

Inductors for power circuits

Wound ferrite

VLS-E series

VLS4012E type

VLS4012E



The products in this catalog is not recommended to a new design

Please refer to our Web site about replacement information.



REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using these products.

⚠ REMINDERS
 The storage period is less than 12 months. Be sure to follow the storage conditions (Temperature: 5 to 40°C, Humidity: 10 to 75% RH or less). If the storage period elapses, the soldering of the terminal electrodes may deteriorate.
On not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).
Before soldering, be sure to preheat components. The preheating temperature should be set so that the temperature difference between the solder temperature and chip temperature does not exceed 150°C.
Soldering corrections after mounting should be within the range of the conditions determined in the specifications. If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.
When embedding a printed circuit board where a chip is mounted to a set, be sure that residual stress is not given to the chip due to the overall distortion of the printed circuit board and partial distortion such as at screw tightening portions.
Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.
Carefully lay out the coil for the circuit board design of the non-magnetic shield type. A malfunction may occur due to magnetic interference.
Use a wrist band to discharge static electricity in your body through the grounding wire.
On not expose the products to magnets or magnetic fields.
On not use for a purpose outside of the contents regulated in the delivery specifications.
The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.
The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.
If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions

- (1) Aerospace/Aviation equipment
- $\hbox{(2) Transportation equipment (cars, electric trains, ships, etc.)}\\$
- (3) Medical equipment
- (4) Power-generation control equipment

set forth in the each catalog, please contact us.

- (5) Atomic energy-related equipment
- (6) Seabed equipment
- (7) Transportation control equipment

- (8) Public information-processing equipment
- (9) Military equipment
- (10) Electric heating apparatus, burning equipment
- (11) Disaster prevention/crime prevention equipment
- (12) Safety equipment
- (13) Other applications that are not considered general-purpose applications

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.



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Product compatible with RoHS directive
Halogen-free
Compatible with lead-free solders

Overview of VLS4012E type

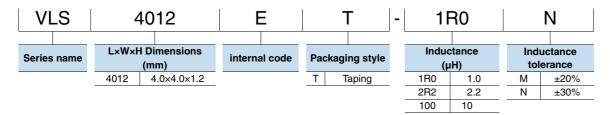
FEATURES

- Magnetic shield type wound inductor for power circuits.
- O Low-profile product.
- O High magnetic shield construction and compatible with high-density mounting.

APPLICATION

Smart phones, tablet terminals, HDDs, SSDs, DVCs, DSCs, mobile display panels, portable game devices, compact power supply modules, other

PART NUMBER CONSTRUCTION



■ OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

	Temperat	ure range	Package quantity	Individual weight
Туре	Operating Storage temperature*			
	(°C)	(°C)	(pieces/reel)	(mg)
VLS4012E	-40 to +105	-40 to +105	1000	67

^{*} Operating temperature range includes self-temperature rise.

^{**} The Storage temperature range is for after the circuit board is mounted.

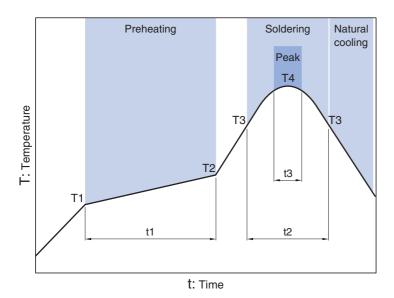
RoHS Directive Compliant Product: See the following for more details.https://product.tdk.com/info/en/environment/rohs/index.html

O Halogen-free: Indicates that CI content is less than 900ppm, Br content is less than 900ppm, and that the total CI and Br content is less than 1500ppm.



VLS4012E type

■ RECOMMENDED REFLOW PROFILE

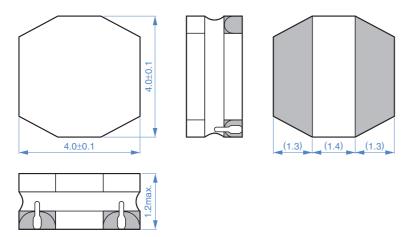


Preheating		Soldering		Peak	Peak		
Temp.		Time	Temp.	Time	Temp.	Time	
T1	T2	t1	Т3	t2	T4	t3	
150°C	180°C	60 to 120s	230°C	30s	260°C	10s	



VLS4012E type

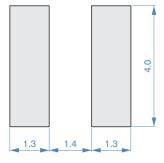
SHAPE & DIMENSIONS





Dimensions in mm

■ RECOMMENDED LAND PATTERN



Dimensions in mm



VLS4012E type

ELECTRICAL CHARACTERISTICS

CHARACTERISTICS SPECIFICATION TABLE

L		Measuring frequency	DC resistance		Rated curr	rent*		Part No.
(.	Tolerance	(MHz)	(Ω)max.	(Ω)max. $(Ω)$ typ.		Isat (A)typ.	Itemp (A)typ.	
(μH)		, ,	. ,		(A)max.			
1.0	±30%	1.0	0.060	0.050	2.50	2.80	2.65	VLS4012ET-1R0N
1.5	±30%	1.0	0.072	0.060	2.10	2.30	2.45	VLS4012ET-1R5N
2.2	±20%	1.0	0.081	0.067	1.70	1.90	2.20	VLS4012ET-2R2M
3.3	±20%	1.0	0.102	0.085	1.40	1.60	2.00	VLS4012ET-3R3M
4.7	±20%	1.0	0.118	0.098	1.20	1.40	1.90	VLS4012ET-4R7M
6.8	±20%	1.0	0.156	0.130	1.00	1.20	1.60	VLS4012ET-6R8M
10	±20%	1.0	0.228	0.190	0.89	0.99	1.33	VLS4012ET-100M
15	±20%	1.0	0.372	0.310	0.70	0.78	1.05	VLS4012ET-150M
22	±20%	1.0	0.468	0.390	0.63	0.70	0.95	VLS4012ET-220M
33	±20%	1.0	0.804	0.670	0.47	0.53	0.70	VLS4012ET-330M
47	±20%	1.0	1.020	0.850	0.41	0.46	0.61	VLS4012ET-470M

^{*} Rated current: smaller value of either lsat or Itemp.

Isat: When based on the inductance change rate (30% below the nominal value)

Itemp: When based on the temperature increase (Temperature increase of 40°C by self heating)

O Measurement equipment

Measurement item	Product No.	Manufacturer
L	4194A	Keysight Technologies
DC resistance	VP-2941A	Panasonic
Rated current Isat	4285A+42841A+42842C	Keysight Technologies

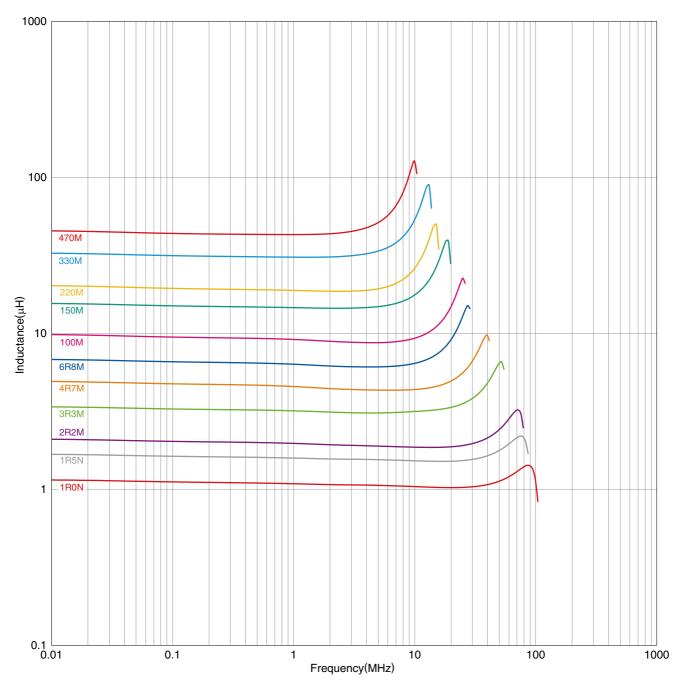
^{*} Equivalent measurement equipment may be used.



VLS4012E type

ELECTRICAL CHARACTERISTICS

L FREQUENCY CHARACTERISTICS GRAPH



O Measurement equipment

Product No.	Manufacturer
4294A	Keysight Technologies

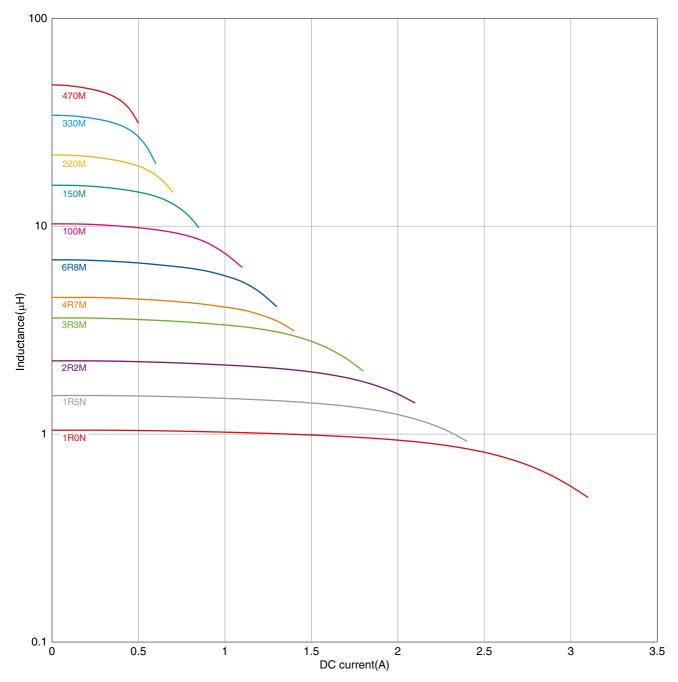
^{*} Equivalent measurement equipment may be used.



VLS4012E type

ELECTRICAL CHARACTERISTICS

□INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



O Measurement equipment

Product No.	Manufacturer
4285A+42841A+42842C	Keysight Technologies

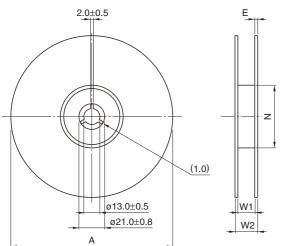
^{*} Equivalent measurement equipment may be used.



VLS4012E type

■PACKAGING STYLE

REEL DIMENSIONS

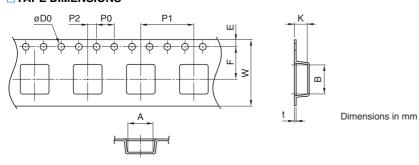


Dimensions in mm

Туре	Α	W1	W2	N	E
VLS4012E	ø180	13	17	ø60	0.5

^{*} These values are typical values.

TAPE DIMENSIONS



Type	Α	В	øD0	Е	F	P0	P1	P2	W	K	t	
VLS4012E	4.25	4.25	1.5+0.10/-0	1.75±0.1	5.5±0.05	4.0±0.1	8.0±0.1	2.00±0.05	12.0±0.2	1.35	0.3	

ПОСТАВКА ЭЛЕКТРОННЫХ КОМПОНЕНТОВ

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001 Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

Данный компонент на территории Российской Федерации Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г. Москва, ул. Щербаковская д. 3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru moschip.ru_6 moschip.ru_4 moschip.ru_9