TDK

October 2013

Inductors for Power Circuits

Wound Ferrite

VLF-M-CA series (For automobiles)

VLF252010MT-CA
VLF252012MT-CA
VLF252015MT-CA
VLF302510MT-CA
VLF302512MT-CA
VLF302515MT-CA
VLF403210MT-CA
VLF403212MT-CA
VLF403215MT-CA
VLF504010MT-CA
VLF504012MT-CA
VLF504015MT-CA

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.
- Do 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.
- Do not expose the products to magnets or magnetic fields.
- Do 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 set forth in the each catalog, please contact us.

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

Inductors for Power Circuits

Wound Ferrite

Product compatible with RoHS directive
Halogen-free
Compatible with lead-free solders
AEC-Q200

Overview of the VLF-M-CA Series

FEATURES

- Magnetic shield type wound inductor for power circuits.
- A DC-DC converter with top-class voltage conversion efficiency for similar products was achieved by optimizing the magnetic material and configuration.
- Low-profile product lineup with max. heights of 1.0mm, 1.2mm, and 1.5mm allowing for different usages.
- High magnetic shield construction and compatible with high-density mounting.
- Halogen-free compatible product.

APPLICATION

Car navigation, car stereo and car accessories only

* Not available for use related to driving, curving, stopping, and the other safety.

PART NUMBER CONSTRUCTION

VLF 252010 M T - R47 N - CA

Series name: VLF

L×W×H Dimensions (mm max.)

252010	2.5×2.0×1.0
252012	2.5×2.0×1.2
252015	2.5×2.0×1.5
302510	3.0×2.5×1.0
302512	3.0×2.5×1.2
302515	3.0×2.5×1.5
403210	4.0×3.2×1.0
403212	4.0×3.2×1.2
403215	4.0×3.2×1.5
504010	5.0×4.0×1.0
504012	5.0×4.0×1.2
504015	5.0×4.0×1.5

internal code: M

Packaging style

T	Taping

Inductance (µH)

R47	0.47
1R5	1.5
220	22

Inductance tolerance

M	±20%
N	±30%

Internal code: CA

OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

Type	Temperature range		Package quantity	Individual weight
	Operating temperature*	Storage temperature**		
	(°C)	(°C)	(pieces/reel)	(g)
VLF252010MT-CA	–40 to +105	–40 to +105	2000	0.017
VLF252012MT-CA	–40 to +105	–40 to +105	2000	0.021
VLF252015MT-CA	–40 to +105	–40 to +105	2000	0.027
VLF302510MT-CA	–40 to +105	–40 to +105	2000	0.026
VLF302512MT-CA	–40 to +105	–40 to +105	2000	0.033
VLF302515MT-CA	–40 to +105	–40 to +105	2000	0.041
VLF403210MT-CA	–40 to +105	–40 to +105	1000	0.048
VLF403212MT-CA	–40 to +105	–40 to +105	1000	0.059
VLF403215MT-CA	–40 to +105	–40 to +105	1000	0.072
VLF504010MT-CA	–40 to +105	–40 to +105	1000	0.073
VLF504012MT-CA	–40 to +105	–40 to +105	1000	0.089
VLF504015MT-CA	–40 to +105	–40 to +105	1000	0.114

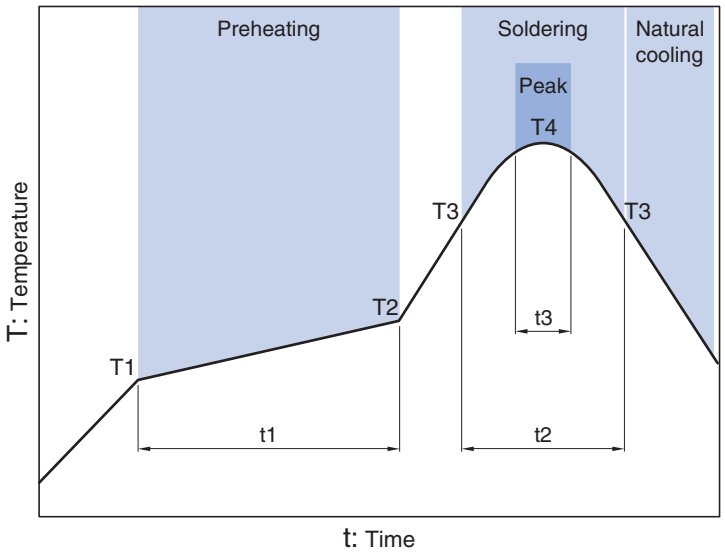
* Operating temperature range includes self-temperature rise.
** The Storage temperature range is for after the circuit board is mounted.

RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. http://www.tdk.co.jp/rohs/

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

Overview of the VLF-M-CA Series

RECOMMENDED REFLOW PROFILE

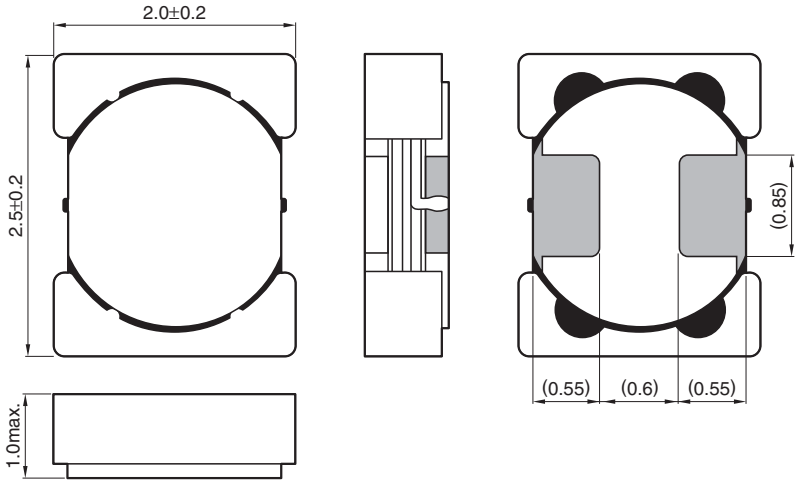


Preheating			Soldering		Peak	
Temp.		Time	Temp.	Time	Temp.	Time
T1	T2	t1	T3	t2	T4	t3
150°C	180°C	60 to 120s	230°C	30s	260°C	10s

VLF-M-CA series

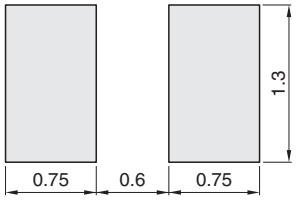
VLF252010MT-CA Type

SHAPE & DIMENSIONS



Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

VLF-M-CA series VLF252010MT-CA Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

L		Measuring frequency (MHz)	DC resistance (Ω)		Rated current(A)*			Part No.
					max.	typ.		
(μH)	Tolerance		max.	typ.	Idc1	Idc1	Idc2	
0.47	±30%	1.0	0.029	0.024	1.84	2.04	3.35	VLF252010MT-R47N-CA
0.68	±30%	1.0	0.043	0.036	1.53	1.70	2.70	VLF252010MT-R68N-CA
1.0	±30%	1.0	0.059	0.049	1.27	1.41	2.25	VLF252010MT-1R0N-CA
1.5	±30%	1.0	0.090	0.075	0.99	1.10	1.83	VLF252010MT-1R5N-CA
2.2	±20%	1.0	0.12	0.10	0.83	0.92	1.47	VLF252010MT-2R2M-CA
3.3	±20%	1.0	0.19	0.16	0.68	0.75	1.15	VLF252010MT-3R3M-CA
4.7	±20%	1.0	0.30	0.25	0.57	0.64	0.95	VLF252010MT-4R7M-CA
6.8	±20%	1.0	0.36	0.30	0.47	0.53	0.85	VLF252010MT-6R8M-CA
10.0	±20%	1.0	0.59	0.49	0.39	0.44	0.66	VLF252010MT-100M-CA
15.0	±20%	1.0	0.87	0.73	0.31	0.34	0.53	VLF252010MT-150M-CA
22.0	±20%	1.0	1.26	1.05	0.26	0.29	0.45	VLF252010MT-220M-CA

* Rated current: smaller value of either Idc1 or Idc2.
Idc1: When based on the inductance change rate (30% below the nominal value)
Idc2: When based on the temperature increase (Temperature increase of 40°C by self heating)

○ Measurement equipment

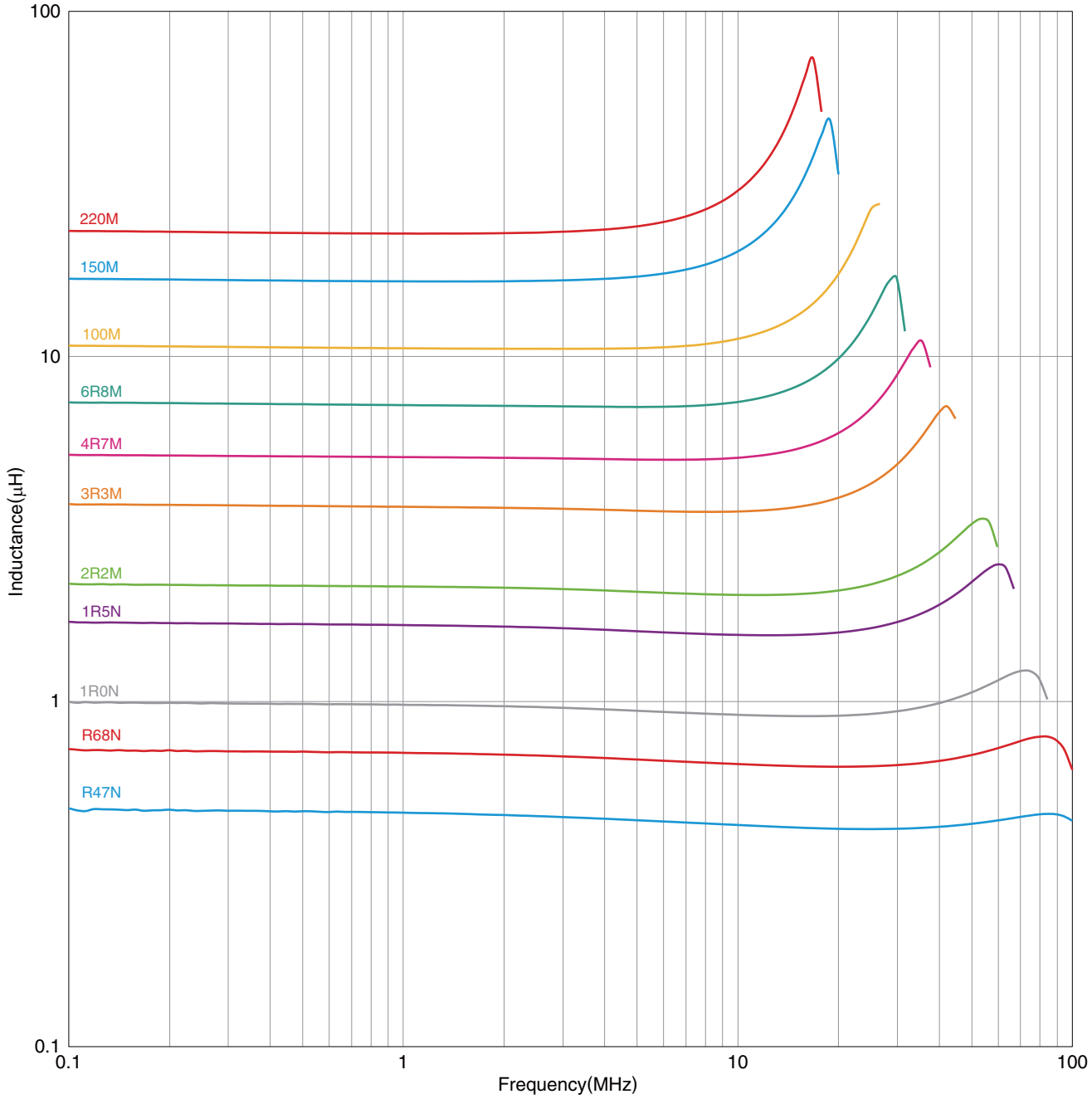
Measurement item	Product No.	Manufacturer
L	4294A	Agilent Technologies
DC resistance	VP-2941A	Panasonic
Rated current Idc1	4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF252010MT-CA Type

■ELECTRICAL CHARACTERISTICS

□L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

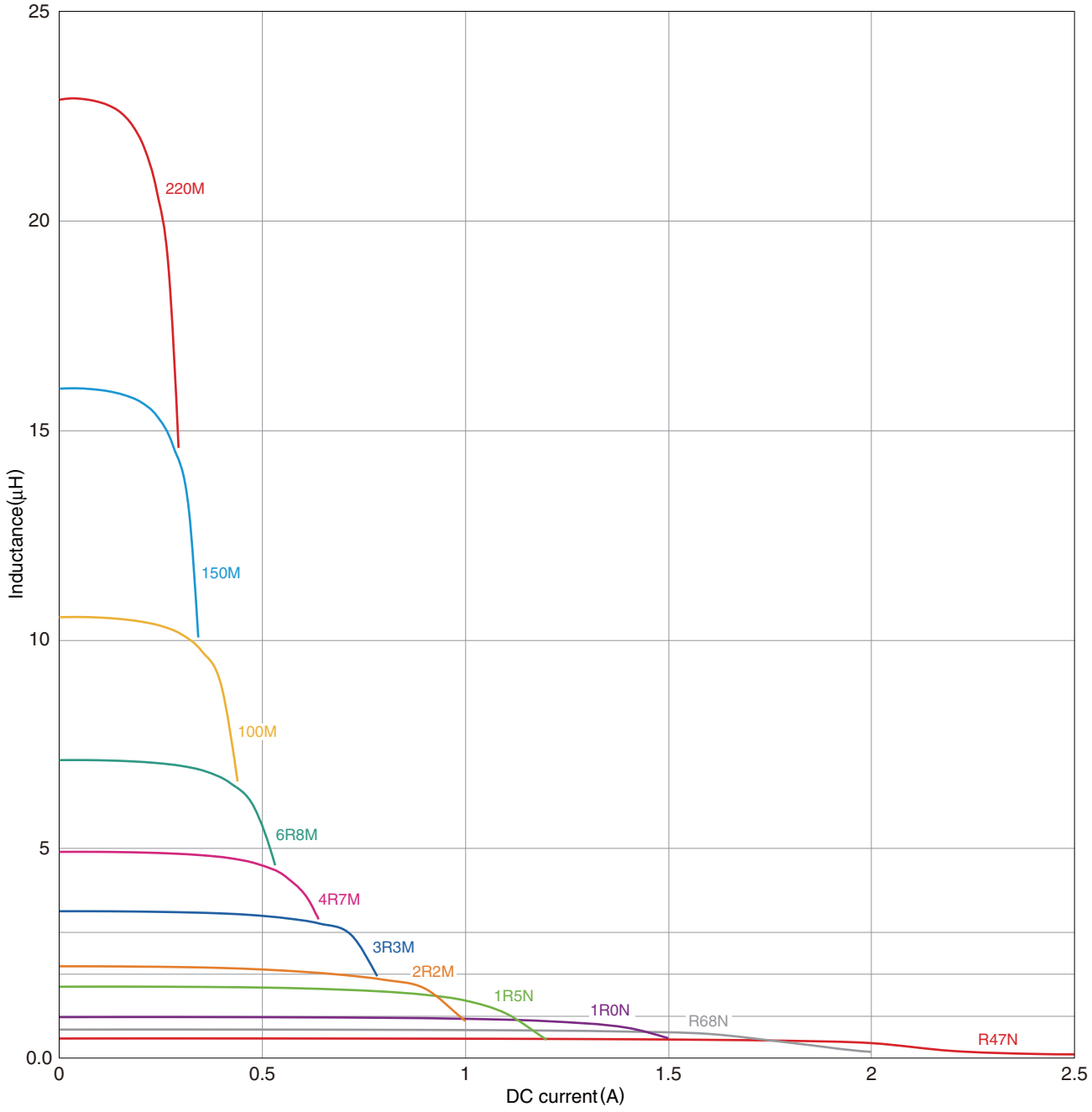
Product No.	Manufacturer
4294A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF252010MT-CA Type

■ELECTRICAL CHARACTERISTICS

□INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



○ Measurement equipment

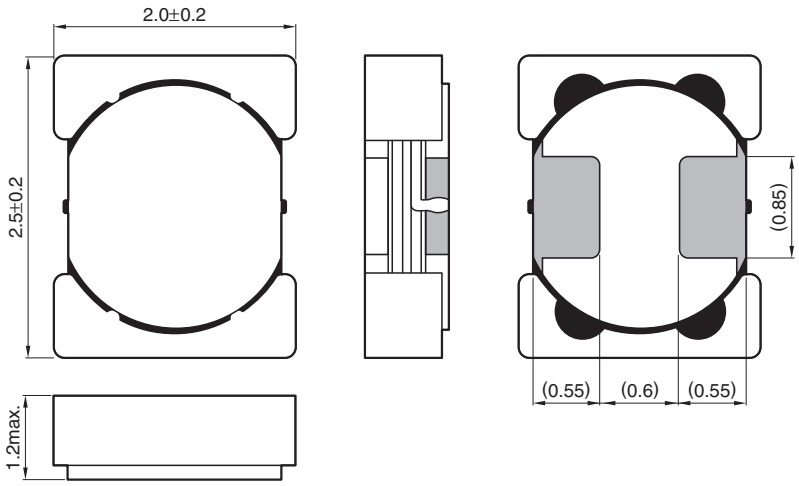
Product No.	Manufacturer
4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series

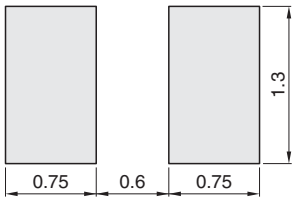
VLF252012MT-CA Type

SHAPE & DIMENSIONS



Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

VLF-M-CA series VLF252012MT-CA Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

L		Measuring frequency (MHz)	DC resistance (Ω)		Rated current(A)*			Part No.
					max.	typ.		
(μH)	tolerance		max.	typ.	Idc1	Idc1	Idc2	
0.47	±30%	1.0	0.029	0.024	1.89	2.10	3.45	VLF252012MT-R47N-CA
0.68	±30%	1.0	0.038	0.032	1.55	1.72	3.04	VLF252012MT-R68N-CA
1.0	±30%	1.0	0.052	0.043	1.30	1.44	2.47	VLF252012MT-1R0N-CA
1.5	±30%	1.0	0.069	0.057	1.10	1.22	2.17	VLF252012MT-1R5N-CA
2.2	±20%	1.0	0.10	0.09	0.94	1.04	1.67	VLF252012MT-2R2M-CA
3.3	±20%	1.0	0.15	0.13	0.70	0.78	1.39	VLF252012MT-3R3M-CA
4.7	±20%	1.0	0.22	0.18	0.62	0.69	1.09	VLF252012MT-4R7M-CA
6.8	±20%	1.0	0.34	0.28	0.504	0.56	0.89	VLF252012MT-6R8M-CA
10.0	±20%	1.0	0.41	0.34	0.41	0.46	0.78	VLF252012MT-100M-CA
15.0	±20%	1.0	0.68	0.57	0.33	0.37	0.63	VLF252012MT-150M-CA
22.0	±20%	1.0	1.00	0.83	0.28	0.31	0.46	VLF252012MT-220M-CA

* Rated current: smaller value of either Idc1 or Idc2.
Idc1: When based on the inductance change rate (30% below the nominal value)
Idc2: When based on the temperature increase (Temperature increase of 40°C by self heating)

○ Measurement equipment

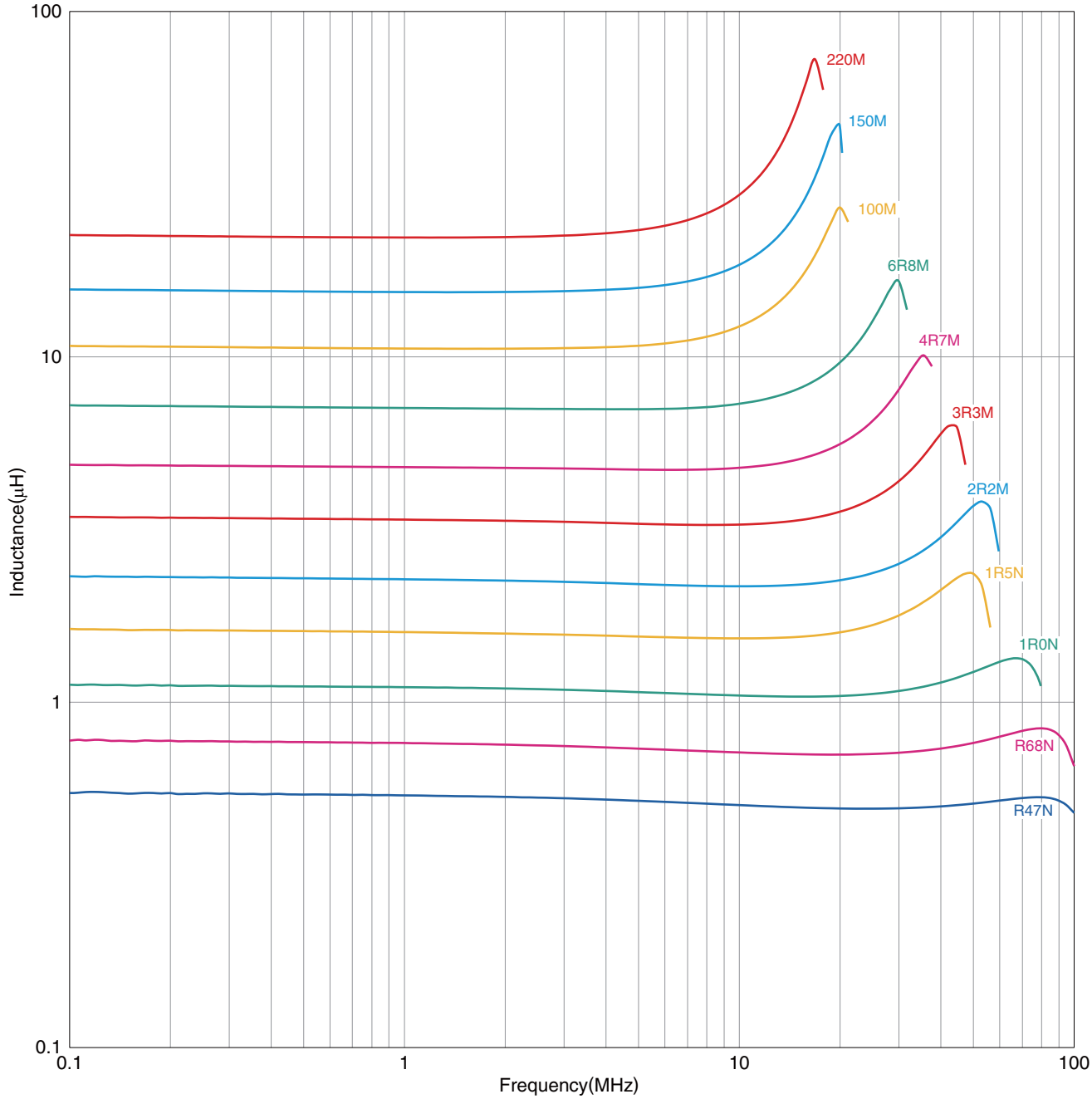
Measurement item	Product No.	Manufacturer
L	4294A	Agilent Technologies
DC resistance	VP-2941A	Panasonic
Rated current Idc1	4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF252012MT-CA Type

■ELECTRICAL CHARACTERISTICS

□L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

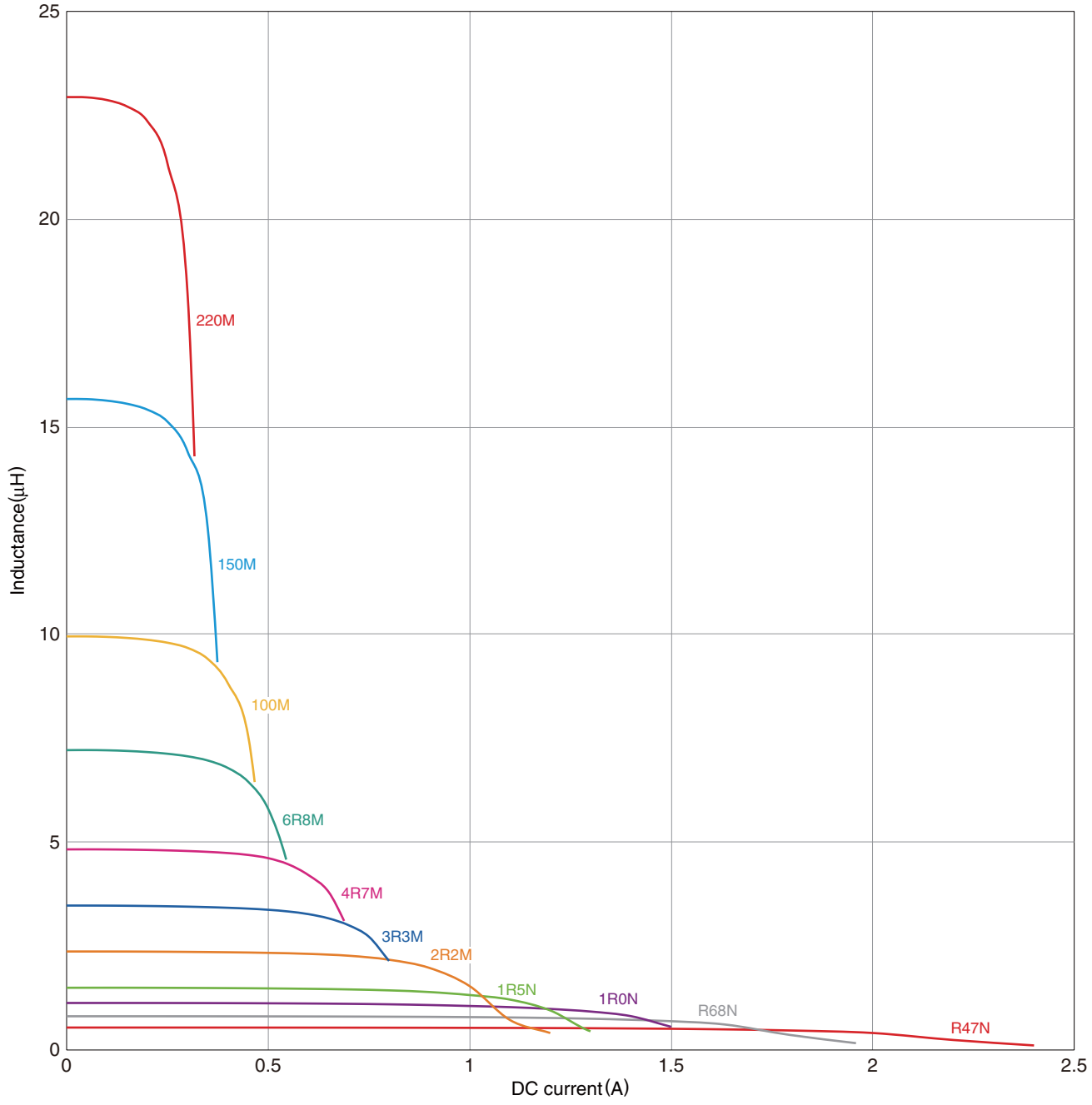
Product No.	Manufacturer
4294A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF252012MT-CA Type

■ELECTRICAL CHARACTERISTICS

□INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



○ Measurement equipment

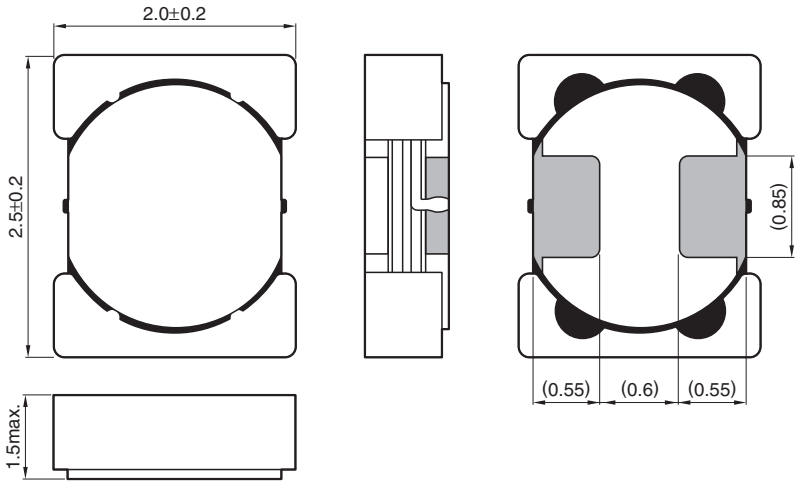
Product No.	Manufacturer
4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series

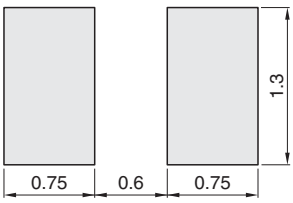
VLF252015MT-CA Type

SHAPE & DIMENSIONS



Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

VLF-M-CA series VLF252015MT-CA Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

L		Measuring frequency (MHz)	DC resistance (Ω)		Rated current(A)*			Part No.
					max.	typ.		
(μH)	Tolerance		max.	typ.	Idc1	Idc1	Idc2	
0.47	±30%	1.0	0.016	0.013	1.85	2.06	4.03	VLF252015MT-R47N-CA
0.68	±30%	1.0	0.023	0.019	1.54	1.71	3.38	VLF252015MT-R68N-CA
1.0	±30%	1.0	0.030	0.025	1.34	1.49	3.13	VLF252015MT-1R0N-CA
1.5	±30%	1.0	0.039	0.033	1.02	1.13	2.58	VLF252015MT-1R5N-CA
2.2	±20%	1.0	0.07	0.06	0.87	0.97	2.10	VLF252015MT-2R2M-CA
3.3	±20%	1.0	0.10	0.080	0.71	0.79	1.70	VLF252015MT-3R3M-CA
4.7	±20%	1.0	0.12	0.10	0.59	0.66	1.45	VLF252015MT-4R7M-CA
6.8	±20%	1.0	0.19	0.16	0.52	0.57	1.14	VLF252015MT-6R8M-CA
10.0	±20%	1.0	0.28	0.24	0.42	0.47	0.94	VLF252015MT-100M-CA
15.0	±20%	1.0	0.45	0.37	0.34	0.37	0.77	VLF252015MT-150M-CA
22.0	±20%	1.0	0.73	0.61	0.28	0.31	0.58	VLF252015MT-220M-CA

* Rated current: smaller value of either Idc1 or Idc2.
Idc1: When based on the inductance change rate (30% below the nominal value)
Idc2: When based on the temperature increase (Temperature increase of 40°C by self heating)

○ Measurement equipment

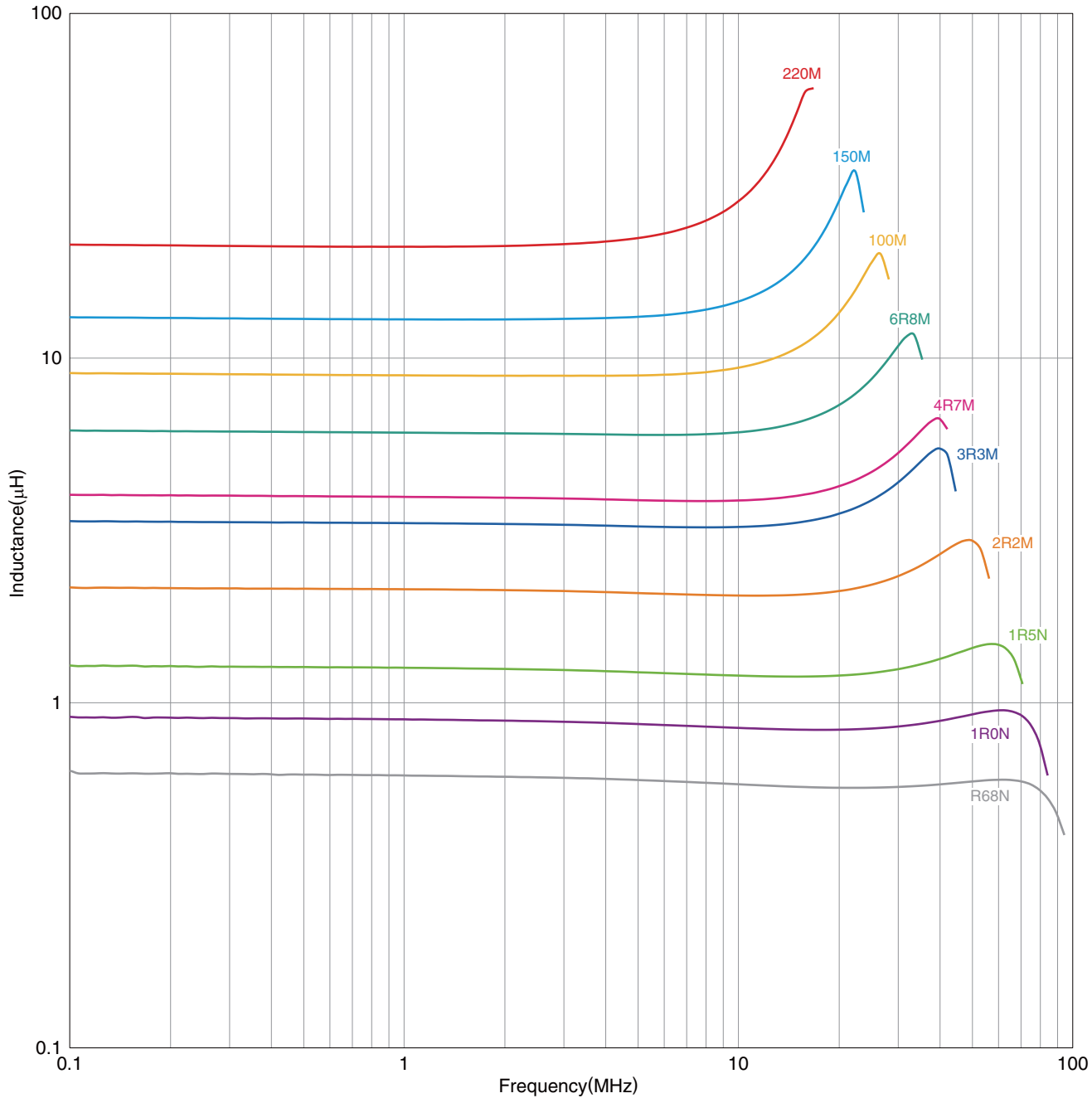
Measurement item	Product No.	Manufacturer
L	4294A	Agilent Technologies
DC resistance	VP-2941A	Panasonic
Rated current Idc1	4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF252015MT-CA Type

■ELECTRICAL CHARACTERISTICS

□L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

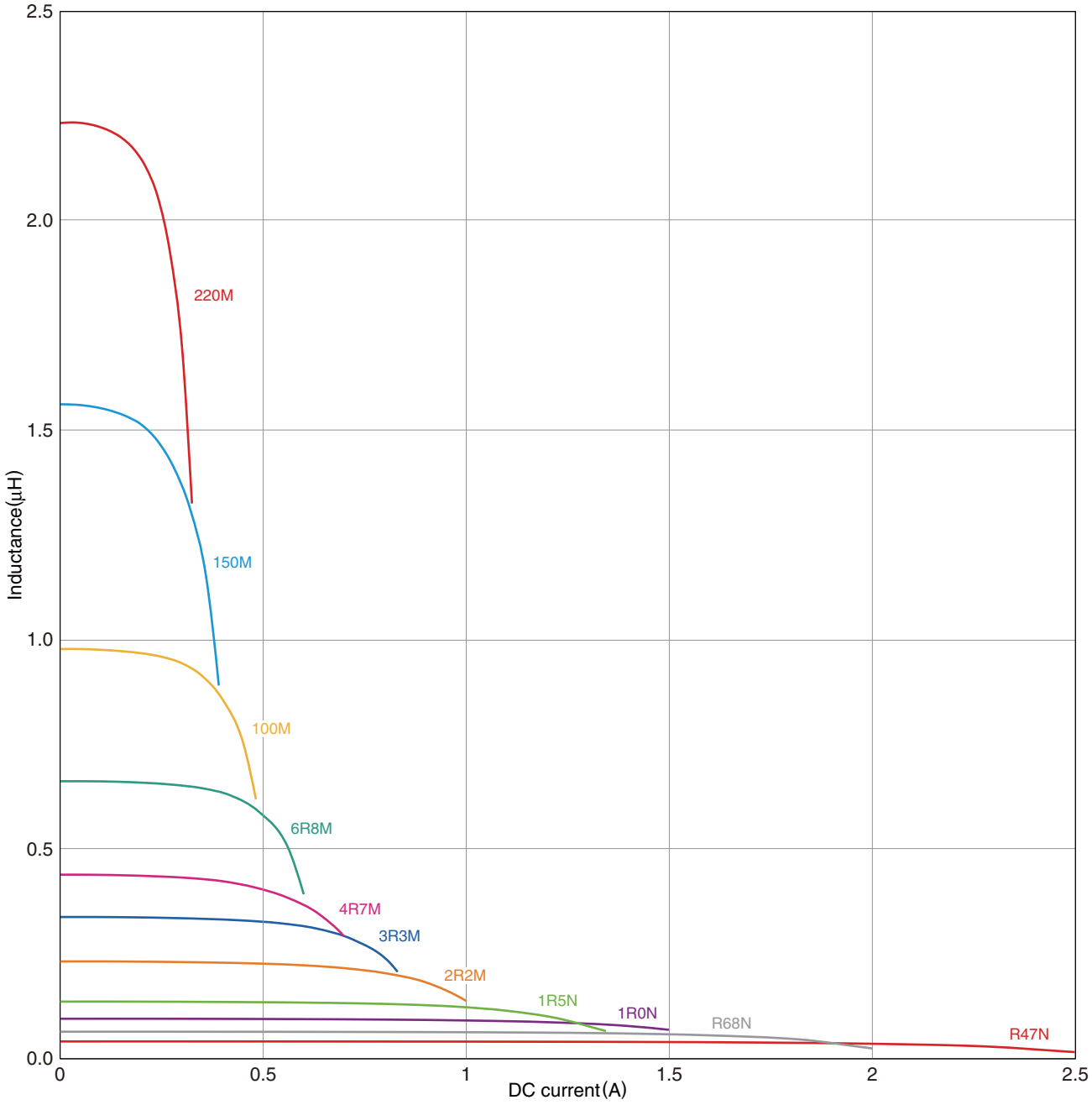
Product No.	Manufacturer
4294A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF252015MT-CA Type

■ELECTRICAL CHARACTERISTICS

□INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



○ Measurement equipment

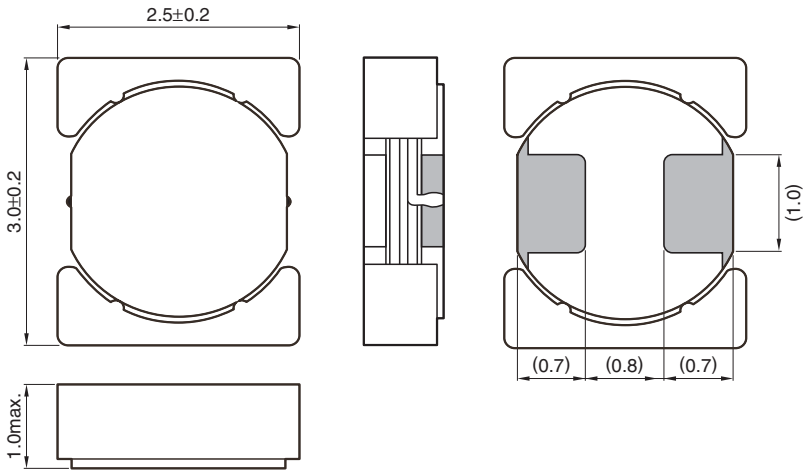
Product No.	Manufacturer
4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series

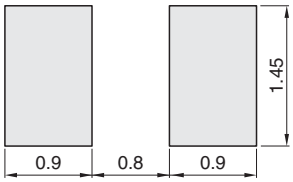
VLF302510MT-CA Type

SHAPE & DIMENSIONS



Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

VLF-M-CA series VLF302510MT-CA Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

L		Measuring frequency (MHz)	DC resistance (Ω)		Rated current(A)*			Part No.
					max.	typ.		
(μH)	Tolerance		max.	typ.	Idc1	Idc1	Idc2	
1.0	±30%	1.0	0.040	0.033	2.00	2.22	2.13	VLF302510MT-1R0N-CA
1.5	±30%	1.0	0.066	0.055	1.49	1.65	1.65	VLF302510MT-1R5N-CA
2.2	±20%	1.0	0.084	0.070	1.23	1.37	1.50	VLF302510MT-2R2M-CA
3.3	±20%	1.0	0.126	0.105	1.09	1.21	1.20	VLF302510MT-3R3M-CA
4.7	±20%	1.0	0.168	0.140	0.86	0.95	1.08	VLF302510MT-4R7M-CA
6.8	±20%	1.0	0.258	0.215	0.73	0.81	0.84	VLF302510MT-6R8M-CA
10	±20%	1.0	0.372	0.310	0.59	0.65	0.73	VLF302510MT-100M-CA
15	±20%	1.0	0.600	0.500	0.47	0.52	0.55	VLF302510MT-150M-CA
22	±20%	1.0	0.876	0.730	0.38	0.42	0.45	VLF302510MT-220M-CA

* Rated current: smaller value of either Idc1 or Idc2.
Idc1: When based on the inductance change rate (30% below the nominal value)
Idc2: When based on the temperature increase (Temperature increase of 40°C by self heating)

○ Measurement equipment

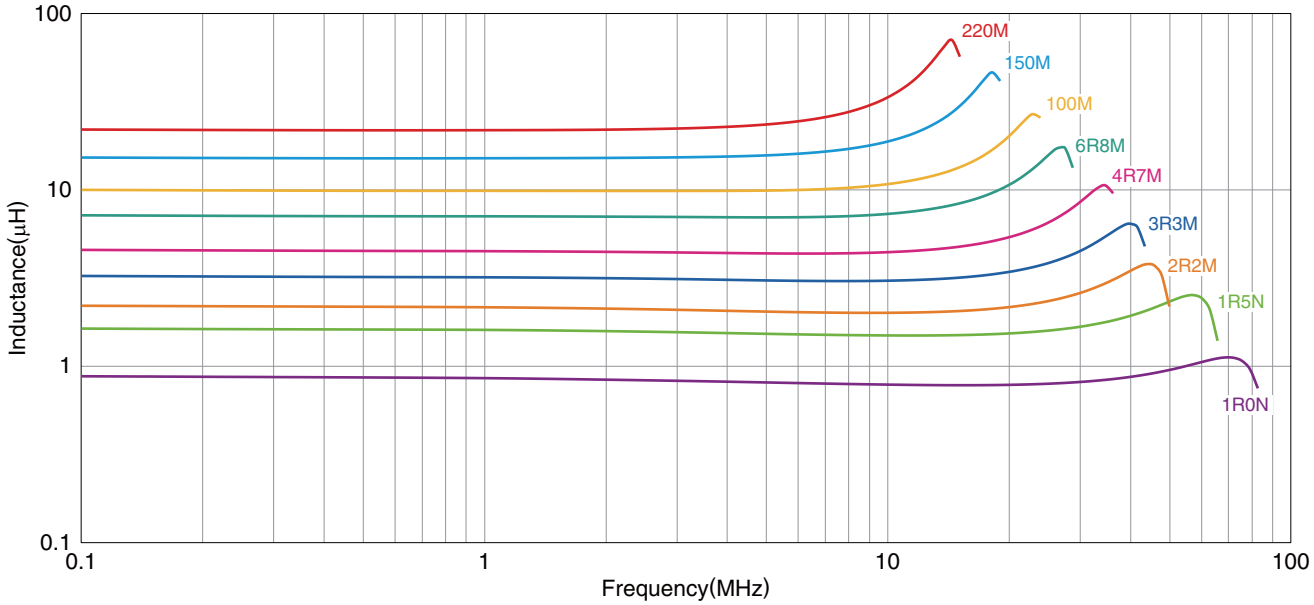
Measurement item	Product No.	Manufacturer
L	4294A	Agilent Technologies
DC resistance	VP-2941A	Panasonic
Rated current Idc1	4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF302510MT-CA Type

■ELECTRICAL CHARACTERISTICS

□L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

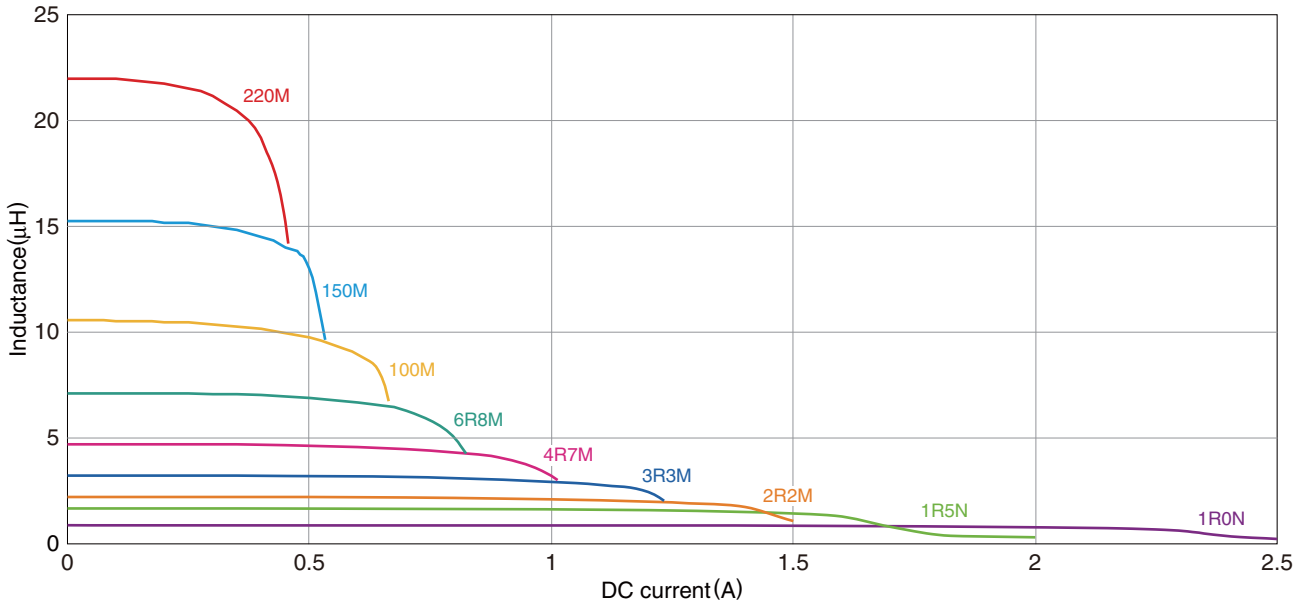
Product No.	Manufacturer
4294A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF302510MT-CA Type

■ELECTRICAL CHARACTERISTICS

□INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



○ Measurement equipment

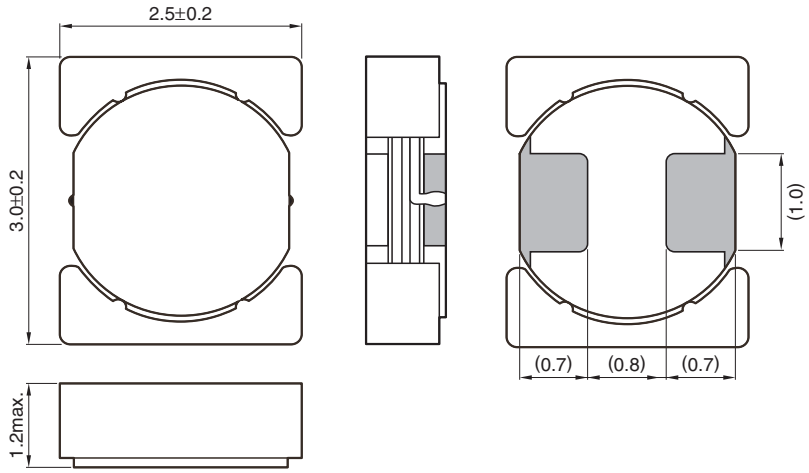
Product No.	Manufacturer
4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series

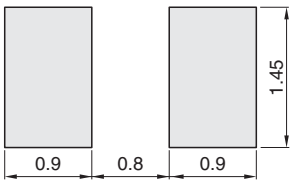
VLF302512MT-CA Type

SHAPE & DIMENSIONS



Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

VLF-M-CA series VLF302512MT-CA Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

L		Measuring frequency (MHz)	DC resistance (Ω)		Rated current(A)*			Part No.
					max.	typ.		
(μH)	tolerance		max.	typ.	Idc1	Idc1	Idc2	
1.0	±30%	1.0	0.037	0.031	1.91	2.12	2.77	VLF302512MT-1R0N-CA
1.5	±30%	1.0	0.044	0.037	1.67	1.85	2.54	VLF302512MT-1R5N-CA
2.2	±20%	1.0	0.066	0.055	1.26	1.40	1.95	VLF302512MT-2R2M-CA
3.3	±20%	1.0	0.108	0.090	1.08	1.20	1.63	VLF302512MT-3R3M-CA
4.7	±20%	1.0	0.136	0.113	0.97	1.08	1.42	VLF302512MT-4R7M-CA
6.8	±20%	1.0	0.194	0.162	0.78	0.84	1.21	VLF302512MT-6R8M-CA
10	±20%	1.0	0.299	0.249	0.62	0.69	0.95	VLF302512MT-100M-CA
15	±20%	1.0	0.448	0.373	0.51	0.57	0.80	VLF302512MT-150M-CA
22	±20%	1.0	0.700	0.583	0.43	0.47	0.64	VLF302512MT-220M-CA

* Rated current: smaller value of either Idc1 or Idc2.
Idc1: When based on the inductance change rate (30% below the nominal value)
Idc2: When based on the temperature increase (Temperature increase of 40°C by self heating)

○ Measurement equipment

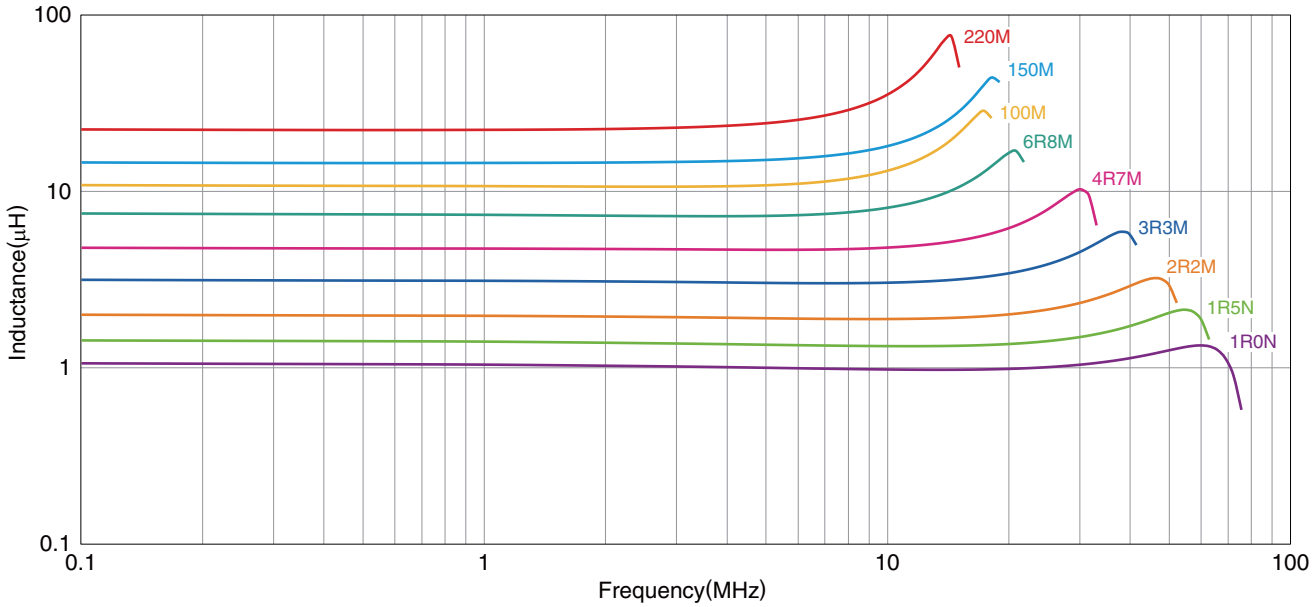
Measurement item	Product No.	Manufacturer
L	4294A	Agilent Technologies
DC resistance	VP-2941A	Panasonic
Rated current Idc1	4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF302512MT-CA Type

■ELECTRICAL CHARACTERISTICS

□L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

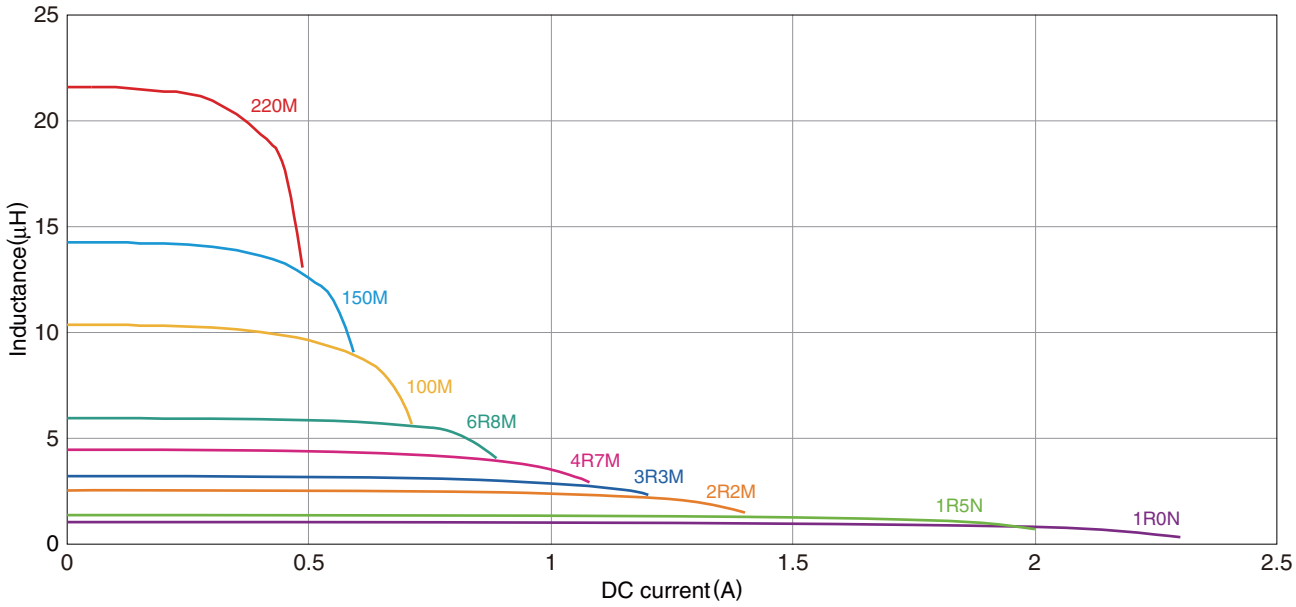
Product No.	Manufacturer
4294A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF302512MT-CA Type

■ELECTRICAL CHARACTERISTICS

□INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



○ Measurement equipment

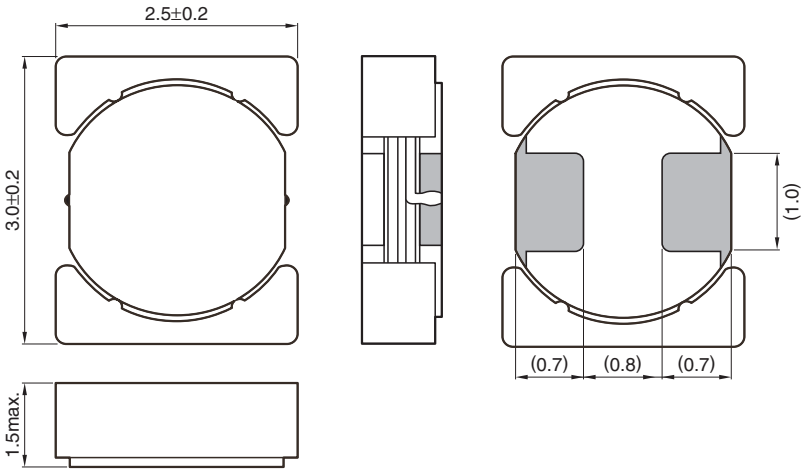
Product No.	Manufacturer
4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series

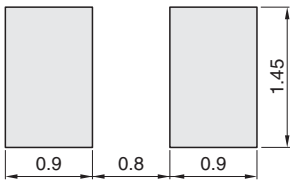
VLF302515MT-CA Type

SHAPE & DIMENSIONS



Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

VLF-M-CA series VLF302515MT-CA Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

L		Measuring frequency (MHz)	DC resistance (Ω)		Rated current(A)*			Part No.
					max.	typ.		
(μH)	Tolerance		max.	typ.	Idc1	Idc1	Idc2	
0.47	±30%	1.0	0.020	0.017	2.88	3.18	4.00	VLF302515MT-R47N-CA
1.0	±30%	1.0	0.030	0.025	1.94	2.15	3.31	VLF302515MT-1R0N-CA
1.5	±30%	1.0	0.038	0.032	1.66	1.84	3.14	VLF302515MT-1R5N-CA
2.2	±20%	1.0	0.050	0.042	1.41	1.57	2.71	VLF302515MT-2R2M-CA
3.3	±20%	1.0	0.072	0.060	1.11	1.23	2.25	VLF302515MT-3R3M-CA
4.7	±20%	1.0	0.090	0.075	0.93	1.03	1.95	VLF302515MT-4R7M-CA
6.8	±20%	1.0	0.16	0.13	0.77	0.86	1.45	VLF302515MT-6R8M-CA
10.0	±20%	1.0	0.18	0.15	0.64	0.71	1.37	VLF302515MT-100M-CA
15.0	±20%	1.0	0.33	0.28	0.50	0.56	0.99	VLF302515MT-150M-CA
22.0	±20%	1.0	0.49	0.41	0.41	0.46	0.75	VLF302515MT-220M-CA

* Rated current: smaller value of either Idc1 or Idc2.
Idc1: When based on the inductance change rate (30% below the nominal value)
Idc2: When based on the temperature increase (Temperature increase of 40°C by self heating)

○ Measurement equipment

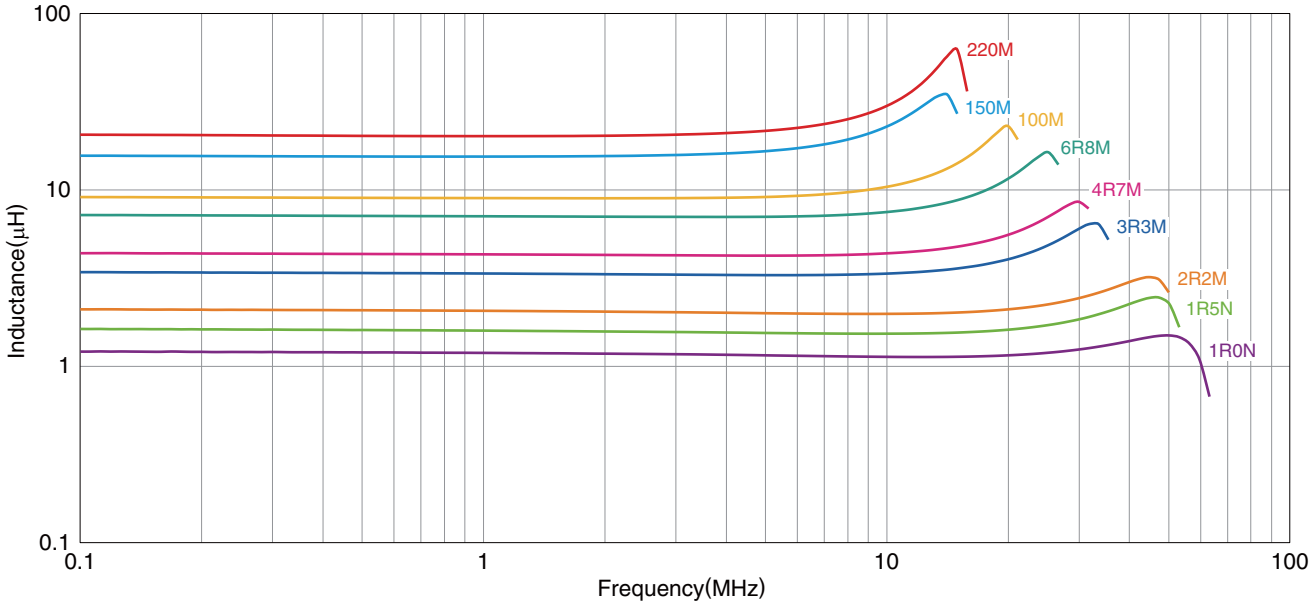
Measurement item	Product No.	Manufacturer
L	4294A	Agilent Technologies
DC resistance	VP-2941A	Panasonic
Rated current Idc1	4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF302515MT-CA Type

■ELECTRICAL CHARACTERISTICS

□L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

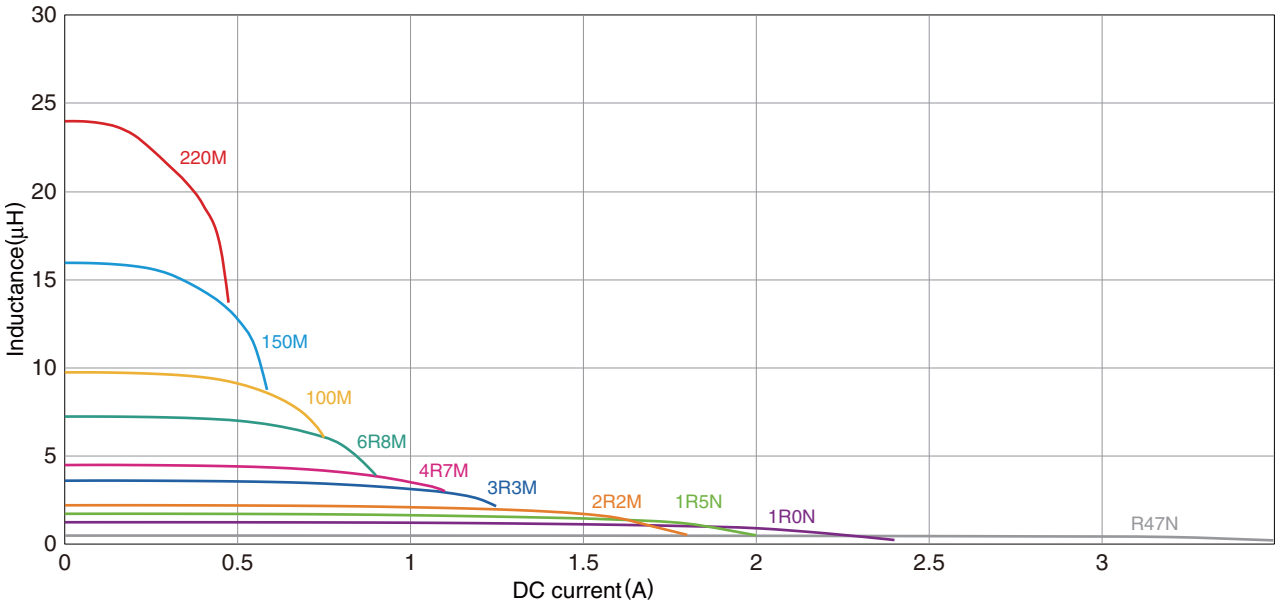
Product No.	Manufacturer
4294A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF302515MT-CA Type

■ELECTRICAL CHARACTERISTICS

□INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



○ Measurement equipment

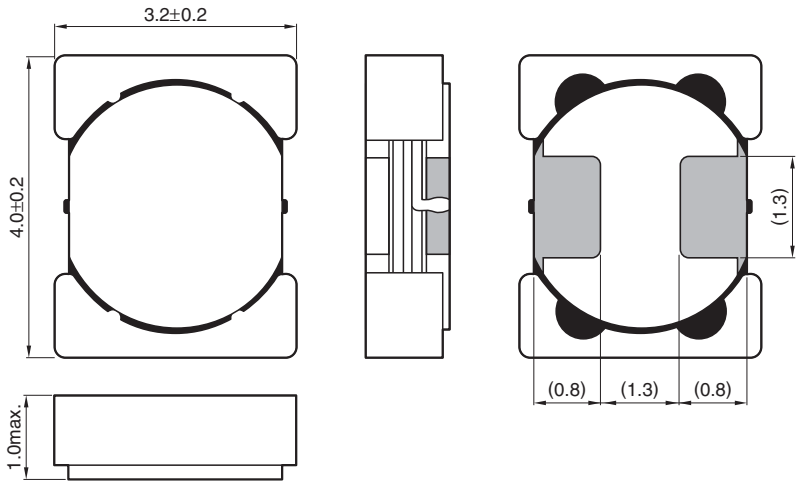
Product No.	Manufacturer
4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series

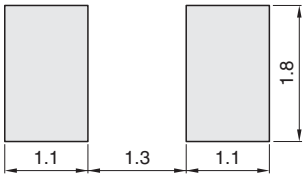
VLF403210MT-CA Type

SHAPE & DIMENSIONS



Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

VLF-M-CA series VLF403210MT-CA Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

L		Measuring frequency (MHz)	DC resistance (Ω)		Rated current(A)*			Part No.
					max.	typ.		
(μH)	tolerance		max.	typ.	Idc1	Idc1	Idc2	
1.0	±30%	1.0	0.032	0.026	2.23	2.48	3.44	VLF403210MT-1R0N-CA
1.5	±30%	1.0	0.043	0.036	1.85	2.06	2.96	VLF403210MT-1R5N-CA
2.2	±20%	1.0	0.066	0.055	1.59	1.77	2.33	VLF403210MT-2R2M-CA
3.3	±20%	1.0	0.098	0.082	1.19	1.32	1.95	VLF403210MT-3R3M-CA
4.7	±20%	1.0	0.14	0.12	1.09	1.21	1.61	VLF403210MT-4R7M-CA
6.8	±20%	1.0	0.22	0.18	0.84	0.93	1.24	VLF403210MT-6R8M-CA
10.0	±20%	1.0	0.31	0.26	0.70	0.78	1.04	VLF403210MT-100M-CA
15.0	±20%	1.0	0.49	0.40	0.59	0.66	0.83	VLF403210MT-150M-CA
22.0	±20%	1.0	0.72	0.60	0.46	0.51	0.68	VLF403210MT-220M-CA

* Rated current: smaller value of either Idc1 or Idc2.
Idc1: When based on the inductance change rate (30% below the nominal value)
Idc2: When based on the temperature increase (Temperature increase of 40°C by self heating)

○ Measurement equipment

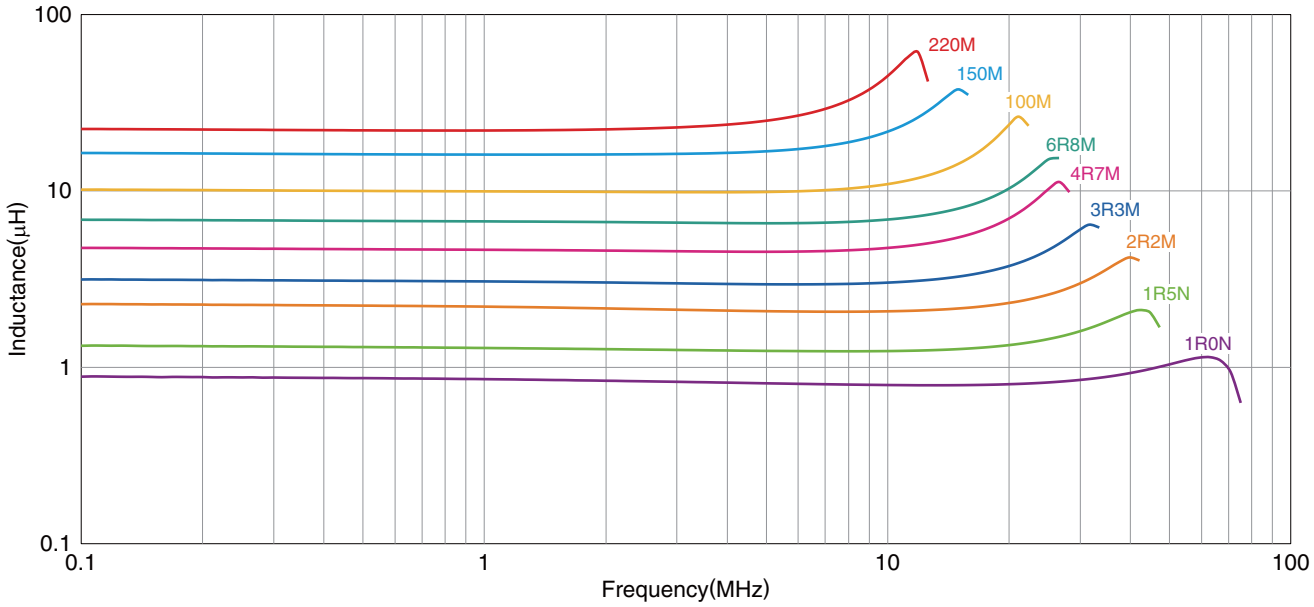
Measurement item	Product No.	Manufacturer
L	4294A	Agilent Technologies
DC resistance	VP-2941A	Panasonic
Rated current Idc1	4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF403210MT-CA Type

■ELECTRICAL CHARACTERISTICS

□L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

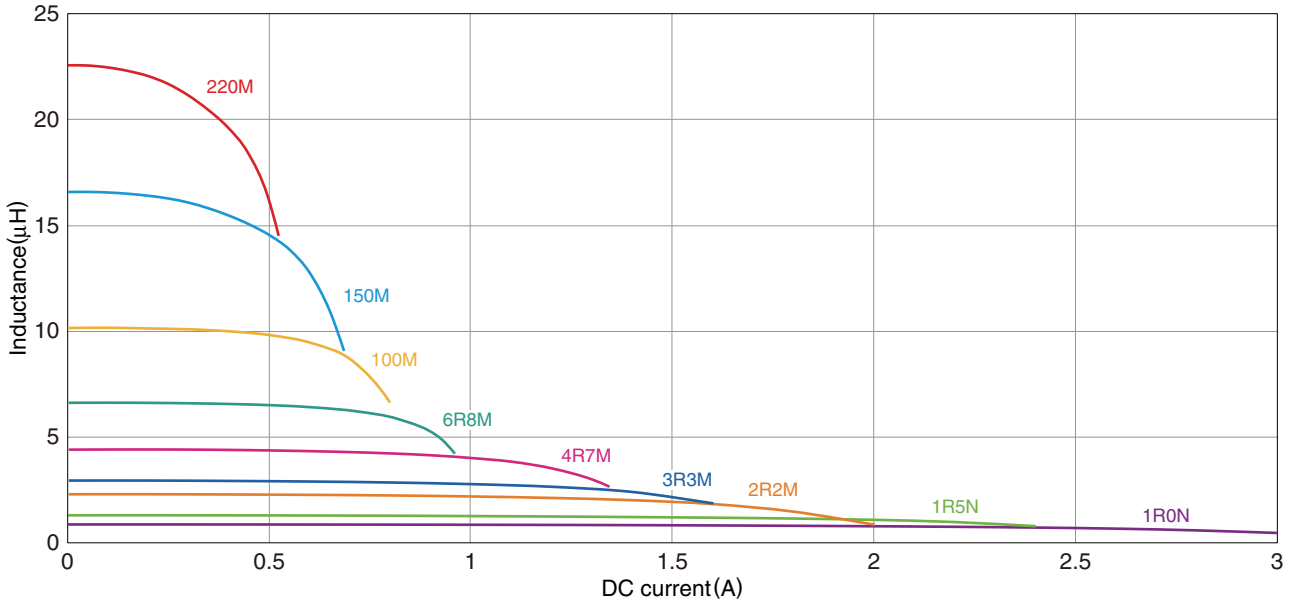
Product No.	Manufacturer
4294A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF403210MT-CA Type

■ELECTRICAL CHARACTERISTICS

□INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



○ Measurement equipment

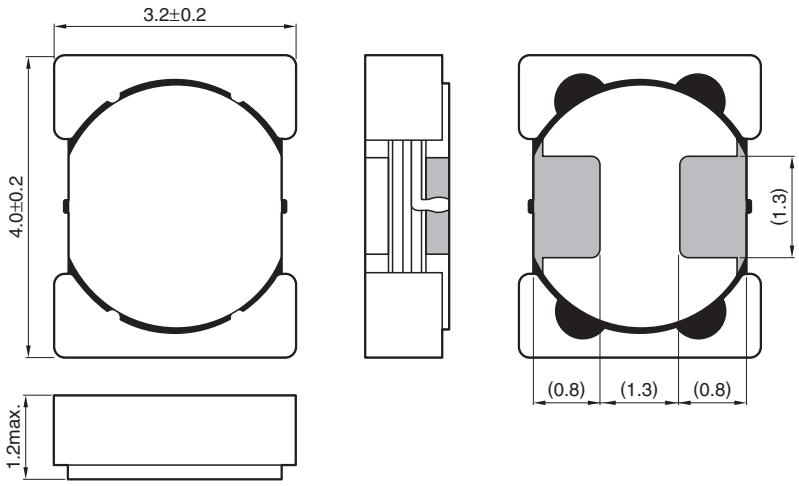
Product No.	Manufacturer
4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series

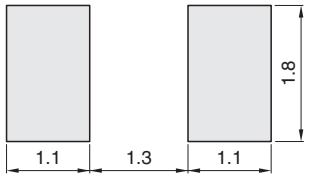
VLF403212MT-CA Type

SHAPE & DIMENSIONS



Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

VLF-M-CA series VLF403212MT-CA Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

L		Measuring frequency (MHz)	DC resistance (Ω)		Rated current(A)*			Part No.
					max.	typ.		
(μH)	tolerance		max.	typ.	Idc1	Idc1	Idc2	
1.0	±30%	1.0	0.031	0.026	3.00	3.33	3.62	VLF403212MT-1R0N-CA
1.5	±30%	1.0	0.050	0.042	2.41	2.68	2.98	VLF403212MT-1R5N-CA
2.2	±20%	1.0	0.065	0.054	2.05	2.28	2.48	VLF403212MT-2R2M-CA
3.3	±20%	1.0	0.091	0.076	1.65	1.83	1.91	VLF403212MT-3R3M-CA
4.7	±20%	1.0	0.12	0.096	1.40	1.56	1.85	VLF403212MT-4R7M-CA
6.8	±20%	1.0	0.18	0.15	1.09	1.22	1.33	VLF403212MT-6R8M-CA
10.0	±20%	1.0	0.28	0.23	0.90	1.00	1.07	VLF403212MT-100M-CA
15.0	±20%	1.0	0.42	0.35	0.74	0.82	0.87	VLF403212MT-150M-CA
22.0	±20%	1.0	0.71	0.59	0.54	0.60	0.67	VLF403212MT-220M-CA

* Rated current: smaller value of either Idc1 or Idc2.
Idc1: When based on the inductance change rate (30% below the nominal value)
Idc2: When based on the temperature increase (Temperature increase of 40°C by self heating)

○ Measurement equipment

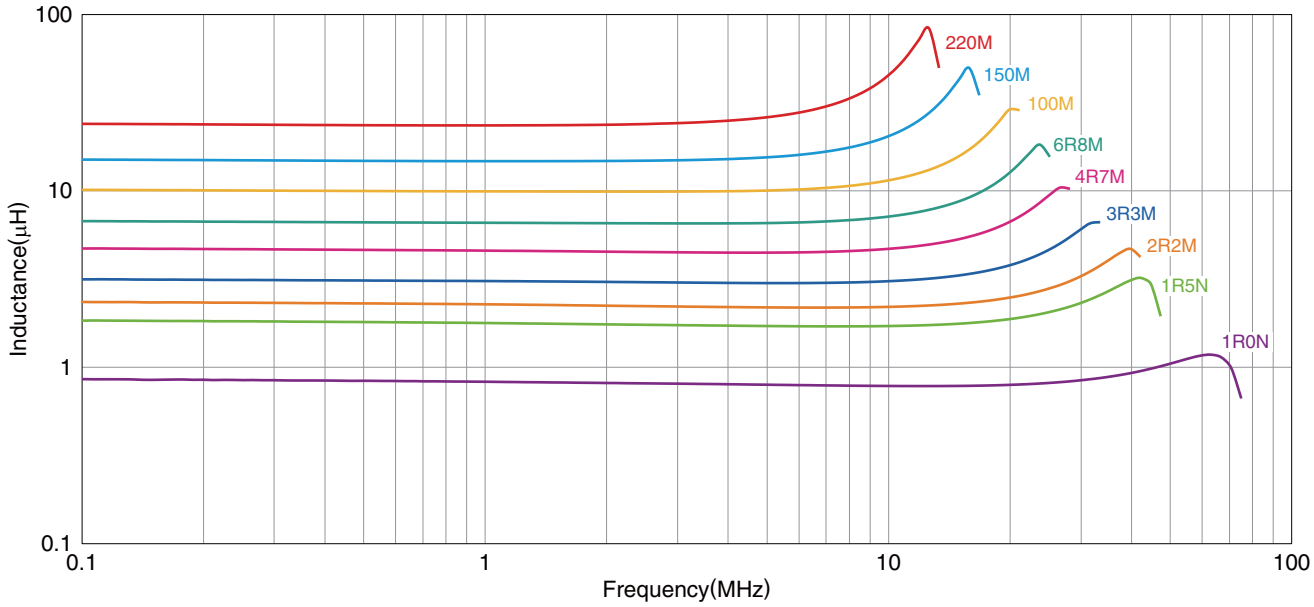
Measurement item	Product No.	Manufacturer
L	4294A	Agilent Technologies
DC resistance	VP-2941A	Panasonic
Rated current Idc1	4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF403212MT-CA Type

■ELECTRICAL CHARACTERISTICS

□L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

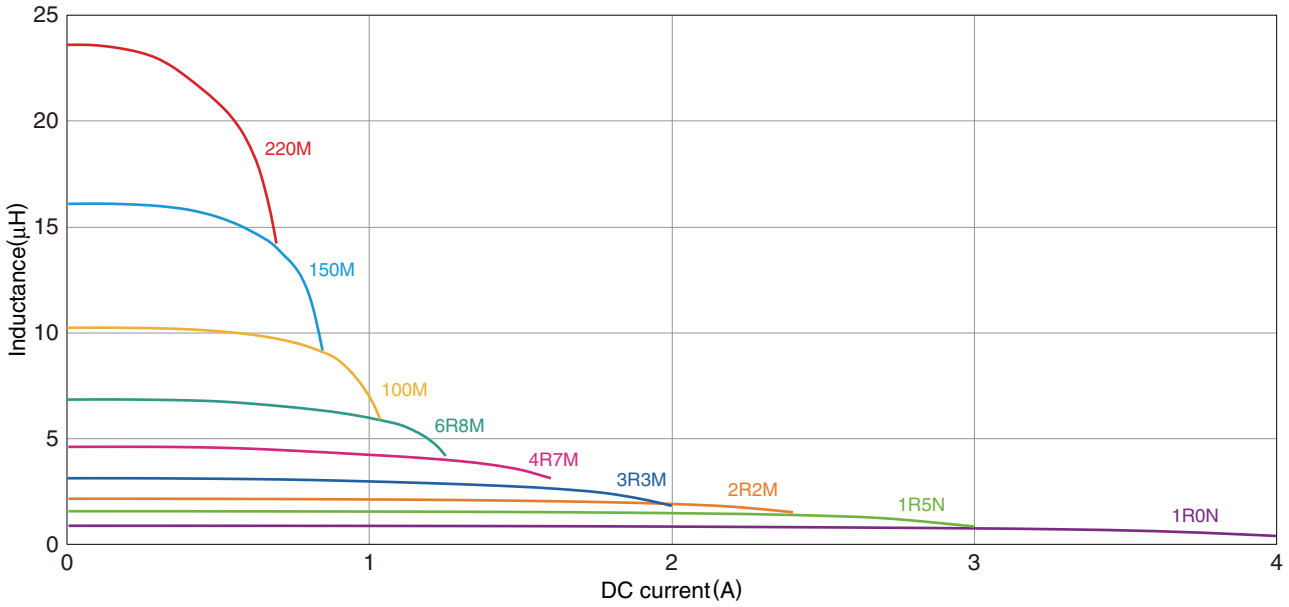
Product No.	Manufacturer
4294A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF403212MT-CA Type

■ELECTRICAL CHARACTERISTICS

□INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



○ Measurement equipment

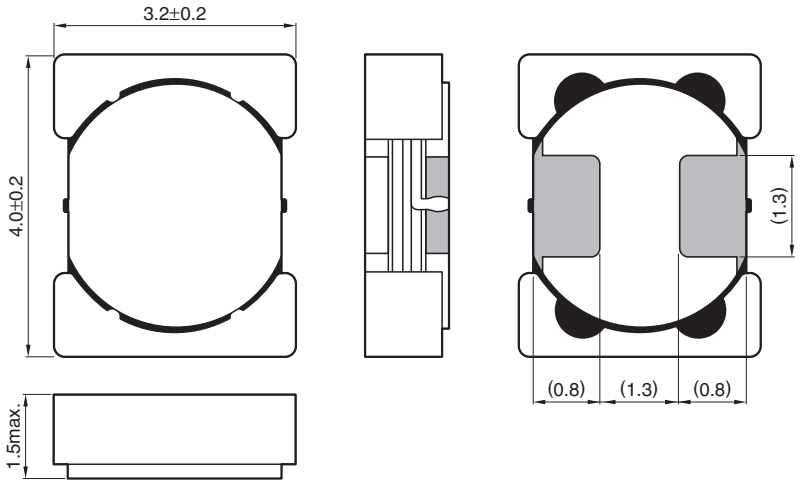
Product No.	Manufacturer
4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series

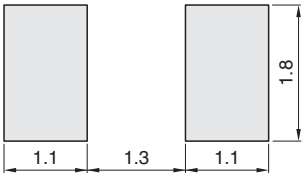
VLF403215MT-CA Type

SHAPE & DIMENSIONS



Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

VLF-M-CA series VLF403215MT-CA Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

L		Measuring frequency (MHz)	DC resistance (Ω)		Rated current(A)*			Part No.
					max.	typ.		
(μH)	Tolerance		max.	typ.	Idc1	Idc1	Idc2	
1.0	±30%	1.0	0.031	0.026	3.01	3.34	3.56	VLF403215MT-1R0N-CA
1.5	±30%	1.0	0.036	0.030	2.46	2.73	3.38	VLF403215MT-1R5N-CA
2.2	±20%	1.0	0.043	0.036	2.03	2.25	3.14	VLF403215MT-2R2M-CA
3.3	±20%	1.0	0.062	0.051	1.65	1.83	2.65	VLF403215MT-3R3M-CA
4.7	±20%	1.0	0.087	0.073	1.39	1.54	2.13	VLF403215MT-4R7M-CA
6.8	±20%	1.0	0.13	0.11	1.14	1.27	1.68	VLF403215MT-6R8M-CA
10.0	±20%	1.0	0.18	0.15	1.00	1.09	1.44	VLF403215MT-100M-CA
15.0	±20%	1.0	0.26	0.22	0.78	0.87	1.19	VLF403215MT-150M-CA
22.0	±20%	1.0	0.38	0.32	0.65	0.72	0.95	VLF403215MT-220M-CA

* Rated current: smaller value of either Idc1 or Idc2.
Idc1: When based on the inductance change rate (30% below the nominal value)
Idc2: When based on the temperature increase (Temperature increase of 40°C by self heating)

○ Measurement equipment

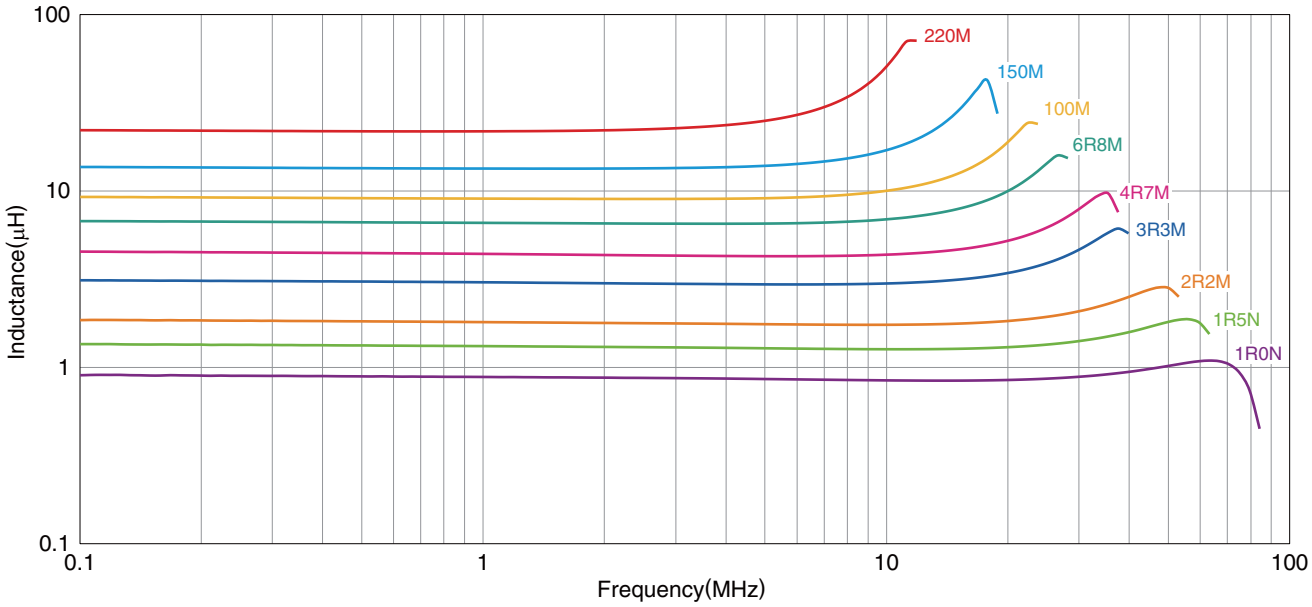
Measurement item	Product No.	Manufacturer
L	4294A	Agilent Technologies
DC resistance	VP-2941A	Panasonic
Rated current Idc1	4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF403215MT-CA Type

■ELECTRICAL CHARACTERISTICS

□L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

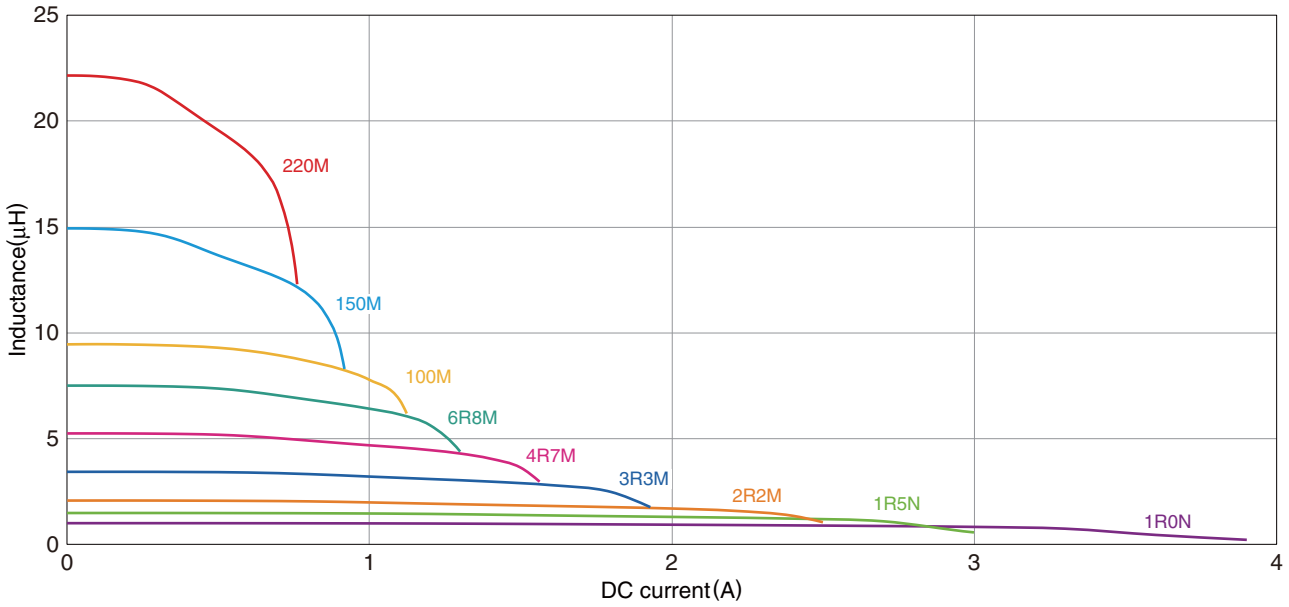
Product No.	Manufacturer
4294A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF403215MT-CA Type

■ELECTRICAL CHARACTERISTICS

□INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



○ Measurement equipment

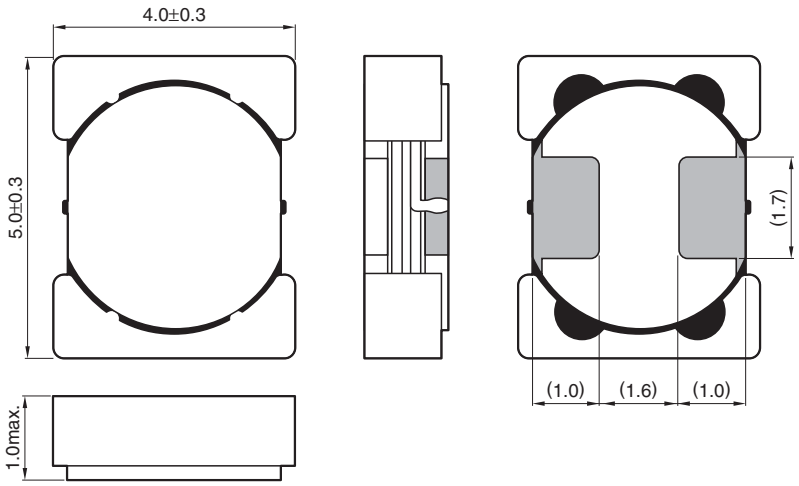
Product No.	Manufacturer
4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series

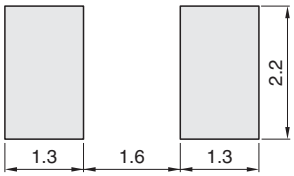
VLF504010MT-CA Type

SHAPE & DIMENSIONS



Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

VLF-M-CA series VLF504010MT-CA Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

L		Measuring frequency (MHz)	DC resistance (Ω)		Rated current(A)*			Part No.
					max.	typ.		
(μH)	tolerance		max.	typ.	Idc1	Idc1	Idc2	
0.68	±30%	1.0	0.030	0.025	3.40	3.78	3.71	VLF504010MT-R68N-CA
1.0	±30%	1.0	0.037	0.031	2.66	2.95	3.08	VLF504010MT-1R0N-CA
1.5	±30%	1.0	0.044	0.037	2.30	2.56	2.86	VLF504010MT-1R5N-CA
2.2	±20%	1.0	0.054	0.045	1.92	2.14	2.65	VLF504010MT-2R2M-CA
3.3	±20%	1.0	0.091	0.076	1.58	1.75	2.10	VLF504010MT-3R3M-CA
4.7	±20%	1.0	0.12	0.10	1.32	1.47	1.77	VLF504010MT-4R7M-CA
6.8	±20%	1.0	0.19	0.16	1.09	1.21	1.40	VLF504010MT-6R8M-CA
10.0	±20%	1.0	0.25	0.21	0.90	1.00	1.21	VLF504010MT-100M-CA
15.0	±20%	1.0	0.40	0.33	0.74	0.83	0.98	VLF504010MT-150M-CA
22.0	±20%	1.0	0.60	0.50	0.61	0.68	0.78	VLF504010MT-220M-CA

* Rated current: smaller value of either Idc1 or Idc2.
Idc1: When based on the inductance change rate (30% below the nominal value)
Idc2: When based on the temperature increase (Temperature increase of 40°C by self heating)

○ Measurement equipment

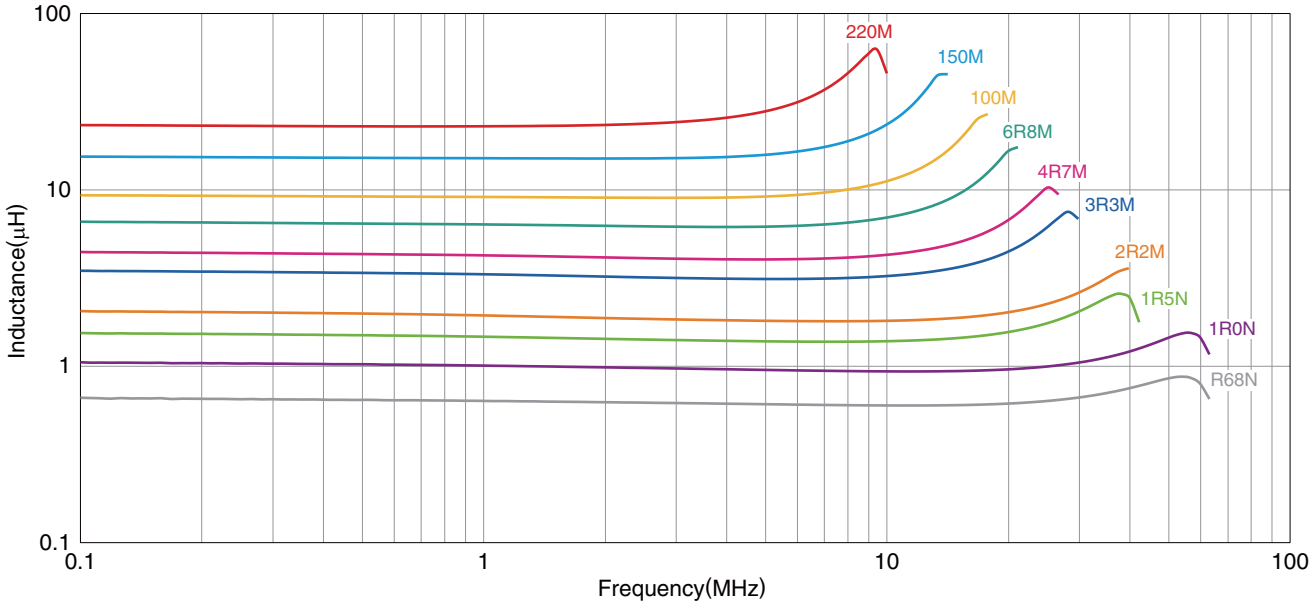
Measurement item	Product No.	Manufacturer
L	4294A	Agilent Technologies
DC resistance	VP-2941A	Panasonic
Rated current Idc1	4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF504010MT-CA Type

■ELECTRICAL CHARACTERISTICS

□L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

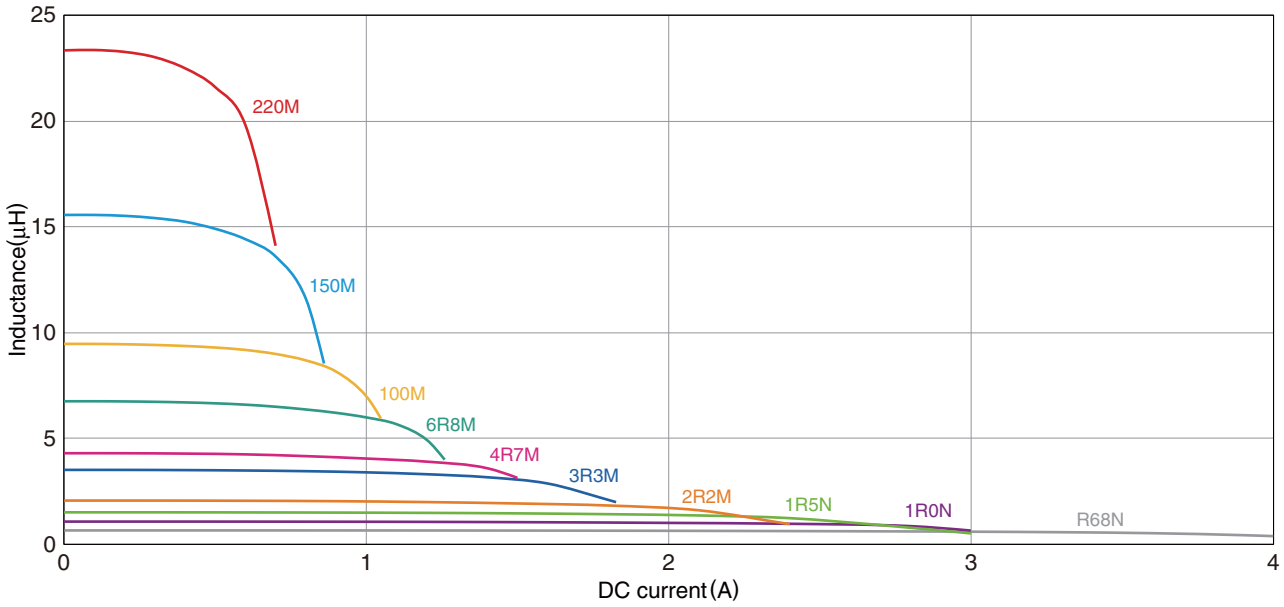
Product No.	Manufacturer
4294A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF504010MT-CA Type

■ELECTRICAL CHARACTERISTICS

□INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



○ Measurement equipment

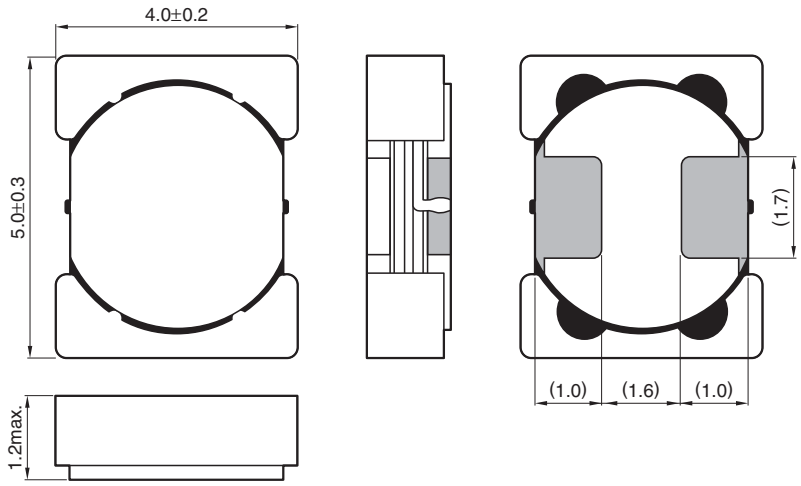
Product No.	Manufacturer
4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series

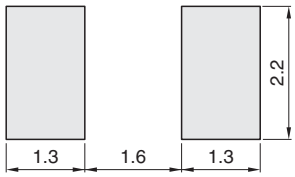
VLF504012MT-CA Type

SHAPE & DIMENSIONS



Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

VLF-M-CA series VLF504012MT-CA Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

L		Measuring frequency (MHz)	DC resistance (Ω)		Rated current(A)*			Part No.
					max.	typ.		
(μH)	Tolerance		max.	typ.	Idc1	Idc1	Idc2	
1.0	±30%	1.0	0.038	0.032	3.67	4.08	3.19	VLF504012MT-1R0N-CA
1.5	±30%	1.0	0.048	0.040	3.02	3.36	2.91	VLF504012MT-1R5N-CA
2.2	±20%	1.0	0.055	0.046	2.54	2.82	2.71	VLF504012MT-2R2M-CA
3.3	±20%	1.0	0.074	0.062	2.13	2.37	2.47	VLF504012MT-3R3M-CA
4.7	±20%	1.0	0.12	0.10	1.75	1.94	1.83	VLF504012MT-4R7M-CA
6.8	±20%	1.0	0.17	0.14	1.48	1.64	1.77	VLF504012MT-6R8M-CA
10.0	±20%	1.0	0.23	0.19	1.18	1.32	1.30	VLF504012MT-100M-CA
15.0	±20%	1.0	0.32	0.27	1.01	1.12	1.08	VLF504012MT-150M-CA
22.0	±20%	1.0	0.58	0.48	0.80	0.89	0.84	VLF504012MT-220M-CA

* Rated current: smaller value of either Idc1 or Idc2.
Idc1: When based on the inductance change rate (30% below the nominal value)
Idc2: When based on the temperature increase (Temperature increase of 40°C by self heating)

○ Measurement equipment

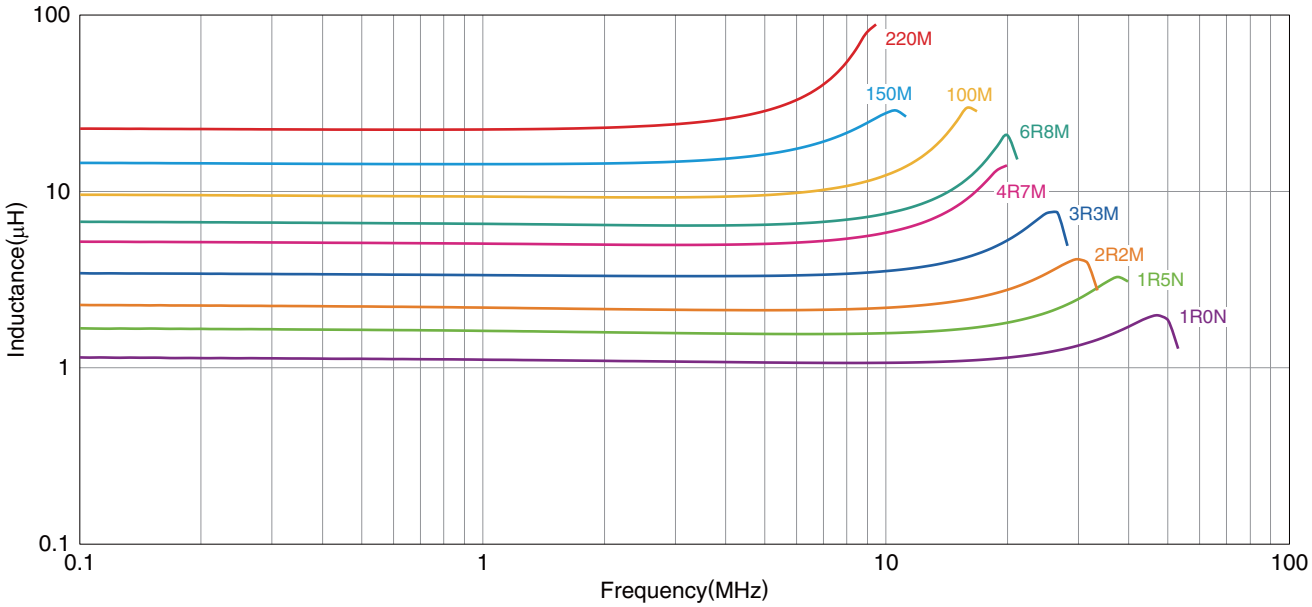
Measurement item	Product No.	Manufacturer
L	4294A	Agilent Technologies
DC resistance	VP-2941A	Panasonic
Rated current Idc1	4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF504012MT-CA Type

■ELECTRICAL CHARACTERISTICS

□L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

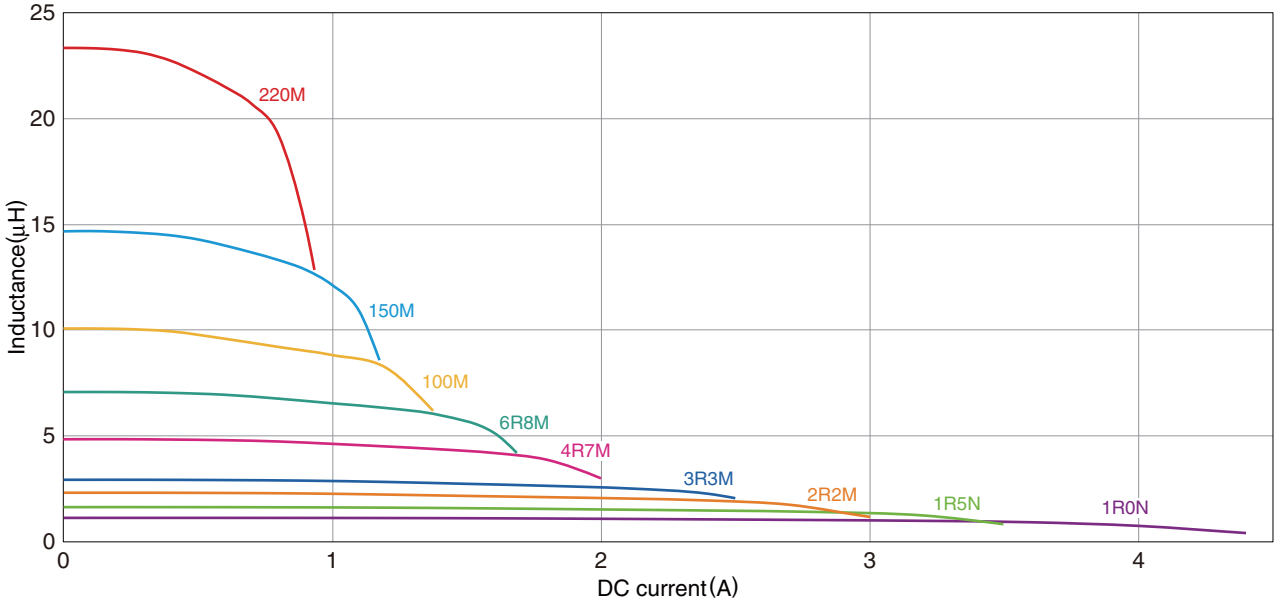
Product No.	Manufacturer
4294A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF504012MT-CA Type

■ELECTRICAL CHARACTERISTICS

□INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



○ Measurement equipment

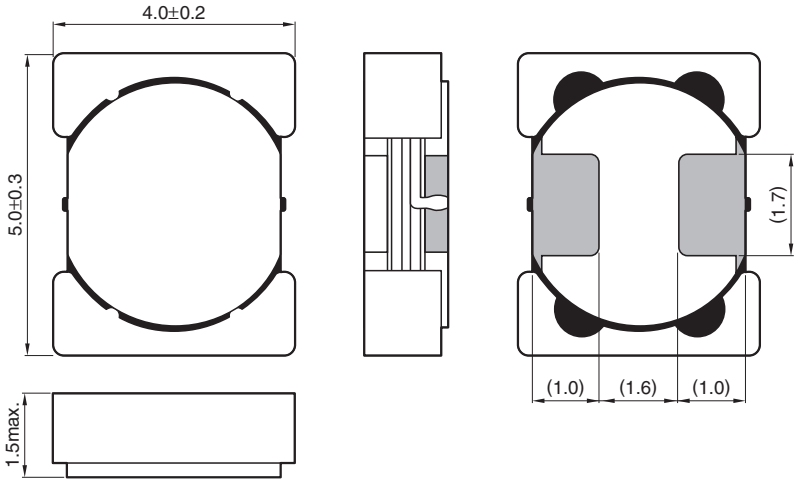
Product No.	Manufacturer
4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series

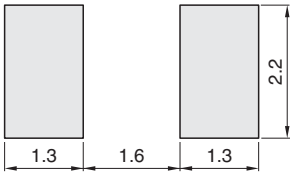
VLF504015MT-CA Type

SHAPE & DIMENSIONS



Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

VLF-M-CA series VLF504015MT-CA Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

L		Measuring frequency	DC resistance (Ω)		Rated current(A)*			Part No.
					max.	typ.		
(μH)	Tolerance	(MHz)	max.	typ.	Idc1	Idc1	Idc2	
1.0	±30%	1.0	0.032	0.026	3.72	4.14	3.61	VLF504015MT-1R0N-CA
1.5	±30%	1.0	0.038	0.032	3.42	3.80	3.27	VLF504015MT-1R5N-CA
2.2	±20%	1.0	0.053	0.044	2.71	3.01	2.60	VLF504015MT-2R2M-CA
3.3	±20%	1.0	0.063	0.053	2.33	2.59	2.51	VLF504015MT-3R3M-CA
4.7	±20%	1.0	0.07	0.06	1.98	2.20	2.43	VLF504015MT-4R7M-CA
6.8	±20%	1.0	0.10	0.08	1.65	1.83	2.00	VLF504015MT-6R8M-CA
10.0	±20%	1.0	0.14	0.12	1.30	1.44	1.58	VLF504015MT-100M-CA
15.0	±20%	1.0	0.22	0.18	1.13	1.25	1.37	VLF504015MT-150M-CA
22.0	±20%	1.0	0.31	0.26	0.93	1.03	1.08	VLF504015MT-220M-CA

* Rated current: smaller value of either Idc1 or Idc2.
Idc1: When based on the inductance change rate (30% below the nominal value)
Idc2: When based on the temperature increase (Temperature increase of 40°C by self heating)

○ Measurement equipment

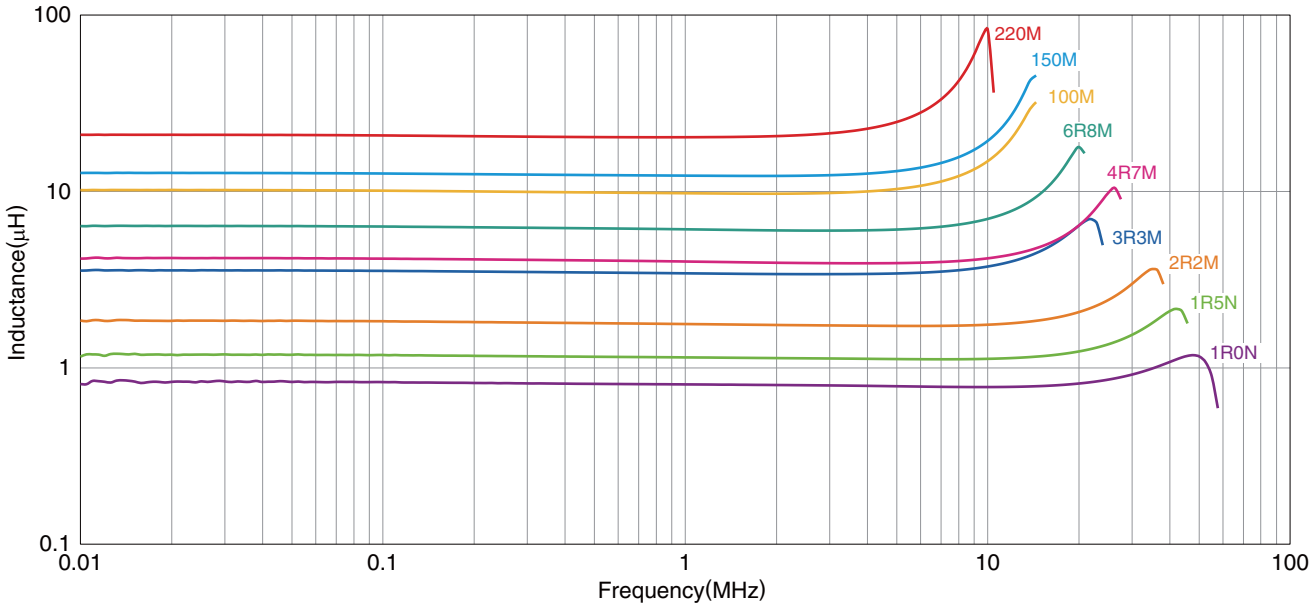
Measurement item	Product No.	Manufacturer
L	4294A	Agilent Technologies
DC resistance	VP-2941A	Panasonic
Rated current Idc1	4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF504015MT-CA Type

■ELECTRICAL CHARACTERISTICS

□L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

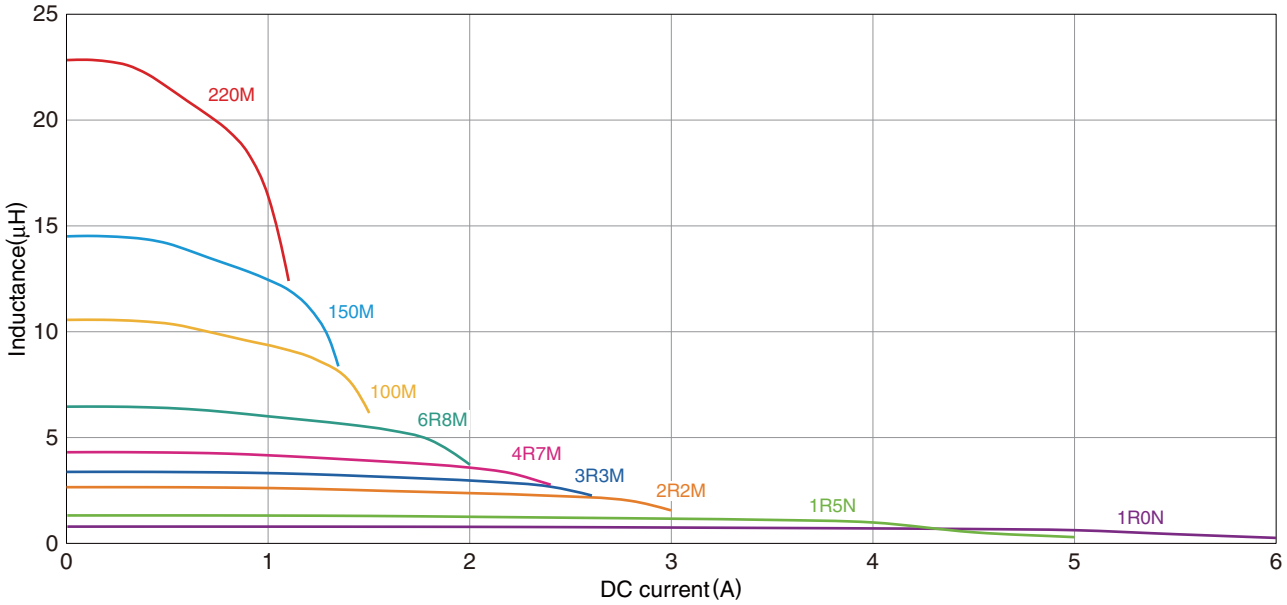
Product No.	Manufacturer
4294A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series VLF504015MT-CA Type

■ELECTRICAL CHARACTERISTICS

□INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



○ Measurement equipment

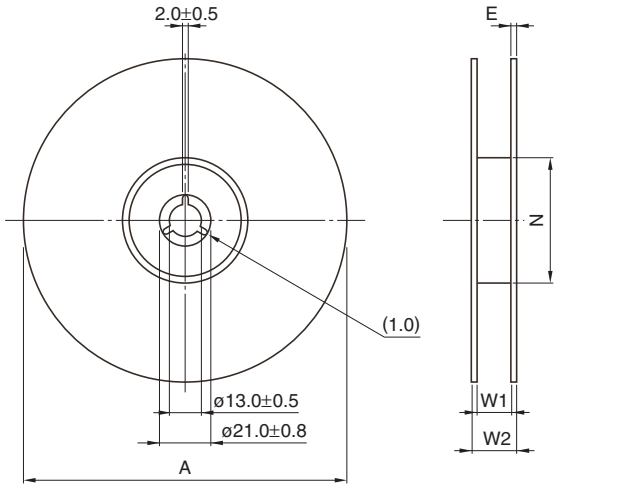
Product No.	Manufacturer
4285A+42841A+42842C	Agilent Technologies

＊ Equivalent measurement equipment may be used.

VLF-M-CA series

Packaging Style

REEL DIMENSIONS

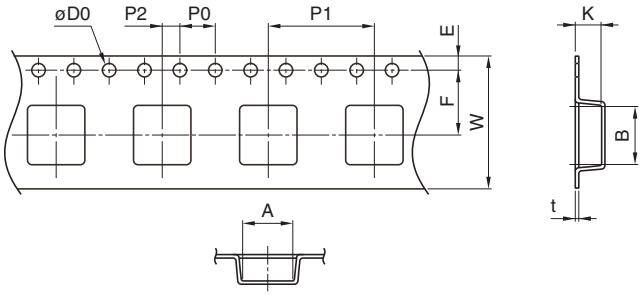


Dimensions in mm

Type	A	W1	W2	N	E
VLF252010MT-CA	ø180	9	13	ø60	0.5
VLF252012MT-CA	ø180	9	13	ø60	0.5
VLF252015MT-CA	ø180	9	13	ø60	0.5
VLF302510MT-CA	ø180	9	13	ø60	0.5
VLF302512MT-CA	ø180	9	13	ø60	0.5
VLF302515MT-CA	ø180	9	13	ø60	0.5
VLF403210MT-CA	ø180	13	17	ø60	0.5
VLF403212MT-CA	ø180	13	17	ø60	0.5
VLF403215MT-CA	ø180	13	17	ø60	0.5
VLF504010MT-CA	ø180	13	17	ø60	0.5
VLF504012MT-CA	ø180	13	17	ø60	0.5
VLF504015MT-CA	ø180	13	17	ø60	0.5

* These values are typical values.

TAPE DIMENSIONS



Dimensions in mm

Type	A	B	øD0	E	F	P0	P1	P2	W	K	t
VLF252010MT-CA	2.3	2.8	1.5+0.1/-0	1.75±0.1	3.50±0.1	4.0±0.1	4.00±0.1	2.00±0.05	8.00±0.2	1.15	0.25
VLF252012MT-CA	2.3	2.8	1.5+0.1/-0	1.75±0.1	3.50±0.1	4.0±0.1	4.00±0.1	2.00±0.05	8.00±0.2	1.35	0.25
VLF252015MT-CA	2.3	2.8	1.5+0.1/-0	1.75±0.1	3.50±0.1	4.0±0.1	4.00±0.1	2.00±0.05	8.00±0.2	1.65	0.25
VLF302510MT-CA	2.8	3.3	1.5+0.1/-0	1.75±0.1	3.50±0.1	4.0±0.1	4.00±0.1	2.00±0.05	8.00±0.2	1.15	0.25
VLF302512MT-CA	2.8	3.3	1.5+0.1/-0	1.75±0.1	3.50±0.1	4.0±0.1	4.00±0.1	2.00±0.05	8.00±0.2	1.35	0.25
VLF302515MT-CA	2.8	3.3	1.5+0.1/-0	1.75±0.1	3.50±0.1	4.0±0.1	4.00±0.1	2.00±0.05	8.00±0.2	1.65	0.25
VLF403210MT-CA	3.65	4.45	1.5+0.1/-0	1.75±0.1	5.50±0.1	4.0±0.1	8.00±0.1	2.00±0.05	12.00±0.2	1.15	0.25
VLF403212MT-CA	3.65	4.45	1.5+0.1/-0	1.75±0.1	5.50±0.1	4.0±0.1	8.00±0.1	2.00±0.05	12.00±0.2	1.35	0.25
VLF403215MT-CA	3.65	4.45	1.5+0.1/-0	1.75±0.1	5.50±0.1	4.0±0.1	8.00±0.1	2.00±0.05	12.00±0.2	1.65	0.25
VLF504010MT-CA	4.45	5.45	1.5+0.1/-0	1.75±0.1	5.50±0.1	4.0±0.1	8.00±0.1	2.00±0.05	12.00±0.2	1.15	0.25
VLF504012MT-CA	4.45	5.45	1.5+0.1/-0	1.75±0.1	5.50±0.1	4.0±0.1	8.00±0.1	2.00±0.05	12.00±0.2	1.35	0.25
VLF504015MT-CA	4.45	5.45	1.5+0.1/-0	1.75±0.1	5.50±0.1	4.0±0.1	8.00±0.1	2.00±0.05	12.00±0.2	1.65	0.25