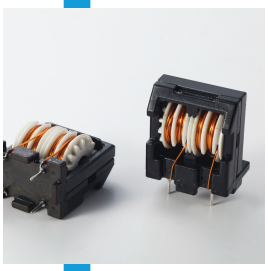
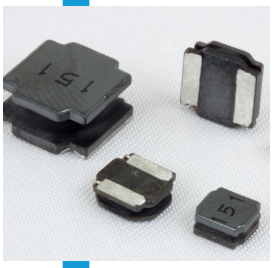
Ferrite EMI Noise Filtering SOLUTIONS





Laird™ | Steward™

An Overview of Laird Performance Materials

We enable high-performance electronics. Laird creates advanced protection solutions for electronic components and systems. World-leading technology brands rely on Laird for improved protection, higher performance and reliability, custom structural designs and faster time-to-market. Laird Steward is part of Laird. Our 4,000 employees are dedicated to your success.

We solve design issues through innovative products such as EMI suppression or absorption materials, thermal interface materials, structural and precision metals, **Laird™ Steward™ magnetic ceramic products** and multi-functional solutions. This latter product family solves multiple EMI, thermal and structural design issues simultaneously using a single process solution.

Laird engages a world-class group of top distributors and manufacturer representative organizations to extend our reach. They help ensure that every customer or potential customer of Laird's products in every region of the globe receives prompt, engineer-to-engineer attention along with the guidance, design and manufacturing excellence and exceptional customer service required to succeed.

The company designs and manufactures standardized, customized, and performance-critical products for applications in many industries including:

- Telecommunications and Datacom
- Information technology
- Consumer Electronics including Gaming
- Automotive
- Medical
- Wearable devices
- Industrial and Instrumentation

Laird offers customers a vast array of unique product solutions, our dedication to research and development, and a seamless network of manufacturing and customer support facilities across the globe. Visit Laird at www.laird.com

High Frequency Filtering Using Laird™ Steward™ Ferrite Products

Laird offers an extensive product lineup of ferrite cores and EMI noise filtering components for EMI suppression in signal interfaces, clock and power lines. Our ferrite-based product families preserve signal integrity by removing or filtering the 'EMI noises' generated by active components such as microprocessors, microcontrollers and System-on-Chip (SoC), couplings from DC power lines, broadcasting from the ambient environment, and other sources.

Your Best Choice!

No matter whether your EMI/EMC problem is common or unique – Laird solutions will always be your best choice for every design! As an industry-leading signal integrity products and solutions provider, we provide a broad range of standardized and customized products, including Ferrite Toroid and Baiun Cores, Cable Cores, Chip Beads and Inductors, SMT Bead Assemblies, Common Mode Chokes, and SMT Power Inductors.

We also design, manufacture and sell many unique high-performance products which support high DC current rating with minimal performance degradation under bias, low DCR, and a small footprint that is suitable for power supply and DC/DC conversion designs in a variety of mobile computing and other devices.

Table of Contents

Ferrite Cable Cores 1
Ferrite EMI Disks and Plates 1
Transformer and Filter Cores 2
Ferrite Rod 3
Ferrite Bar 3
Ferrite Chip Beads (Arrays) 4
Ferrite Chip Inductors 4
Multilayer Power Chip Inductors 4
High Speed Signal Interface Common Mode Chokes 5
Power Line Common Mode Chokes (Arrays) 5
Wire-Wound SMD Power Common Mode Chokes 5
Wire-Wound SMT Power Common Mode Chokes 6
Wire-Wound DIP Power Common Mode Chokes 6
Broadband Wire Wound Power Common Mode Chokes 6
High Current Power Line Common Mode Chokes 7
Axial Wire Ferrite Filters/Differential Mode EMI Arrays 7
Ferrite Rod Inductors 7
Power Inductors 8
TYS Low Profile SMD Power Inductors 9
MGV High Current & Low Profile SMD Power Inductors 9
Low DCR & High Current Power Inductors 10
WPC Wireless Charging Coil Modules 11
Flexible Ferrite Sheets 12
Ferrite Plate for Resonant Wireless Charging 13
Ferrite Plate for Inductive Wireless Charging 13
Ferrite Bead for Automotive 14

All parts listed in this catalog are lead free and RoHS compliant.

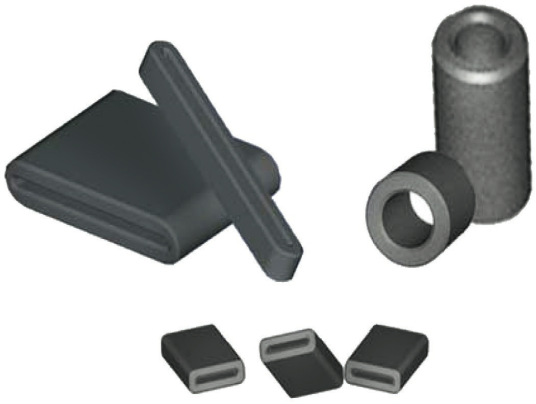
NOTICE

Ferrite Core SOLUTIONS

Ferrite Cable Cores

FOR ROUND, RIBBON & FLEX CABLES & WIRING

Laird produces an extensive line of ferrite products for cable harness assemblies, and flexible cable assemblies. These cable core products are mainly used for inductive and EMI filtering applications and are available in three (3) different types of materials (refer below) based on operating frequency ranges.



Available in 3 different materials:

- High Frequency
  HF – Part Series (300 MHz – 2 GHz)
- Broadband
  28 – Part Series (30 MHz – 1 GHz)
- Low Frequency
  LF – Part Series (300 KHz – 30 MHz)

SPLIT, SNAP-ON CORES IN PLASTIC CASES

- 28A-, HFA-, 28S- Part Series

For retrofit and post assembly operations, Laird offer a selection of “split” cores. Similar in performance to Laird’s one-piece core designs, these split ferrite cores provide excellent common and differential mode EMI suppression on round cable and wire assemblies. Black or white plastic snap-on cases provide secure closure of the split cores onto the cable.

Ferrite EMI Disks and Plates

- MM-, MP- Part Series

Ferrite plates and disks can also be used as magnetic coupling and shielding for wireless charging applications based on magnetic induction technology. Magnetic flux is directed and concentrated from the wireless charging transmitter side to the receiver side with minimum power loss and electromagnetic field leakage.

Transformer and Filter Cores

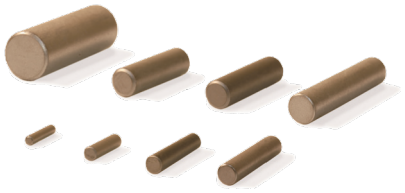
Laird's extensive line of transformer and filter cores are primarily found in most Ethernet (10/100/1000/10G Base-T) and telecom applications. Available in a wide range of sizes, these toroid cores are also designed to carry DC bias of up to 8 mA for traditional Ethernet applications and up to 32 mA for PoE+ applications. They are also available for an extensive temperature (-40 to +85° C) range.

TYPICAL VALUES			COMMON MODE MATERIALS			DC BIAS MATERIALS			HIGH PERMEABILITY FOR TELECOM & LOW FOR RESONANT FREQUENCY FILTER WIRELESS CHARGING		LOW POWER MATERIALS	OTHER MATERIALS
PARAMETER	SYM-BOL	UNIT	35 LOW FREQ	28 MID FREQ	25 HIGH FREQ	36 DC BIAS STD TEMP	46 DC BIAS EXTEND TEMP	66 HIGH DC BIAS EXTEND TEMP FOR PoE & PoE-	40	RP	65	35
Relative Initial Permeability	μi		5000	850	125	4500	4000	3200	10000	250	3300	5000
A_L Tolerance		%	± 20	± 20	± 30	± 25	± 25	± 25	± 30	± 25	± 25	± 20
Saturation Flux Density	Bs	Gauss	4500	3250	3600	4500	4500		3800		5300	4500
		mT	450	325	360	450	450	480	380		530	450
at Field Intensity	H	Oersteds	10	10	10	10	10		10	15	10	10
		A/m	800	800	800	800	800		800	1200	800	800
Residual Flux Density	Br	Gauss	1000	2000	2600	1000	1000		1400	2800	800	1000
		mT	100	200	260	100	100	130	140	280	80	100
Coercive Force	Hc	Oersteds	0.10	0.40	1.60	0.10	0.10		0.04	1.25	0.11	0.10
		A/m	8	3	127	8	8	10	3	100	9	8
Relative Loss Factor at Frequency	tanδμi	10^6	20	91	740	10	10		5			20
	f	MHz	0.10	0.10	0.10	0.10	0.10		0.10			0.10
Curie Temperature	Tc	°C	> 150	> 175	> 225	> 150	> 150	> 200	> 120	>200	> 220	> 150
Resistivity	ρ	Ω-cm	10^2	10^5	10^6	10^2	10^2		1	10^7	6.5	10^2
Density		g/cm^3	4.8	4.9	4.9	4.8	4.8	4.9	4.8		4.8	4.8

Extensive Selection of Sizes, Shapes and Impedance Values
High Performance, Small Size, Low Cost

Ferrite Rod

28M SERIES



Features:

- Standard 28mat optimized for superior EMI suppression
- Precise dimension control and automotive grade available
- -40°C to 85°C operating temperature
- Available in wide range of size selection, custom materials or shapes are also available upon request

PROPERTY	SYMBOL	UNIT	28 MATERIAL (WPC LISTED)
Initial Permeability	μi		650
Flux Density	B	mT [Gauss]	280 [2800]
@ Field Strength	H	A/m [Oe]	800 [10]
Residual Field Strength	Br	mT [Gauss]	130 [1300]
Coercive Strength	Hc	A/m [Oe]	32 [0.4]
Loss Factor @ Frequency	tanδ/μi f	10^{-6} MHz	500 [0.1]
Curie Temperature	Tc	°C	> 140
Resistivity	ρ	Ω-cm	10^5

Ferrite Bar

63BP SERIES

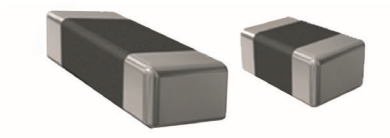
Features:

- Standard 63 mat optimized for antenna application
- Precise dimension control and automotive grade available
- -40°C to 125°C operating temperature
- Available in wide range of size selection, custom materials or shapes are also available upon request
- Size max LxWxH, 79.15 x 3.85 x 23.5 mm

PROPERTY	SYMBOL	UNIT	VALUE @ 25°C	VALUE @ 100°C
Initial Permeability	μi		2300	2300
Tolerance		%	±25%	±25%
Saturation Flux Density at Field Density	Be	mT	490	390
Residual Flux Density	Br	mT	100	55
Coercive Force	Hc	A/m	14	9
Power Loss @ 100KHz/200mT	Pcv	kW/rrT	650	410
Curie Temperature	Tc	°C	> 220	> 220
Resistivity	ρ	Ω-cm	6.5	6.5
Density		g/cm^3	4.8	4.8

Board Level EMI Noise Filtering SOLUTIONS

Ferrite Chip Beads (Arrays)



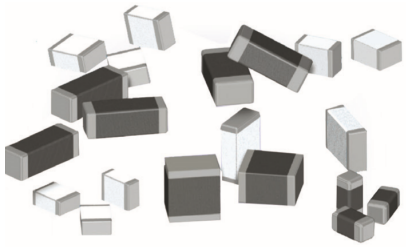
Features:

- Up to 10 A (I MAX) continuous operation capability
- Monolithic construction, high reliability
- Broadband, low frequency and high frequency available.
- For power lines, general signal lines and high-speed signal lines

TYPE	EIA PKG. SIZE	METRIC PKG.SIZE	IMPEDANCE @ 100 MHz	RATED CURRENT
Monolithic	0201 – 1806	0603 – 4516	11 – 3000	3200 mA – 6 A
Monolithic	1612 – 3312	4131 – 8531	56 – 800	6 A – 10 A

Ferrite Chip Inductors

IC0603/0805/1206 SERIES



Features:

- Monolithic construction, high reliability
- Broadband and high frequency available
- For RF and wireless communication, computers, telecommunications, automotive electronics etc.

TYPE	EIA PKG. SIZE	METRIC PKG. SIZE	L (nH)	SRF	RATED CURRENT
Monolithic	0603 – 1206	1608 – 3216	47 – 33,000	313 MHz – 320 MHz	5 mA – 300 mA

Multilayer Power Chip Inductors

CPI0805/0806/1008 SERIES

Features:

- Small size (EIA 0805, 0806 and 1008) with max 1.0 mm in thickness
- Stable low DC resistance performance in the class
- Lead-free product and support lead-free soldering

TYPE	EIA PKG. SIZE	METRIC PKG. SIZE	INDUCTANCE (µH)	INDUCTANCE TOLERANCE	TEST FREQ (MHz)	DCR TYPICAL (Ω)	RATED CURRENT
Monolithic (Ferrite)	0805	2012	0.47 – 4.7	± 20%	1	0.10 – 0.30	500 mA – 1100 mA
	0806	2016	0.47 – 4.7	± 20%	1	0.14 – 0.30	1100 mA – 1500 mA
	1008	2520	0.47 – 4.7	± 20%	1	0.07 – 0.20	1100 mA – 1800 mA

High Speed Signal Interface Common Mode Chokes

CM0805/1206, CF0504/0805 SERIES

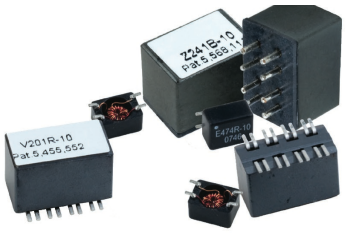
Features:

- For USB, HDMI, 1394, DVI, S-ATA, LVDS applications
- Both surface mount monolithic and wire wound types are available

TYPE	EIA PKG. SIZE	METRIC PKG. SIZE	IMPEDANCE @ 100 MHz (Ω)	RATED CURRENT
Monolithic	0504 – 0805	1008 – 2012	67 – 220	300 mA – 400 mA
Wire Wound	0805 – 1206	2012 – 3216	90 – 600	100 mA – 400 mA

Power Line Common Mode Chokes (Arrays)

THRU-HOLE AND SURFACE MOUNT TYPE



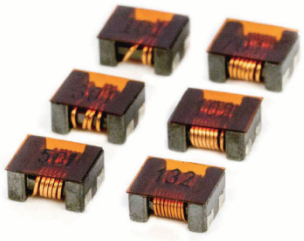
Features:

- Up to 75 Amp
- For servers, workstations, power adapter, medical equipment, automotive, industrial etc.

TYPE	EIA PKG. SIZE	METRIC PKG.SIZE LxW mm	IMPEDANCE @ 100 MHz (Ω)	RATED CURRENT
Surface Mount	2021 – 2824	5 x 5.6 – 75 x 55	33 – 3500	800 mA – 15 A
Thru-Hole	2545 – 5740	6.3 x 11.3 – 14.4 x 10	100 – 800	200 mA – 75 A

Wire-Wound SMD Power Common Mode Chokes

CM7060 SERIES



Features:

- Common mode filter for large current up to 9A
- Excellent common mode impedance and noise suppression
- Compact size
- Operating temperature -40°C to 125°C (Including self-heating)
- AEC-Q200 qualified

TYPE	SIZE MAX (mm) (LxWxH)	IMPEDANCE Z @ 100 MHz (Ω)	INSULATION RESISTANCE MIN (mΩ)	DCR 1 LINE (Ω)	RATING CURRENT (A)	RATING VOLTAGE (V)
Wire Wound SMD	7.7 x 6.5 x 3.8	140 – 1300	10.0	0.01 – 0.025	2.5 – 9.0	80

Wire-Wound SMT Power Common Mode Chokes

CMX1211 SERIES

Features:

- Small size with high current
- SMT Type with less height
- Stable performance under load bias and high reliability
- High suppression of asymmetric interferences at both low and high frequency

TYPE	SIZE MAX (mm) (LxWxH)	INDUCTANCE @ 100 KHz/Mv (µH)	DCR MAX (mΩ)	CURRENT RATING MAX (A)	RATING VOLTAGE MAX (Vrms)	HIPOT COIL (VAC)
Wire Wound SMD	31.5 x 28.8 x 19	68 – 1800	0.56 – 14.00	9 - 50	250	1500

Wire-Wound DIP Power Common Mode Chokes

CMX1616 SERIES

Features:

- Current rating up to 62 Amp
- Stable performance and high reliability
- High suppression of asymmetric interferences at both low and high frequency
- Operation temperature: -40°C to 125°C (Including self-heating)
- Custom designs on request

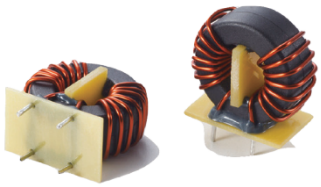
TYPE	SIZE MAX (mm) (LxWxH)	INDUCTANCE @ 100 KHz/100mV (µH)	DCR MAX (mΩ)	CURRENT RATING MAX (A)	RATING VOLTAGE MAX (Vrms)	HIPOT COIL (VAC)
Wire Wound DIP	42.0 x 41.0 x 16.5	704 – 2816	0.65 – 11.0	14 – 62	250	1500

Broadband Wire Wound Power Common Mode Chokes

CMX3016 SERIES

Features:

- Power common mode choke for large current up to 20A
- Built with nanocrystalline core
- Excellent impedance for broadband noise suppression up to 300MHz
- Through hole installation
- Operating temperature -40°C to 125°C (Including self-heating)
- Sectional winding construction with spacer to improve isolation



TYPE	SIZE MAX (mm) (LxWxH)	INDUCTANCE 1-4/2-3 L @ 10KHz/100mV (µH)	LEAKAGE INDUCTANCE @ 100/KHz/100mv MAX (µH)	DCR 1-4/2-3 MAX (mΩ)	CURRENT RATING MAX (A)	RATING VOLTAGE MAX (Vrms)
Broadband Wire Wound	30.0 x 16.0 x 30.0	1000 – 7000	5.0	2.2 – 12.0	8.0 – 20.0	250

High Current Power Line Common Mode Chokes

CM8663 SERIES

Features:

- Common mode choke for high current up to 65Adc
- Excellent common mode impedance and noise suppression
- Compact size & robust construction
- Operating temperature -40°C to 155°C (Including self-heating)
- Through hole installation
- Very low DCR

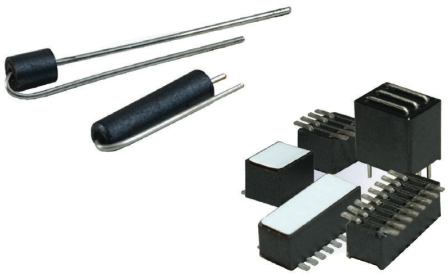
SIZE MAX (mm) (LxWxH)	TYPICAL IMPEDANCE (Ω)				TYPICAL PEAK IMPEDANCE (Ω)	TYPICAL PEAK IMPEDANCE FREQUENCY (mΩ)	DCR MAX (mΩ)	DCR MAX (mΩ)
	Z @ 25 MHz	Z @ 100 MHz	Z @ 500 MHz	Z @ 1 GHz				
Broadband Wire Wound	85	160	210	140	300	340	0.15	65Adc

Axial Wire Ferrite Filters/Differential Mode EMI Arrays

Features:

- Differential mode EMI filter, high current, thru-hole/surface mount type
- Up to 10 amps continuous operation
- For power line application for LCD-TV, automotive, industrial, medical, audio equipment.

TYPE	IMPEDANCE @ 100 MHz (Ω)	RATED CURRENT
Axial Wire Ferrite Filter		
Wire Leads Thru Ferrite	75 – 220	5 A
Wire Wound Thru Ferrite	460 – 990	5 A
Differential Mode EMI Filter Array		
Thru-Hole / Surface Mount	75 – 342	6 A – 10 A

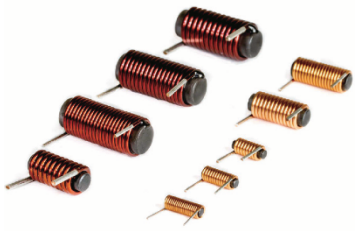


Ferrite Rod Inductors

1XC SERIES

Features:

- Extremely low DC and AC resistance
- Multiple sizes offered
- Current up to 19A
- Operating temp up to 150°C



SIZE MAX (mm) (LxWxH)	INDUCTANCE (µH) L @ 10KHz/0.1v ± 25%	DCR (Ω)	RATING CURRENT (A)
30.30 x 10.15 x 9.0	1 – 15	0.003 – 0.024	2.4 – 19.0

Power Inductor SOLUTIONS


IPSD


IPSF


IPSH


IPSR


IPUD

The Laird surface mount power inductors are a catalog offering of inductor products for DC/DC and other power design applications. Used in almost all forms of electronic designs, Laird's power inductors offer design engineers a variety of choices on size, inductance, current and power ratings for any given application.

SERIES	INDUCTANCE RANGE (µH)	CURRENT RANGE (A)
IPSD		
IPSD63	10 – 100	0.330 – 1.00
IPSD74	10 – 220	0.360 – 1.65
IPSD105	10 – 470	0.330 – 2.06
IPSD1608	1 – 10000	0.02 – 3
IPSD3316	1 – 47	1 – 5.6
IPSD5022	10 – 1000	0.8 – 8
IPSF		
IPSF625	4.7 – 100	0.33 – 1.5
IPSF628	4.7 – 100	0.42 – 1.6
IPSF728	3.3 – 47	0.54 – 1.6
IPSF732	3.3 – 1000	0.13 – 1.9
IPSF745	3.3 – 1000	0.14 – 2.5
IPSF1045	3.3 – 1500	0.22 – 4.9
IPSF1255	6 – 1500	0.29 – 3.6
IPSF1265	2 – 220	1 – 10
IPSF1275	1.2 – 220	1.3 – 13
IPSH		
IPSH2D18	2.2 – 33	0.23 – 0.85
IPSH3D16	1.5 – 33	0.32 – 1.55
IPSH4D18	1 – 180	0.14 – 1.72
IPSH4D28	1.2 – 390	0.13 – 2.56
IPSH5D18	4.1 – 330	0.18 – 1.95

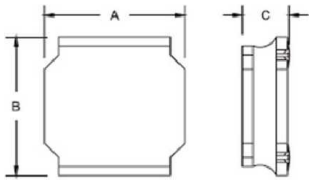
SERIES	INDUCTANCE RANGE (µH)	CURRENT RANGE (A)
IPSH5D28	2.6 – 680	0.16 – 2.60
IPSH6D28	3 – 680	0.20 – 3.0
IPSH6D38	3.3 – 1000	0.20 – 3.50
IPSH8D28	2.5 – 100	0.75 – 4.50
IPSH8D43	2 – 100	1.3 – 7.0
IPSH62	2.9 – 330	0.19 – 1.94
IPSH64	2.9 – 1000	0.14 – 1.80
IPSH73	10 – 1000	0.16 – 1.68
IPSH74	10 – 1000	0.18 – 1.84
IPSH103	10 – 150	0.7 – 2.70
IPSH104	1.3 – 330	0.7 – 10
IPSH105	10 – 1000	0.35 – 3.45
IPSH124	3.9 – 330	0.5 – 6.50
IPSH125	1.3 – 1000	0.40 – 8.0
IPSH127	1.2 – 1000	0.55 – 9.80
IPSR		
IPSR62L	1 – 47	0.5 – 3.5
IPSR62C	1 – 100	0.33 – 3.48
IPSR63L	1 – 150	0.31 – 3.59
IPSR63C	2 – 150	0.37 – 3.0
IPSR104	1.1 – 120	0.97 – 11.7
IPSR106	1.1 – 680	0.47 – 7.0
IPSR126	1.7 – 680	0.55 – 11.8

SERIES	INDUCTANCE RANGE (µH)	CURRENT RANGE (A)
IPSD		
IPUD32	10 – 390	0.115 – 0.76
IPUD42	1 – 82	0.36 – 2.70
IPUD43	1 – 470	0.21 – 3.80
IPUD52	1.2 – 470	0.15 – 4.20
IPUD53	1 – 1000	0.13 – 4.50
IPUD54	1 – 1000	0.14 – 5.90
IPUD73	10 – 330	0.28 – 1.44
IPUD75	10 – 470	0.34 – 2.30
IPUD104	10 – 560	0.32 – 2.38
IPUD105	10 – 820	0.24 – 2.60
IPUD1608	1 – 1000	0.1 – 2.9
IPUD1813	0.56 – 47	0.87 – 7.7
IPUD3308	10 – 1000	0.1 – 2.4
IPUD3316	1 – 1000	0.3 – 9
IPUD3316H	0.33 – 4.7	5.4 – 20
IPUD3340	10 – 1000	0.8 – 8
IPUD5022	1 – 1000	1 – 20
IPUD5022H	0.78 – 15	8 – 30

TYS Low Profile SMD Power Inductors

Features:

- Magnetic resin shield structure
- Low DCR and high efficiency
- Low profile and small size
- High reliability

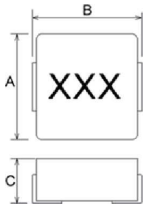


SERIES	SIZE (A*B*C) mm	INDUCTANCE (µH)	DCR TYP. OHM	ISAT TYP. A	IRMS TYP. A	SRF MHZ
TYS3010	3.0 x 3.0 x 1.0	1.0 – 47	0.0850 – 0.2535	0.22 – 1.40	0.26 – 1.45	18 – 180
TYS3012	3.0 x 3.0 x 1.2	1.0 – 100	0.0520 – 3.7180	0.21 – 1.87	0.25 – 2.20	12 – 120
TYS3015	3.0 x 3.0 x 1.5	1.0 – 47	0.0450 – 1.6250	0.35 – 2.32	0.35 – 2.35	14 – 150
TYS4012	4.0 x 4.0 x 1.2	1.0 – 100	0.0650 – 2.8730	0.25 – 2.61	0.25 – 1.65	9.4 – 120
TYS4018	4.0 x 4.0 x 1.8	1.0 – 220	0.0325 – 5.2000	0.27 – 4.80	0.17 – 2.00	4 – 80
TYS4020	4.0 x 4.0 x 2.0	1.0 – 100	0.0377 – 2.8370	0.25 – 4.78	0.25 – 2.15	9.4 – 75
TYS4030	4.0 x 4.0 x 3.0	1.0 – 120	0.0182 – 1.7550	0.55 – 5.26	0.42 – 4.15	5.4 – 70
TYS5020	5.0 x 5.0 x 2.0	1.0 – 22	0.0260 – 0.2940	1.15 – 4.10	1.10 – 3.80	14 – 114
TYS5040	5.0 x 5.0 x 4.0	1.0 – 100	0.0144 – 0.6720	0.75 – 7.35	0.70 – 4.90	4.7 – 117
TYS6020	6.0 x 6.0 x 2.0	1.0 – 22	0.0260 – 0.2652	1.05 – 4.15	1.00 – 3.50	16 – 100
TYS6028	6.0 x 6.0 x 2.8	1.0 – 100	0.0130 – 0.6500	0.65 – 5.75	0.70 – 5.20	7.1 – 70
TYS6045	6.0 x 6.0 x 4.5	1.0 – 330	0.0143 – 1.6510	0.57 – 9.85	0.57 – 5.14	2.8 – 100
TYS8040	8.0 x 8.0 x 4.0	1.0 – 330	0.0104 – 1.1557	0.68 – 9.85	0.64 – 6.30	2.8 – 89

MGV High Current & Low Profile SMD Power Inductors

Features:

- Magnetic resin shield structure
- Low DCR and high efficiency
- Low profile and small size
- High reliability
- AEC-Q200 qualified



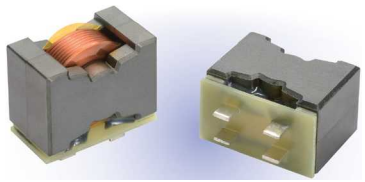
SERIES	SIZE (A*B*C) mm	INDUCTANCE (µH)	DCR (mΩ) MAX	ISAT (A) MAX	IRMS (A) MAX
MGV0412	4.5 x 4.1 x 1.0	0.1 – 22.0	5.5 – 1050	1.0 – 25.0	0.8 – 11.5
MGV0402	4.5 x 4.1 x 2.0	0.1 – 22.0	4.0 – 500	1.4 – 35.0	1.2 – 12.0
MGV0512	57 x 5.2 x 1.0	0.1 – 15.0	5.2 – 470	1.6 – 14.5	1.3 – 14.0
MGV0502	5.5 x 5.1 x 2.0	0.1 – 10.0	4.0 – 199	3.4 – 45.0	2.3 – 18.0
MGV0503	5.5 x 5.1 x 3.0	0.1 – 33.0	3.0 – 440	1.6 – 27.0	1.6 – 23.0
MGV0602	7.2 x 6.7 x 2.0	0.1 – 22.0	2.4 – 280	2.5 – 40.0	1.5 – 21.0
MGV0625	7.2 x 6.7 x 2.4	0.1 – 22.0	1.7 – 215	3.0 – 70.0	1.8 – 30.0
MGV0603	7.2 x 6.7 x 3.0	0.1 – 47.0	1.7 – 363	2.0 – 60.0	1.8 – 32.5
MGV0605	7.2 x 6.7 x 5.0	0.22 – 47.0	1.9 – 330	2.7 – 35.0	1.9 – 25.0
MGV1004	11.0 x 10.0 x 3.8	0.15 – 47.0	0.6 – 167	4.5 – 75.0	3.0 – 43.0
MGV1205	13.5 x 12.6 x 5.0	0.22 – 33.0	0.7 – 88.0	8.0 – 110.0	5.0 – 52.0
MGV1207	13.5 x 12.6 x 6.2	0.15 – 47.0	0.6 – 90.0	6.5 – 60.0	6.5 – 55.0

Low DCR & High Current Power Inductors

LDZ2817 SERIES

Features:

- Designed with flat wire and ferrite core
- Extremely low DC and AC resistance
- Saturation current up to S6A
- Robust and magnetic shielded construction
- Available with through hole type



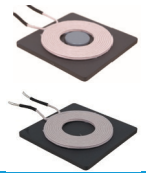
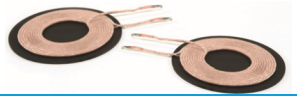
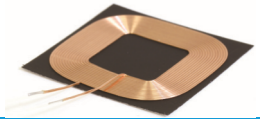
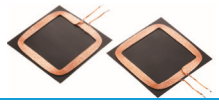
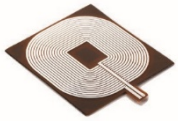
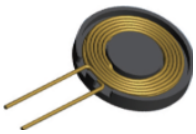
SIZE (mm) (LxWxH)	INDUCTANCE (µH) @ 300 KHZ/0.1V ± 10%	DCR MAX (mΩ)	SATURATION CURRENT (A)	TEMPERATURE RISE CURRENT (A)
27.00 x 23.00 x 17.00	6.8 – 33	0.003	10.3 – 56.0	26

Magnetic Shielding & Coil SOLUTIONS for NFC & Wireless Charging

WPC Wireless Charging Coil Modules

Features:

- Designed to meet WPC Qi standard, custom designs available upon request, Automotive grade available upon request
- Operating temperature -40°C to + 85°C
- Assembled with ferrite plate which is built with WPC listed ferrite material, high Q for maximum power transmission

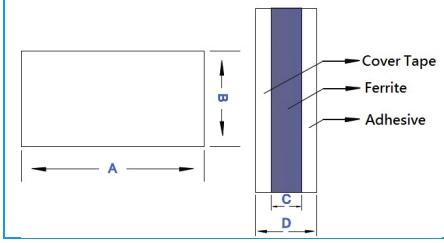
PRODUCT IMAGE	TYPE		SIZE	INDUCTANCE (µH ± 10%)				DCR MAX	Q @ 100 KHz/1V
			(mm)	COIL	MIN	NOM	MAX	(mΩ)	(MIN)
	A1 Coil	RWC5353EJ240-500 RWC5353EJ240-501	53.0 x 53.0 x 6.7	-	21.60	24.00	26.40	75	90
	A6 Single Coil	SWC5547AK120-500	55.2x47.2x3.0	-	11.25	12.50	13.75	65	90
	A6 Multiple Coil	SWC10056AA120-500	100.0 x 56.0 x4.5	Bottom	11.25	12.50	13.75	65	9
				Top	10.35	11.50	12.65		
	A11 Coil	RWC5050AK060-500	Ψ50.0 x 3	-	5.85	6.5	7.15	50	70
	RX Coil	SWC4242KB120-100	38.0 x 38.0 x 0.7	-	11.25	12.5	13.75	240	20
	15 Watt Coil	SWC4848KA100-600	48.5 x 48.5 x 1.0	-	9.00	10.00	11.00	180	Rated Current 2A
	15 Watt Medium Power FPCB Version	SWC4747KA100-600	47.5 x 47.5 x 0.65	-	9.00	10.00	11.00	160	
	Litz coil and 3D shaped ferrite module	RWC2727AH070-300	49.36 x 27.0 x 4.2	-	5.00	5.50	6.00	48.3	-

Flexible Ferrite Sheets

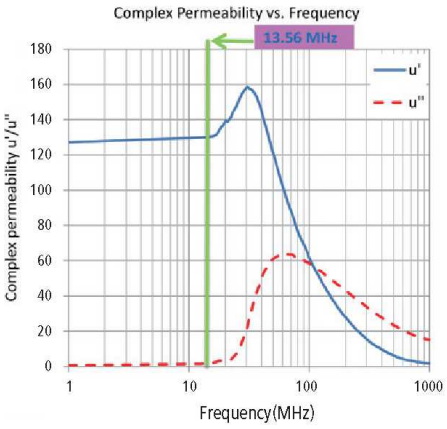
MHLL/MSLL/MULL SERIES

Features:

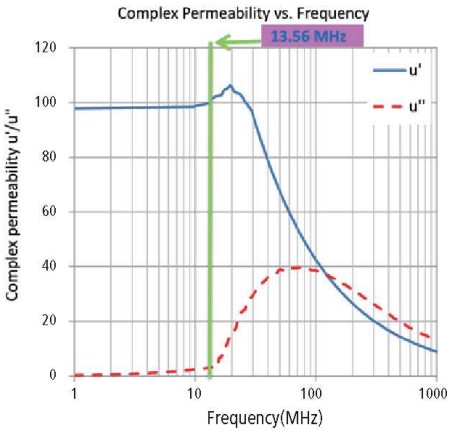
- Flexible ferrite sheets for 13.56 MHz NFC, RFID application & wireless charging application
- Made by thin, high permeability sintered ferrite with PET film and adhesive tape
- Standard ferrite layer thickness 0.05mm, 0.1mm, 0.2mm & 0.3mm
- Custom size or thickness available upon request
- Operating temperature -40°C to +85°C

SHAPE	A mm (INCHES)	B mm (INCHES)	C mm (INCHES)	D mm (INCHES)
	Up to 120 (4.724)	Up to 60 (2.362)	0.05 – 0.30 (0.002 – 0.012)	0.09 – 0.35 (0.004 – 0.014)

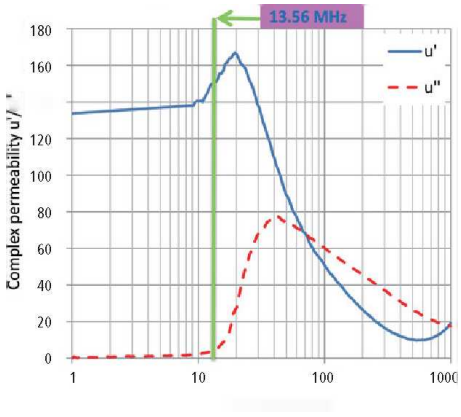
MHLL SERIES



MSLL SERIES



MULL SERIES

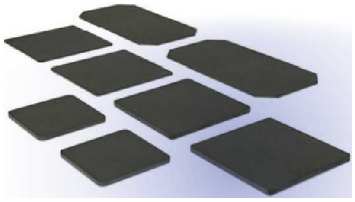


MATERIAL SPECIFICATIONS FOR WIRELESS CHARGING OR RFID APPLICATION

PROPERTY	MHLL/MSLL/MULL SERIES
Real Permeability, μ' @ 13.56MHz, 0.1V	130 ± 20% / 100 ± 20% / 150 ± 20%
Imaginary Permeability, μ" @ 13.56MHz, 0.1V	5 max
Operating Temperature, °C	-40°C – +85°C

Ferrite Plate for Resonant Wireless Charging

RP SERIES



Features:

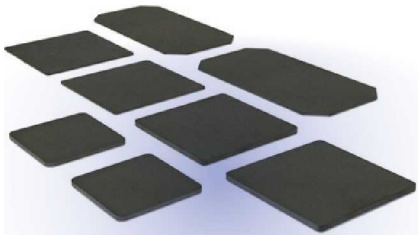
- Designed and optimized for resonant charging, but can support both magnetic coupling and resonant wireless charging concurrently
- Available in solid ferrite
- High permeability, high Q low loss for resonant charging@6.78MHz
- Length and width up to 53x53mm
- Wide range of thickness selection from 1 mm to 5mm

MATERIALS

PROPERTY	SYMBOL	UNIT	VALUE
Real permeability @ 6.78MHz	A'		2 50±2 5%
Imaginary permeability @ 6.78MHz	A"		10 Max
Flux Density	*B*	mT [Gauss]	390 [3900]
@ Field Strength	*H*	A/m [Oe]	1200 [15]
Residual Field Strength	*Br*	mT [Gauss]	280 [2800]
Coercive Strength	*He*	A/m [Oe]	100 [1.25]
Curie Temperature	*Tc*	°C	> 200
Resistivity	ρ	Ω – cm	10^7

Ferrite Plate for Inductive Wireless Charging

MP & 33 Series



Features:

- Ferrite materials are Wireless Power Consortium (WPC) listed, recommended & certified for interoperability test
- Optimized for highest charging efficiency
- Precise dimension control and automotive grade available
- 40°C to 125°C operating temperature
- Available in wide range of size selection, custom shapes are also available

MATERIALS

PROPERTY	SYMBOL	UNIT	28 MATERIAL (WPC LISTED)	33 MATERIAL
Initial Permeability	A-		650	2300
Flux Density	B	mT [Gauss]	280 [2800]	390 [3900]
@ Field Strength	H	A/m [Oe]	800 [10]	800 [10]
Residual Field Strength	Br	mT [Gauss]	130 [1300]	55 [550]
Coercive Strength	Hr	A/m [Oe]	32 [0.4]	9 [0.1]
Loss Factor @ Frequency	tan A //v,-	10^{-6}	500	6
	f	MHz	0.1	0.1
Curie Temperature	Tc	°C	> 140	> 200
Resistivity	ρ	Ω – cm	10^5	$5x10^2$

Ferrite Bead SOLUTIONS for Automotive

Part Number 38F0126-0SR-1XXXX Custom Part Number

(A specific P/N suffix will be assigned upon request for particular customer)

Features:

- EMI filtering for High speed CAN-BUS in automotive
- Wire inserted bead enable highly automatic process
- Surface mount device
- Robust ferrite construction, high reliability and AECQ200 compliant

Memo

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www.laird.com

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