

Multilayer Ferrite Chip Inductor

積層式鐵氧體晶片電感



INTRODUCTION 產品介紹

Multilayer Ferrite Chip Inductor is produced from magnetic material and with multilayer technology, not containing any wire windings. Ferrite paste and electric conductor paste are alternately layered and sintered into a completely monolithic structure to form an inductor with a perfectly closed magnetic circuit and an excellent magnetic shield.

積層式晶片電感在製造上使用磁性材質和積層的技術，沒有任何線圈纏繞，而是以鐵氧體調料及內電極銀漿一層一層印刷再燒結生成的積層式晶片電感，有完美的密閉式磁場迴路及優良的磁性保護，形成完整的單石結構。

FEATURE 特色

1. Monolithic structure for high reliability.
單石結構確保高信賴性。
2. No cross coupling between inductors due to magnetic shield and is suitable for high density printed circuit boards.
經由磁性保護，電感間無交互耦合現象，適合高密度之印刷電路板。
3. Dimensions are unified for automatic mounting.
尺寸統一適合自動化表面黏著。
4. Excellent solderability and high heat resistance for either flow or reflow soldering.
優良的焊錫性及耐熱性，適合 Flow 及 Reflow 兩種焊錫方式。

APPLICATION 適用產品

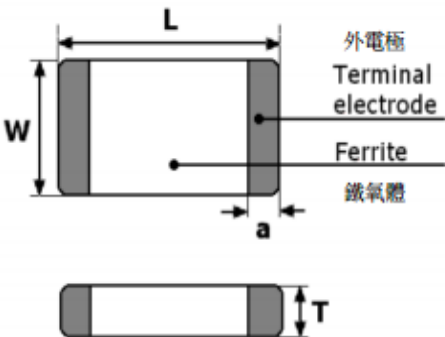
To suppress EMI/RFI and to prevent self-oscillation in electronic products. For example:
為抑制 EMI/RFI 及避免電子產品之自我振盪，例如：

1. Mother board, tablet PC, notebook, desktop computers and peripheral equipment.
主機板、平板電腦、筆記型、桌上型電腦及其週邊設備。
2. DSC, DVC, LCD Television, Set Top Box.
數位相機、數位攝影機、液晶電視機、數位機上盒。
3. Mobile phone, smart phone, PND.
行動電話、智慧手機、個人導航設備。
4. Digital communication equipment.
數位通訊設備。
5. Various electronic equipment.
各式電子設備。
6. Various automotive electronics.
各式汽車設備。
7. Circuit where a stable ground is unavailable.
缺乏穩定參考地之電路。

Multilayer Ferrite Chip Inductor

積層式鐵氧體晶片電感

SIZE AND DIMENSION 尺寸和邊長



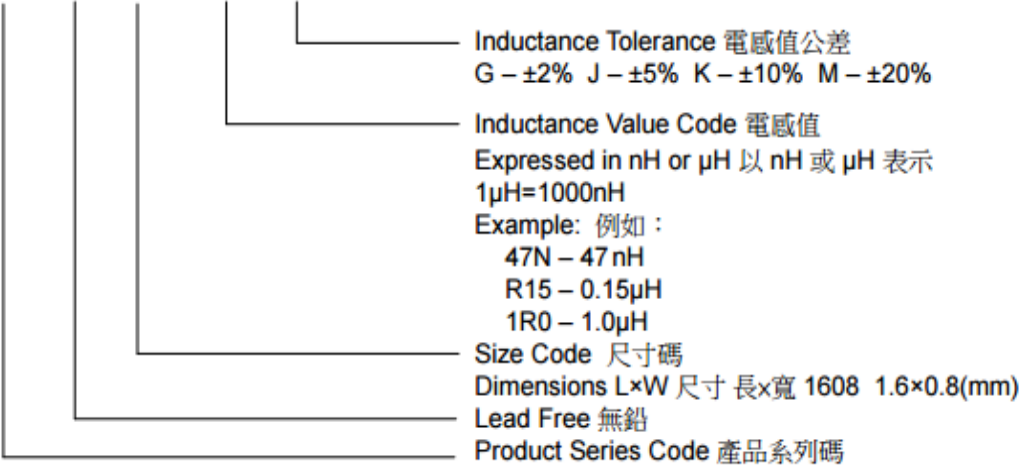
SIZE 尺寸	L 長 mm	W 寬 mm	T 厚 mm	a 銀寬 mm
1608 (0603)	1.6±0.15	0.8±0.15	0.8±0.15	0.2~0.6
2012 (0805)	2.0±0.2	1.25±0.2	*	0.2~0.8
3216 (1206)	3.2±0.2	1.6±0.2	*	0.4~1.0
3225 (1210)	3.2±0.2	2.5±0.2	*	0.6~1.0
4532 (1812)	4.5±0.2	3.2±0.2	*	0.6~1.0

Please refer to the detailed figures shown in the ZCLS 2012 / 3216 / 3225 / 4532 series tables.

厚度請參考 ZCLS 2012 / 3216 / 3225 / 4532 系列特性表

PART NUMBER SYSTEM 編碼系統

ZCL S 2012 R15 K



Multilayer Ferrite Chip Inductor

積層式鐵氧體晶片電感

ZCLS 1608 (0603) TYPE 類型

Electrical Characteristics 電氣特性

Part Number 產品料號	Inductance 感值(μH) Tolerance 公差	Q Min. 品質 係數	Test Frequency 測試頻率 (MHz)	Self-resonant Frequency 共振頻率 (MHz) Min.	DC Resistance 直流電阻 (Ω) Max.	Rated Current 額定電流 (mA) Max.	Thickness 厚度 (mm)
ZCLS 1608-47NM	0.047±20%	10	50	260	0.30	50	0.8±0.15
ZCLS 1608-68NM	0.068±20%	10	50	250	0.30	50	0.8±0.15
ZCLS 1608-82NM	0.082±20%	10	50	245	0.30	50	0.8±0.15
ZCLS1608-R10K,M	0.10±10%, ±20%	15	25	240	0.50	50	0.8±0.15
ZCLS 1608-R12K,M	0.12±10%, ±20%	15	25	205	0.50	50	0.8±0.15
ZCLS1608-R15K,M	0.15±10%, ±20%	15	25	180	0.60	50	0.8±0.15
ZCLS 1608-R18K,M	0.18±10%, ±20%	15	25	165	0.60	50	0.8±0.15
ZCLS1608-R22K,M	0.22±10%, ±20%	15	25	150	0.80	50	0.8±0.15
ZCLS 1608-R27K,M	0.27±10%, ±20%	15	25	136	0.80	50	0.8±0.15
ZCLS1608-R33K,M	0.33±10%, ±20%	15	25	125	0.85	35	0.8±0.15
ZCLS 1608-R39K,M	0.39±10%, ±20%	15	25	110	1.00	35	0.8±0.15
ZCLS1608-R47K,M	0.47±10%, ±20%	15	25	105	1.35	35	0.8±0.15
ZCLS 1608-R56K,M	0.56±10%, ±20%	15	25	95	1.55	35	0.8±0.15
ZCLS1608-R68K,M	0.68±10%, ±20%	15	25	90	1.70	35	0.8±0.15
ZCLS 1608-R82K,M	0.82±10%, ±20%	15	25	85	2.10	35	0.8±0.15
ZCLS1608-1R0K,M	1.0±10%, ±20%	35	10	75	0.60	25	0.8±0.15
ZCLS 1608-1R2K,M	1.2±10%, ±20%	35	10	65	0.80	25	0.8±0.15
ZCLS1608-1R5K,M	1.5±10%, ±20%	35	10	60	0.80	25	0.8±0.15
ZCLS 1608-1R8K,M	1.8±10%, ±20%	35	10	55	0.95	25	0.8±0.15
ZCLS1608-2R2K,M	2.2±10%, ±20%	35	10	50	1.15	15	0.8±0.15
ZCLS 1608-2R7K,M	2.7±10%, ±20%	35	10	45	1.35	15	0.8±0.15
ZCLS1608-3R3K,M	3.3±10%, ±20%	35	10	40	1.55	15	0.8±0.15
ZCLS 1608-3R9K,M	3.9±10%, ±20%	35	10	35	1.70	15	0.8±0.15
ZCLS1608-4R7K,M	4.7±10%, ±20%	35	10	33	2.10	15	0.8±0.15
ZCLS 1608-5R6K,M	5.6±10%, ±20%	35	4	22	1.55	5	0.8±0.15
ZCLS1608-6R8K,M	6.8±10%, ±20%	35	4	20	1.70	5	0.8±0.15

* TEST EQUIPMENT: E4991A IMPEDANCE ANALYZER 量測儀器：E4991A 阻抗分析儀

Multilayer Ferrite Chip Inductor

積層式鐵氧體晶片電感

ZCLS 1608 (0603) TYPE 類型

Electrical Characteristics 電氣特性

Part Number 產品料號	Inductance 感值(μH) Tolerance 公差	Q Min. 品質 係數	Test Frequency 測試頻率 (MHz)	Self-resonant Frequency 共振頻率 (MHz) Min.	DC Resistance 直流電阻 (Ω) Max.	Rated Current 額定電流 (mA) Max.	Thickness 厚度 (mm)
ZCLS1608-8R2K,M	8.2±10%, ±20%	35	4	18	2.10	5	0.8±0.15
ZCLS1608-100K,M	10±10%, ±20%	30	2	17	1.85	3	0.8±0.15
ZCLS 1608-120K,M	12±10%, ±20%	30	2	15	2.10	3	0.8±0.15
ZCLS 1608-150K,M	15±10%, ±20%	20	1	14	1.70	1	0.8±0.15
ZCLS 1608-180K,M	18±10%, ±20%	15	1	13	2.00	1	0.8±0.15
EBLS1608-220K,M	22±10%, ±20%	15	1	11	2.10	1	0.8±0.15

* TEST EQUIPMENT: E4991A IMPEDANCE ANALYZER 量測儀器：E4991A 阻抗分析儀

Multilayer Ferrite Chip Inductor

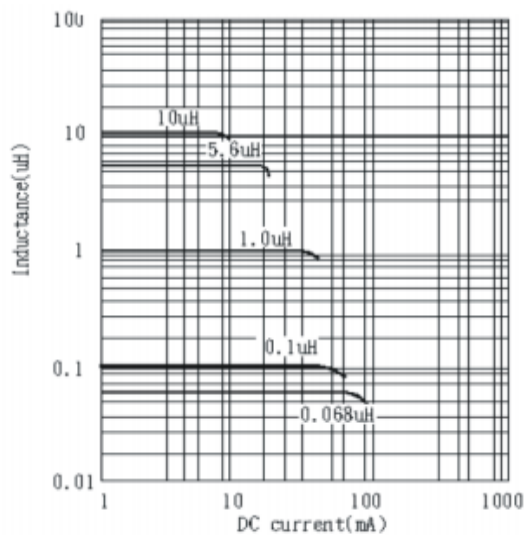
積層式鐵氧體晶片電感

ZCLS1608 (0603) TYPE 類型

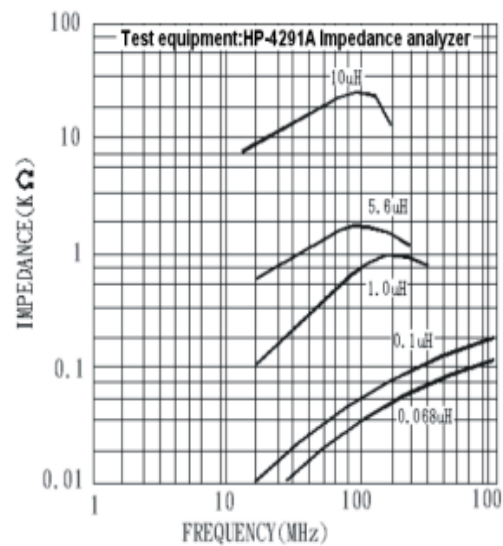
TYPICAL ELECTRICAL CHARACTERISTICS 典型電氣特性

Z, R, X vs. FREQUENCY CHARACTERISTICS 阻抗、電阻、感抗對頻率特性

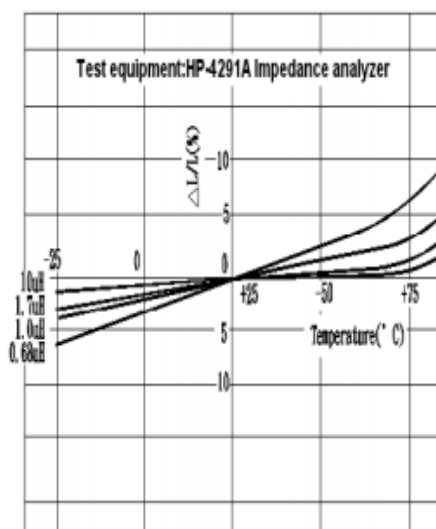
INDUCTANCE vs. DC SUPERPOSITION



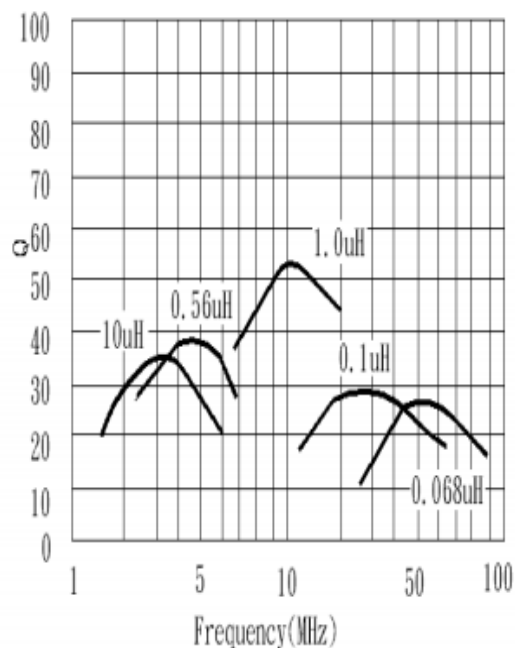
IMPEDANCE vs. FREQUENCY



INDUCTANCE vs. TEMPERATURE



Q vs. FREQUENCY



Multilayer Ferrite Chip Inductor

積層式鐵氧體晶片電感

ZCLS 2012 (0805) TYPE 類型

Electrical Characteristics 電氣特性

Part Number 產品料號	Inductance 感值 (μ H) Tolerance 公差	Q Min. 品質 係數	Test Frequency 測試頻率 (MHz)	Self-resonant Frequency 共振頻率 (MHz) Min.	DC Resistance 直流電阻 (Ω) Max.	Rated Current 額定電流 (mA) Max.	Thickness 厚度 (mm)
ZCLS 2012-47NM	0.047 $\pm$ 20%	15	50	320	0.20	300	0.85 $\pm$ 0.2
ZCLS2012-68NM	0.068 $\pm$ 20%	15	50	280	0.20	300	0.85 $\pm$ 0.2
ZCLS 2012-82NM	0.082 $\pm$ 20%	15	50	255	0.20	300	0.85 $\pm$ 0.2
ZCLS 2012-R10K,M	0.10 $\pm$ 10%, $\pm$ 20%	20	25	235	0.30	250	0.85 $\pm$ 0.2
ZCLS 2012-R12K,M	0.12 $\pm$ 10%, $\pm$ 20%	20	25	220	0.30	250	0.85 $\pm$ 0.2
ZCLS 2012-R15K,M	0.15 $\pm$ 10%, $\pm$ 20%	20	25	200	0.40	250	0.85 $\pm$ 0.2
ZCLS 2012-R18K,M	0.18 $\pm$ 10%, $\pm$ 20%	20	25	185	0.40	250	0.85 $\pm$ 0.2
ZCLS2012-R22K,M	0.22 $\pm$ 10%, $\pm$ 20%	20	25	170	0.50	250	0.85 $\pm$ 0.2
ZCLS 2012-R27K,M	0.27 $\pm$ 10%, $\pm$ 20%	20	25	150	0.50	250	0.85 $\pm$ 0.2
ZCLS2012-R33K,M	0.33 $\pm$ 10%, $\pm$ 20%	20	25	145	0.55	250	0.85 $\pm$ 0.2
ZCLS 2012-R39K,M	0.39 $\pm$ 10%, $\pm$ 20%	25	25	135	0.65	200	0.85 $\pm$ 0.2
ZCLS 2012-R47K,M	0.47 $\pm$ 10%, $\pm$ 20%	25	25	125	0.65	200	0.85 $\pm$ 0.2
ZCLS2012-R56K,M	0.56 $\pm$ 10%, $\pm$ 20%	25	25	115	0.75	150	0.85 $\pm$ 0.2
ZCLS2012-R68K,M	0.68 $\pm$ 10%, $\pm$ 20%	25	25	105	0.80	150	0.85 $\pm$ 0.2
ZCLS 2012-R82K,M	0.82 $\pm$ 10%, $\pm$ 20%	25	25	100	1.00	150	0.85 $\pm$ 0.2
ZCLS2012-1R0K,M	1.0 $\pm$ 10%, $\pm$ 20%	45	10	75	0.40	50	0.85 $\pm$ 0.2
ZCLS 2012-1R2K,M	1.2 $\pm$ 10%, $\pm$ 20%	45	10	65	0.50	50	0.85 $\pm$ 0.2
ZCLS2012-1R5K,M	1.5 $\pm$ 10%, $\pm$ 20%	45	10	60	0.50	50	0.85 $\pm$ 0.2
ZCLS 2012-1R8K,M	1.8 $\pm$ 10%, $\pm$ 20%	45	10	55	0.60	50	0.85 $\pm$ 0.2
ZCLS 2012-2R2K,M	2.2 $\pm$ 10%, $\pm$ 20%	45	10	50	0.65	30	0.85 $\pm$ 0.2
ZCLS 2012-2R7K,M	2.7 $\pm$ 10%, $\pm$ 20%	45	10	45	0.75	30	1.25 $\pm$ 0.2
ZCLS2012-3R3K,M	3.3 $\pm$ 10%, $\pm$ 20%	45	10	41	0.80	30	1.25 $\pm$ 0.2
ZCLS 2012-3R9K,M	3.9 $\pm$ 10%, $\pm$ 20%	45	10	38	0.90	30	1.25 $\pm$ 0.2
ZCLS 2012-4R7K,M	4.7 $\pm$ 10%, $\pm$ 20%	45	10	35	1.00	30	1.25 $\pm$ 0.2
ZCLS 2012-5R6K,M	5.6 $\pm$ 10%, $\pm$ 20%	50	4	32	0.90	15	1.25 $\pm$ 0.2
ZCLS 2012-6R8K,M	6.8 $\pm$ 10%, $\pm$ 20%	50	4	29	1.00	15	1.25 $\pm$ 0.2

* TEST EQUIPMENT: E4991A IMPEDANCE ANALYZER 量測儀器：E4991A 阻抗分析儀

Multilayer Ferrite Chip Inductor

積層式鐵氧體晶片電感

ZCLS 2012 (0805) TYPE 類型

Electrical Characteristics 電氣特性

Part Number 產品料號	Inductance 感值 (μ H) Tolerance 公差	Q Min. 品質 係數	Test Frequency 測試頻率 (MHz)	Self-resonant Frequency 共振頻率 (MHz) Min.	DC Resistance 直流電阻 (Ω) Max.	Rated Current 額定電流 (mA) Max.	Thickness 厚度 (mm)
ZCLS 2012-8R2K,M	8.2 $\pm$ 10%, $\pm$ 20%	50	4	26	1.10	15	1.25 $\pm$ 0.2
ZCLS 2012-100K,M	10 $\pm$ 10%, $\pm$ 20%	50	2	24	1.15	15	1.25 $\pm$ 0.2
ZCLS 2012-120K,M	12 $\pm$ 10%, $\pm$ 20%	50	2	22	1.25	15	1.25 $\pm$ 0.2
ZCLS 2012-150K,M	15 $\pm$ 10%, $\pm$ 20%	30	1	19	0.80	5	1.25 $\pm$ 0.2
ZCLS 2012-180K,M	18 $\pm$ 10%, $\pm$ 20%	30	1	18	0.90	5	1.25 $\pm$ 0.2
ZCLS 2012-220K,M	22 $\pm$ 10%, $\pm$ 20%	30	1	16	1.10	5	1.25 $\pm$ 0.2
ZCLS 2012-270K,M	27 $\pm$ 10%, $\pm$ 20%	30	1	14	1.15	5	1.25 $\pm$ 0.2
ZCLS 2012-330K,M	33 $\pm$ 10%, $\pm$ 20%	30	1	13	1.25	5	1.25 $\pm$ 0.2
ZCLS 2012-390K,M	39 $\pm$ 10%, $\pm$ 20%	35	1	8	2.90	4	1.25 $\pm$ 0.2
ZCLS 2012-101K,M	100 $\pm$ 10%, $\pm$ 20%	25	1	7	3.10	2	1.25 $\pm$ 0.2

* TEST EQUIPMENT: E4991A IMPEDANCE ANALYZER 量測儀器：E4991A 阻抗分析儀

Multilayer Ferrite Chip Inductor

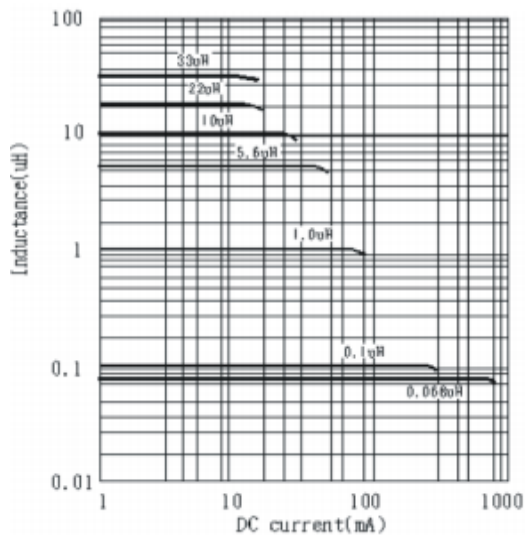
積層式鐵氧體晶片電感

ZCLS2012 (0805) TYPE 類型

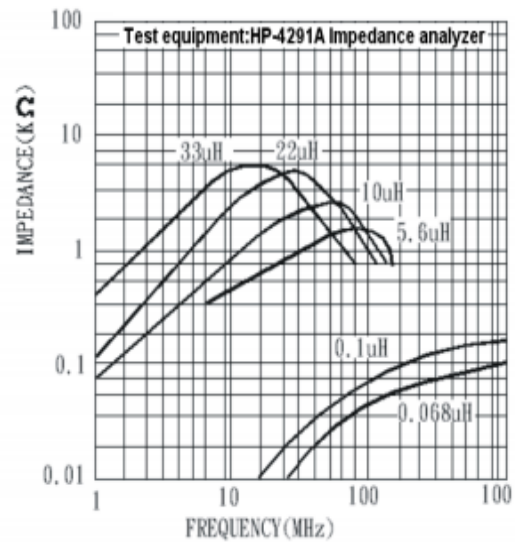
TYPICAL ELECTRICAL CHARACTERISTICS 典型電氣特性

Z, R, X vs. FREQUENCY CHARACTERISTICS 阻抗、電阻、感抗對頻率特性

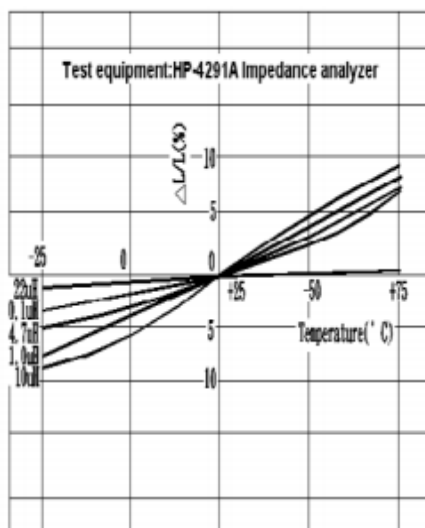
INDUCTANCE vs. DC SUPERPOSITION



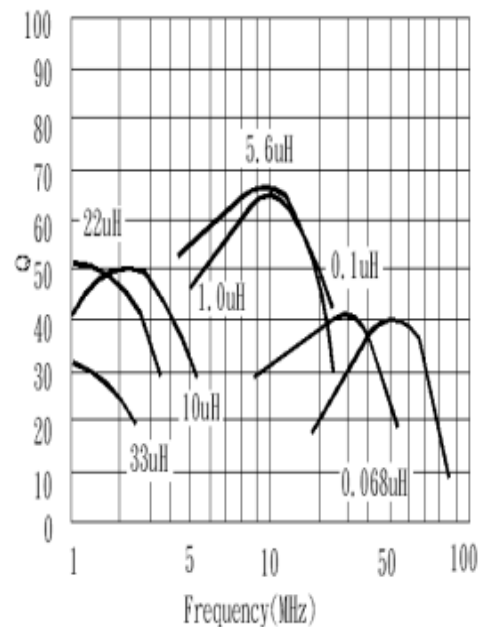
IMPEDANCE vs. FREQUENCY



INDUCTANCE vs. TEMPERATURE



Q vs. FREQUENCY



Multilayer Ferrite Chip Inductor

積層式鐵氧體晶片電感

ZCLS3216 (1206) TYPE 類型

Electrical Characteristics 電氣特性

Part Number 產品料號	Inductance 感值 (μ H) Tolerance 公差	Q Min. 品質 係數	Test Frequency 測試頻率 (MHz)	Self-resonant Frequency 共振頻率 (MHz) Min.	DC Resistance 直流電阻 (Ω) Max.	Rated Current 額定電流 (mA) Max.	Thickness 厚度 (mm)
ZCLS3216-47NM	0.047 $\pm$ 20%	20	50	320	0.15	300	1.1 $\pm$ 0.3
ZCLS3216-68NM	0.068 $\pm$ 20%	20	50	280	0.25	300	1.1 $\pm$ 0.3
ZCLS3216-82NM	0.082 $\pm$ 20%	20	50	255	0.25	300	1.1 $\pm$ 0.3
ZCLS3216-R10K,M	0.10 $\pm$ 10%, $\pm$ 20%	20	25	235	0.25	250	1.1 $\pm$ 0.3
ZCLS3216-R12K,M	0.12 $\pm$ 10%, $\pm$ 20%	20	25	220	0.30	250	1.1 $\pm$ 0.3
ZCLS3216-R15K,M	0.15 $\pm$ 10%, $\pm$ 20%	20	25	200	0.30	250	1.1 $\pm$ 0.3
ZCLS3216-R18K,M	0.18 $\pm$ 10%, $\pm$ 20%	20	25	185	0.40	250	1.1 $\pm$ 0.3
ZCLS3216-R22K,M	0.22 $\pm$ 10%, $\pm$ 20%	20	25	170	0.40	250	1.1 $\pm$ 0.3
ZCLS3216-R27K,M	0.27 $\pm$ 10%, $\pm$ 20%	20	25	150	0.50	250	1.1 $\pm$ 0.3
ZCLS3216-R33K,M	0.33 $\pm$ 10%, $\pm$ 20%	20	25	145	0.60	250	1.1 $\pm$ 0.3
ZCLS3216-R39K,M	0.39 $\pm$ 10%, $\pm$ 20%	25	25	135	0.50	250	1.1 $\pm$ 0.3
ZCLS3216-R47K,M	0.47 $\pm$ 10%, $\pm$ 20%	25	25	125	0.60	200	1.1 $\pm$ 0.3
ZCLS3216-R56K,M	0.56 $\pm$ 10%, $\pm$ 20%	25	25	115	0.70	200	1.1 $\pm$ 0.3
ZCLS3216-R68K,M	0.68 $\pm$ 10%, $\pm$ 20%	25	25	105	0.80	150	1.1 $\pm$ 0.3
ZCLS3216-R82K,M	0.82 $\pm$ 10%, $\pm$ 20%	25	25	100	0.90	150	1.1 $\pm$ 0.3
ZCLS3216-1R0K,M	1.0 $\pm$ 10%, $\pm$ 20%	45	10	75	0.40	100	1.1 $\pm$ 0.3
ZCLS3216-1R2K,M	1.2 $\pm$ 10%, $\pm$ 20%	45	10	65	0.50	100	1.1 $\pm$ 0.3
ZCLS3216-1R5K,M	1.5 $\pm$ 10%, $\pm$ 20%	45	10	60	0.50	50	1.1 $\pm$ 0.3
ZCLS3216-1R8K,M	1.8 $\pm$ 10%, $\pm$ 20%	45	10	55	0.50	50	1.1 $\pm$ 0.3
ZCLS3216-2R2K,M	2.2 $\pm$ 10%, $\pm$ 20%	45	10	50	0.60	50	1.1 $\pm$ 0.3
ZCLS3216-2R7K,M	2.7 $\pm$ 10%, $\pm$ 20%	45	10	45	0.60	50	1.1 $\pm$ 0.3
ZCLS3216-3R3K,M	3.3 $\pm$ 10%, $\pm$ 20%	45	10	41	0.70	50	1.1 $\pm$ 0.3
ZCLS3216-3R9K,M	3.9 $\pm$ 10%, $\pm$ 20%	45	10	38	0.80	50	1.1 $\pm$ 0.3
ZCLS3216-4R7K,M	4.7 $\pm$ 10%, $\pm$ 20%	45	10	35	0.90	50	1.1 $\pm$ 0.3
ZCLS3216-5R6K,M	5.6 $\pm$ 10%, $\pm$ 20%	50	4	32	0.70	25	1.1 $\pm$ 0.3
ZCLS3216-6R8K,M	6.8 $\pm$ 10%, $\pm$ 20%	50	4	29	0.80	25	1.1 $\pm$ 0.3

* TEST EQUIPMENT: E4991A IMPEDANCE ANALYZER 量測儀器：E4991A 阻抗分析儀

Multilayer Ferrite Chip Inductor

積層式鐵氧體晶片電感

ZCLS3216 (1206) TYPE 類型

Electrical Characteristics 電氣特性

Part Number 產品料號	Inductance 感值 (μ H) Tolerance 公差	Q Min. 品質 係數	Test Frequency 測試頻率 (MHz)	Self-resonant Frequency 共振頻率 (MHz) Min.	DC Resistance 直流電阻 (Ω) Max.	Rated Current 額定電流 (mA) Max.	Thickness 厚度 (mm)
ZCLS3216-8R2K,M	8.2 $\pm$ 10%, $\pm$ 20%	50	4	26	0.90	25	1.1 $\pm$ 0.3
ZCLS3216-100K,M	10 $\pm$ 10%, $\pm$ 20%	50	2	24	1.00	25	1.1 $\pm$ 0.3
ZCLS3216-120K,M	12 $\pm$ 10%, $\pm$ 20%	50	2	22	1.05	15	1.1 $\pm$ 0.3
ZCLS3216-150K,M	15 $\pm$ 10%, $\pm$ 20%	35	1	19	0.70	5	1.1 $\pm$ 0.3
ZCLS3216-180K,M	18 $\pm$ 10%, $\pm$ 20%	35	1	18	0.70	5	1.1 $\pm$ 0.3
ZCLS3216-220K,M	22 $\pm$ 10%, $\pm$ 20%	35	1	16	0.90	5	1.1 $\pm$ 0.3
ZCLS3216-270K,M	27 $\pm$ 10%, $\pm$ 20%	35	1	14	0.90	5	1.1 $\pm$ 0.3
ZCLS3216-330K,M	33 $\pm$ 10%, $\pm$ 20%	35	1	13	1.05	5	1.1 $\pm$ 0.3
ZCLS3216-390K,M	39 $\pm$ 10%, $\pm$ 20%	40	2	11	3.00	10	1.6 $\pm$ 0.3
ZCLS3216-470K,M	47 $\pm$ 10%, $\pm$ 20%	40	2	10	3.40	10	1.6 $\pm$ 0.3

* TEST EQUIPMENT: E4991A IMPEDANCE ANALYZER 量測儀器：E4991A 阻抗分析儀

Multilayer Ferrite Chip Inductor

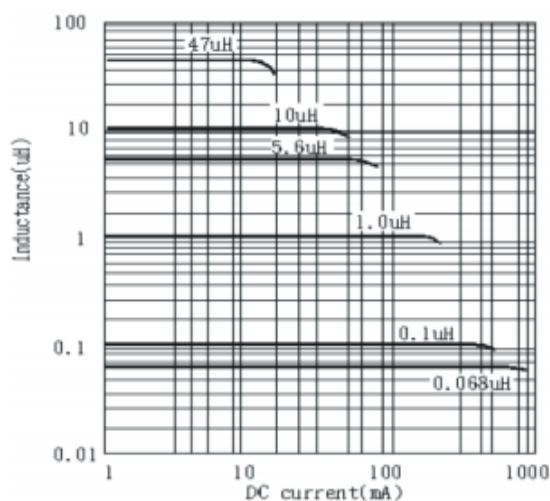
積層式鐵氧體晶片電感

ZCLS3216 (1206) TYPE 類型

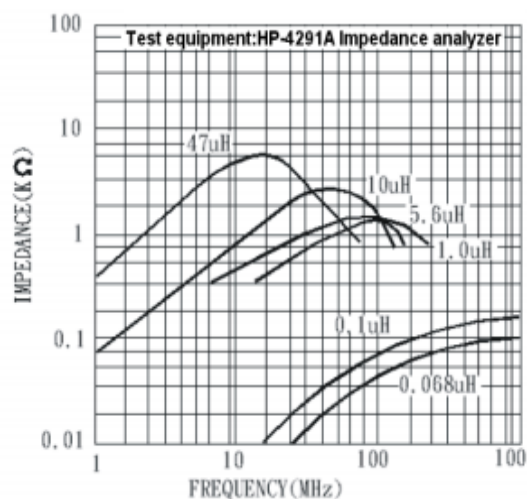
TYPICAL ELECTRICAL CHARACTERISTICS 典型電氣特性

Z, R, X vs. FREQUENCY CHARACTERISTICS 阻抗、電阻、感抗對頻率特性

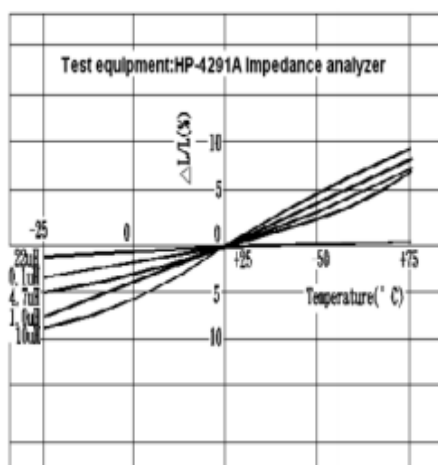
INDUCTANCE vs. DC SUPERPOSITION



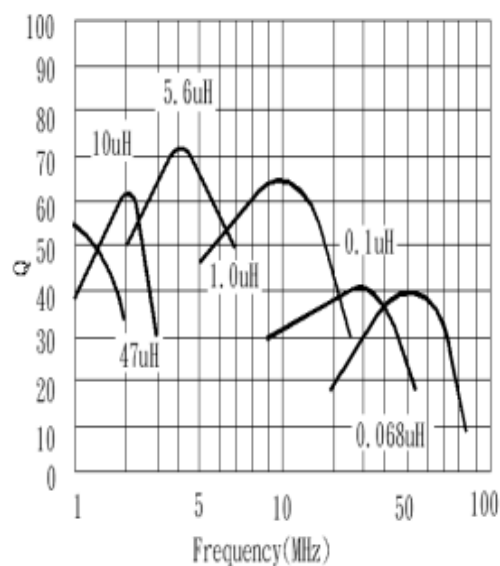
IMPEDANCE vs. FREQUENCY



INDUCTANCE vs. TEMPERATURE



Q vs. FREQUENCY



Multilayer Ferrite Chip Inductor

積層式鐵氧體晶片電感

ZCLS 3225 (1210) TYPE 類型

Electrical Characteristics 電氣特性

Part Number 產品料號	Inductance 感值 (μ H) Tolerance 公差	Q Min. 品質 係數	Test Frequency 測試頻率 (MHz)	Self-resonant Frequency 共振頻率 (MHz) Min.	DC Resistance 直流電阻 (Ω) Max.	Rated Current 額定電流 (mA) Max.	Thickness 厚度 (mm)
ZCLS3225-R10K,M	0.10 $\pm$ 10%, $\pm$ 20%	20	25	235	0.25	250	1.3 $\pm$ 0.3
ZCLS3225-R12K,M	0.12 $\pm$ 10%, $\pm$ 20%	20	25	220	0.30	250	1.3 $\pm$ 0.3
ZCLS3225-R15K,M	0.15 $\pm$ 10%, $\pm$ 20%	20	25	200	0.30	250	1.3 $\pm$ 0.3
ZCLS3225-R18K,M	0.18 $\pm$ 10%, $\pm$ 20%	20	25	185	0.40	250	1.3 $\pm$ 0.3
ZCLS3225-R22K,M	0.22 $\pm$ 10%, $\pm$ 20%	20	25	170	0.40	250	1.3 $\pm$ 0.3
ZCLS3225-R27K,M	0.27 $\pm$ 10%, $\pm$ 20%	20	25	150	0.50	250	1.3 $\pm$ 0.3
ZCLS3225-R33K,M	0.33 $\pm$ 10%, $\pm$ 20%	20	25	145	0.60	250	1.3 $\pm$ 0.3
ZCLS3225-R39K,M	0.39 $\pm$ 10%, $\pm$ 20%	25	25	135	0.50	200	1.3 $\pm$ 0.3
ZCLS3225-R47K,M	0.47 $\pm$ 10%, $\pm$ 20%	25	25	125	0.60	200	1.3 $\pm$ 0.3
ZCLS3225-R56K,M	0.56 $\pm$ 10%, $\pm$ 20%	25	25	115	0.70	150	1.3 $\pm$ 0.3
ZCLS3225-R68K,M	0.68 $\pm$ 10%, $\pm$ 20%	25	25	105	0.80	150	1.3 $\pm$ 0.3
ZCLS3225-R82K,M	0.82 $\pm$ 10%, $\pm$ 20%	25	25	100	0.90	150	1.3 $\pm$ 0.3
ZCLS3225-1R0K,M	1.0 $\pm$ 10%, $\pm$ 20%	45	10	75	0.40	100	1.3 $\pm$ 0.3
ZCLS3225-1R2K,M	1.2 $\pm$ 10%, $\pm$ 20%	45	10	65	0.50	100	1.3 $\pm$ 0.3
ZCLS3225-1R5K,M	1.5 $\pm$ 10%, $\pm$ 20%	45	10	60	0.50	50	1.3 $\pm$ 0.3
ZCLS3225-1R8K,M	1.8 $\pm$ 10%, $\pm$ 20%	45	10	55	0.50	50	1.3 $\pm$ 0.3
ZCLS3225-2R2K,M	2.2 $\pm$ 10%, $\pm$ 20%	45	10	50	0.60	50	1.3 $\pm$ 0.3
ZCLS3225-2R7K,M	2.7 $\pm$ 10%, $\pm$ 20%	45	10	45	0.60	50	1.3 $\pm$ 0.3
ZCLS3225-3R3K,M	3.3 $\pm$ 10%, $\pm$ 20%	45	10	41	0.70	50	1.3 $\pm$ 0.3
ZCLS3225-3R9K,M	3.9 $\pm$ 10%, $\pm$ 20%	45	10	38	0.80	50	1.3 $\pm$ 0.3
ZCLS3225-4R7K,M	4.7 $\pm$ 10%, $\pm$ 20%	45	10	35	0.90	50	1.3 $\pm$ 0.3
ZCLS3225-5R6K,M	5.6 $\pm$ 10%, $\pm$ 20%	50	4	32	0.70	25	1.3 $\pm$ 0.3

* TEST EQUIPMENT: E4991A IMPEDANCE ANALYZER 量測儀器：E4991A 阻抗分析儀

* The product with Inductance under 0.82 μ H and over than 10 μ H requires minimum order quantity.

感值 0.82 μ H 以下及超過 10 μ H 以上的規格需要最低訂購量。

Multilayer Ferrite Chip Inductor

積層式鐵氧體晶片電感

ZCLS3225 (1210) TYPE 類型

Electrical Characteristics 電氣特性

Part Number 產品料號	Inductance 感值 (μ H) Tolerance 公差	Q Min. 品質 係數	Test Frequency 測試頻率 (MHz)	Self-resonant Frequency 共振頻率 (MHz) Min.	DC Resistance 直流電阻 (Ω) Max.	Rated Current 額定電流 (mA) Max.	Thickness 厚度 (mm)
ZCLS3225-6R8K,M	6.8 $\pm$ 10%, $\pm$ 20%	50	4	29	0.80	25	1.3 $\pm$ 0.3
ZCLS3225-8R2K,M	8.2 $\pm$ 10%, $\pm$ 20%	50	4	26	0.90	25	1.3 $\pm$ 0.3
ZCLS3225-100K,M	10 $\pm$ 10%, $\pm$ 20%	50	2	24	1.00	25	1.3 $\pm$ 0.3
ZCLS3225-120K,M	12 $\pm$ 10%, $\pm$ 20%	50	2	22	1.05	15	1.3 $\pm$ 0.3
ZCLS3225-150K,M	15 $\pm$ 10%, $\pm$ 20%	35	1	19	0.70	5	1.3 $\pm$ 0.3
ZCLS3225-180K,M	18 $\pm$ 10%, $\pm$ 20%	35	1	18	0.70	5	1.3 $\pm$ 0.3
ZCLS3225-220K,M	22 $\pm$ 10%, $\pm$ 20%	35	1	16	0.90	5	1.3 $\pm$ 0.3
ZCLS3225-270K,M	27 $\pm$ 10%, $\pm$ 20%	35	1	14	0.90	5	1.3 $\pm$ 0.3
ZCLS3225-330K,M	33 $\pm$ 10%, $\pm$ 20%	35	0.4	13	1.05	5	1.3 $\pm$ 0.3
ZCLS3225-390K,M	39 $\pm$ 10%, $\pm$ 20%	40	2	11	3.00	10	1.3 $\pm$ 0.3
ZCLS3225-470K,M	47 $\pm$ 10%, $\pm$ 20%	40	2	10	3.40	10	1.3 $\pm$ 0.3
ZCLS3225-560K,M	56 $\pm$ 10%, $\pm$ 20%	40	2	9.5	3.80	4	1.3 $\pm$ 0.3
ZCLS3225-680K,M	68 $\pm$ 10%, $\pm$ 20%	40	1	9.5	3.00	4	1.3 $\pm$ 0.3
ZCLS3225-820K,M	82 $\pm$ 10%, $\pm$ 20%	40	1	9	3.40	4	1.3 $\pm$ 0.3
ZCLS3225-101K,M	100 $\pm$ 10%, $\pm$ 20%	40	1	8	3.80	4	2.2 $\pm$ 0.3
ZCLS3225-121K,M	120 $\pm$ 10%, $\pm$ 20%	30	0.4	6	3.00	2	2.2 $\pm$ 0.3

* TEST EQUIPMENT: E4991A IMPEDANCE ANALYZER 量測儀器：E4991A 阻抗分析儀

* The product with Inductance under 0.82 μ H and over than 10 μ H requires minimum order quantity.

感值 0.82 μ H 以下及超過 10 μ H 以上的規格需要最低訂購量。

Multilayer Ferrite Chip Inductor

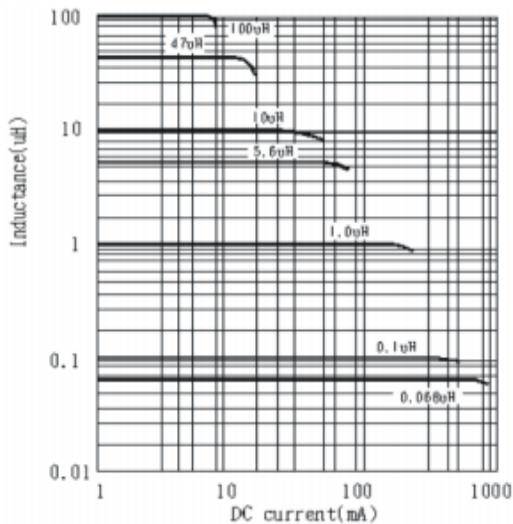
積層式鐵氧體晶片電感

ZCLS3225 (1210) TYPE 類型

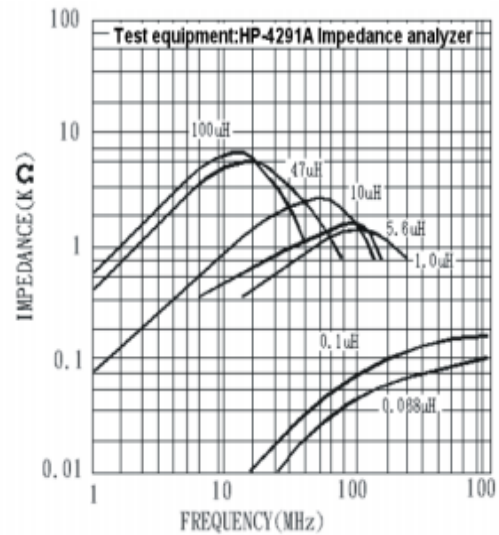
TYPICAL ELECTRICAL CHARACTERISTICS 典型電氣特性

Z, R, X vs. FREQUENCY CHARACTERISTICS 阻抗、電阻、感抗對頻率特性

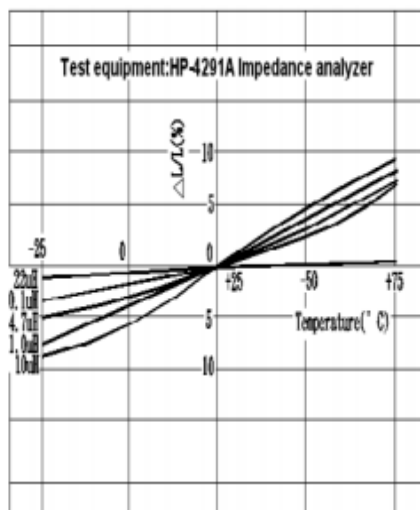
INDUCTANCE vs. DC SUPERPOSITION



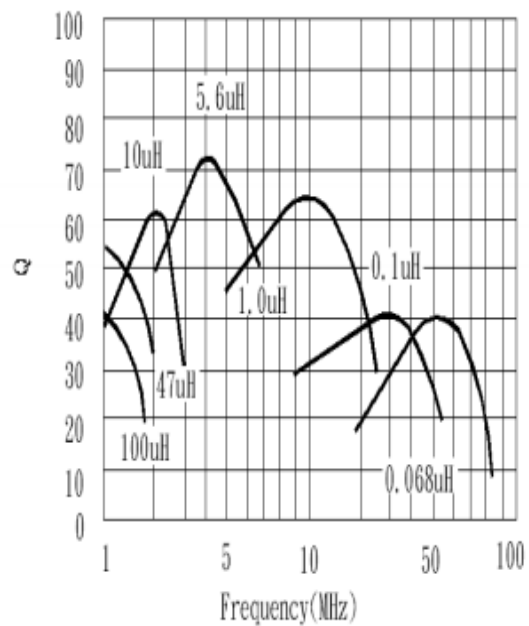
IMPEDANCE vs. FREQUENCY



INDUCTANCE vs. TEMPERATURE



Q vs. FREQUENCY



Multilayer Ferrite Chip Inductor

積層式鐵氧體晶片電感

ZCLS4532 (1812) TYPE 類型

Electrical Characteristics 電氣特性

Part Number 產品料號	Inductance 感值 (μ H) Tolerance 公差	Q Min. 品質 係數	Test Frequency 測試頻率 (MHz)	Self-resonant Frequency 共振頻率 (MHz) Min.	DC Resistance 直流電阻 (Ω) Max.	Rated Current 額定電流 (mA) Max.	Thickness 厚度 (mm)
ZCLS4532-1R0K,M	1.0 $\pm$ 10%, $\pm$ 20%	35	10	75	0.4	100	1.5 $\pm$ 0.3
ZCLS4532-1R2K,M	1.2 $\pm$ 10%, $\pm$ 20%	35	10	65	0.5	100	1.5 $\pm$ 0.3
ZCLS4532-1R5K,M	1.5 $\pm$ 10%, $\pm$ 20%	35	10	60	0.5	50	1.5 $\pm$ 0.3
ZCLS4532-1R8K,M	1.8 $\pm$ 10%, $\pm$ 20%	35	10	55	0.5	50	1.5 $\pm$ 0.3
ZCLS4532-2R2K,M	2.2 $\pm$ 10%, $\pm$ 20%	35	10	50	0.6	50	1.5 $\pm$ 0.3
ZCLS4532-2R7K,M	2.7 $\pm$ 10%, $\pm$ 20%	35	10	45	0.6	50	1.5 $\pm$ 0.3
ZCLS4532-3R3K,M	3.3 $\pm$ 10%, $\pm$ 20%	35	10	41	0.7	50	1.5 $\pm$ 0.3
ZCLS4532-3R9K,M	3.9 $\pm$ 10%, $\pm$ 20%	35	10	38	0.8	50	1.5 $\pm$ 0.3
ZCLS4532-4R7K,M	4.7 $\pm$ 10%, $\pm$ 20%	35	10	35	0.9	50	1.5 $\pm$ 0.3
ZCLS4532-5R6K,M	5.6 $\pm$ 10%, $\pm$ 20%	40	4	32	0.7	25	1.5 $\pm$ 0.3
ZCLS4532-6R8K,M	6.8 $\pm$ 10%, $\pm$ 20%	40	4	29	0.7	25	1.5 $\pm$ 0.3
ZCLS4532-8R2K,M	8.2 $\pm$ 10%, $\pm$ 20%	40	4	26	0.9	25	1.5 $\pm$ 0.3
ZCLS4532-100K,M	10 $\pm$ 10%, $\pm$ 20%	40	2	24	1.0	25	1.5 $\pm$ 0.3
ZCLS4532-120K,M	12 $\pm$ 10%, $\pm$ 20%	40	2	22	1.05	15	1.5 $\pm$ 0.3
ZCLS4532-150K,M	15 $\pm$ 10%, $\pm$ 20%	35	1	19	0.7	5	1.5 $\pm$ 0.3
ZCLS4532-180K,M	18 $\pm$ 10%, $\pm$ 20%	35	1	18	0.7	5	1.5 $\pm$ 0.3
ZCLS4532-220K,M	22 $\pm$ 10%, $\pm$ 20%	35	1	16	0.9	5	1.5 $\pm$ 0.3
ZCLS4532-270K,M	27 $\pm$ 10%, $\pm$ 20%	35	1	14	0.9	5	1.5 $\pm$ 0.3
ZCLS4532-330K,M	33 $\pm$ 10%, $\pm$ 20%	35	0.4	13	1.05	5	1.5 $\pm$ 0.3
ZCLS4532-390K,M	39 $\pm$ 10%, $\pm$ 20%	40	2	11	3.0	10	1.5 $\pm$ 0.3
ZCLS4532-470K,M	47 $\pm$ 10%, $\pm$ 20%	40	2	10	3.4	10	1.5 $\pm$ 0.3
ZCLS4532-560K,M	56 $\pm$ 10%, $\pm$ 20%	40	2	9.5	3.8	5	1.5 $\pm$ 0.3

* TEST EQUIPMENT: E4991A IMPEDANCE ANALYZER 量測儀器：E4991A 阻抗分析儀

* The product with Inductance under 0.82 μ H and over than 10 μ H requires minimum order quantity.

感值 0.82 μ H 以下及超過 10 μ H 以上的規格需要最低訂購量。

Multilayer Ferrite Chip Inductor

積層式鐵氧體晶片電感

ZCLS4532 (1812) TYPE 類型

Electrical Characteristics 電氣特性

Part Number 產品料號	Inductance 感值 (μ H) Tolerance 公差	Q Min. 品質 係數	Test Frequency 測試頻率 (MHz)	Self-resonant Frequency 共振頻率 (MHz) Min.	DC Resistance 直流電阻 (Ω) Max.	Rated Current 額定電流 (mA) Max.	Thickness 厚度 (mm)
ZCLS4532-680K,M	68 $\pm$ 10%, $\pm$ 20%	40	1	9.5	3.0	5	1.5 $\pm$ 0.3
ZCLS4532-820K,M	82 $\pm$ 10%, $\pm$ 20%	40	1	9	3.4	5	1.5 $\pm$ 0.3
ZCLS4532-101K,M	100 $\pm$ 10%, $\pm$ 20%	40	1	8	3.8	5	1.5 $\pm$ 0.3
ZCLS4532-121K,M	120 $\pm$ 10%, $\pm$ 20%	30	0.4	6	3.0	3	1.5 $\pm$ 0.3
ZCLS4532-151K,M	150 $\pm$ 10%, $\pm$ 20%	30	0.4	5.5	3.4	3	2.2 $\pm$ 0.3
ZCLS4532-181K,M	180 $\pm$ 10%, $\pm$ 20%	30	0.4	5	3.8	3	2.2 $\pm$ 0.3
ZCLS4532-221K,M	220 $\pm$ 10%, $\pm$ 20%	30	0.4	4.5	4.2	3	2.2 $\pm$ 0.3

* TEST EQUIPMENT: E4991A IMPEDANCE ANALYZER 量測儀器：E4991A 阻抗分析儀

* The product with Inductance under 0.82 μ H and over than 10 μ H requires minimum order quantity.

感值 0.82 μ H 以下及超過 10 μ H 以上的規格需要最低訂購量。

Multilayer Ferrite Chip Inductor

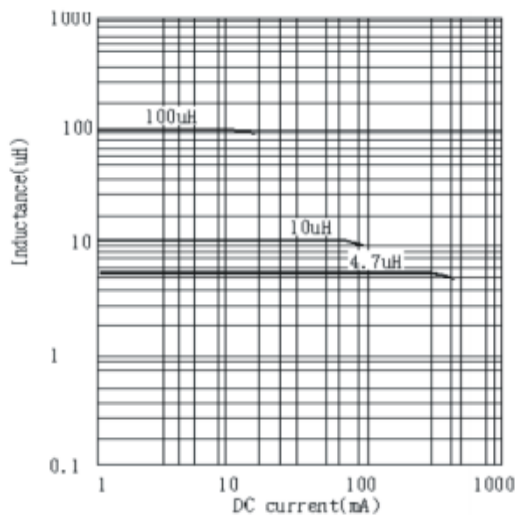
積層式鐵氧體晶片電感

ZCLS4532 (1812) TYPE 類型

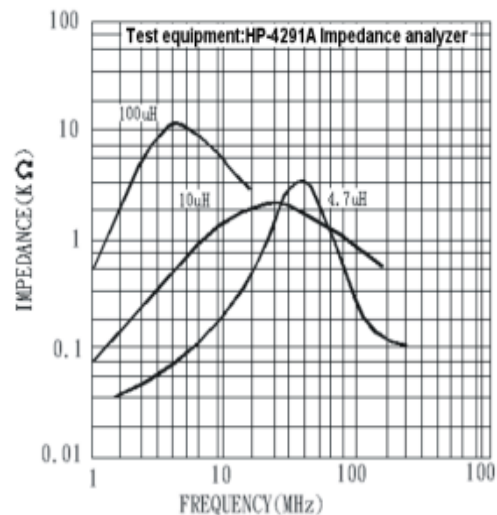
TYPICAL ELECTRICAL CHARACTERISTICS 典型電氣特性

Z, R, X vs. FREQUENCY CHARACTERISTICS 阻抗、電阻、感抗對頻率特性

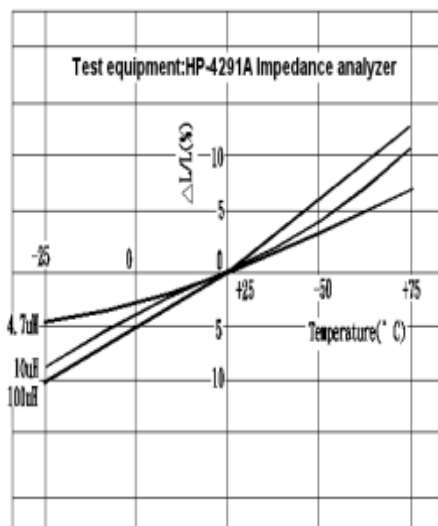
INDUCTANCE vs. DC SUPERPOSITION



IMPEDANCE vs. FREQUENCY



INDUCTANCE vs. TEMPERATURE



Q vs. FREQUENCY

