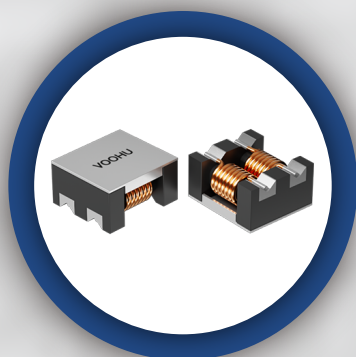


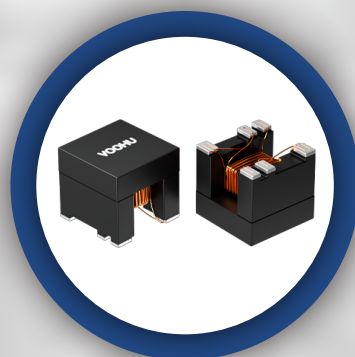
共模电感系列选型手册

COMMON MODE CHOKE Series Selection Manual



功率线用共模电感

Common mode Choke series
(POWER Line)



信号线用共模电感

Common mode Choke series
(Signal Line)

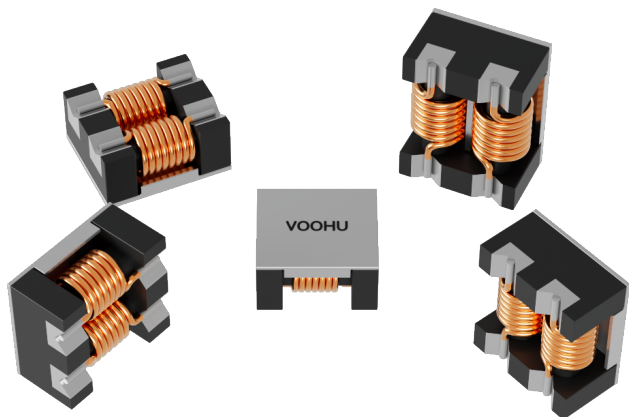
致力于成为世界一流的通信电子
“元器件供应商”、“方案解决商”、“互联网电商”

Committed to becoming a world-class communications electronics
"Component supplier", "solution provider", "high-quality Internet e-commerce"

苏州沃虎电子科技有限公司

Suzhou VOOHU Electronic Technology Co., Ltd.

沃虎®功率线用共模电感



特性

- High Current up to 15A
- High Impedance up to 3000Ω
- Low Profile in SMT Construction
- Compact Case
- AEC-Q200 Qualification

应用

- DC/DC Converter
- DC Power Lines
- Power Supply Systems

共模扼流圈，顾名思义，是设计来衰减和过滤电气系统中的共模噪声。共模扼流圈的关键参数是额定电流(以确保部件在应用中不会过热)，阻抗与频率(优化所需的频率段，反之衰减不需要的频率段)，隔离电压(以确保它满足线路和中性相位之间的板级要求)和安全隔离(以确保它满足终端应用的安全要求)。更重要的是共模扼流圈在应用中不能饱和(在正常使用下)，因为它们的设计是为了确保线路和返回电流是平衡的。

Common Mode Choke, As The Name Implies, Are Designed To Attenuate And Filter Common Mode Noise Within An Electric System. The Key Parameters For A Common Mode Choke Are The Current Rating (To Ensure The Part Does Not Overheat Within The Application), The Impedance Versus Frequency (To Ensure It Is Optimized To Attenuate The Desired Frequencies), The Isolation Voltage (To Ensure It Meets Board Level Requirements Between The Line And Neutral Phases) And Safety Isolation (To Ensure It Meets The Safety Requirements Of The End-application). It Is Important To Remember That Common Mode Chokes Cannot Saturate In The Application (Under Normal Use) As They Are Designed To Ensure That The Line And Return Currents Are Balanced.

产品系列	WHAL-4520A	WHAL-7060A	WHAL-9070A	WHAL-1211A	WHAL-1513A
产品图片					
CM Impedance(Ω Typ)	90-3000	70-3000	300-3000	230-2700	300-1500
Rated current (A)	1.0-3.2	0.9-15.0	1.9-6.0	1.5-10.0	5.0-13.0
Rated Voltage(V Max)	50	125	125	125	80
DCR(mΩ Max)	35-80	5-75	6-70	4-50	5-23

功率线用共模电感 - 4520A系列

料号	Common Mode Impedance 100MHz (Ω Min)	Common Mode Impedance 100MHz (Ω Typ)	DCR (mΩ)Max	Rated Current (A)	Insulation Resistance (MΩ Min)	Rated Voltage (V Max)
WHAL-4520A-900T0	60	90	35	3.2	10	50
WHAL-4520A-152T0	90	150	40	3.2	10	50
WHAL-4520A-231T0	180	230	45	3.0	10	50
WHAL-4520A-301T0	200	300	45	3.0	10	50
WHAL-4520A-381T0	250	380	50	2.5	10	50
WHAL-4520A-401T0	300	420	50	2.5	10	50
WHAL-4520A-501T0	350	500	55	2.4	10	50
WHAL-4520A-701T0	500	700	58	2.2	10	50
WHAL-4520A-901T0	650	900	60	2.1	10	50
WHAL-4520A-102T0	800	1000	60	2.1	10	50
WHAL-4520A-122T0	1000	1200	70	2.0	10	50
WHAL-4520A-142T0	1200	1400	80	1.9	10	50
WHAL-4520A-202T0	1800	2000	80	1.5	10	50
WHAL-4520A-302T0	2500	3000	80	1.0	10	50

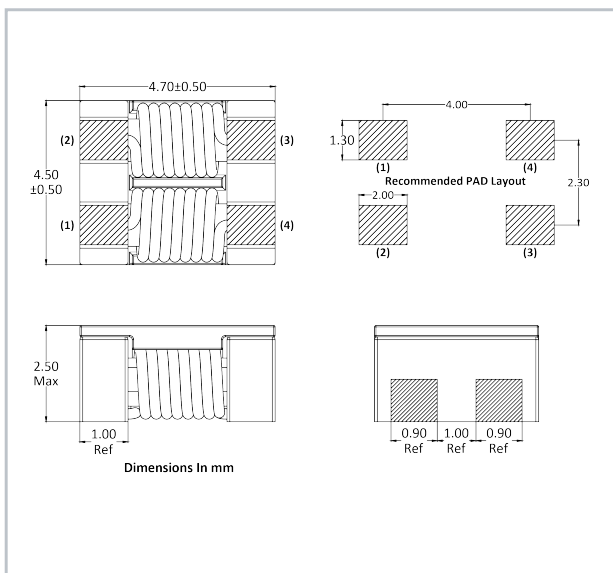
NOTES:

Compatible With RoHS Directive And AEC-Q200

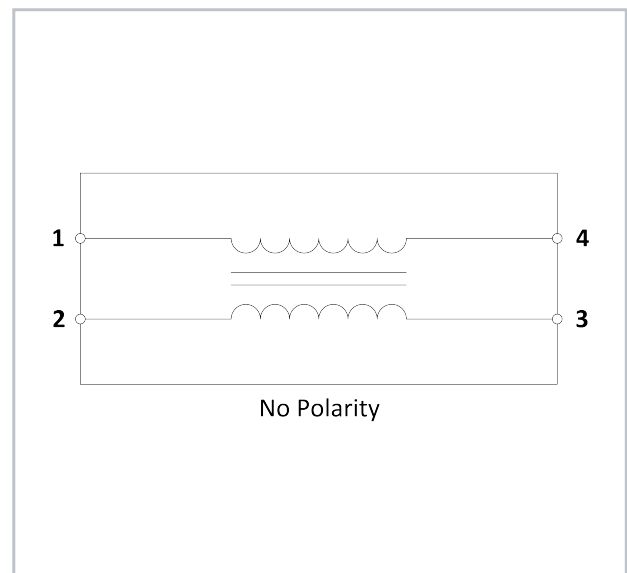
Operating Temp. From -40°C to 125°C

All Information Is Reference Only. See Datasheet For Specific Information.

Dimensions: [mm]



Schematic:



功率线用共模电感 - 7060A系列

料号	Common Mode Impedance 100MHz (Ω Min)	Common Mode Impedance 100MHz (Ω Typ)	DCR (mΩ)Max	Rated Current (A)	Insulation Resistance (MΩ Min)	Rated Voltage (V Max)
WHAL-7060A-700T0	40	70	5	15.0	10	125
WHAL-7060A-141T0	100	140	10	9.0	10	125
WHAL-7060A-301T0	225	300	10	5.0	10	125
WHAL-7060A-601T0	400	600	10	5.0	10	125
WHAL-7060A-701T0	500	700	15	4.0	10	125
WHAL-7060A-102T0	800	1020	17	3.0	10	125
WHAL-7060A-132T0	910	1300	21	2.5	10	125
WHAL-7060A-222T0	1700	2200	50	1.2	10	125
WHAL-7060A-272T0	2000	2700	63	1.0	10	125
WHAL-7060A-302T0	2500	3000	75	0.9	10	125

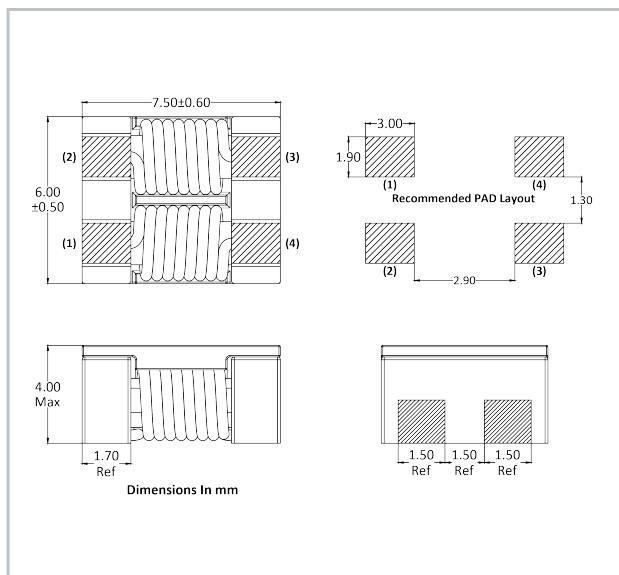
NOTES:

Compatible With RoHS Directive And AEC-Q200

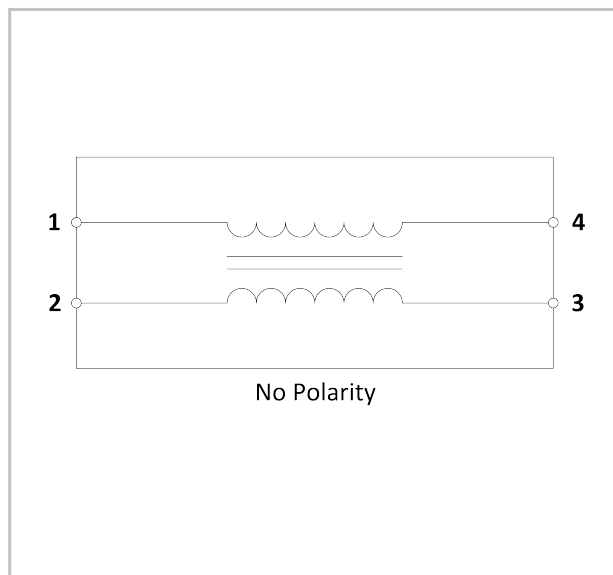
Operating Temp. From -40°C to 125°C

All Information Is Reference Only. See Datasheet For Specific Information.

Dimensions: [mm]



Schematic:



功率线用共模电感 - 9070A系列

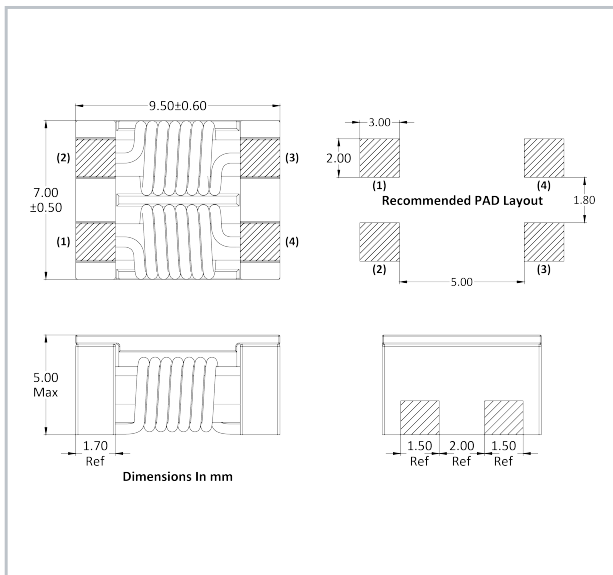
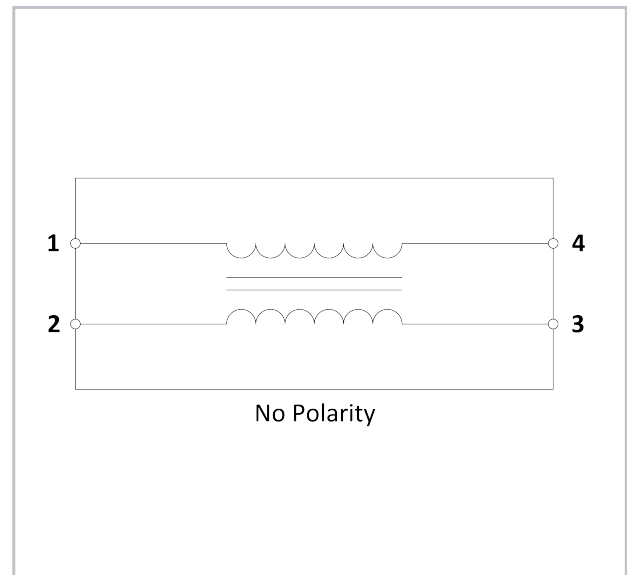
料号	Common Mode Impedance 100MHz (Ω Min)	Common Mode Impedance 100MHz (Ω Typ)	DCR (mΩ)Max	Rated Current (A)	Insulation Resistance (MΩ Min)	Rated Voltage (V Max)
WHAL-9070A-301T0	225	300	6	6.0	10	125
WHAL-9070A-601T0	450	600	8	5.5	10	125
WHAL-9070A-701T0	500	700	10	5.0	10	125
WHAL-9070A-102T0	750	1000	13	4.0	10	125
WHAL-9070A-132T0	1000	1300	20	4.0	10	125
WHAL-9070A-152T0	1200	1500	20	4.0	10	125
WHAL-9070A-222T0	1700	2200	60	2.5	10	125
WHAL-9070A-272T0	2000	2700	65	2.0	10	125
WHAL-9070A-302T0	2500	3000	70	1.9	10	125

NOTES:

Compatible With RoHS Directive And AEC-Q200

Operating Temp. From -40°C to 125°C

All Information Is Reference Only. See Datasheet For Specific Information.

Dimensions: [mm]**Schematic:**

功率线用共模电感 - 1211A系列

料号	Common Mode Impedance 100MHz (Ω Min)	Common Mode Impedance 100MHz (Ω Typ)	DCR (mΩ)Max	Rated Current (A)	Insulation Resistance (MΩ Min)	Rated Voltage (V Max)
WHAL-1211A-231T0	80	230	4	10.0	10	125
WHAL-1211A-701T0	500	700	6	8.0	10	125
WHAL-1211A-801T0	600	800	8	8.0	10	125
WHAL-1211A-102T0	750	1000	14	6.0	10	125
WHAL-1211A-132T0	910	1300	23	4.5	10	125
WHAL-1211A-252T0	2200	2500	35	1.8	10	125
WHAL-1211A-272T0	2300	2700	50	1.5	10	125

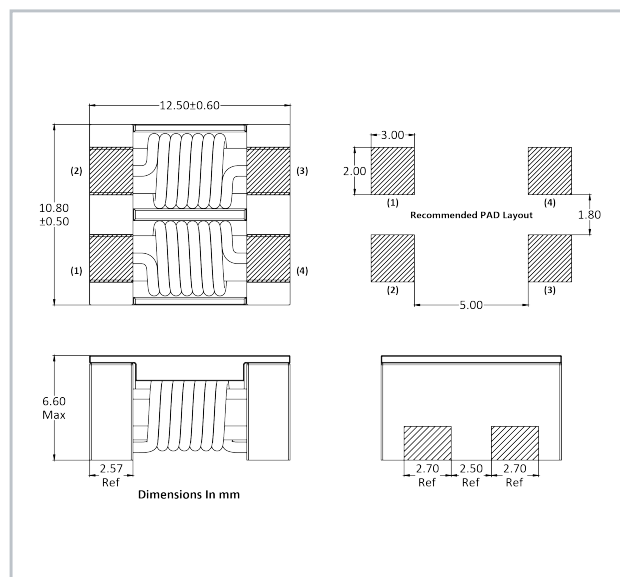
NOTES:

Compatible With RoHS Directive And AEC-Q200

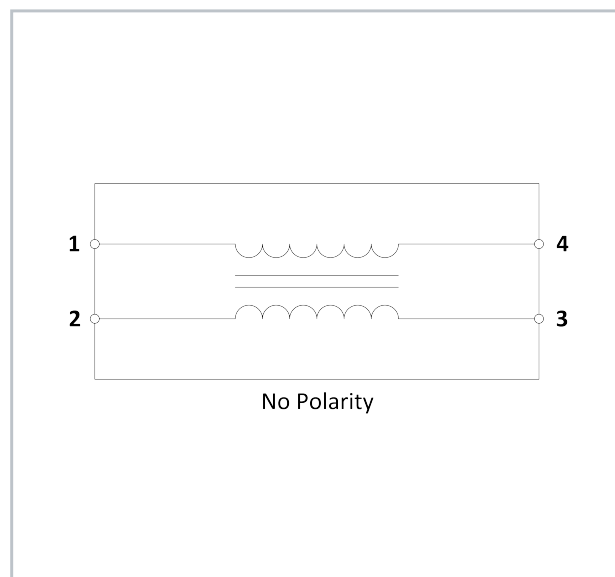
Operating Temp. From -40°C to 125°C

All Information Is Reference Only. See Datasheet For Specific Information.

Dimensions: [mm]



Schematic:



功率线用共模电感 - 1513A系列

料号	Common Mode Impedance 100MHz (Ω Min)	Common Mode Impedance 100MHz (Ω Typ)	DCR (mΩ)Max	Rated Current (A)	Insulation Resistance (MΩ Min)	Rated Voltage (V Max)
WHAL-1513A-301T0	225	300	5	13.0	10	80
WHAL-1513A-501T0	400	500	6	10.0	10	80
WHAL-1513A-551T0	400	550	6	10.0	10	80
WHAL-1513A-601T0	500	600	7	10.0	10	80
WHAL-1513A-701T0	500	700	7	10.0	10	80
WHAL-1513A-102T0	800	1000	10	9.0	10	80
WHAL-1513A-152T0	1200	1500	23	5.0	10	80

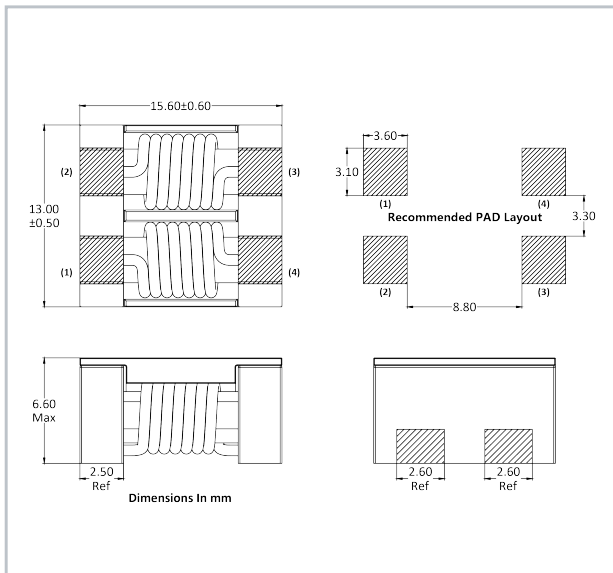
NOTES:

Compatible With RoHS Directive And AEC-Q200

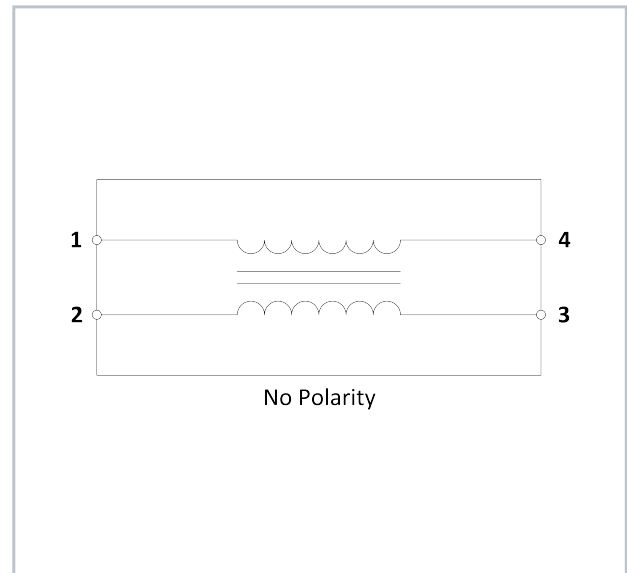
Operating Temp. From -40°C to 125°C

All Information Is Reference Only. See Datasheet For Specific Information.

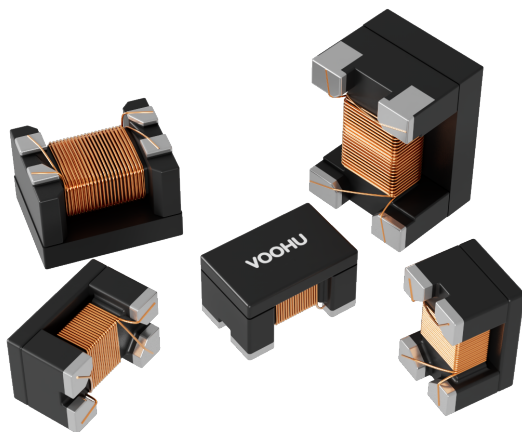
Dimensions: [mm]



Schematic:



沃虎®信号线用共模电感



特性

- Current Compensated Data Line Filter
- High Common Mode Noise Suppression at High Frequencies
- Small Influence on High Speed Signals Through Winding Symmetry

应用

- High Speed Data Lines
- LAN
- USB, LVDS, RS485
- 100Base-T1 Ethernet
- 1000Base-T1 Ethernet
- CAN, CAN-FD

沃虎电子信号线用共模电感采用全自动化生产模式，实现规模性、全流程自动化生产。产品符合欧盟RoHS2.0规范、可与全球主要PHY芯片品牌供货商的产品兼容。提供全系列高速接口（Ethernet, CAN, RS485, USB, LVDS）专用信号片式共模电感，采用高性能NiZn磁芯和精密绕线工艺，严格保证信号完整性（低插损、优异S参数），同时提供卓越的高频噪声抑制能力。

VOOHU Electronics' common-mode inductors for signal lines utilize a fully automated production model, enabling scalable, fully automated production. These products comply with EU RoHS 2.0 regulations and are compatible with products from major global PHY chip suppliers. We offer a full range of chip-type common-mode inductors specifically designed for high-speed interfaces (Ethernet, CAN, RS485, USB, and LVDS). These inductors utilize high-performance NiZn cores and precision winding technology to ensure signal integrity (low insertion loss and excellent S-parameters) while providing superior high-frequency noise suppression.

产品系列	WHAL-2012A	WHAL-3216A	WHAL-3225B	WHAL-4532A
产品图片				
CM Impedance(Ω Typ)	90-1200(@100MHz)	-	550-5100(@10MHz)	10.00-22.00(@10MHZ)
DCR(Ω)	0.35-1.50	1.50-1.70	0.80-4.90	600-5800
Size(mm)	2012	3216	3225	4532
Ratea Current(mA)	300	200	150-300	150-250

信号线用共模电感 - Ethernet 2012A系列

料号	Common Mode Impedance @100MHz (Ω Typ)	DC Resistance (Ω MAX)	Rated Voltage (VDC)	Rated Current (mA Max)	Withstanding Voltage (VDC)	Insulation Resistance (MΩ Min)
WHLC-2012A-900T0	90	0.35	50	300	125	10
WHLC-2012A-181T0	180	0.35	50	300	125	10
WHLC-2012A-261T0	260	0.40	50	300	125	10
WHLC-2012A-361T1	360	0.45	50	300	125	10
WHLC-2012A-381T0	380	0.45	50	300	125	10
WHLC-2012A-801T0	800	0.88	50	300	125	10
WHLC-2012A-102T0	1000	1.30	50	300	125	10
WHLC-2012A-122T0	1200	1.50	50	300	125	10

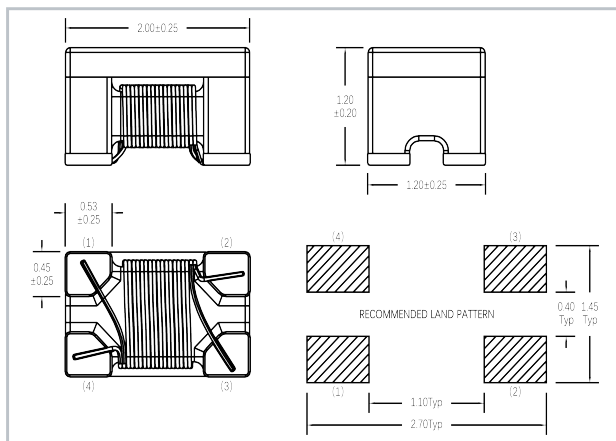
NOTES:

Electrical Specifications @ 25°C

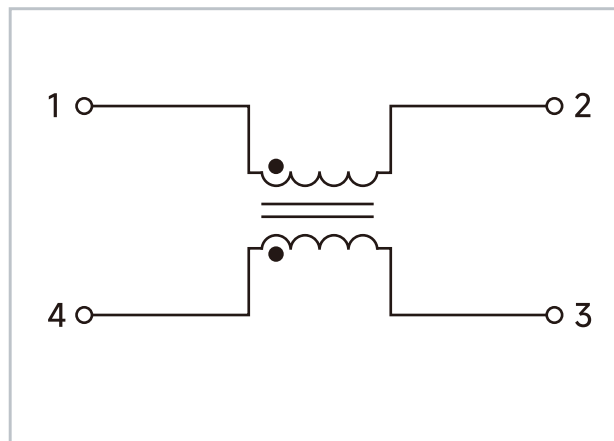
All Information Is Reference Only. See Datasheet For Specific Information.

信号线用共模电感 - Ethernet 2012A系列

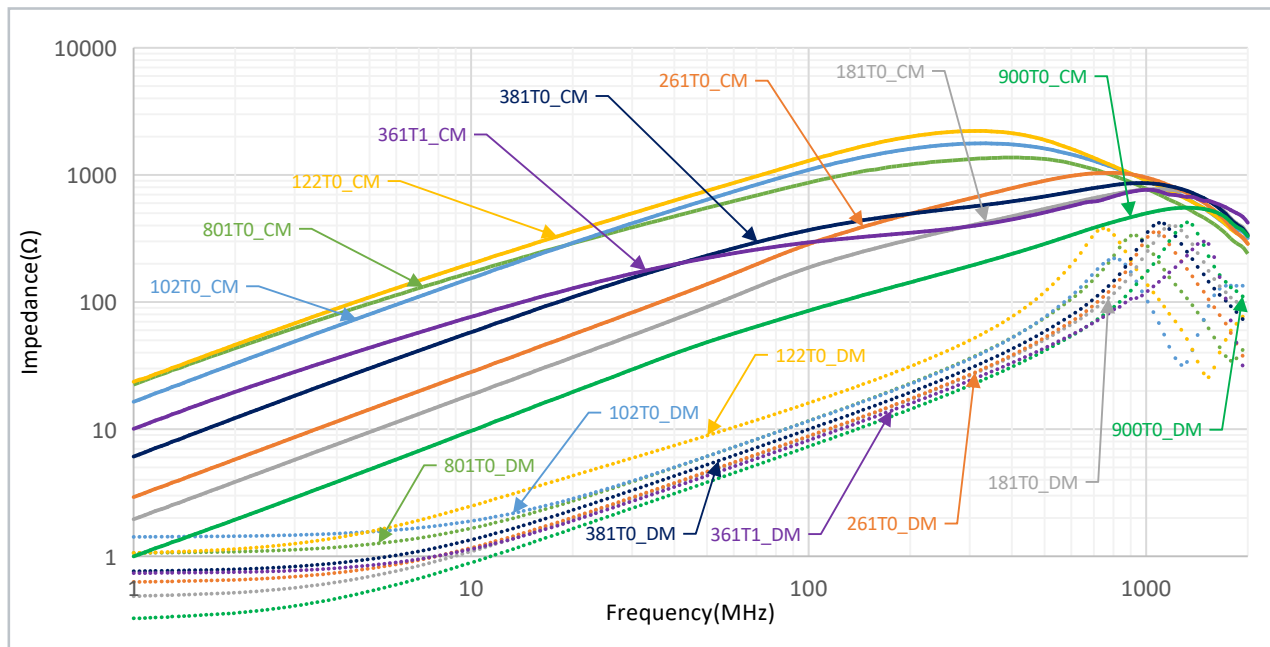
Dimensions: [mm]



Schematic:



Impedance VS. Frequency



信号线用共模电感 - Ethernet 3216A系列

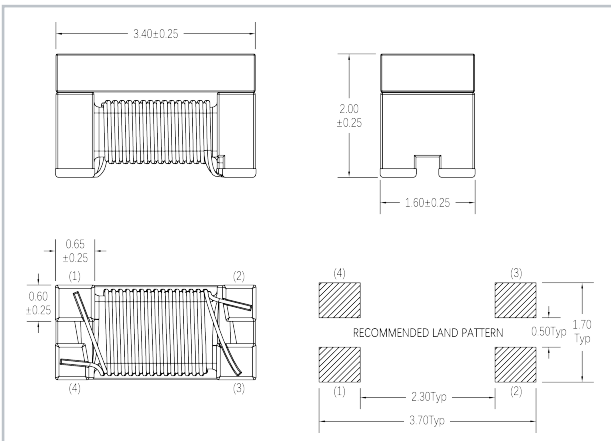
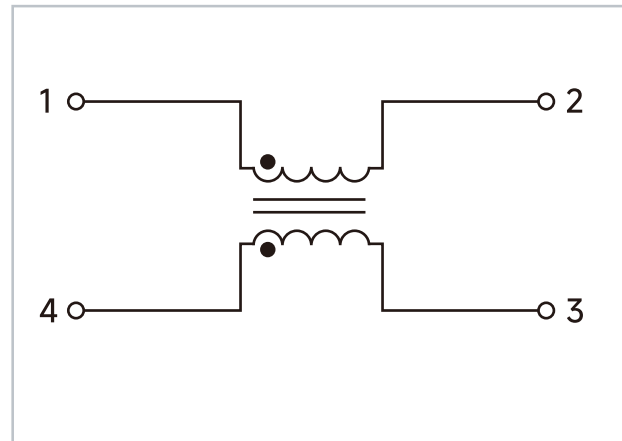
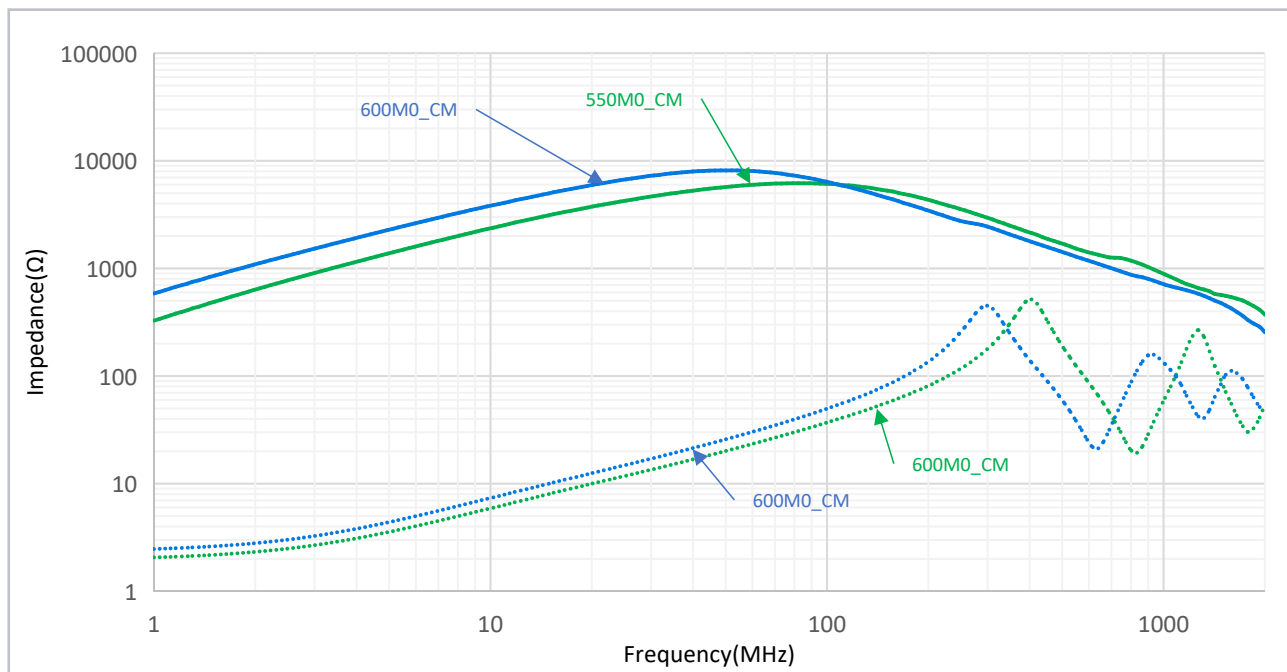
料号	Inductance 100KHz/0.1V (μ H)Min	DC Resistance (Ω)Max	Rated Current (mA)	Rated Volt (VDC)	Insulation Resistance (M Ω Min)	Rated Voltage (V Max)
WHLC-3216A-550M0	55	1.50	200	50	125	10
WHLC-3216A-600M0	60	1.70	200	50	125	10

NOTES:

Compatible With RoHS Directive And AEC-Q200

Operating Temp. From -40°C to 125°C

All Information Is Reference Only. See Datasheet For Specific Information.

Dimensions: [mm]**Schematic:****Impedance VS. Frequency**

信号线用共模电感 - 100Base -T1 系列

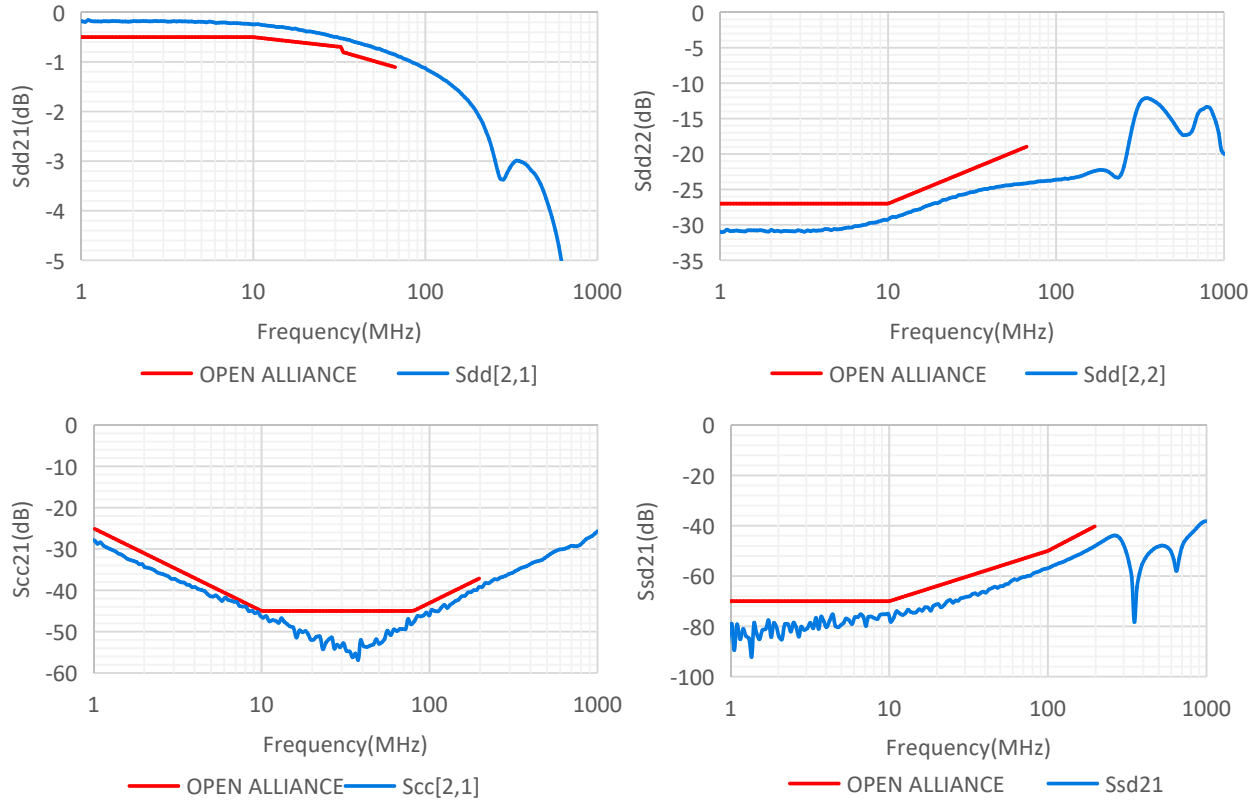
料号	Insertion Loss (dB Max)			Return Loss (dB Min)			Common Mode Rejection (dB Min)			Differential to Common Mode Rejection (dB Min)		
	1-10MHZ	33MHZ	66MHZ	1-10MHZ	33MHZ	66MHZ	1MHZ	10-80MHZ	200MHZ	1-10MHZ	100MHZ	200MHZ
WHAC-3225B-201U4	-0.5	-0.7	-1	-27	-22	-19	-25	-45	-37	-70	-50	-40
WHAC-4532A-201U4	1-60MHZ			1-10MHZ	30MHZ	60MHZ	1MHZ	400MHZ	1000MHZ	1-10MHZ	100MHZ	1000MHZ
	-1			-26	-21.1	-18	-23	-25	-15	-70	-50	-24

信号线用共模电感 - 1000Base -T1 系列

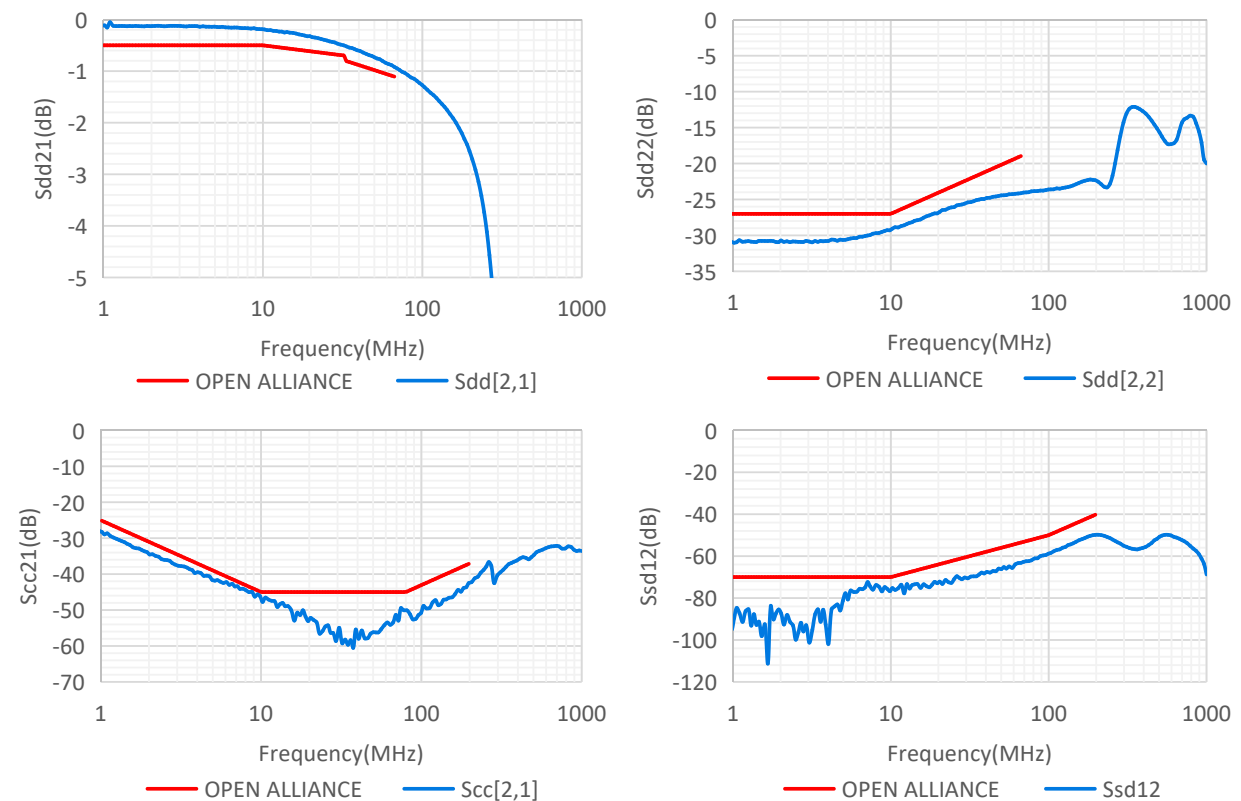
料号	Insertion Loss (dB Max)			Return Loss (dB Min)			Common Mode Rejection (dB Min)			Differential to Common Mode Rejection (dB Min)		
	20MHZ	100MHZ	400MHZ	30-80MHZ	200MHZ	600MHZ	10MHZ	30-200MHZ	600MHZ	1-80MHZ	600MHZ	
WHAC-3225B-201U4	-0.5	-0.8	-1.5	-25	-20	-14.5	-32.5	-42	-32.5	-65	-47.5	
WHAC-4532A-201U4	10-100MHZ		100-400MHZ	30-80MHZ	200MHZ	400MHZ	30-80MHZ	400MHZ	1000MHZ	1-30MHZ	200MHZ	1000MHZ
	-1		-1.7	-22	-20	-15	-45	-32	-25	-60	-40	-38

S-Parameter VS. Frequency(100Base-T1 Series)

WHAC-4532A-201U4

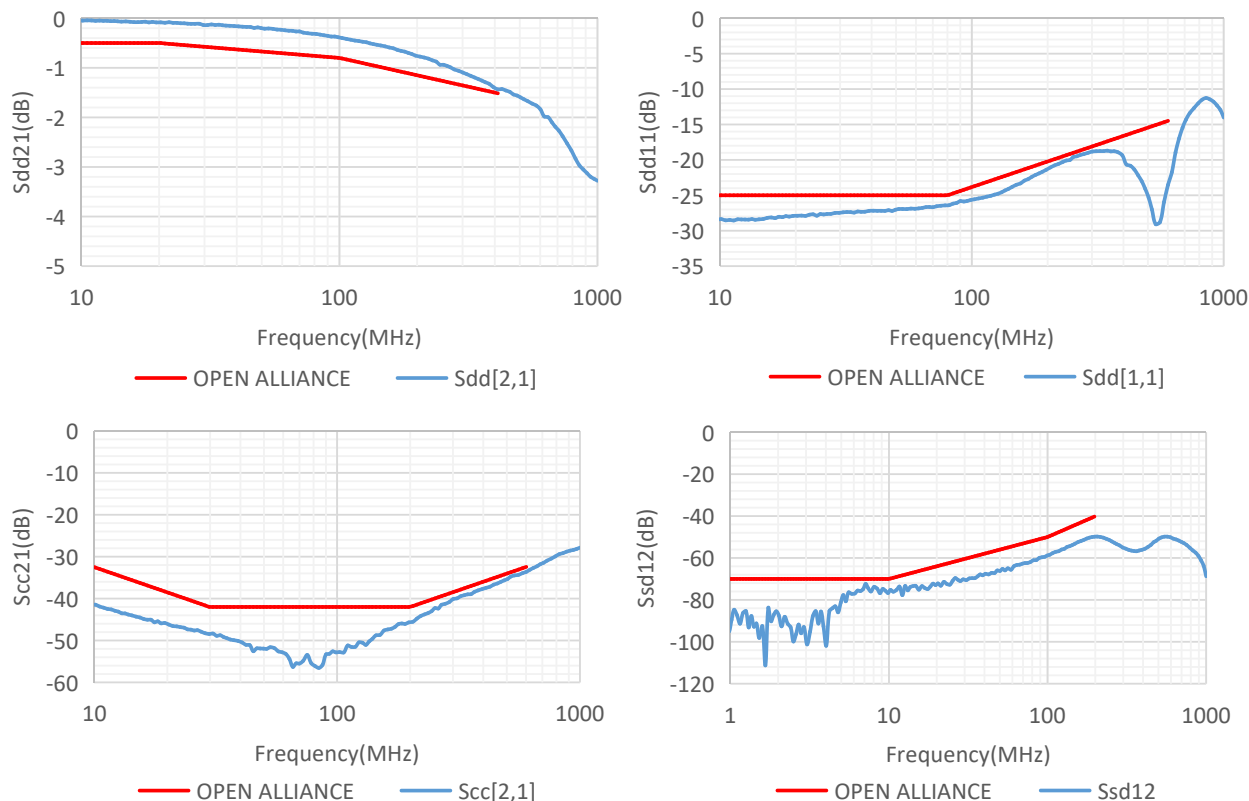


WHAC-3225B-201U4

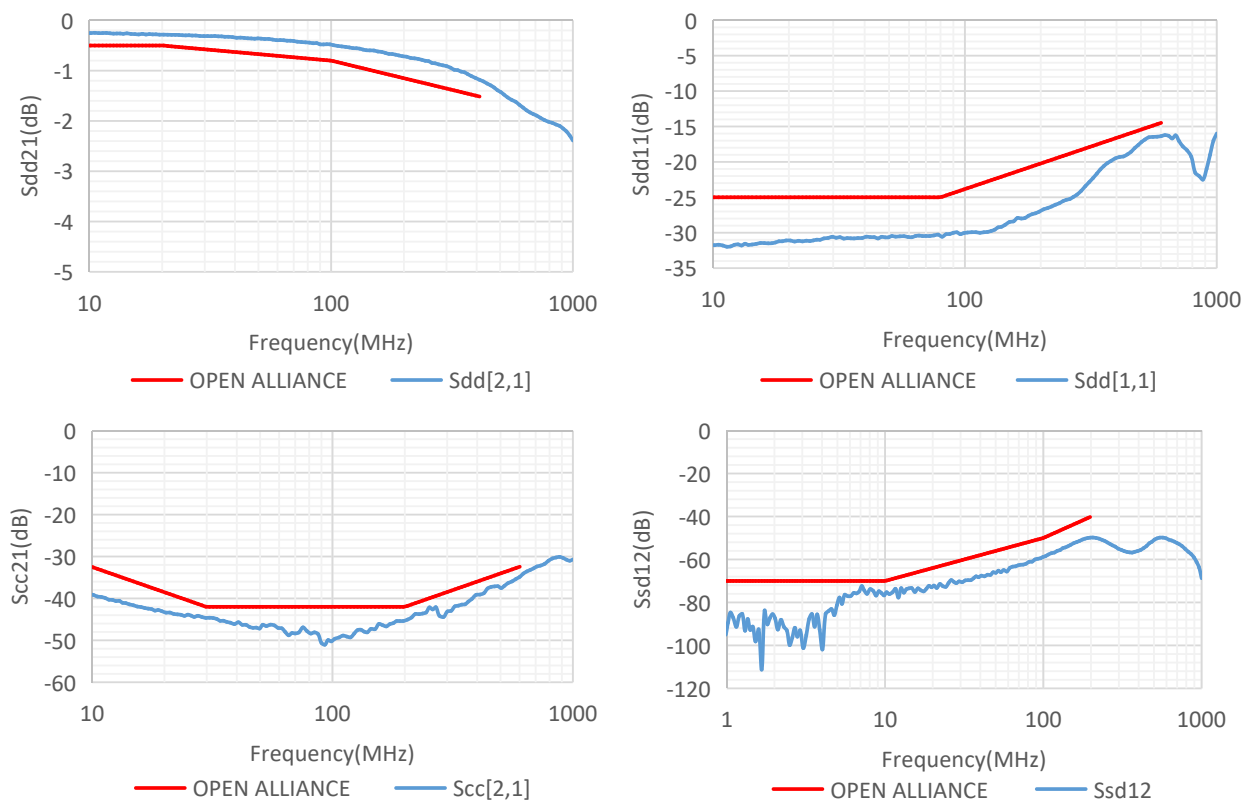


S-Parameter VS. Frequency(1000Base-T1 Series)

WHAC-4532A-800U3



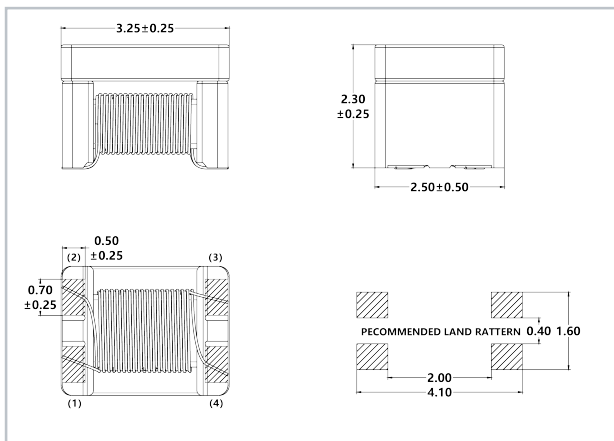
WHAC-3225B-800U3



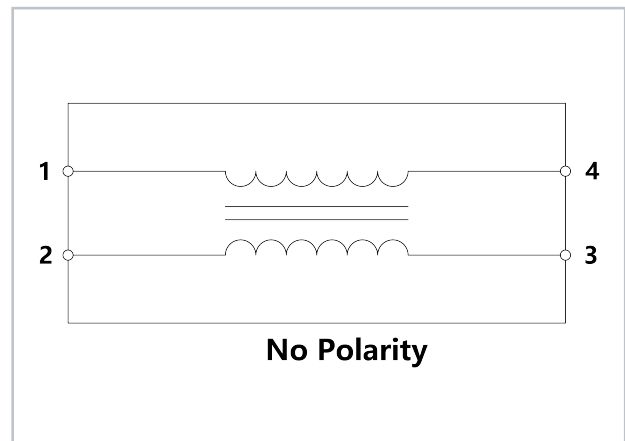
信号线用共模电感 - CAN/CAN-FD 3225 Series

料号	Common Mode Impedance (10MHz)		Inductance (μH) +50/-30%	RDC (Ω)Max	Leakage Inductance (nH) Typ	Isolation Resistance (MΩ) Min	Rated Current (mA) Max	Rated Voltage (V) Max
	(Ω)MIN	(Ω)TYP						
WHAC-3225B-110U0	300	550	11	0.8	50	10	300	80
WHAC-3225B-220U0	500	1100	22	1.0	70	10	250	80
WHAC-3225B-510U0	1000	2600	51	1.6	130	10	200	80
WHAC-3225B-101U0	2200	5100	100	4.9	180	10	150	80

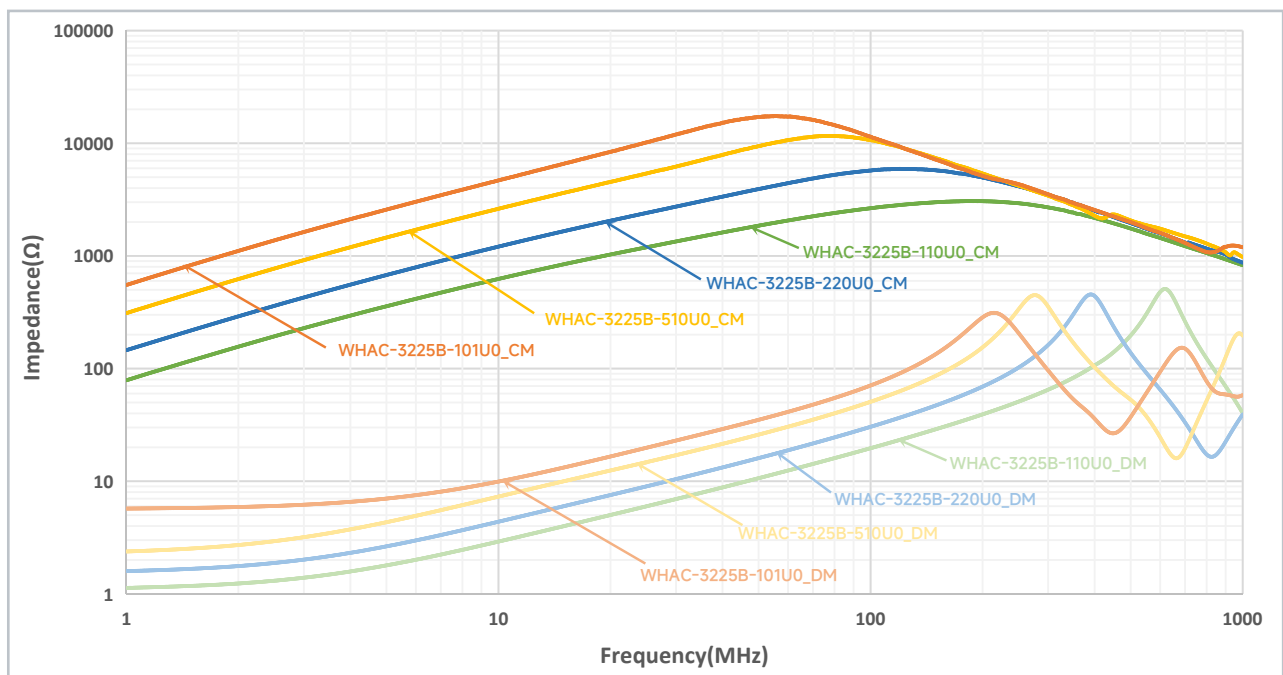
Dimensions: [mm]



Schematic:



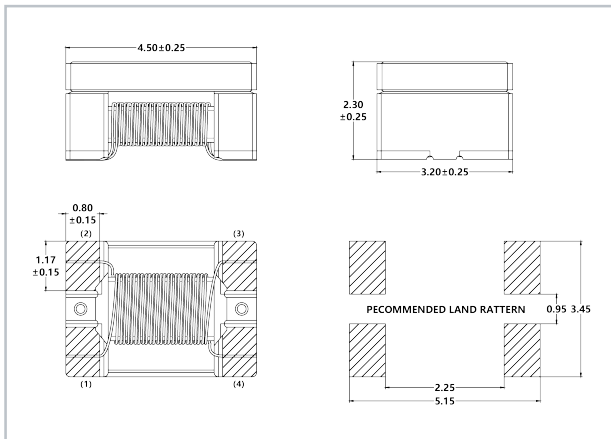
Impedance VS. Frequency



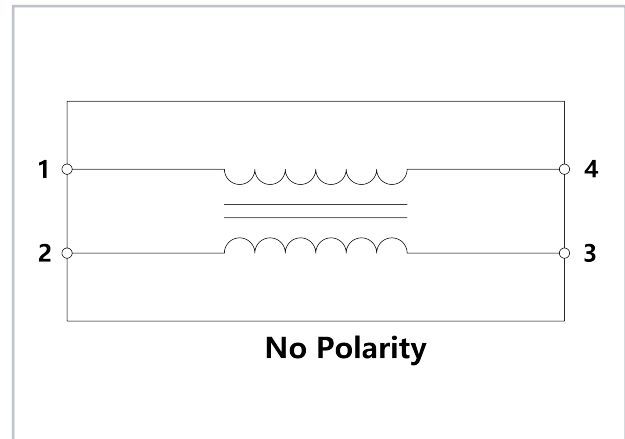
信号线用共模电感 - CAN/CAN-FD 4532 Series

料号	Common Mode Impedance (10MHz)		Inductance (μH) +50/-30%	RDC (Ω)Max	Leakage Inductance (nH) Typ	Isolation Resistance (MΩ) Min	Rated Current (mA) Max	Rated Voltage (V) Max
	(Ω)MIN	(Ω)TYP						
WHAC-4532A-110U0	300	600	11	1.2	50	10	250	50
WHAC-4532A-220U0	500	1200	22	1.4	80	10	200	50
WHAC-4532A-510U0	1000	2800	51	1.8	150	10	200	50
WHAC-4532A-101U0	2000	5800	100	2.5	200	10	150	50

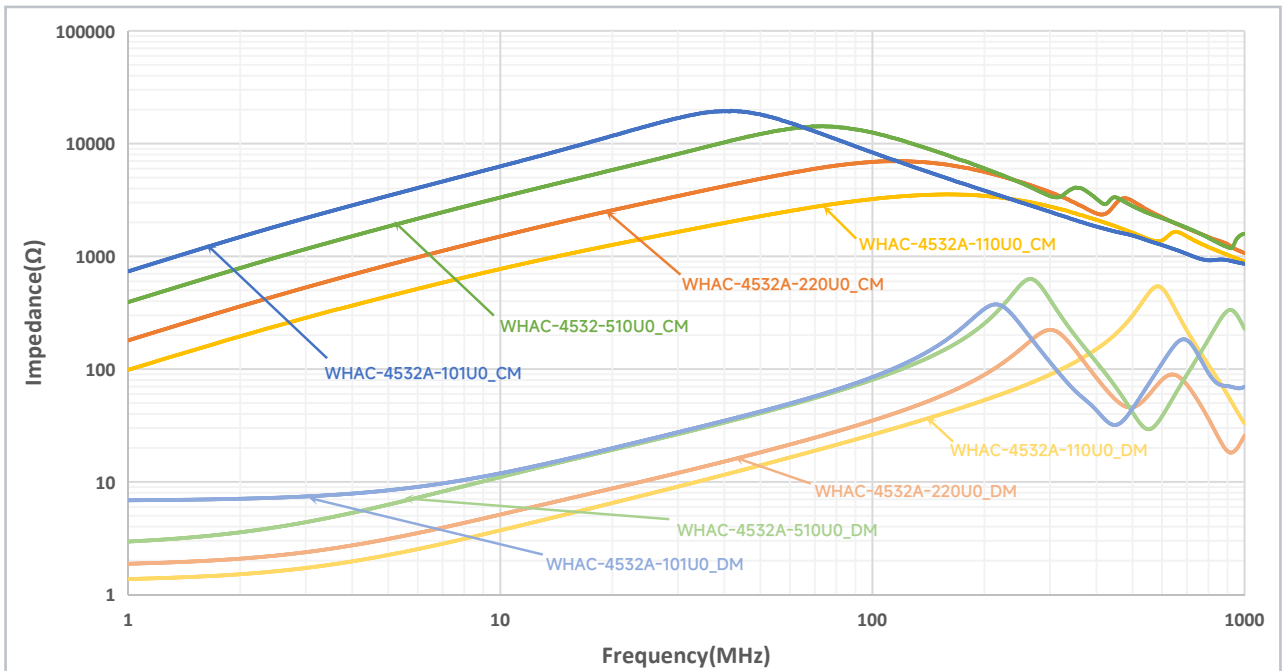
Dimensions: [mm]



Schematic:



Impedance VS. Frequency



VOOHU 沃虎

选沃虎·真靠谱

苏州沃虎电子科技有限公司

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公司官网



沃虎商城