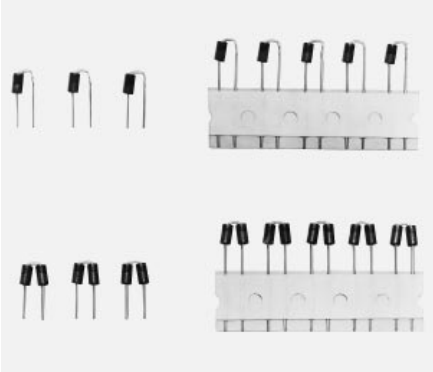
EMI FILTERS
EMI LEADED FERRITE BEADS
BL01, BL02 & BL03 SERIES

Innovator in Electronics



Ferrite beads are used for noise suppression in car radios, digital control equipment and for the prevention of spurious oscillation in radio frequency amplifiers. These ferrite bead inductors are devices which can effectively be used on printed circuit boards where high component density is essential. Taped and reeled types are also available for automatic insertion. Radial leaded units can be classified into two types – one using a single ferrite bead and the other using two ferrite beads.

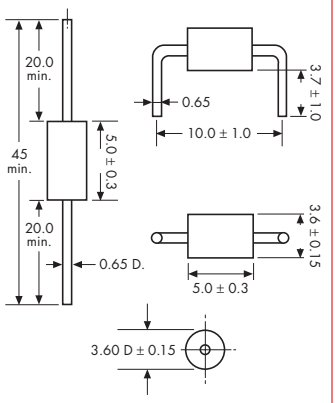
FEATURES

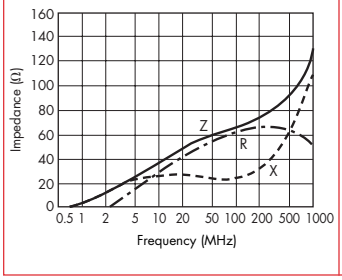
- High component density potential
- Double bead BL02RN2 types offered for more effective noise suppression
- Taped and reeled radial and axial types for automatic insertion can be provided as well as ammo packaging.
- Axial lead version BL01RN1-A62 available

EQUIVALENT CIRCUIT

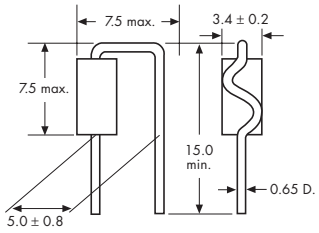
DIMENSIONS: mm

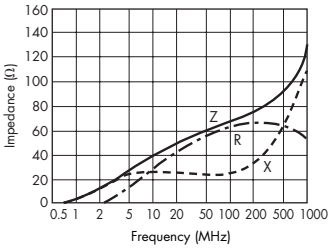
BL01RN1-A62/A62B1



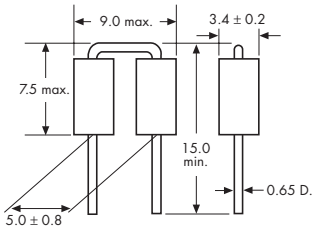


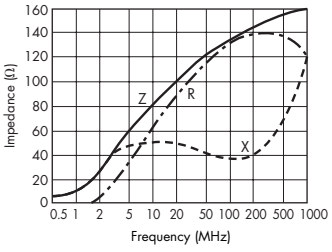
BL02RN1-R62



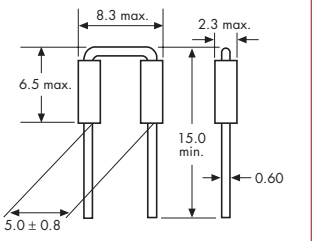


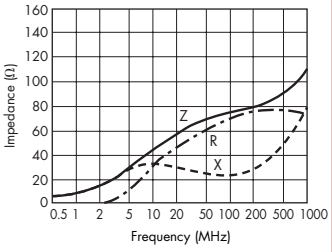
BL02RN2-R62





BL03RN2-R62





SPECIFICATIONS

Part Number	Impedance @ 100MHz	Rated Current	Operating Temperature Range
★BL01RN1-A62	70	Bulk = 7A Tape = 6A	–25°C ~ +85°C
★BL01RN1-A62B1			
★BL02RN1-R62			
★BL02RN2-R62	130		
★BL03RN2-R62	75	6A	

PART NUMBERING SYSTEM

BL	01	RN	1	–	A	62	T5
BEAD INDUCTOR	BEAD TYPE 01 = Axial 02 = Radial 03 = Compact Radial	MATERIAL	NUMBER OF BEADS		LEAD STYLE A = Axial R = Radial	LEAD CODE	TAPE STYLE

★Available as standard through authorized Murata Electronics Distributors. ▲Applicable in North American market only. ▼Applicable in European market only.
For more detailed information regarding this product line in North America, see Catalog No. E-06-E. To receive additional information on Murata Products call 1-800-831-9172.
For more detailed information regarding this product line in Europe, see Catalog No. C31E-2.

EMI LEADED COMPACT DISC-TYPE
DS306 & DSS306 SERIES

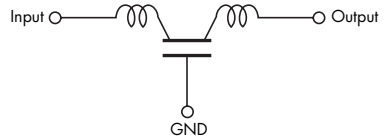
Compact, high performance filters DS□306 can be used even where adverse electromagnetic fields exist. Plate type dielectric plus 3-terminal construction produce excellent high-frequency characteristics.

APPLICATIONS

- Computer and peripherals interfaces
- Compact digital equipment
- Compact PPC, electronic typewriters, other electronic equipment and appliances

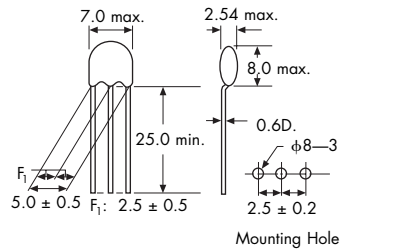
- Helps all electronic equipment and appliances meet FCC, VDE and CISPR regulations
- STD footprint for high density mounting

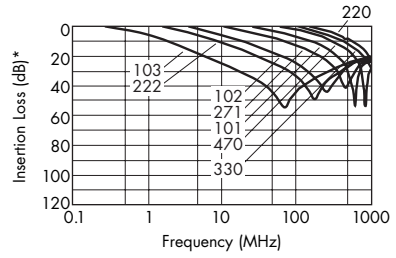
EQUIVALENT CIRCUIT



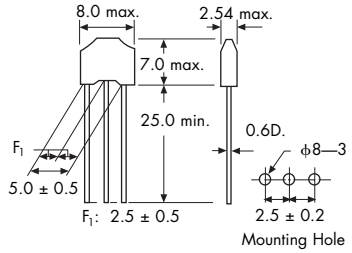
DIMENSIONS: mm

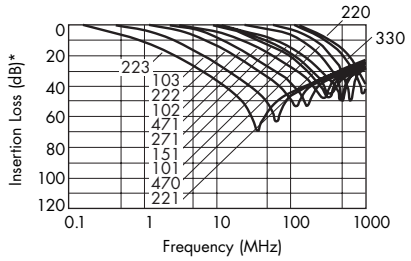
DS306-55 SERIES



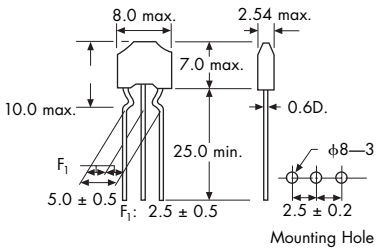


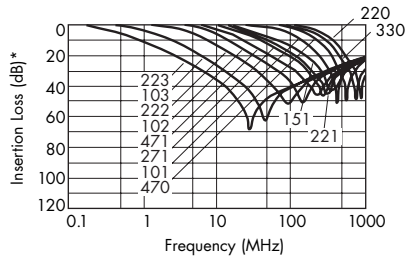
DSS306-55 SERIES





DSS306-351 SERIES





*Typical measuring curves in 50Ω impedance circuit

SPECIFICATIONS

Part Number	Capacitance	Capacitor W.V.	Capacitor T.C. –25 to +85°C	Ferrite Beads	Part Number	Capacitance	Capacitor W.V.	Capacitor T.C. –25 to +85°C	Ferrite Beads
★DS306-55Y5S220M50	22pF ± 20%	50VDC	±22%	None	★DSS306-55Y5S470M100	47pF ± 20%	100VDC	±22%	Internal
★DS306-55Y5S330M50	33pF ± 20%		±22%		★DSS306-55Y5S101M100	100pF ± 20%		±22%	
★DS306-55Y5S470M50	47pF ± 20%		±22%		★DSS306-55Y5S151M100	150pF ± 20%		±22%	
★DS306-55Y5S101M50	100pF ± 20%		±22%		★DSS306-55Y5S221M100	220pF ± 20%		±22%	
★DS306-55Y5S271M50	270pF ± 20%		±22%		★DSS306-55Y5S271M100	270pF ± 20%		±22%	
★DS306-55Y5S102M50	1000pF ± 20%		±22%		★DSS306-55Y5S471M100	470pF ± 20%		±22%	
★DS306-55Y5S222M50	2200pF ± 20%		±22%		★DSS306-55Y5S102M100	1000pF ± 20%		±22%	
★DS306-55FZ103Z50	10000pF + 80%, –20%		+30%, –85%		★DSS306-55Y5U222Z100	2200pF + 80%, –20%		+20%, –55%	
★DSS306-55Y5S220M100	22pF ± 20%	100VDC	±22%	Internal	★DSS306-55FZ103N100	10000pF ± 30 %		+30%, –85%	
★DSS306-55Y5S330M100	33pF ± 20%		±22%		★DSS306-55F223Z16	22000pF + 80%, –20%	16VDC	+30%, –80%	

Note: "55" in part number denotes Bulk packaging. For Taped Product, replace with appropriate number from chart below. All units are rated 6 amp.

PART NUMBERING SYSTEM

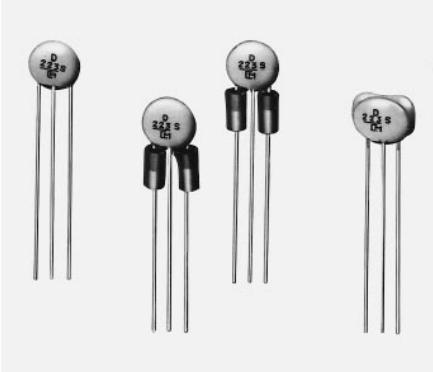
DS	□	306	–	55	Y5S	271	M	100
DISC-TYPE	FERRITE BEAD Blank = None S = Inside	SERIES TYPE		LEAD CONFIGURATION 55 = Bulk 91 = Taped 351 = Bulk (Inside Crimp) 431 = Taped (Inside Crimp)	TEMPERATURE CHARACTERISTICS	CAPACITANCE	CAPACITANCE TOLERANCE	RATED VOLTAGE

★Available as standard through authorized Murata Electronics Distributors. ▲Applicable in North American market only ▼Applicable in European market only

For more detailed information regarding this product line in North America, see Catalog No. E-06-E. To receive additional information on Murata Products call 1-800-831-9172.

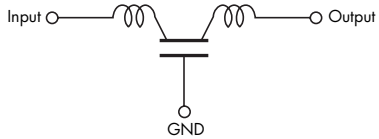
For more detailed information regarding this product line in Europe, see Catalog No. C31E-2.

EMI FILTERS
EMI LEADED SUPPRESSION FILTERS
DS310/H, DST310/H & DSS310/H SERIES



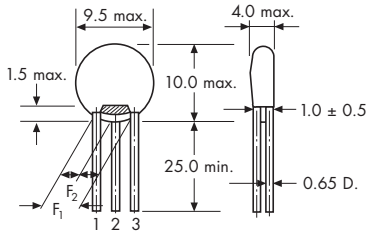
Disc-type EMIFIL® DS310, DST310 and DSS310 are T-type EMI suppression filters. The disc-type EMIFIL increases the self-resonant frequency of the capacitor by attaching two lead wires to one of the electrodes of the capacitor and increases the insertion loss by adding inductance to the lead in the DST and DSS types only. Frequencies to be suppressed can be selected by choosing the capacitance. They are also recommended for use as by-pass capacitors.

EQUIVALENT CIRCUIT

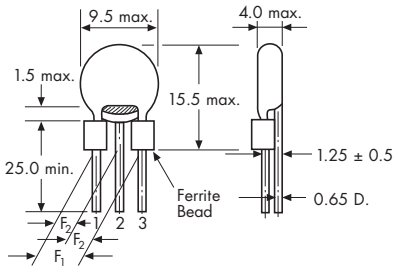


DIMENSIONS: mm (See Note 1)

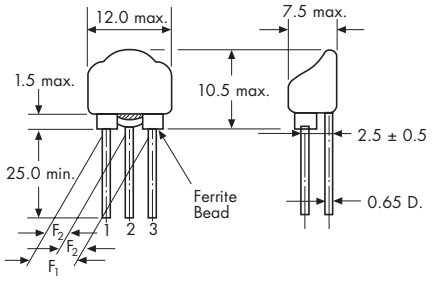
DS310/310H TYPE



DST310/310H TYPE



DSS310/310H TYPE



Note 1: DS☐310 Series Footprint for Bulk and Tape are different. Consult your local Murata Electronics Sales Office for details.
Note 2: Insertion loss characteristic charts can be found in Catalog No. C31E-2 for Europe or E-06-E for North America.

SPECIFICATIONS

Part Number	Capacitance	Capacitor		Ferrite Beads
		Withstand Voltage	Temperature Characteristics –25°C ~ +85°C	
★DS310-55Y5S271M100	270pF ± 20%	100V	±22%	None
★DS310-55Y5S222M100	2200pF ± 20%	100V		
★DS310-55Y5S223S50	22000pF + 50%, –20%	50V		
★DS310-55Y5S104M16	100000pF ± 20%	16V		
★DST310-55Y5S271M100	270pF ± 20%	100V	±22%	External
★DST310-55Y5S222M100	2200pF ± 20%	100V		
★DST310-55Y5S223S50	22000pF + 50%, –20%	50V		
★DSS310-55Y5S220M100	22pF ± 20%	100V	±22%	Internal
★DSS310-55Y5S470M100	47pF ± 20%	100V		
★DSS310-55Y5S101M100	100pF ± 20%	100V		
★DSS310-55Y5S271M100	270pF ± 20%	100V		
★DSS310-55Y5S222M100	2200pF ± 20%	100V		
★DSS310-55Y5S223S50	22000pF + 50%, –20%	50V		

All DS☐310H units are rated at 7A max. and 250 VDC.

Current rating is 7 Amps for bulk packaged units, 6 Amps for tape and reel.

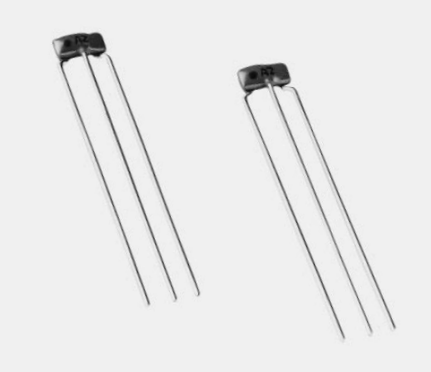
PART NUMBERING SYSTEM

DS ☐ 310 – 55 Y5S 271 M 100

- DS — DISC TYPE
- ☐ — FERRITE BEAD: Blank = None; T = Outside; S = Inside
- 310 — SERIES TYPE
- 55 — LEAD CONFIGURATION: 55 = Bulk; 91 = Taped
- Y5S — TEMPERATURE CHARACTERISTICS
- 271 — CAPACITANCE
- M — CAPACITANCE TOLERANCE
- 100 — RATED VOLTAGE

★Available as standard through authorized Murata Electronics Distributors. ▲Applicable in North American market only. ▼Applicable in European market only.
For more detailed information regarding this product line in North America, see Catalog No. E-06-E. To receive additional information on Murata Products call 1-800-831-9172.
For more detailed information regarding this product line in Europe, see Catalog No. C31E-2.

EMI LEADED SUPPRESSION FILTERS–VARISTOR-CAPACITOR VFR303 SERIES



The EMIGUARD® VFR303 EMI suppression filter incorporates a capacitor that has a varistor function to enable simultaneous EMI noise suppression and surge protection.

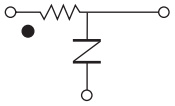
FEATURES

- Absorbs ESD surge rushed into IC's I/O terminal efficiently, protects IC from destruction.
- Thin and low height shape enables high density mounting. [The volume ratio is 57% in comparison with conventional EMIFIL® (DSS306).]

APPLICATIONS

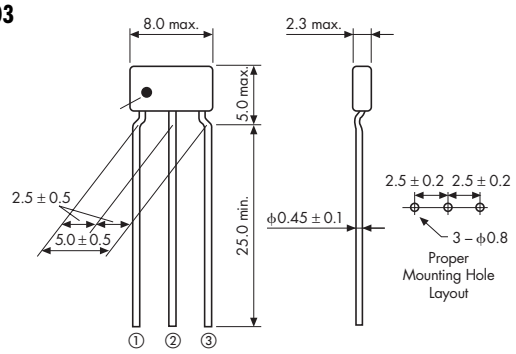
- Elimination of noise and protection of semiconductors in office equipment, including computers and peripheral equipment, copy machines, and communication terminals.

EQUIVALENT CIRCUIT

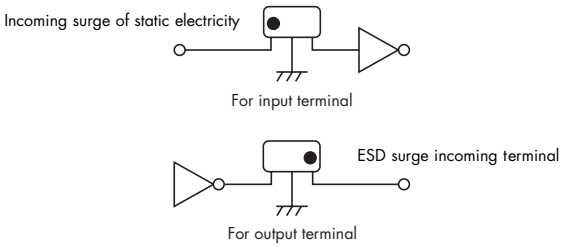


DIMENSIONS: mm

VFR303



APPLICATION

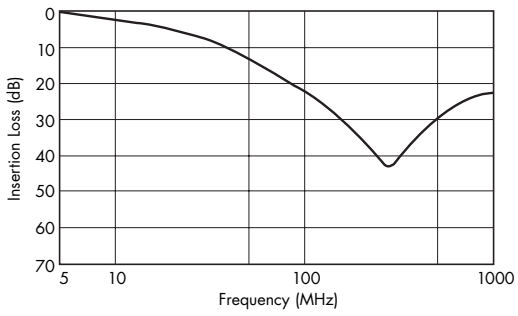


Note: Please connect 1st terminal (marked terminal) to ESD surge incoming line. Please pay attention for direction.

SPECIFICATIONS

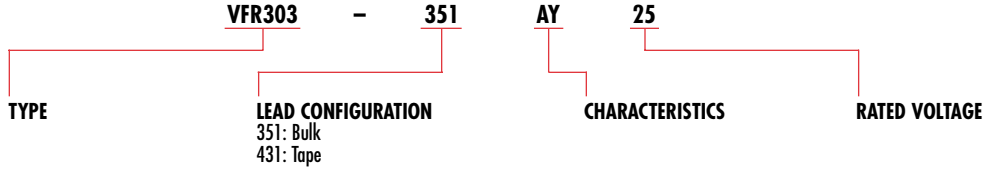
Part Number	Rated Voltage (VDC)	Rated Current (mADC)	Varistor Voltage (VDC)	Peak Pulse Current (A)	Capacitance (pF)	Operating Temperature Range
VFR303-351 AY 25	25	20	50 ± 20%	15	130 ± 20%	–25 ~ +85°C

ATTENUATION CURVE*



*Typical for circuit with 50Ω to 3KΩ impedance

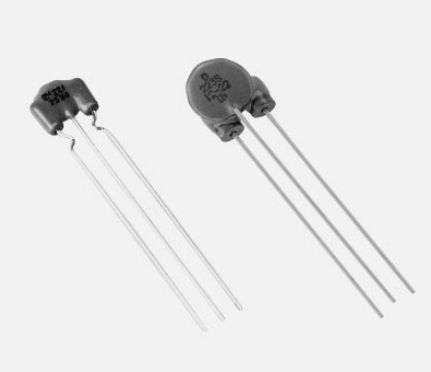
PART NUMBERING SYSTEM



▲Applicable in North American market only. ▼Applicable in European market only.
For more detailed information regarding this product line in North America, see Catalog No. E-06-E. To receive additional information on Murata Products call 1-800-831-9172.
For more detailed information regarding this product line in Europe, see Catalog No. C31E-2.

EMI FILTERS
EMI LEADED VARISTOR-CAPACITOR
DSS706/710 SERIES

Innovator in Electronics



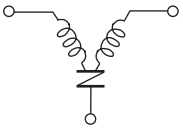
The DSS706 Varistor-Capacitor is a three-terminal filter which suppresses noise emission from electronic equipment while controlling incoming surges of static electricity. Its small size enables 2.5mm pitch mounting.

The DSS710 uses a capacitor element which provides the varistor function. This varistor-capacitor not only works as a bypass capacitor but also lets high-voltage surges flow to ground.

FEATURES

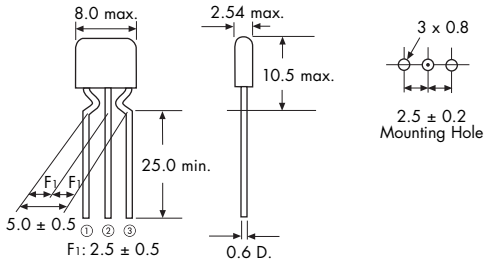
- Protects circuits from electrical surges and acts as a filter for signal lines.
- Effectively suppresses high-frequency noise from signal lines.
- Small size enables it to be mounted at 2.5mm pitch.
- Built-in ferrite bead provides excellent EMI suppression.

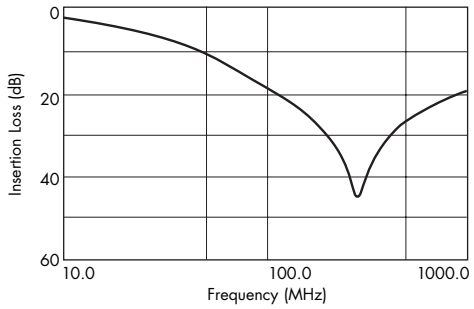
EQUIVALENT CIRCUIT



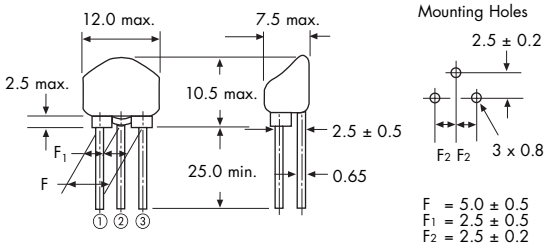
DIMENSIONS: mm

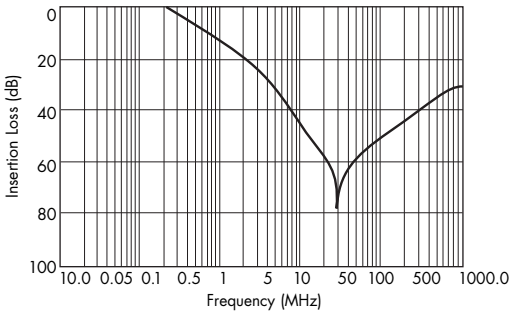
DSS706-351D221M25-50





DSS710-D223S12-22

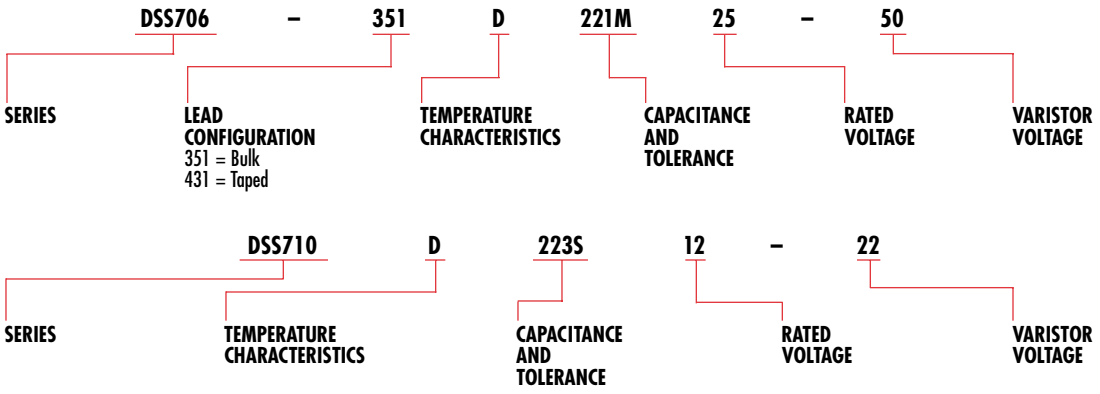




SPECIFICATIONS

Part Number	Capacitance	Capacitance Temp. Char.	Rated Voltage	Max. Rated Current	Varistor Voltage	Peak Pulse Current	Operating Temp. Range
★DSS706-351D221M25-50	220pF ± 20%	+20%, –30%	25VDC	6 Amps	50 ± 20%	100A	–40 ~ +105°C
★DSS710-D223S12-22	22000pF $^{+50}_{-20}$%	+20%, –30%	12VDC	7A	22 ± 20%	—	–40 ~ +100°C

PART NUMBERING SYSTEM



★Available as standard through authorized Murata Electronics Distributors. ▲Applicable in North American market only. ▼Applicable in European market only.
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For more detailed information regarding this product line in Europe, see Catalog No. C31E-2.

EMI LEADED BLOCK FILTERS
BNP002/004 SERIES

Block-type BNP002 filters completely eliminate noise from extremely wide frequency bands. The BNP002 is ideal for eliminating noise in logic signal circuits and is designed to perform superbly through the use of through-type barrier layer capacitors, and bead inductors.

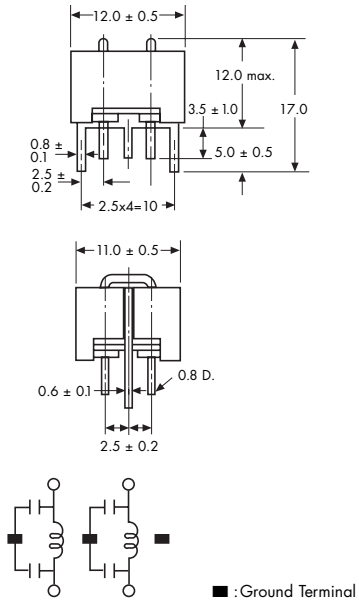
Each block contains a number of compact EMI suppression filters. In addition, the input/output terminals and the grounding terminal are aligned in the same direction, thus permitting fast and easy assembly on any type of PC board.

FEATURES

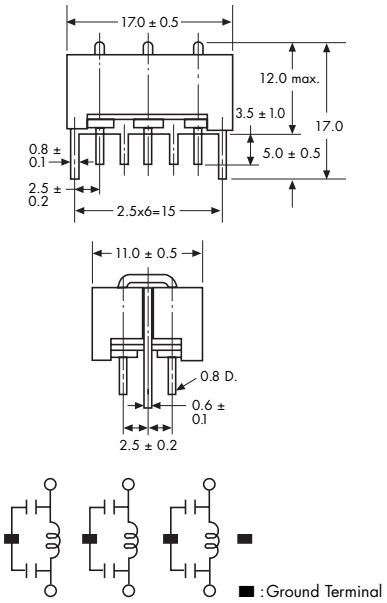
- The EMIFIL BNP002 incorporates feed-thru type barrier layer capacitors in Pi circuits, obtaining significantly large insertion losses over an extremely wide frequency range – from 15MHz up to 1GHz.
- The cut-off frequency is designed to be at several MHz, which is ideal for eliminating noise from any circuit in which the signal frequency and the noise frequency are relatively close together.

DIMENSIONS: mm

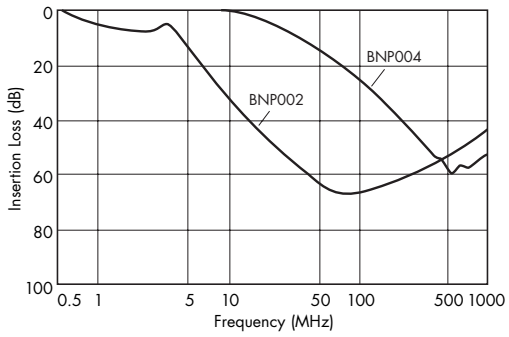
BNP002-02/BNP004-02



BNP002-03



ATTENUATION CURVE*

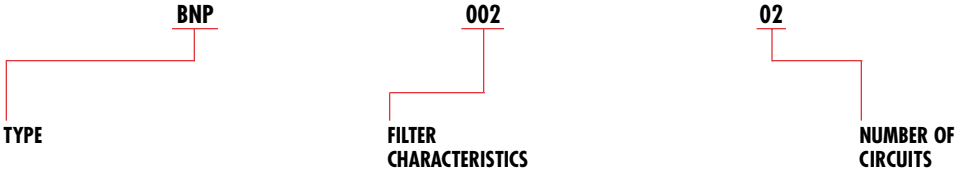


*Typical in 50Ω impedance circuit

SPECIFICATIONS

Part Number	Number of Circuits	Circuit Construction	Operating Temperature Range	Rated Voltage	Withstand Voltage	Maximum Current Capacity	Insulation Resistance	DC Resistance	Insertion Loss
★BNP002-02	2	π	–40 ~ +100°C	50VDC	300VDC	10ADC	1000MΩ min.	0.05Ω max. (20 ~ 25°C)	20MHz ~ 500MHz 40dB (20 ~ 25°C) min.
★BNP002-03	3								
★BNP004-02	2				125VDC				300MHz ~ 1GHz 40dB min.

PART NUMBERING SYSTEM



★Available as standard through authorized Murata Electronics Distributors. ▲Applicable in North American market only. ▼Applicable in European market only.
For more detailed information regarding this product line in North America, see Catalog No. E-06-E. To receive additional information on Murata Products call 1-800-831-9172.
For more detailed information regarding this product line in Europe, see Catalog No. C31E-2.

EMI FILTERS
EMI LEADED BLOCK FILTERS
BNX002/003/005 SERIES

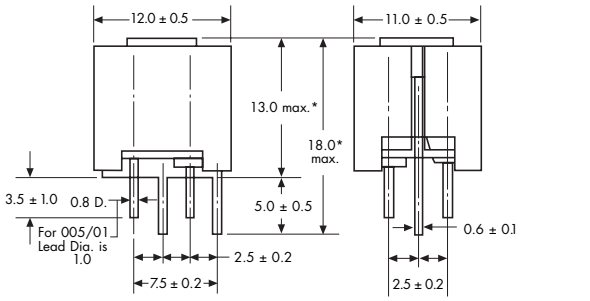
Block-type BNX002 filters completely eliminate noise from extremely wide frequency bands. The BNX002 is perfect for use in DC power circuits and is designed to perform superbly – through the use of through-type barrier layer capacitors, monolithic chip capacitors and bead inductors.

Each block contains a number of compact EMI suppression filters. In addition, the input/output terminals and the grounding terminal are aligned in the same direction, thus permitting fast and easy assembly on any type of PC board.

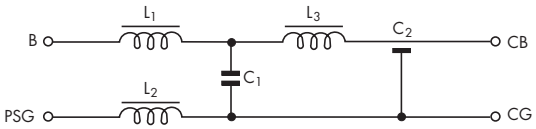
FEATURES

- The BNX002 incorporates feed-thru-type barrier layer capacitor and a chip capacitor which are interconnected. This combination enables the BNX002 to achieve a significantly large insertion loss throughout the extremely wide frequency range of 0.5MHz to 1GHz, which covers the AM and UHF-TV broadcast frequency bands.
- Non polarized – but care must be taken to ensure that terminal with inductor on ground line faces EMI source.

DIMENSIONS: mm

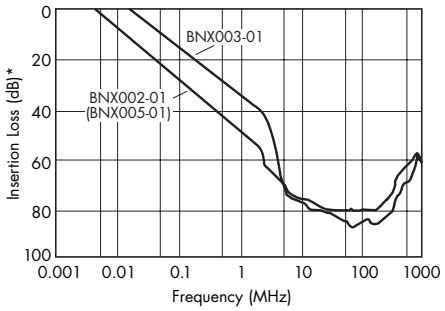


*BNX005-01 = 13.5 and 18.5



PSG: Power Supply Ground
CG: Circuit Ground
CB: Circuit + B

ATTENUATION CURVE*

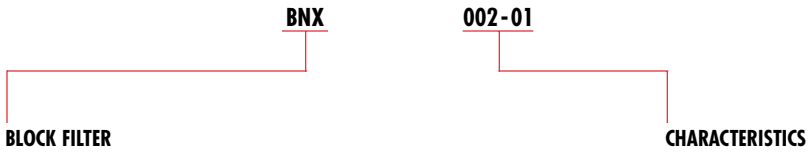


*In 50Ω system

SPECIFICATIONS

Part Number	Operating Temperature Range	Rated Voltage	Test Voltage	Maximum Current Capacity	Insulation Resistance	Insertion Loss	
★BNX002-01	–30°C ~ +85°C	50VDC	125VDC	10ADC	100MΩ min.	1MHz ~ 1GHz 40dB min.	20°C ~ 25°C Line Impedance = 50Ω
★BNX003-01		150VDC	375VDC			5MHz ~ 1GHz 40dB min.	
★BNX005-01		50VDC	125VDC	15ADC		1MHz ~ 1GHz 40dB min.	

PART NUMBERING SYSTEM



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For more detailed information regarding this product line in Europe, see Catalog No. C31E-2.

LEADED SUPPRESSION DC COMMON MODE CHOKE COIL
PLT SERIES

Innovator in Electronics

Compact, lightweight, common mode choke coil for DC power supplies for common mode noise suppression from several MHz to several hundred MHz.

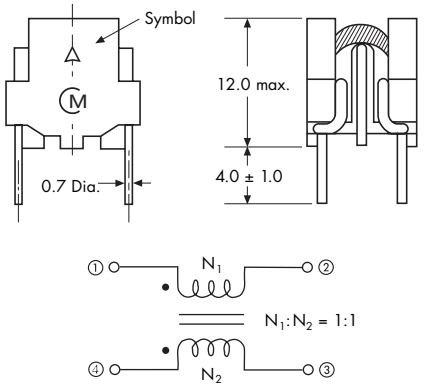
FEATURES

- Ideal for suppression of common mode noise in high frequencies ranging from several MHz to several hundred MHz.
- PCB mount type makes mounting simple.
- Only negligible influence on 10MHz high frequency signals (PLT0R53C only).

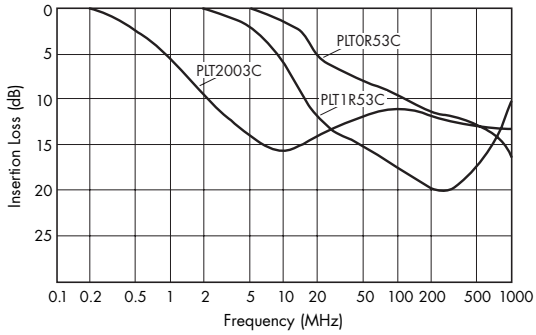
APPLICATIONS

- To meet FCC regulations on digital equipment such as computers and computer terminal equipment.
- To meet VDE regulations on hand-held digital appliances using AC adapters (suppression of unwanted radiation from power cords).
- Suppression of radiated noise from cable between AC adapters and sets.

DIMENSIONS: mm



ATTENUATION CURVE†



†In 50Ω system

SPECIFICATIONS

Part Number	Inductance (μH) min.	Self-resonance Frequency (MHz)*	Marking Code	Rated Voltage	Rated Current	Withstand Voltage	Operating Temp. Range
★PLT0R53C	0.5	1000 min.	B	50VDC	3A	125VDC (1 ~ 5 seconds)	–25°C ~ +60°C
★PLT1R53C	1.5	250	A				
★PLT2003C	20.0	10	C				

*Typical Value

PART NUMBERING SYSTEM

★Available as standard through authorized Murata Electronics Distributors. ▲Applicable in North American market only. ▼Applicable in European market only.
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For more detailed information regarding this product line in Europe, see Catalog No. C31E-2.

EMI FILTERS
LEADED–DC COMMON MODE CHOKE COIL
PLT09H SERIES

The PLT09H DC common mode choke coil is an EMI-Suppression filter that is effective in a wide frequency range from a few MHz to several hundred MHz. It features a low-profile design.

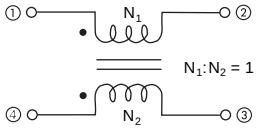
FEATURES

- Extended self-resonant frequency
- Meets FCC, CISPR, VCCI noise requirements
- High current rating – 3A max.
- High density mounting

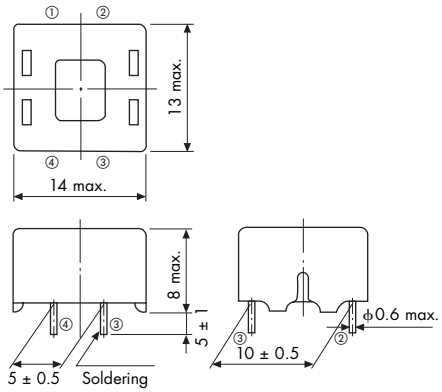
APPLICATIONS

- Switching power supplies, digital instruments, computers, peripherials, CTV, VCR, ECR and other electronic equipment and appliances

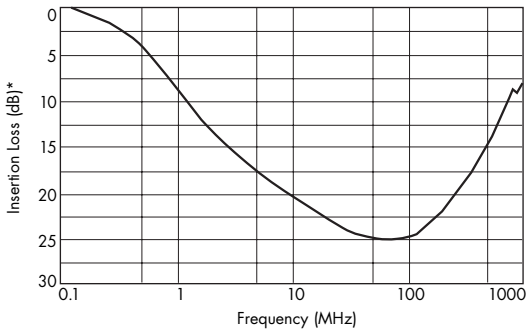
EQUIVALENT CIRCUIT



DIMENSIONS: mm



ATTENUATION CURVE

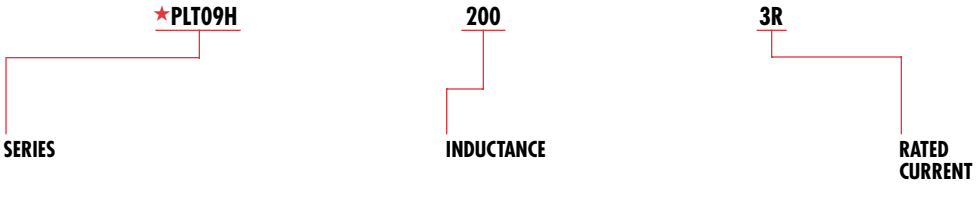


*In 50Ω system

SPECIFICATIONS

Rated Voltage	Withstand Voltage (between coils)	Rated Current (Amps)	Insulation Resistance	DC Resistance (Ω) max.	Inductance min.	Operating Temperature Range
50VDC	125VDC (1 min.)	3.0	10MΩ min. (100VDC 1 minute)	0.03	20μH	–25°C ~ +60°C

PART NUMBERING SYSTEM



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For more detailed information regarding this product line in Europe, see Catalog No. C31E-2.

NOISE FILTERS–AC COMMON MODE CHOKE COIL
FKOB SERIES

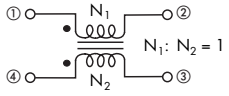
Innovator in Electronics

The FKOB Series is a common mode choke coil, effective for asymmetric wave (unbalanced noise), used chiefly for preventing noise in color TV or VTR.

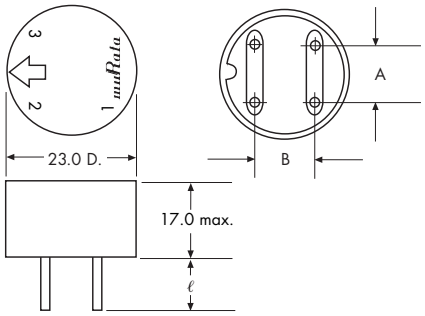
FEATURES

- Meets FCC noise requirements
- Compact design achieved by the use of highly permeable ferrite material
- Excellent frequency characteristics, useable from 100 kHz to several tens of MHz
- Less temperature and less effect on the environment with equipment temperature held to 30°C or less
- Negligible reduction to inductance due to load current
- The filter's construction and the insulation material used satisfy the requirements of applicable safety standards (i.e., UL standard).

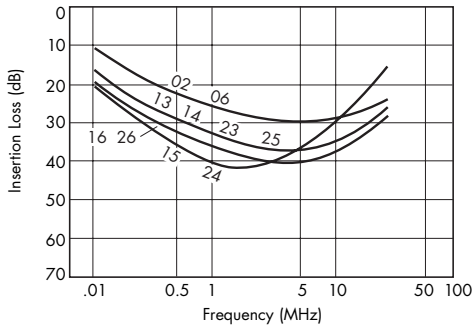
EQUIVALENT CIRCUIT



DIMENSIONS: mm



ATTENUATION CURVE†



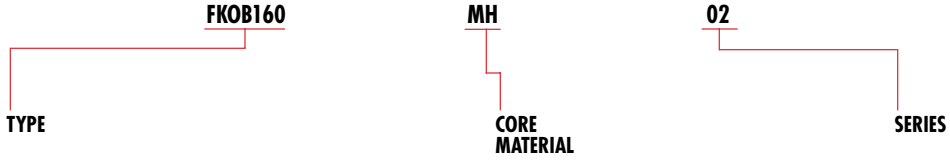
†In 50Ω system

SPECIFICATIONS

Part Number	Inductance μH (min.)	RDC (Ω max.)	Rated Voltage (VAC)	Rated Current (Arms)	Frequency at Self-resonance MHz (Typ.)	Lead Pitch A / B	Lead Length ℓ in mm	Operating Temperature
★FKOB160MH02	250	< 0.05	250	2.5	5	8 / 10	10	–25 to +60°C
★FKOB160MH06	250	< 0.05	250	2.5	5	13 / 10	4.5	
★FKOB160MH25*	600	< 0.08	250	2.5	4	8 / 10	10	
★FKOB160MH13*	600	< 0.08	250	2.5	4	13 / 10	4.5	
★FKOB160MH23*	800	< 0.08	250	2.5	4	8 / 10	10	
★FKOB160MH14	800	< 0.08	250	2.5	4	13 / 10	4.5	
★FKOB160MH26*	1000	< 0.10	250	1.5	2.5	8 / 10	10	
FKOB160MH16	1000	< 0.10	250	1.5	2.5	13 / 10	4.5	
★FKOB160MH24*	1500	< 0.12	250	1.5	1.5	8 / 10	10	
★FKOB160MH15	1500	0.12	250	1.5	1.5	13 / 10	4.5	

*Standard units

PART NUMBERING SYSTEM



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For more detailed information regarding this product line in North America, see Catalog No. E-06-E. To receive additional information on Murata Products call 1-800-831-9172.
For more detailed information regarding this product line in Europe, see Catalog No. C09E-2.

NOISE FILTERS–AC COMMON MODE CHOKE COIL
PLA SERIES

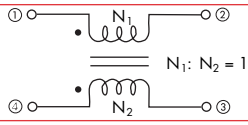
Innovator in Electronics

The PLA Series is a common mode choke coil effective for asymmetric waves (unbalanced noise). This circuit is applicable to color TV's, VTR's, switching power supplies, power supply circuit boards and others. It is particularly effective for preventing even the slightest amount of noise in compact electronic equipment.

FEATURES

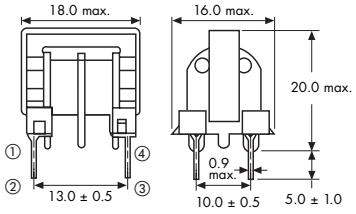
- Compact, lightweight construction incorporating a highly permeable ferrite core.
- Operates effectively in a frequency range of 0.1 to 16MHz. Compared to toroidal cores, it attenuates a very wide range of low frequencies from 0.1 to 6MHz.
- Negligibly small reduction in inductance due to load current
- Flame-retardant materials and very simple construction assure safety and dependability.
- Suitable for noise reduction per FCC and CISPR requirements.

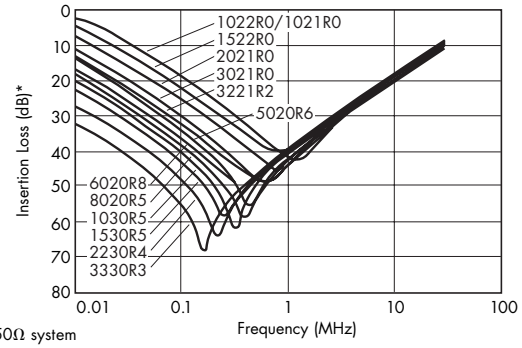
EQUIVALENT CIRCUIT



DIMENSIONS: mm

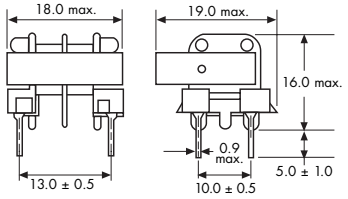
PLAA Vertical Style

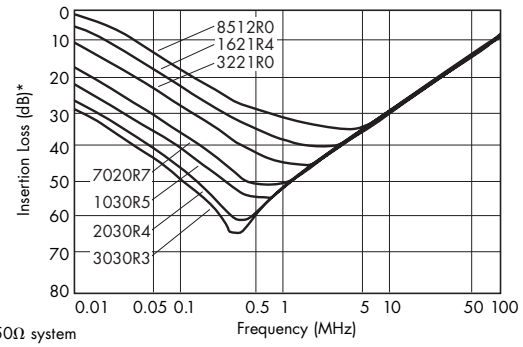




*In 50Ω system

PLAB Horizontal Style





*In 50Ω system

SPECIFICATIONS

Part Number	Inductance (mH) min.	Rated Voltage (VAC)	Rated Current (Arms)	RDC (Ω max.)	Operating Temperature Range
PLA STANDARD TYPE					
★PLA□3330R3R01B1	33.0	250	0.3	3.5	–25°C ~ +60°C
★PLA□2230R4R01B1	22.0		0.4	2.0	
★PLA□1530R5R01B1	15.0		0.5	1.5	
★PLA□1030R5R01B1	10.0		0.5	1.5	
★PLA□8020R5R01B1	8.0		0.5	1.0	
★PLA□6020R8R01B1	6.0		0.8	0.5	
★PLA□5020R6R01B1	5.0		0.6	0.7	
★PLA□3221R2R01B1	3.2		1.2	0.3	
★PLA□3021R0R01B1	3.0		1.0	0.35	
★PLA□2021R0R01B1	2.0		1.0	0.3	
★PLA□1021R0R01B1	1.0		1.0	0.25	
★PLA□1522R0R01B1	1.5		2.0	0.2	
★PLA□1022R0R01B1	1.0		2.0	0.15	
PLA SECTIONAL WINDING TYPE					
★PLA□3030R3R01B1	30.0	250	0.3	4.0	–25°C ~ +60°C
★PLA□2030R4R01B1	20.0		0.4	2.5	
★PLA□1030R5R01B1	10.0		0.5	1.4	
★PLA□7020R7R01B1	7.0		0.7	0.8	
★PLA□3221R0R01B1	3.2		1.0	0.4	
★PLA□1621R4R01B1	1.6		1.4	0.2	
★PLA□8512R0R01B1	0.85		2.0	0.13	

□–Type Code (A: Vertical Core Type, B: Horizontal Core Type)

PART NUMBERING SYSTEM

PLA	A	102	1R0	R	01	B1
TYPE	STYLE A = Vertical B = Horizontal	INDUCTANCE 102 = 1.0mH 223 = 22mH	RATED CURRENT 1R0 = 1A 0R5 = 0.5A	WINDING MODE R = Multilayer	SERIAL NUMBER	PACKAGING B1 = Bulk

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For more detailed information regarding this product line in Europe, see Catalog No. C09E-2.

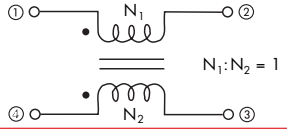
NOISE FILTERS–AC COMMON MODE CHOKE COIL HIGH FREQUENCY–PLH11 SERIES

Innovator in Electronics

FEATURES

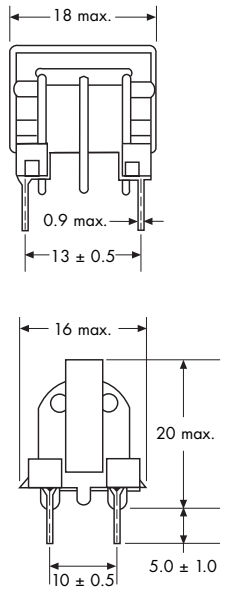
- High-performance ferrite core provides excellent frequency characteristics.
- Ideal for suppressing conduction and radiation noise to meet VCCI, FCC, CISPR, VDE noise regulations
- Suitable for application when no ground is available, when the ground is unstable or when a by-pass capacitor (e.g. a three-terminal capacitor) cannot be used because of leakage-current limitations
- Wide application possible for suppressing noise from AC power supplies, DC power supplies and signal lines
- Compact and lightweight
- Three configurations – vertical core, horizontal core, or cased core

EQUIVALENT CIRCUIT

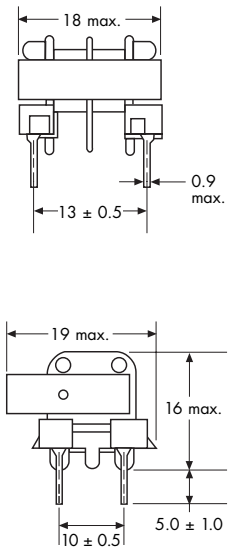


DIMENSIONS: mm

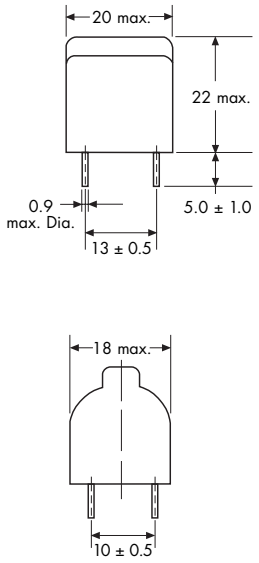
PLH11A Vertical Type



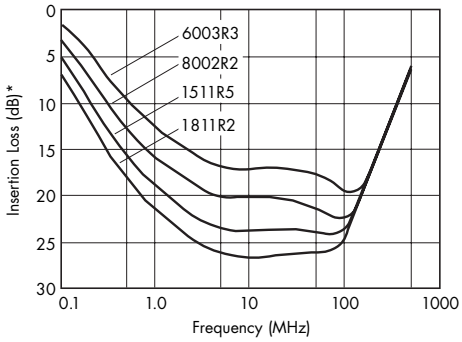
PLH11B Horizontal Type



PLH11C Cased Type



ATTENUATION CURVE



*Typical in 50Ω impedance circuit

SPECIFICATIONS

Part Number	Rated Current (Arms)	Direct Current Resistance (Ω max.)	Inductance L_1, L_2 (mH min.)	Inductance Difference L_1 - L_2 (mH max.)	Rated Voltage	Withstand Voltage (Between Coils)	Insulation Resistance (Between Coils: 500VDC)	Operating Temperature Range
★PLH11□1811R2P01B1	1.2	0.15	180	20	250VAC	2000VAC, one minute	100MΩ min.	–25 ~ +60°C
★PLH11□1511R5P01B1	1.5	0.10	150	15				
★PLH11□8002R2P01B1	2.2	0.07	80	10				
★PLH11□6003R3P01B1	3.3	0.05	60	10				

PART NUMBERING SYSTEM

PLH11 A 151 1R5 P 01 B1

TYPE	STYLE	INDUCTANCE	RATED CURRENT	WINDING MODE	SERIAL NUMBER	PACKAGING
	A = Vertical B = Horizontal C = Cased	102 = 1.0mH 223 = 22mH	1R0 = 1.0A 0R5 = 0.5A	P = Parallel		B1 = Bulk

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NOISE FILTERS–AC COMMON MODE CHOKE COIL HIGH FREQUENCY–PLH14H SERIES

muRata
Innovator in Electronics

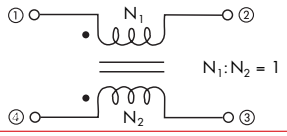
FEATURES

- Excellent noise suppression achieved by combining the best characteristics of conventional bobbin and toroidal types
- Meets VCCI, FCC and CISPR noise regulations.
- Case structure allows sufficient insulation distance between other components, thus enabling high-density mounting.

APPLICATIONS

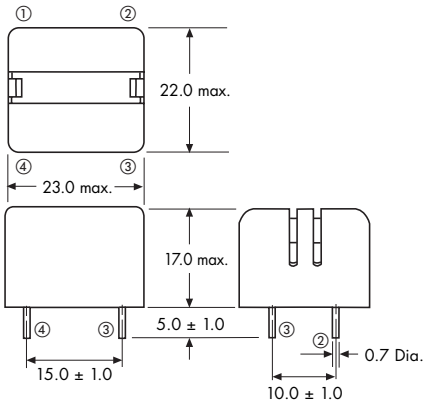
- Switching power supplies, processor control equipment, CTV

EQUIVALENT CIRCUIT

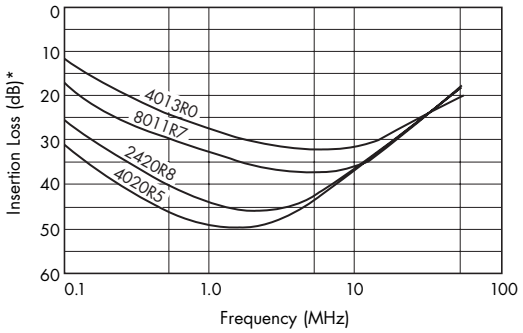


DIMENSIONS: mm

PLH14H



TYPICAL ATTENUATION CURVE

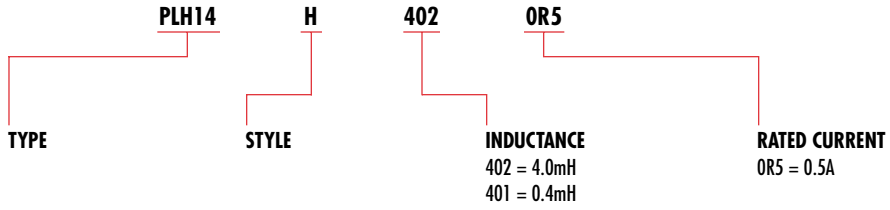


*In 50Ω system

SPECIFICATIONS

Part Number	Inductance (mH) min.	Rated Voltage (VAC)	Rated Current (Arms)	RDC (Ω) max.	Operating Temperature Range
PLH14H-4020R5	4.0	250	0.5	3.0	–25 ~ +60°C
PLH14H-2420R8	2.4		0.8	1.0	
PLH14H-8011R7	0.8		1.7	0.5	
PLH14H-4013R0	0.4		3.0	0.1	

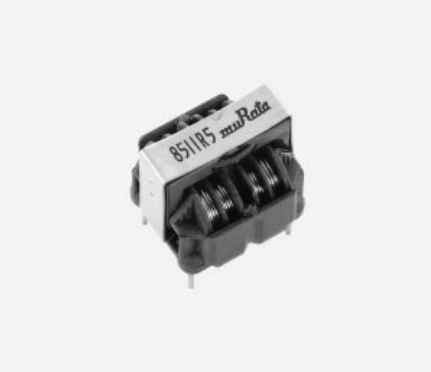
PART NUMBERING SYSTEM



▲Applicable in North American market only. ▼Applicable in European market only.
For more detailed information regarding this product line in North America, see Catalog No. E-06-E. To receive additional information on Murata Products call 1-800-831-9172.
For more detailed information regarding this product line in Europe, see Catalog No. C09E-2.

NOISE FILTERS–AC COMMON MODE CHOKE COIL
PLY11 SERIES

Innovator in Electronics

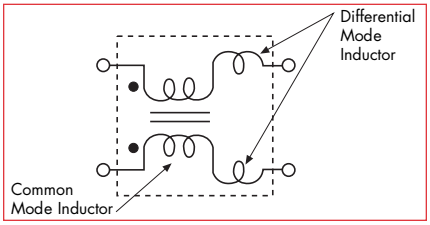


PLY11 is a compact and high performance hybrid choke coil which can meet differential mode noise as well as common mode noise. Compact size eliminates the need for individual common mode and differential mode choke.

FEATURES

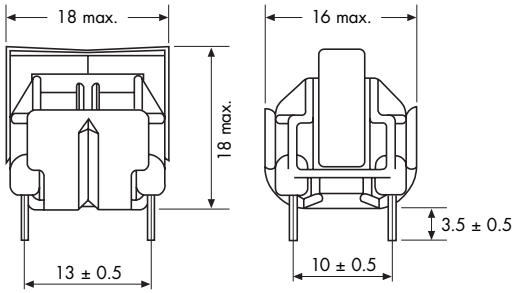
- PLY11 has both function of common mode choke coil and differential mode choke coil in its compact body.
- PLY11 has same pin layout as general type common mode choke coil which makes it possible to replace conventional component.

EQUIVALENT CIRCUIT

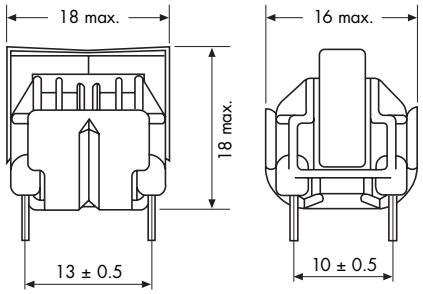


DIMENSIONS: mm

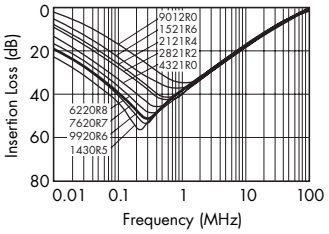
STANDARD WINDING



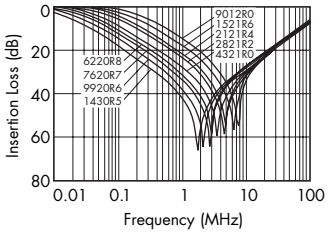
SECTIONAL WINDING



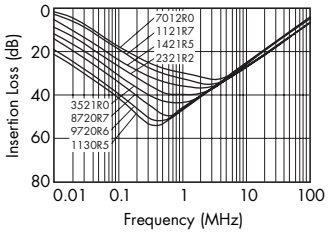
Common Mode



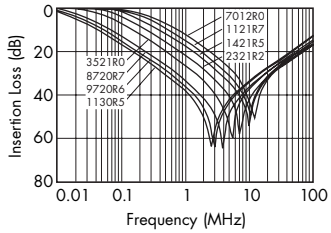
Differential Mode



Common Mode



Differential Mode



SPECIFICATIONS

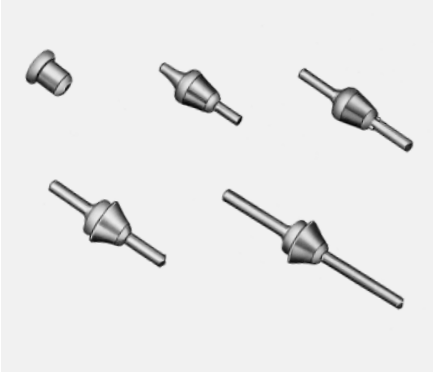
Part Number	Inductance		Rated Voltage (VAC)	Rated Current (Arms)	Operating Temperature Range
	Common Mode (mH min.)	Differential Mode (mH min.)			
Standard Winding	0.5 ~ 14.0	0.065 ~ 1.0	250	0.5 ~ 2.0	–25 ~ +60°C
Sectional Winding	0.45 ~ 11.0	0.050 ~ 0.84			

PART NUMBERING SYSTEM

PLY	11	A	143	0R5	R	02	B1
TYPE	SIZE	STYLE A: Vertical Type	INDUCTANCE	RATED CURRENT	WINDING MODE D: Sectional Winding R: Normal Winding	SERIAL NUMBER	PACKAGING B1: Bulk

▲Applicable in North American market only. ▼Applicable in European market only.
For more detailed information regarding this product line in North America, see Catalog No. E-06-E. To receive additional information on Murata Products call 1-800-831-9172.
For more detailed information regarding this product line in Europe, see Catalog No. C09E-2.

EMI FILTERS
FEED-THRU CAPACITORS
TF318(H) & TF418 SERIES



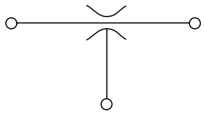
These feed-thru capacitors are designed for high frequency requirements, by-pass applications in VHF and UHF communications equipment and noise filters for car radios, car stereos and two-way radios.

These devices feature simple construction, small size and nickel plated electrodes.

They are migration free and have high thermal strength, mechanical strength and resistance to soldering heat.

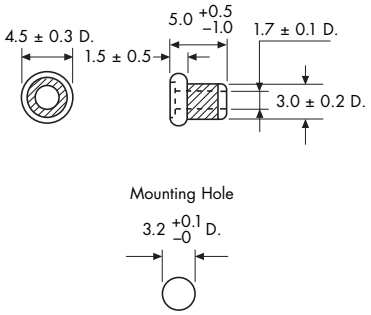
Ease of mounting makes them ideal for new and conventional feed-thru applications.

EQUIVALENT CIRCUIT

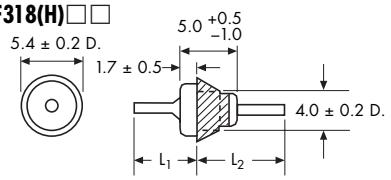


DIMENSIONS: mm

TF318(H)0

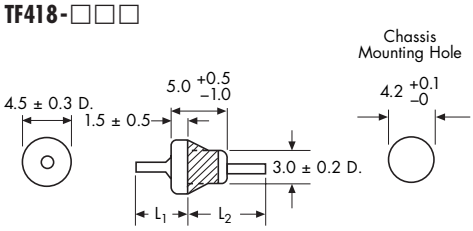


TF318(H)□□



Type	Lead Dia.	L_1	L_2
TF318-850	ϕ0.8	25.0 ± 2.0	30.0 ± 2.0
TF318-853		14.0 ± 1.0	15.0 ± 1.0
TF318-855		9.5 ± 0.5	11.0 ± 0.5
TF318-053	ϕ1.0	11.0 ± 1.0	16.5 ± 1.0
TF318-055		7.0 ± 0.7	6.2 ± 0.7
TF318-450	ϕ1.4	4.5 + 1.0, − 0.5	7.5 ± 1.0
TF318-452		7.0 ± 1.0	9.0 ± 1.0

TF418-□□□



Type	Lead Dia.	L_1	L_2
TF418-452	ϕ1.4	7.2 ± 1.0	8.8 ± 1.0
TF418-454		10.2 ± 1.0	13.8 ± 1.0

SPECIFICATIONS

Part Number	Capacitance	Capacitance Tolerance	Temperature Characteristics	Rated Voltage
TF318-□SL100G50	10pF	±20%	SL	50VDC
TF318-□SL220M50	22pF	±20%	SL	50VDC
TF318-□SL330M50	33pF	±20%	SL	50VDC
TF318-□SL470M50	47pF	±20%	SL	50VDC
TF318-□YN101M50	100pF	±20%	YN	50VDC
TF318-□B271M50	270pF	±20%	B	50VDC
TF318(H)-□B(F)471M50	470pF	±20%	B	50VDC
TF318-□E102GMV50	1000pF	$^{+200}_{-\ 0}$%	E	50VDC
TF318-□E152P50	1500pF	$^{+100}_{-\ 0}$%	E	50VDC
TF418-□E102GMV300	1000pF	$^{+200}_{-\ 0}$%	E	300VDC
TF418-□E152P300	1500pF	$^{+100}_{-\ 0}$%	E	300VDC

PART NUMBERING SYSTEM

TF318 450 E 102 GMV 50V

- TF318 450 — TYPE AND DIMENSIONS
- E — TEMPERATURE CHARACTERISTICS
- 102 — NOMINAL CAPACITANCE
- GMV — CAP. TOLERANCE
- 50V — RATED VOLTAGE (TF318–50V–ONLY, TF418–300V–ONLY)

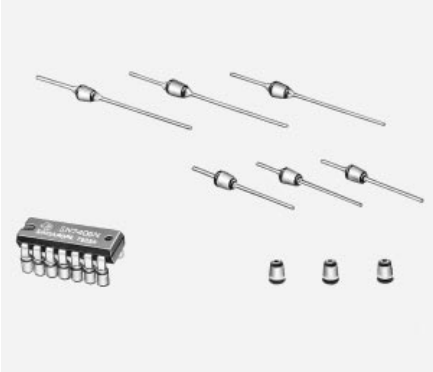
Code	Max. Cap. Change	Temp. Range
B	±10%	–25°C ~ +85°C
E	$^{+20}_{-55}$ %	–25°C ~ +85°C

Code	Temp. Coefficient
SL	+350 ~ –1000ppm/°C
YN	–500 ~ –5800ppm/°C

▲Applicable in North American market only. ▼Applicable in European market only.
For more detailed information regarding this product line in North America, see Catalog No. E-06-E. To receive additional information on Murata Products call 1-800-831-9172.
For more detailed information regarding this product line in Europe, see Catalog No. CG02E-2

EMI LEADED FILTERS
FEED-THRU CAPACITORS–SUBMINIATURE
DF220, DF221(H), DF430, TF240(H) & DF331(H) SERIES

Innovator in Electronics



Since the input and output terminals of these feed-thru capacitors are isolated and the inductance on the grounded side is very small, they can be used effectively to very high frequencies.

These devices are suitable for suppression of radiation from TV tuners, car radios, car stereos and transmission devices and provide enhanced protection from external noise sources.

These subminiature feed-thrus, which may be incorporated in 2.54mm pitch connectors, are ideal for miniature electronic equipment.

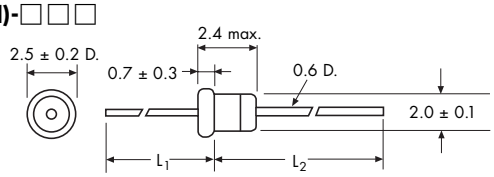
FEATURES

- The use of barrier layer capacitors has resulted in smaller size and larger capacity than possible with conventional capacitors.
- The nickel alloy electrode is resistant to soldering heat and is free from migration in high humidity environments.
- Compact electronic devices can be achieved by incorporating this capacitor with a 2.54mm pitch packaging density – such as installation in connectors.
- Simple construction allows mass production assembly techniques.

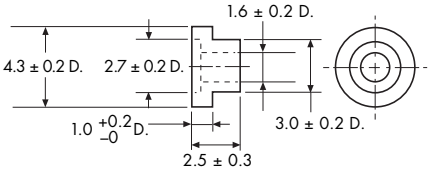
EMI FILTERS

DIMENSIONS: mm

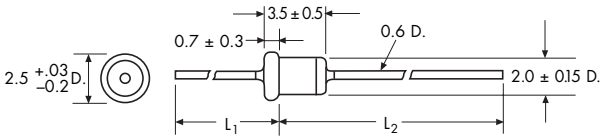
DF221(H)-□□□



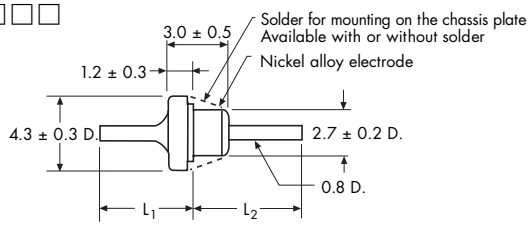
DF430



TF240(H)-□□□



DF331(H)-□□□



SPECIFICATIONS

Part Number	Capacitance Value	Rated Voltage	Leaded	
			L_1	L_2
DF220	2pF $^{+0}_{-100}$% ~ 1500pF $^{+200}_{-0}$%	50V	—	—
DF221(H)-601			10 ± 1.0	20 ± 1.0
DF221(H)-602			20.0 ± 1.0	
DF430	3300pF $^{+200}_{-0}$%		—	—
DF331(H)-812	1pF $^{+0}_{-100}$% ~ 3300pF $^{+200}_{-0}$%		6.5 ± 1.0	9.5 ± 1.0
DF331(H)-895				
DF331(H)-805			14.0 ± 1.0	20.0 ± 1.0
TF240(H)-601	2pF ±0.5pF ~ 3300pF $^{+80}_{-20}$%		10.0 ± 1.0	
TF240(H)-602			5.0 ± 1.0	12.0 ± 1.0
TF240(H)-603				7.0 ± 1.0

Note: Other lead wire lengths are available. Please contact your nearest Sales Office for more detail.

PART NUMBERING SYSTEM

DF221-601	SL	020	U50
TYPE AND DIMENSIONS	TEMPERATURE CHARACTERISTICS	NOMINAL CAPACITANCE	RATED VOLTAGE

▲Applicable in North American market only. ▼Applicable in European market only.
For more detailed information regarding this product line in North America, see Catalog No. E-06-E. To receive additional information on Murata Products call 1-800-831-9172.
For more detailed information regarding this product line in Europe, see Catalog No. CG02E-2

EMI FILTERS
FERRITE CORE FOR EMI SUPPRESSION
FSOH/FSOB/FSSA/FSOC SERIES

Innovator in Electronics

We offer a complete line of ferrites for noise suppression in styles such as rings, beads, multi-hole cores, and plates.

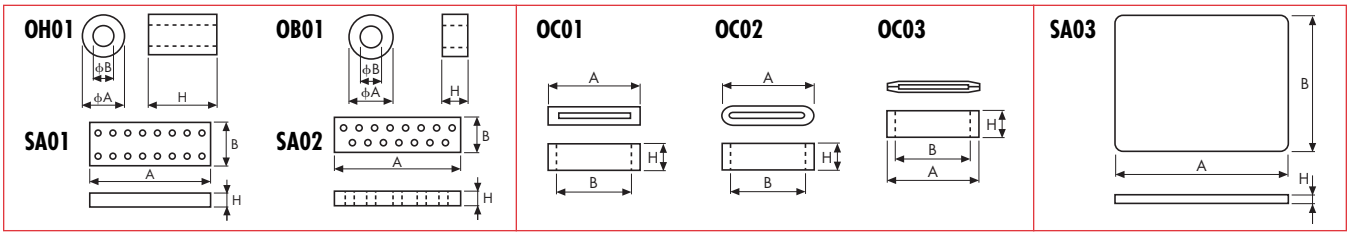
FEATURES

- Easy to use and excellent noise suppression. Data lines can be passed through core or wound around core several times.
- Effective for suppressing noise at high frequencies

APPLICATIONS

- Computers and peripheral equipment (printer, FDD, HDD, display, etc.)
- Digital equipment
- Switching power supply

DIMENSIONS: mm



SPECIFICATIONS

Part Number	Dimensions (mm)			Impedance (Ω) (100MHz)	Shape	Part Number	Dimensions (mm)			Impedance (Ω) (100MHz)	Shape
	A	B	H				A	B	H		
FSOH021RN19A	1.95 ± 0.15	1.02 ± 0.15	4.9 ± 0.25	34(1T)	OH01	FSSA200RN01	20.32 ± 0.4	10.2 ± 0.3	1.5 ± 0.2	29(1T)	SA02
FSOH030RN	3.36 ± 0.2	1.1 ± 0.2	6.0 ± 0.2	74(1T)	OH01	FSSA240RN	24.0 ± 0.2	6.4 ± 0.2	2.5 ± 0.15	45(1T)	SA02
FSOH041RN	3.6 ± 0.2	1.0 ± 0.2	4.85 ± 0.2	66(1T)	OH01	FSSA381RN	38.0 ± 0.2	6.4 ± 0.2	2.5 ± 0.15	45(1T)	SA02
FSOH050RN	4.7 ± 0.3	1.4 ± 0.2	5.0 ± 0.3	64(1T)	OH01	FSOC120RX02B	11.5 ± 0.4	8.5 ± 0.4	6.0 ± 0.3	36	OC01
FSOH050RN01	4.7 ± 0.3	1.4 ± 0.2	10.0 ± 0.3	120(1T)	OH01	FSOC120RX06B	11.5 ± 0.4	8.5 ± 0.4	2.0 ± 0.3	24	OC01
FSOB060PB	6.0 ± 0.3	3.0 ± 0.2	4.0 ± 0.3	300(3T)	OB01	FSOC140RX01	13.8 ± 0.4	9.6 ± 0.4	12.0 ± 0.4	78	OC02
FSOH070RN	7.0 ± 0.3	4.0 ± 0.2	14.0 ± 0.5	82(1T)	OH01	FSOC140RX02B	13.8 ± 0.4	9.6 ± 0.4	6.0 ± 0.4	44	OC02
FSOB080PB	8.0 ± 0.3	4.5 ± 0.2	4.0 ± 0.2	250(3T)	OB01	FSOC140RX03B	13.8 ± 0.4	9.6 ± 0.4	3.0 ± 0.4	30	OC02
FSOH090RN	9.0 ± 0.3	5.0 ± 0.3	16.0 ± 0.5	100(1T)	OH01	FSOC140RX04B	13.8 ± 0.4	9.6 ± 0.4	9.0 ± 0.4	66	OC02
FSOH090RN02	9.0 ± 0.3	5.0 ± 0.3	10.0 ± 0.5	72(1T)	OH01	FSOC170RT01	17.0 ± 0.4	13.0 ± 0.4	12.0 ± 0.4	75	OC02
FSOH120RT	12.0 ± 0.3	7.0 ± 0.3	15.0 ± 0.5	90(1T)	OH01	FSOC170RT02	17.0 ± 0.4	13.0 ± 0.4	7.0 ± 0.4	45	OC02
FSOB120RT01B	12.0 ± 0.3	7.0 ± 0.3	10.0 ± 0.5	450(3T)	OB01	FSOC170RT03B	17.0 ± 0.4	13.0 ± 0.4	6.0 ± 0.4	37	OC02
FSOB120RT02B	12.0 ± 0.3	7.0 ± 0.3	8.0 ± 0.5	400(3T)	OB01	FSOC170RT04B	17.0 ± 0.4	13.0 ± 0.4	9.0 ± 0.4	53	OC02
FSOB120RT05B	12.0 ± 0.3	7.0 ± 0.3	6.0 ± 0.5	310(3T)	OB01	FSOC170RT05B	17.0 ± 0.4	13.0 ± 0.4	3.0 ± 0.4	26	OC02
FSOH121RT01	12.0 ± 0.3	5.6 ± 0.3	20.0 ± 0.5	170(1T)	OH01	FSOC220RT01	22.8 ± 0.4	18.8 ± 0.4	15.0 ± 0.4	85	OC01
FSOB140RN	14.0 ± 0.4	10.0 ± 0.3	8.0 ± 0.3	340(3T)	OB01	FSOC221RT01	22.8 ± 0.5	18.8 ± 0.5	15.0 ± 0.5	73	OC03
FSOB140RN02B	14.0 ± 0.4	10.0 ± 0.3	12.0 ± 0.3	450(3T)	OB01	FSOC240RX01	23.8 ± 0.5	18.8 ± 0.5	15.0 ± 0.4	76	OC02
FSOH142RX01	14.0 ± 0.5	8.0 ± 0.5	28.0 ± 1.0	170(1T)	OH01	FSOC250RT01	25.0 ± 0.5	21.0 ± 0.5	12.0 ± 0.5	70	OC02
FSOB160PB	17.1 ± 0.5	12.8 ± 0.4	7.75 ± 0.3	225(3T)	OB01	FSOC250RT02	25.0 ± 0.5	21.0 ± 0.5	7.0 ± 0.5	45	OC02
FSOB162RN	16.3 ± 0.5	8.3 ± 0.4	16.0 ± 0.5	640(3T)	OB01	FSOC310RN01	31.0 ± 0.5	27.0 ± 0.5	12.0 ± 0.5	70	OC02
FSOB162RN02	16.3 ± 0.5	8.3 ± 0.4	5.0 ± 0.5	310(3T)	OB01	FSOC310RN02	31.0 ± 0.5	27.0 ± 0.5	6.0 ± 0.5	47	OC02
FSOH190RT	19.0 ± 0.6	10.0 ± 0.5	28.5 ± 0.8	200(1T)	OH01	FSOC320RT01	32.0 ± 0.5	27.8 ± 0.5	12.0 ± 0.4	60	OC02
FSOB190RT	19.0 ± 0.5	10.0 ± 0.4	10.0 ± 0.3	480(3T)	OB01	FSOC400RT01	40.0 ± 1.0	35.0 ± 1.0	12.0 ± 0.6	80	OC03
FSOB190RT02B	19.0 ± 0.5	10.0 ± 0.4	6.0 ± 0.3	360(3T)	OB01	FSOC410RN	41.2 ± 1.0	35.0 ± 1.0	15.0 ± 0.6	70	OC02
FSOB220RN	22.0 ± 0.5	14.0 ± 0.4	8.0 ± 0.3	360(3T)	OB01	FSOC560RT01	56.2 ± 1.0	52.2 ± 0.8	12.0 ± 0.35	70	OC02
FSOB250RT	25.0 ± 0.5	15.0 ± 0.5	12.0 ± 0.4	470(3T)	OB01	FSOC600RN	60.0 ± 1.0	48.0 ± 1.0	12.7 ± 0.6	72	OC01
FSOB300RT03	30.0 ± 0.4	20.0 ± 0.4	8.0 ± 0.3	300(3T)	OB01	FSOC600RN02	60.0 ± 1.0	48.0 ± 1.0	10.0 ± 0.6	69	OC01
FSSA160RN	16.0 ± 0.2	6.4 ± 0.2	2.5 ± 0.15	43(1T)	SA02	FSOC800RT01	80.0 ± 1.5	68.6 ± 1.5	12.7 ± 0.7	71	OC03

Part Number	Dimensions (mm)			Impedance (Ω) (10MHz)	Shape	Part Number	Dimensions (mm)			Shape
	A	B	H				A	B	H	
FSOB140MH	14.0 ± 0.4	10.0 ± 0.4	8.0 ± 0.3	120(3T)	OB01	FSSA100RN01	10.0 ± 0.35	10.0 ± 0.35	1.0 ± 0.15	SA03
FSOB160MH	16.0 ± 0.5	12.0 ± 0.4	7.75 ± 0.3	98(3T)	OB01	FSSA202RN01	16.5 ± 0.4	20.0 ± 0.4	1.5 ± 0.2	SA03
FSOB190MH	19.0 ± 0.4	10.0 ± 0.3	10.0 ± 0.2	130(3T)	OB01	FSSA280RN01	28.0 ± 0.4	10.7 ± 0.4	1.5 ± 0.2	SA03
FSOB220MH	22.0 ± 0.4	14.0 ± 0.3	8.0 ± 0.25	120(3T)	OB01	FSSA400RN01	40.8 ± 0.4	7.2 ± 0.4	1.5 ± 0.2	SA03
FSOB250MH	25.0 ± 0.5	15.0 ± 0.5	12.0 ± 0.4	110(3T)	OB01	FSSA600RN02	60.5 ± 0.4	30.6 ± 0.4	2.0 ± 0.2	SA03
FSOB300MH	29.8 ± 0.7	19.8 ± 0.5	6.2 ± 0.3	60(3T)	OB01					

Note: FSOH▼, FSOB▼, FSSA▼

PART NUMBERING SYSTEM

FS	OB	19	0	RT	01
SOFT FERRITE	SHAPE OH: Beads core OB: Ring core OC: Core for flat cable MA: Multi-hole core	TYPICAL DIMENSION	ASSISTANT NO. 1	MATERIAL	ASSISTANT NO. 2

▲Applicable in North American market only. ▼Applicable in European market only.

For more detailed information regarding this product line in North America, see Catalog No. E-06-E. To receive additional information on Murata Products call 1-800-831-9172.

For more detailed information regarding this product line in Europe, see Catalog No. 063E-1.