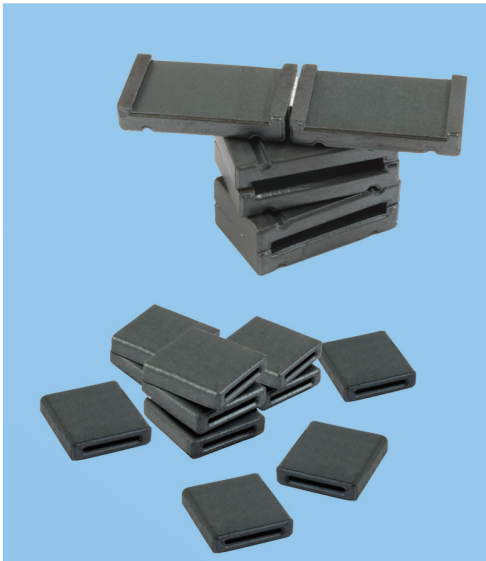
Ferrite Toroid, Balun & Cable Core

SOLUTIONS



Laird TECHNOLOGIES®

Innovative **Technology**
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About Laird Technologies

Laird Technologies is a global market leader in the design and supply of electromagnetic interference (EMI) shielding, thermal management products, mechanical actuation systems, signal integrity components, and wireless antenna solutions, as well as radio frequency (RF) modules and systems.

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

- Telecommunications
- Mobile Communications
- Datacom and Information technology
- Consumer Electronics
- Automotive
- Medical
- Industrial & Instrumentation

Laird Technologies offers its customers unique product solutions, dedication to research and development, as well as a seamless network of manufacturing and customer support facilities across the globe.

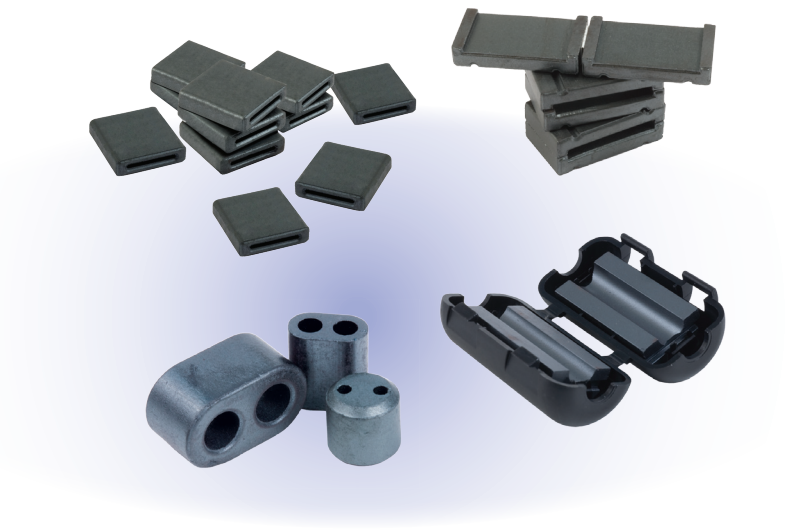
High Frequency EMI Noise Suppression in an Extensive Ferrite Design

Laird Technologies provides an extensive product line-up of Ferrite cores and EMI noise filtering components for EMI suppression for signal interfaces, clock and power lines. Those 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-a-Chip (SoC), coupling from DC power lines, and/or broadcasting from the ambient environment etc.

Your Best Choice!

No matter your EMI/EMC problem is common or unique –
Laird Technologies' solution 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 & Balun Cores, Cable Cores, Chip Beads/Inductors, SMT Bead Assemblies, Common Mode Chokes, and SMT Power Inductors.

We also offer many unique high performance products which support high DC current rating with minimal performance degrading under bias and low DCR at small foot print that is suitable for the power supply and DC/DC conversion design in portable or handheld electric devices.



Toroid CORES

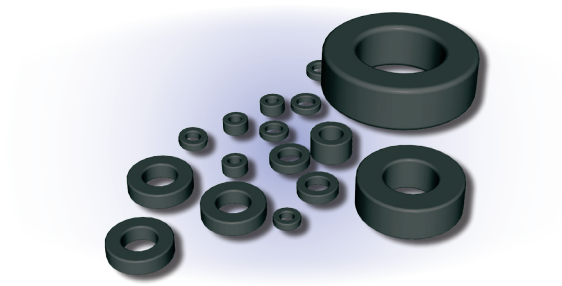
Toroids

Features:

- High performance when wound and used as cores for transformers, inductors or chokes
- A variety of materials and core sizes allow performance to be optimized for application size and frequency
- P coating is parylene with typical thickness of 0.0005 inch
- Small-sized, custom part shapes are also available

Application:

- LAN matching and isolation transformers and common mode chokes
- Inductors and EMI filters
- DC-DC converters and power supply common mode chokes



MATERIAL CHARACTERISTICS

TYPICAL VALUES			COMMON MODE MATERIALS				DC BIAS MATERIALS			HIGH PERMEABILITY FOR TELECOM & LOW FREQUENCY FILTERING		OTHER MATERIALS	
PARAMETER	SYMBOL	UNIT	35 LOW FREQUENCY	28 MID FREQUENCY	25 HIGH FREQUENCY	38 BROAD FREQUENCY	36 DC BIAS (0 - +70°C)	46 DC BIAS (-40 - +85°C)	56 LOW DC BIAS HIGH PERM	42	40	35	39
Relative Initial Permeability	μi		5000	850	125	1700	4500	4000	5500	7500	10000	5000	7000
AL Tolerance		%	± 20	± 20	± 30	± 30	± 25	± 25	± 25	± 25	± 30	± 20	± 25
Saturation Flux Density	B_S	Gauss	4500	3250	3600	3000	4500	4500	4500	4100	3800	4500	3800
		mT	450	325	360	300	450	450	450	410	380	450	380
at Field Density	H	Oersteds	10	10	10	10	10	10	10	10	10	10	12.5
		A/m	800	800	800	800	800	800	800	800	800	800	1000
Residual Flux Density	B_r	Gauss	1000	2000	2600	1500	1000	1000	1000	1100	1400	1000	730
		mT	100	200	260	150	100	100	100	110	140	100	73
Coercive Force	H_C	Oersteds	0.10	0.40	1.60	0.20	0.10	0.10	0.10	0.10	0.40	0.10	0.10
		A/m	8	3	127	16	8	8	8	8	3	8	8
Relative Loss Factor	tanδμi	10^{-6} @ MHz	20	91	740	53	10	10	15	6	5	≤ 20 0.100	≤ 8 0.010
at Frequency	f	MHz	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.01
Curie Temperature	T_C	°C	> 150	>175	> 225	> 120	> 150	> 150	> 130	> 130	> 120	> 150	> 130
Resistivity	p	Ω-cm	100	10^5	10^6	10^5	10^2	10^2	10^2	10	1	100	35
Density		g/cm³	4.8	4.9	4.9	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.9

T0100 TO T0325 FERRITE TOROIDS - 47 ITEMS

DIMENSIONS (mm)	DIMENSIONS (INCHES)
OD (2.54 --- 8.26)	OD (0.100 --- 0.325)
ID (1.27 --- 4.45)	ID (0.05 --- 0.175)
HT (1.27 --- 4.78)	HT (0.05 --- 0.188)

T0375 TO T1417 FERRITE TOROIDS - 27 ITEMS

DIMENSIONS (mm)	DIMENSIONS (INCHES)
OD (9.53 --- 36)	OD (0.375 --- 1.417)
ID (4.75 --- 23)	ID (0.187 --- 0.906)
HT (6.35 --- 15)	HT (0.250 --- 0.591)

Balun CORES

Two-Hole Balun Cores

Features:

- Offers a versatile, compact and economical solution

Application:

- Balanced/unbalanced transformer
- EMI suppression

FIG. 1

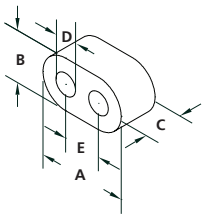


FIG. 2

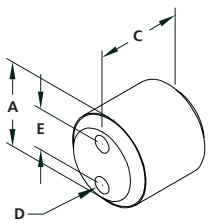
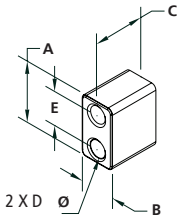


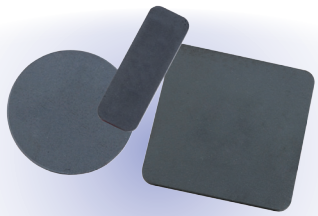
FIG. 3



N136 TO N0372 BALUN CORE - 7 ITEMS

PART NUMBER	FIG.	LENGTH A (mm)	WIDTH B (mm)	HEIGHT C (mm)	ID D (mm)	E (mm)
N0136-00P	1	3.45	2.01	2.36	0.86	1.45
N0136-10P	1	3.45	2.01	1.5	0.86	1.45
N0136-30P	1	3.45	2.01	1.65	0.86	1.45
N0138-00P	1	3.45	2.01	0.68	0.86	1.45
N0252-000	2	6.35	–	6.35	1.19	3.05
N0277-00P	1	7.04	4.06	6.2	1.8	2.9
N0372-00P	3	9.4	5.35	8	2.59	5.24

Ferrite EMI DISKS AND PLATES



Features:

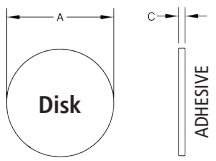
- Easy installation
- Variety of sizes are offered, custom parts are also available
- Comes with permanent, double sided 3.5 mil acrylic adhesive

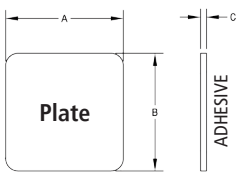
Application:

- Installed directly on source of EMI such as IC chips or unwanted antennas

PART NUMBER	A mm (INCHES)	B mm (INCHES)	C mm (INCHES)	SHAPE
MM0650-100	16.51 (0.650)	–	1.27 (0.050)	Disk
MP0315-200	8.00 (0.315)	8.00 (0.315)	2.00 (0.079)	Plate

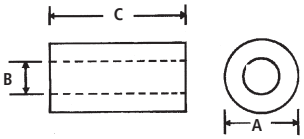
PART NUMBER SYSTEM EXAMPLE			
M	M	0787	100
M - Material	M - Disk P - Plate	Part Size Identification	Thickness Code





Ferrite Cable CORES

Cylindrical EMI Cores



HIGH FREQUENCY (HFB)

Features:

- Suitable for applications from 300 MHz ~ 2 GHz
- Available in variety of sizes, custom design also available

Application:

- Cables and wiring harnesses

PART NUMBER	DIMENSIONS mm (INCHES)			NET IMPEDANCE (Z) IN OHMS (Ω)			
	A	B	C	@ 300 MHZ	@ 500 MHZ	@ 800 MHZ	@ 1 GHZ
HFB075024-000	7.52 (0.296)	2.39 (0.094)	10 (0.394)	124	136	138	138

PART NUMBER SYSTEM EXAMPLE					
HF	B	075024	-0	0	0
Material Type	Product Code	Part Size Code (mm)	Selected Dimension Code (Usually Length)	Additional Part Description	Additional Part Description or Coating Code

BROADBAND FREQUENCY (28B)

Features:

- Suitable for applications from 30 MHz ~ 1 GHz
- Available in variety of sizes, custom design also available

Application:

- Cables and wiring harnesses

PART NUMBER	DIMENSIONS mm (INCHES)			NET IMPEDANCE (Z) IN OHMS (Ω)		
	A	B	C	@ 25 MHZ	@ 100 MHZ	@ 300 MHZ
28B0141-000	3.50 (0.138)	1.50 (0.059)	3.25 (0.128)	30	79	192

PART NUMBER SYSTEM EXAMPLE					
28	B	0141	-0	0	0
Material Type	Product Code	Part Size Code	Selected Dimension Code (Usually Length)	Additional Part Description	Additional Part Description or Coating Code

LOW FREQUENCY (LFB)

Features:

- Suitable for applications from 150 KHz ~ 30 MHz
- Available in variety of sizes, custom design also available

Application:

- Power cables
- Wiring harnesses
- Inductors and EMI chokes

PART NUMBER	DIMENSIONS mm (INCHES)			NET IMPEDANCE (Z) IN OHMS (Ω)		
	A	B	C	@ 500 KHZ	@ 1 MHZ	@ 5 MHZ
LFB090050-000	9.00 (0.354)	5.00 (0.197)	7.00 (0.275)	12	21	36

PART NUMBER SYSTEM EXAMPLE					
LF	B	090050	-0	0	0
Material Type	Product Code	Part Size Code (mm)	Selected Dimension Code (Usually Length)	Additional Part Description	Additional Part Description or Coating Code

Ferrite Cable CORES

Split / Snap-On EMI Cores

HIGH FREQUENCY (HFA)

Features:

- Suitable for applications from 300 MHz ~ 2 GHz
- Available in variety of sizes, custom design also available
- Provide excellent common and differential mode EMI suppression on cable assemblies
- Suitable for fixing EMI issues without major design changes

Application:

- Wiring harnesses
- Data and power cables

PART NUMBER	PLASTIC CASE DIMENSIONS mm (INCHES)				MAX CABLE DIAMETER	TYPICAL IMPEDANCE (Z) IN OHMS (Ω)			FIG.
	A	B	C	D		@ 25 MHZ	@ 100 MHZ	@ 800 MHZ	
HFA100035-0A2	13.00 (0.511)	3.50 (0.138)	25.20 (0.992)	11.50 (0.453)	3.51 (0.138)	192	190	150	1

PART NUMBER SYSTEM EXAMPLE					
HF	A	100035	-0	A	2
Material Type	Product Code	Part Size Code (mm)	Selected Dimension Code (Usually Length)	Additional Part Description	Plastic Case Color Code

Impedance varies depending on final size of final part

FIG. 1

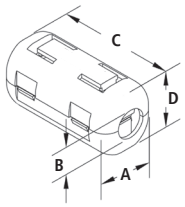


FIG. 2

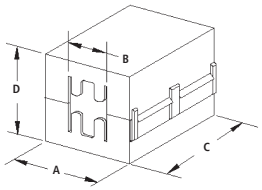


FIG. 3

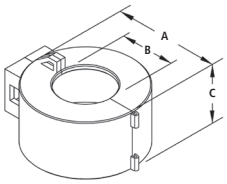


FIG. 4

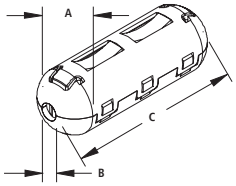
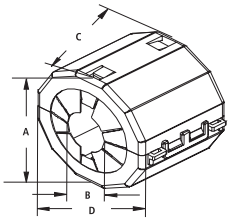


FIG. 5



BROADBAND FREQUENCY (28A)

Features:

- Suitable for applications from 30 MHz ~ 1 GHz
- Available in variety of sizes, custom design also available
- Provide excellent common and differential mode EMI suppression on cable assemblies
- Suitable for fixing EMI issues without board level design changes

Application:

- Cable and wiring harnesses

PART NUMBER	PLASTIC CASE DIMENSIONS mm (INCHES)				MAX CABLE DIAMETER	TYPICAL IMPEDANCE (Z) IN OHMS (Ω)			FIG.
	A	B	C	D		@ 25 MHZ	@ 100 MHZ	@ 800 MHZ	
28A0350-0B2	13.00 (0.511)	3.50 (0.138)	25.20 (0.992)	11.50 (0.453)	3.50 (0.138)	100	240	400	1

PART NUMBER SYSTEM EXAMPLE					
28	A	0350	-0	B	*0 (WHITE CASE) *2 (BLACK CASE)
Material Type	Product Code	Part Size Code	Selected Dimension Code (Usually Length)	Additional Part Description	Plastic Case Color Code

Broadband (28) round cable parts are sorted by inside diameter and impedance.
0A0 = White Plastic Snap On Case
0A2 = Black Plastic Snap On Case
Net impedance varies depending on overall shape of part.
Impedance varies depending on size of final part
Split cable cores come in several shapes, please check with your Laird representative for further details.

Ferrite Cable CORES

Broadband Frequency Ribbon & Flex Cable Cores (28R)

Features:

- Suitable for applications from 30 MHz ~ 1 GHz
- Available in variety of sizes, custom design also available
- Provide excellent common and differential mode EMI suppression on cable assemblies

Application:

- Flat ribbon cables for printer applications

PART NUMBER	PLASTIC CASE DIMENSIONS mm (INCHES)					TYPICAL IMPEDANCE (Z) IN OHMS (Ω)			FIG
	A	B	C	D	E	@ 25 MHZ	@ 100 MHZ	@ 300 MHZ	
28R0315-200	8.00 (0.315)	6.00 (0.236)	12.00 (0.472)	2.70 (0.106)	0.70 (0.028)	48	102	250	2

PART NUMBER SYSTEM EXAMPLE					
28	R	0315	-2	0	0
Material Type	Product Code	Part Size Code (mm)	Selected Dimension Code (Usually Length)	Additional Part Description	Additional Part Description or Coating Code

Broadband (28) ribbon and flex cable cores are sorted by slot width and impedance.

* Impedance varies depending on size of final part
Split cable cores come in several shapes, please check with your Laird representative for further details

FIG. 1

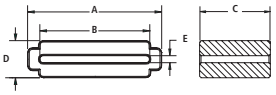


FIG. 2

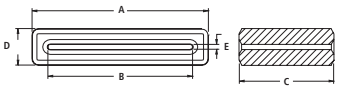
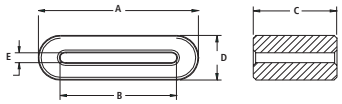
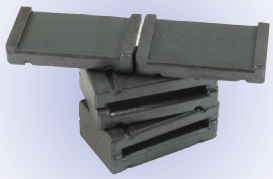


FIG. 3



Broadband Frequency Split Ribbon & Flex Cable Cores (28S)



Features:

- Suitable for applications from 30 MHz ~ 1 GHz
- Available in variety of sizes, custom design also available
- Provide excellent common and differential mode EMI suppression on cable assemblies
- Excellent for fixing EMI issues during design stages

Application:

- Ribbon and flex cables for various product applications

PART NUMBER	DIMENSIONS mm (INCHES)					TYPICAL IMPEDANCE (Z) IN OHMS (Ω)			FIG
	A	B	C	D	E	@ 25 MHZ	@ 100 MHZ	@ 300 MHZ	
28S0670-000	17.02 (0.670)	12.50 (0.492)	14.99 (0.590)	3.40 (0.134)	0.51 (0.020)	60	150	310	2

PART NUMBER SYSTEM EXAMPLE					
28	S	0670	-0	0*	0
Material Type	Product Code	Part Size Code	Selected Dimension Code (Usually Length)	Case or Clip Code	Additional Part Description

*0 = No End Clip *M = Metal Clip *P = Plastic Clip *A = Hinged Case

Broadband (28) ribbon and flex cable cores are sorted by slot width and impedance.

* Impedance varies depending on size of final part
Split cable cores come in several shapes, please check with your Laird representative for further details.

FIG. 1

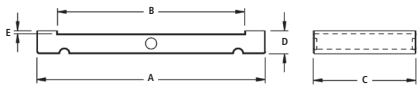
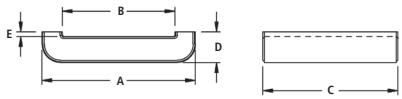


FIG. 2



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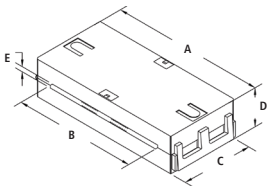

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