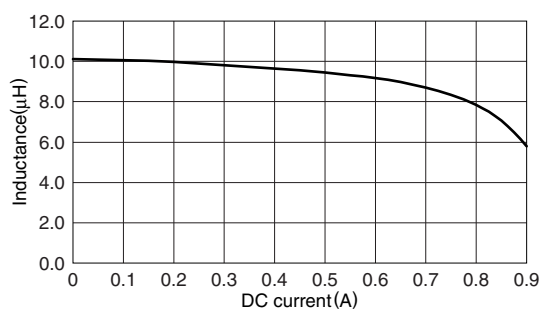
#### VLS252015ET-4R7M



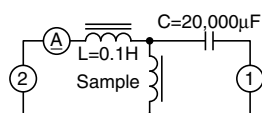
#### VLS252015ET-6R8M



#### VLS252015ET-100M



### TEST CIRCUIT



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

# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLS Series VLS3010E

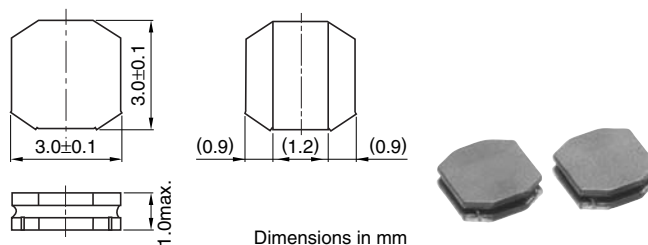
#### FEATURES

- Miniature size  
Mount area: 3×3mm  
Height: 1.0mm 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.

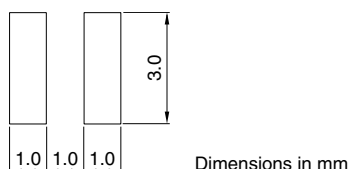
#### APPLICATIONS

Cellular phones, DVCs, DSCs, PDAs, LCD displays, HDDs, etc.

#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### ELECTRICAL CHARACTERISTICS

| Part No.       | Inductance<br>( $\mu$ H) | Inductance<br>tolerance<br>(%) | Test frequency<br>(MHz) | DC resistance<br>( $\Omega$ ) |       | Rated current(A)* |      | Based on<br>temperature rise<br>typ. |
|----------------|--------------------------|--------------------------------|-------------------------|-------------------------------|-------|-------------------|------|--------------------------------------|
|                |                          |                                |                         | max.                          | typ.  | max.              | typ. |                                      |
| VLS3010ET-1R0N | 1.0                      | ±30                            | 1.0                     | 0.072                         | 0.060 | 1.60              | 1.80 | 2.10                                 |
| VLS3010ET-1R5N | 1.5                      | ±30                            | 1.0                     | 0.085                         | 0.071 | 1.35              | 1.50 | 1.90                                 |
| VLS3010ET-2R2M | 2.2                      | ±20                            | 1.0                     | 0.116                         | 0.097 | 1.20              | 1.30 | 1.70                                 |
| VLS3010ET-3R3M | 3.3                      | ±20                            | 1.0                     | 0.156                         | 0.130 | 1.00              | 1.10 | 1.50                                 |
| VLS3010ET-4R7M | 4.7                      | ±20                            | 1.0                     | 0.204                         | 0.170 | 0.81              | 0.90 | 1.30                                 |
| VLS3010ET-6R8M | 6.8                      | ±20                            | 1.0                     | 0.312                         | 0.260 | 0.69              | 0.77 | 1.00                                 |
| VLS3010ET-100M | 10                       | ±20                            | 1.0                     | 0.468                         | 0.390 | 0.56              | 0.63 | 0.80                                 |
| VLS3010ET-150M | 15                       | ±20                            | 1.0                     | 0.612                         | 0.510 | 0.48              | 0.54 | 0.70                                 |
| VLS3010ET-220M | 22                       | ±20                            | 1.0                     | 0.900                         | 0.750 | 0.38              | 0.43 | 0.60                                 |

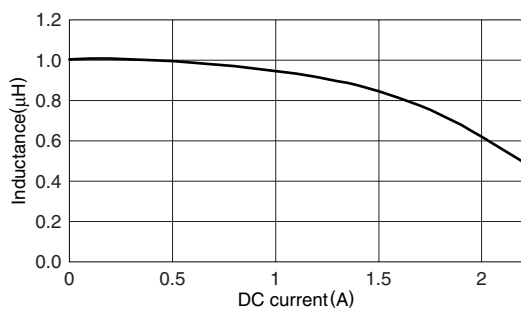
\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

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

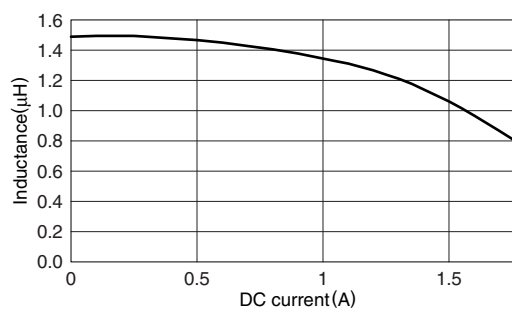
#### TYPICAL ELECTRICAL CHARACTERISTICS

##### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

###### VLS3010ET-1R0N



###### VLS3010ET-1R5N



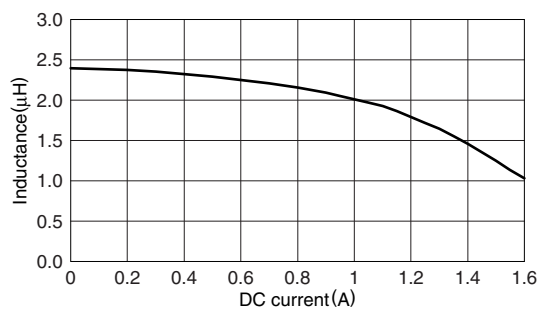
• Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

• All specifications are subject to change without notice.

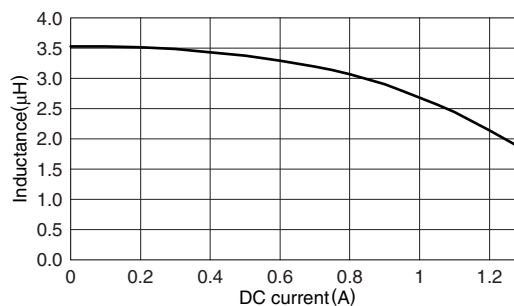
## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

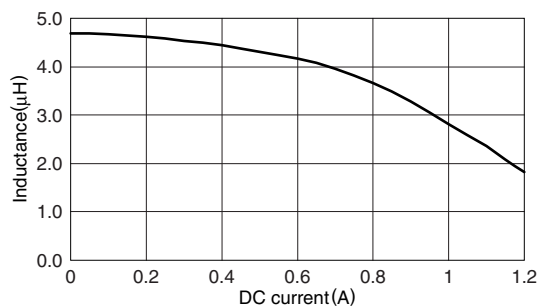
#### VLS3010ET-2R2M



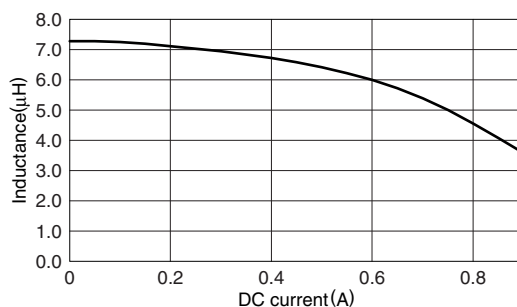
#### VLS3010ET-3R3M



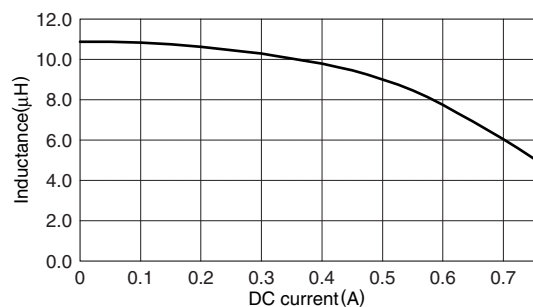
#### VLS3010ET-4R7M



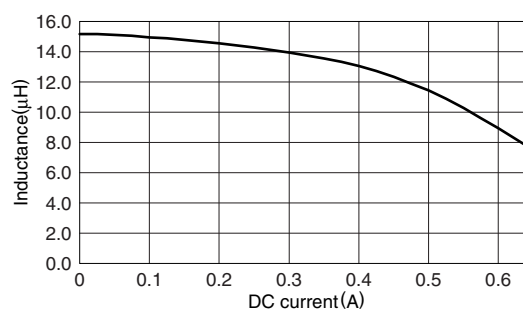
#### VLS3010ET-6R8M



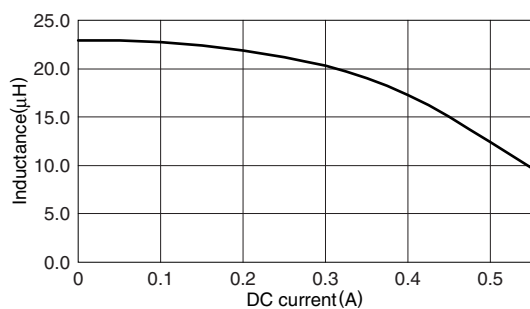
#### VLS3010ET-100M



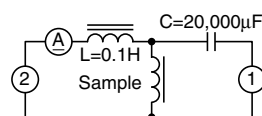
#### VLS3010ET-150M



#### VLS3010ET-220M



### TEST CIRCUIT



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

# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLS Series VLS3012E

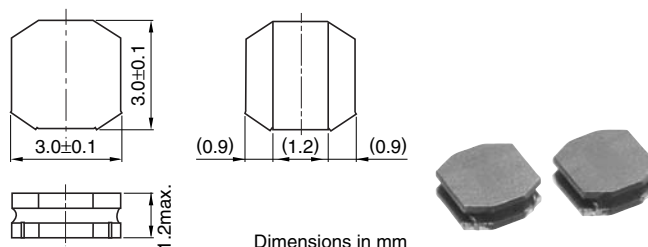
#### FEATURES

- Miniature size  
Mount area: 3×3mm  
Height: 1.2mm 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.

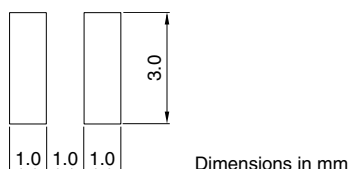
#### APPLICATIONS

DSCs, DVCs, PDAs, portable game devices, cellular phones, LCD displays, HDDs, etc.

#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### ELECTRICAL CHARACTERISTICS

| Part No.       | Inductance (μH) | Inductance tolerance (%) | Test frequency (MHz) | DC resistance (Ω) |       | Rated current(A)* |      | Based on temperature rise typ. |
|----------------|-----------------|--------------------------|----------------------|-------------------|-------|-------------------|------|--------------------------------|
|                |                 |                          |                      | max.              | typ.  | max.              | typ. |                                |
| VLS3012ET-1R0N | 1.0             | ±30                      | 1.0                  | 0.068             | 0.056 | 1.90              | 2.15 | 2.00                           |
| VLS3012ET-1R5N | 1.5             | ±30                      | 1.0                  | 0.076             | 0.063 | 1.50              | 1.70 | 1.85                           |
| VLS3012ET-2R2M | 2.2             | ±20                      | 1.0                  | 0.096             | 0.080 | 1.35              | 1.50 | 1.70                           |
| VLS3012ET-3R3M | 3.3             | ±20                      | 1.0                  | 0.120             | 0.100 | 1.05              | 1.20 | 1.55                           |
| VLS3012ET-4R7M | 4.7             | ±20                      | 1.0                  | 0.156             | 0.130 | 0.95              | 1.05 | 1.30                           |
| VLS3012ET-6R8M | 6.8             | ±20                      | 1.0                  | 0.228             | 0.190 | 0.81              | 0.90 | 1.05                           |
| VLS3012ET-100M | 10              | ±20                      | 1.0                  | 0.336             | 0.280 | 0.64              | 0.76 | 0.89                           |
| VLS3012ET-150M | 15              | ±20                      | 1.0                  | 0.516             | 0.430 | 0.55              | 0.62 | 0.74                           |
| VLS3012ET-220M | 22              | ±20                      | 1.0                  | 0.756             | 0.630 | 0.44              | 0.49 | 0.61                           |
| VLS3012ET-330M | 33              | ±20                      | 1.0                  | 1.248             | 1.040 | 0.37              | 0.41 | 0.48                           |
| VLS3012ET-470M | 47              | ±20                      | 1.0                  | 1.500             | 1.250 | 0.31              | 0.35 | 0.44                           |

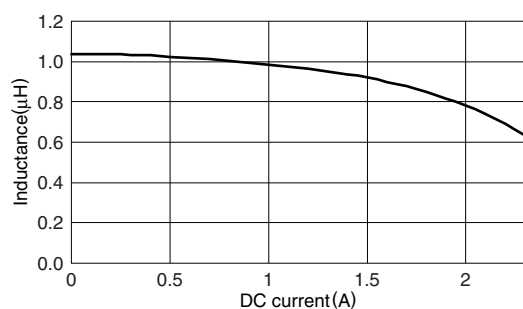
\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

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

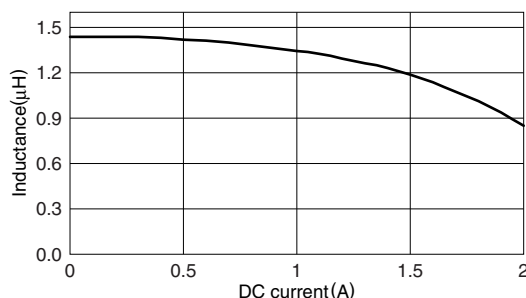
#### TYPICAL ELECTRICAL CHARACTERISTICS

##### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

###### VLS3012ET-1R0N



###### VLS3012ET-1R5N



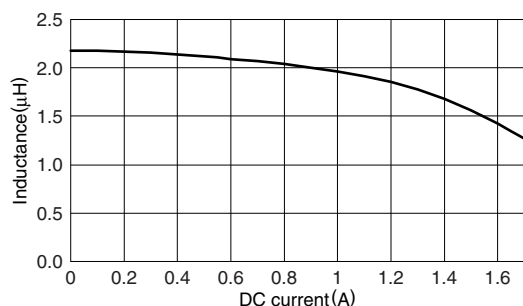
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

- All specifications are subject to change without notice.

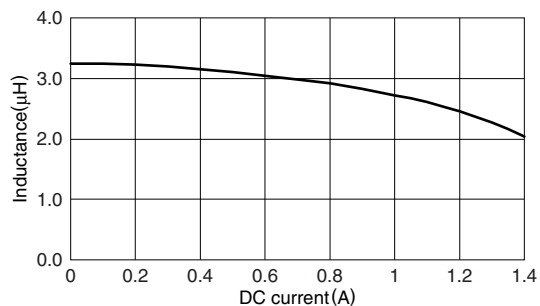
## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

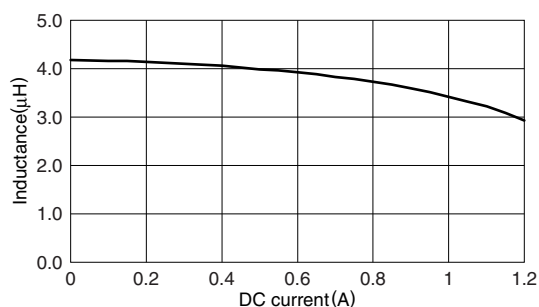
#### VLS3012ET-2R2M



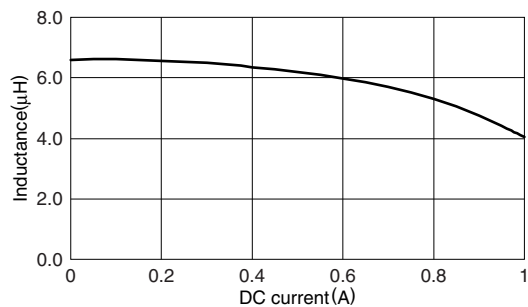
#### VLS3012ET-3R3M



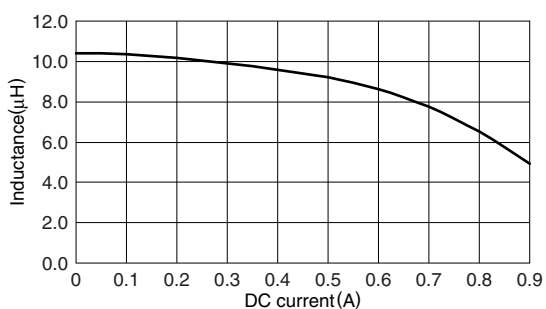
#### VLS3012ET-4R7M



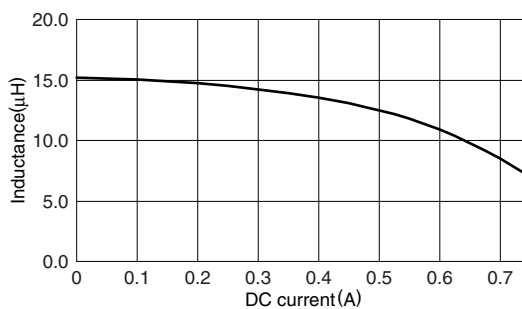
#### VLS3012ET-6R8M



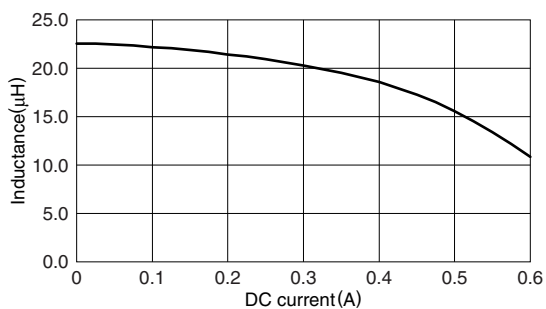
#### VLS3012ET-100M



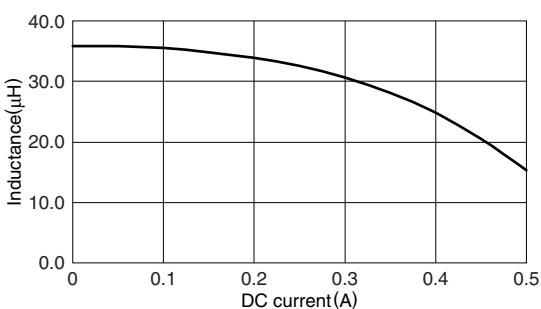
#### VLS3012ET-150M



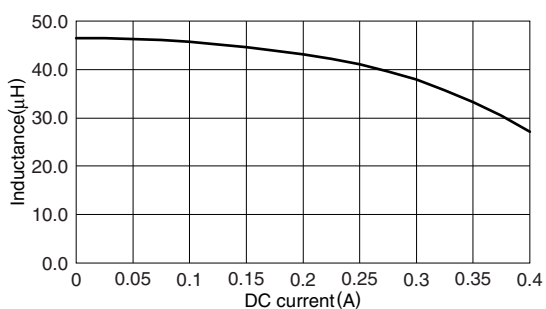
#### VLS3012ET-220M



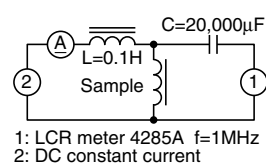
#### VLS3012ET-330M



#### VLS3012ET-470M



### TEST CIRCUIT



# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLS Series VLS3015E

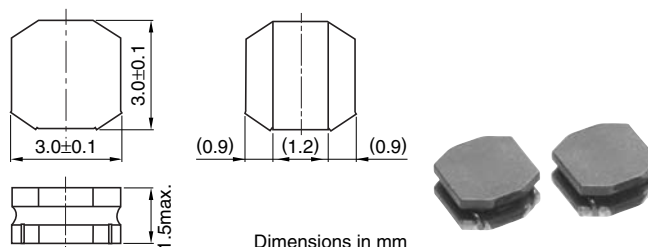
#### FEATURES

- Miniature size  
Mount area: 3×3mm  
Height: 1.5mm 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.

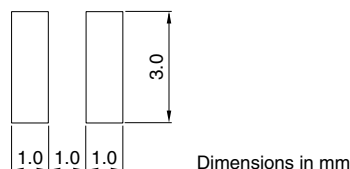
#### APPLICATIONS

DSCs, DVCs, PDAs, portable game devices, cellular phones, LCD displays, HDDs, etc.

#### SHAPES AND DIMENSIONS



#### RECOMMENDED PC BOARD PATTERN



#### ELECTRICAL CHARACTERISTICS

| Part No.       | Inductance<br>( $\mu$ H) | Inductance<br>tolerance<br>(%) | Test frequency<br>(MHz) | DC resistance<br>( $\Omega$ ) |       | Rated current(A)* |      | Based on<br>temperature rise<br>typ. |
|----------------|--------------------------|--------------------------------|-------------------------|-------------------------------|-------|-------------------|------|--------------------------------------|
|                |                          |                                |                         | max.                          | typ.  | max.              | typ. |                                      |
| VLS3015ET-1R0N | 1.0                      | ±30                            | 1.0                     | 0.058                         | 0.048 | 2.00              | 2.20 | 2.10                                 |
| VLS3015ET-1R5N | 1.5                      | ±30                            | 1.0                     | 0.075                         | 0.062 | 1.50              | 1.70 | 1.85                                 |
| VLS3015ET-2R2M | 2.2                      | ±20                            | 1.0                     | 0.084                         | 0.070 | 1.35              | 1.50 | 1.75                                 |
| VLS3015ET-3R3M | 3.3                      | ±20                            | 1.0                     | 0.112                         | 0.093 | 1.15              | 1.30 | 1.50                                 |
| VLS3015ET-4R7M | 4.7                      | ±20                            | 1.0                     | 0.136                         | 0.113 | 1.00              | 1.10 | 1.35                                 |
| VLS3015ET-6R8M | 6.8                      | ±20                            | 1.0                     | 0.216                         | 0.180 | 0.92              | 1.00 | 1.05                                 |
| VLS3015ET-100M | 10                       | ±20                            | 1.0                     | 0.288                         | 0.240 | 0.70              | 0.78 | 0.94                                 |
| VLS3015ET-150M | 15                       | ±20                            | 1.0                     | 0.456                         | 0.380 | 0.58              | 0.65 | 0.75                                 |
| VLS3015ET-220M | 22                       | ±20                            | 1.0                     | 0.660                         | 0.550 | 0.48              | 0.54 | 0.62                                 |
| VLS3015ET-330M | 33                       | ±20                            | 1.0                     | 0.984                         | 0.820 | 0.39              | 0.43 | 0.51                                 |
| VLS3015ET-470M | 47                       | ±20                            | 1.0                     | 1.500                         | 1.250 | 0.32              | 0.35 | 0.41                                 |

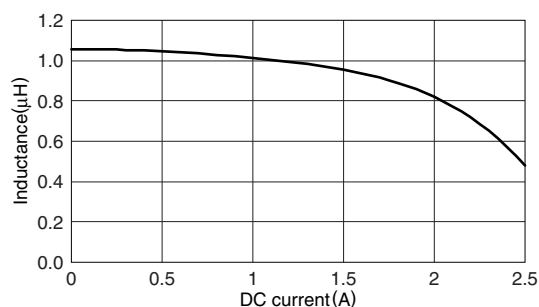
\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

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

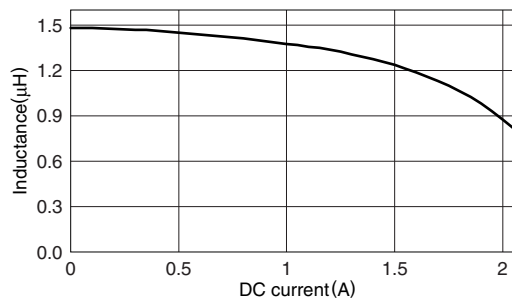
#### TYPICAL ELECTRICAL CHARACTERISTICS

##### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

###### VLS3015ET-1R0N



###### VLS3015ET-1R5N



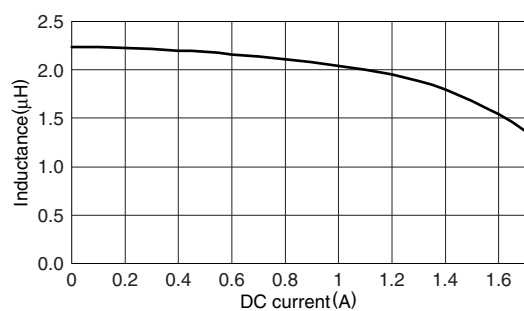
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

- All specifications are subject to change without notice.

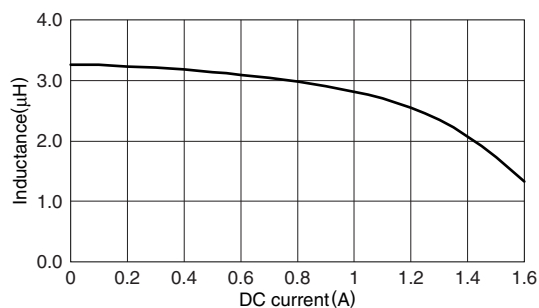
## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

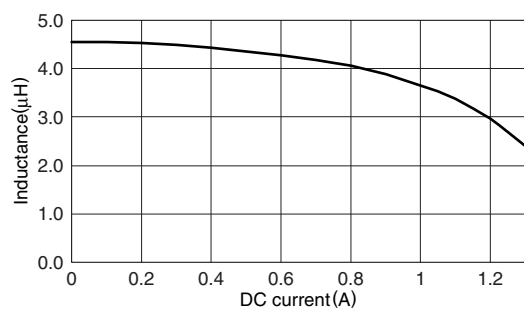
#### VLS3015ET-2R2M



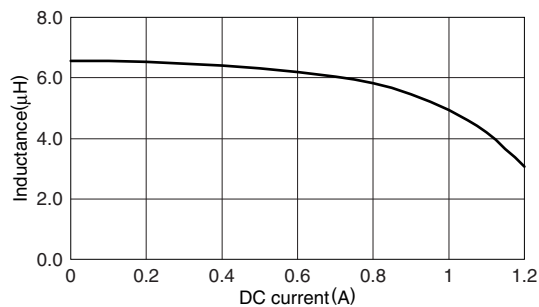
#### VLS3015ET-3R3M



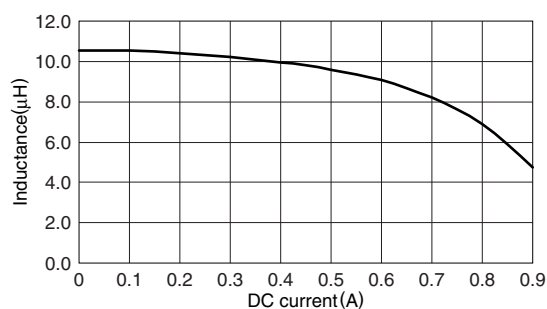
#### VLS3015ET-4R7M



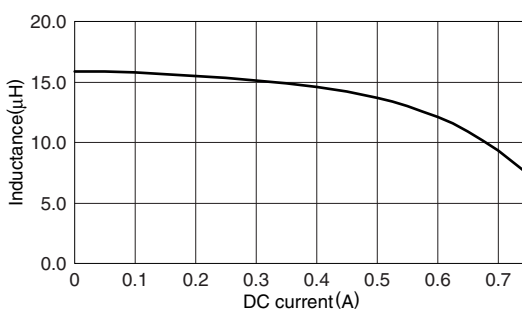
#### VLS3015ET-6R8M



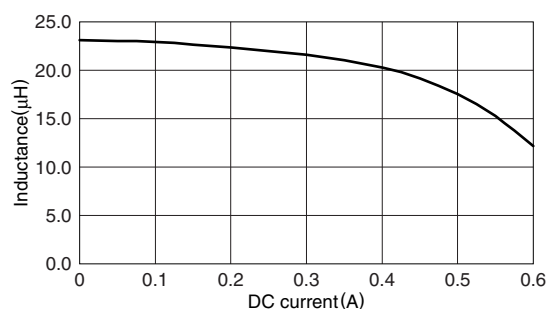
#### VLS3015ET-100M



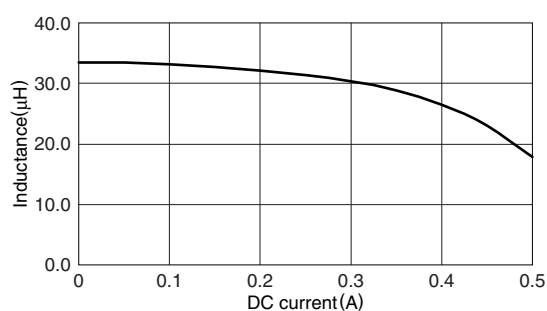
#### VLS3015ET-150M



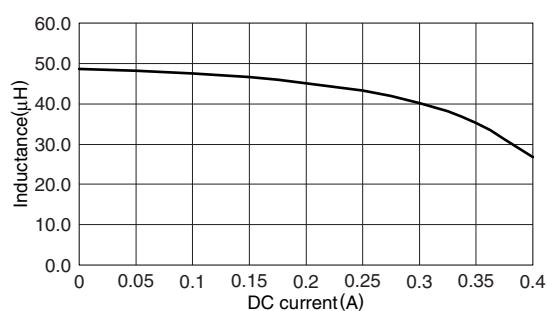
#### VLS3015ET-220M



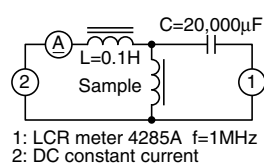
#### VLS3015ET-330M



#### VLS3015ET-470M



### TEST CIRCUIT



# Inductors for Power Circuits

## Wound/STD • Magnetic Shielded

Conformity to RoHS Directive

### VLS Series VLS4012E

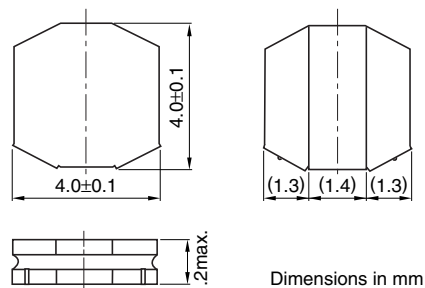
#### FEATURES

- Miniature size  
Mount area: 4×4mm  
Height: 1.2mm 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

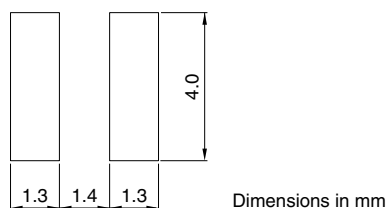
Cellular phones, DVCs, DSCs, PDAs, LCD displays, HDDs, etc.

#### SHAPES AND DIMENSIONS



Dimensions in mm

#### RECOMMENDED PC BOARD PATTERN



Dimensions in mm

#### ELECTRICAL CHARACTERISTICS

| Part No.       | Inductance<br>( $\mu$ H) | Inductance<br>tolerance<br>(%) | Test frequency<br>(MHz) | DC resistance<br>( $\Omega$ ) |       | Rated current(A)*<br>Based on inductance change |      | Based on<br>temperature rise<br>typ. |
|----------------|--------------------------|--------------------------------|-------------------------|-------------------------------|-------|-------------------------------------------------|------|--------------------------------------|
|                |                          |                                |                         | max.                          | typ.  | max.                                            | typ. |                                      |
| VLS4012ET-1R0N | 1.0                      | ±30                            | 1.0                     | 0.060                         | 0.050 | 2.50                                            | 2.80 | 2.65                                 |
| VLS4012ET-1R5N | 1.5                      | ±30                            | 1.0                     | 0.072                         | 0.060 | 2.10                                            | 2.30 | 2.45                                 |
| VLS4012ET-2R2M | 2.2                      | ±20                            | 1.0                     | 0.081                         | 0.067 | 1.70                                            | 1.90 | 2.20                                 |
| VLS4012ET-3R3M | 3.3                      | ±20                            | 1.0                     | 0.102                         | 0.085 | 1.40                                            | 1.60 | 2.00                                 |
| VLS4012ET-4R7M | 4.7                      | ±20                            | 1.0                     | 0.118                         | 0.098 | 1.20                                            | 1.40 | 1.90                                 |
| VLS4012ET-6R8M | 6.8                      | ±20                            | 1.0                     | 0.156                         | 0.130 | 1.00                                            | 1.20 | 1.60                                 |
| VLS4012ET-100M | 10                       | ±20                            | 1.0                     | 0.228                         | 0.190 | 0.89                                            | 0.99 | 1.33                                 |
| VLS4012ET-150M | 15                       | ±20                            | 1.0                     | 0.372                         | 0.310 | 0.70                                            | 0.78 | 1.05                                 |
| VLS4012ET-220M | 22                       | ±20                            | 1.0                     | 0.468                         | 0.390 | 0.63                                            | 0.70 | 0.95                                 |
| VLS4012ET-330M | 33                       | ±20                            | 1.0                     | 0.804                         | 0.670 | 0.47                                            | 0.53 | 0.70                                 |
| VLS4012ET-470M | 47                       | ±20                            | 1.0                     | 1.020                         | 0.850 | 0.41                                            | 0.46 | 0.61                                 |

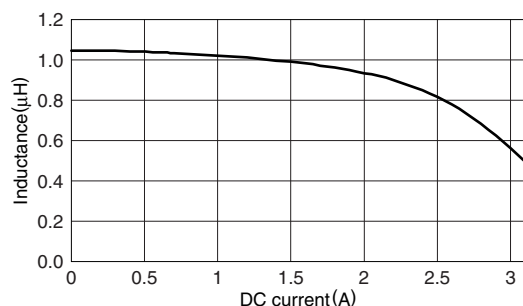
\* Rated current: Value obtained when current flows and the temperature has risen to 40°C or when DC current flows and the nominal value of inductance has fallen by 30%, whichever is smaller.

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

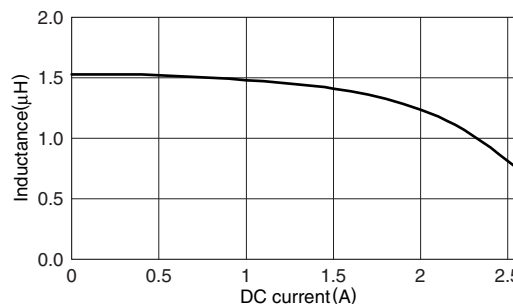
#### TYPICAL ELECTRICAL CHARACTERISTICS

##### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

###### VLS4012ET-1R0N



###### VLS4012ET-1R5N



- 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.

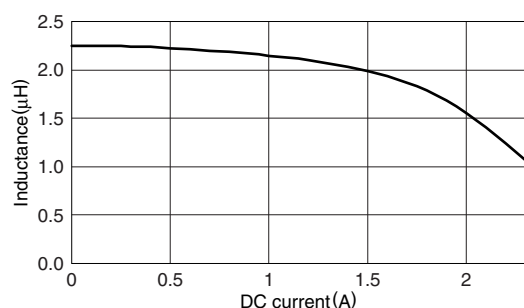
- All specifications are subject to change without notice.



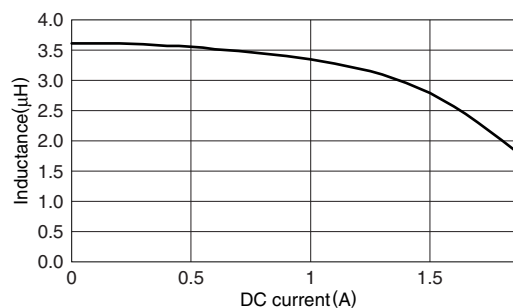
## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC SUPERPOSITION CHARACTERISTICS

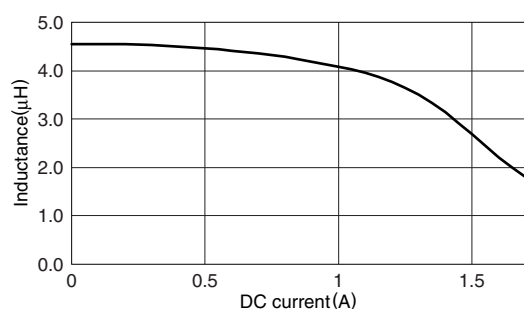
#### VLS4012ET-2R2M



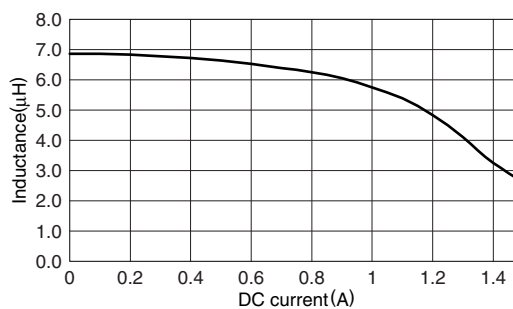
#### VLS4012ET-3R3M



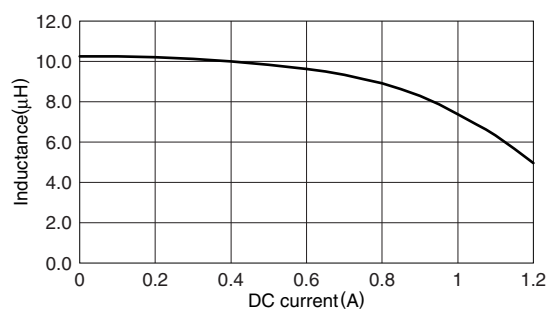
#### VLS4012ET-4R7M



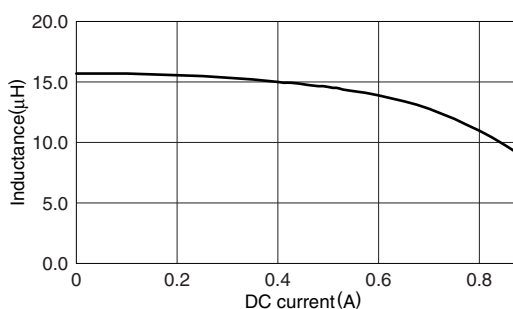
#### VLS4012ET-6R8M



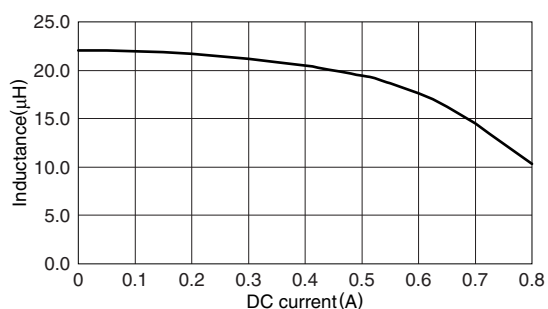
#### VLS4012ET-100M



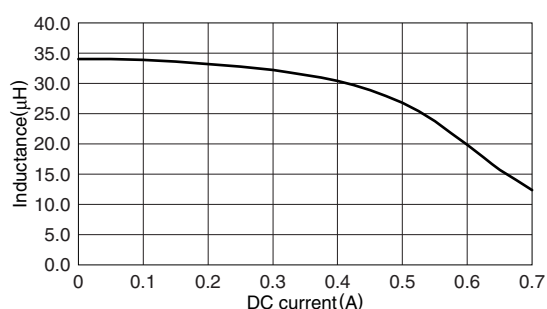
#### VLS4012ET-150M



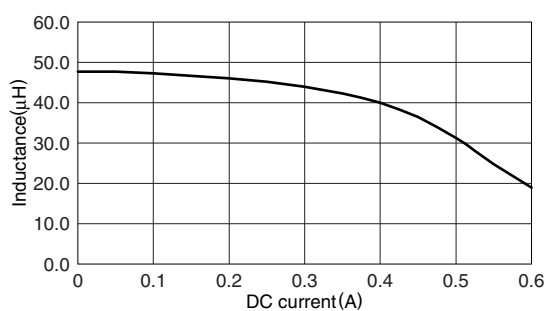
#### VLS4012ET-220M



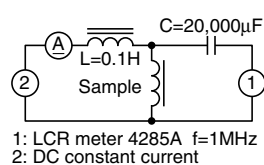
#### VLS4012ET-330M



#### VLS4012ET-470M



### TEST CIRCUIT



Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А