Shielded Low Profile Surface Mount Inductors

HM73 Series

Features:

- Operating temperature range -40°C to +155°C
- Temperature rise, maximum 50°C
- Operating frequency up to 400kHz
  (For HM73-SXXXXLF series up to 800kHz)
- RoHS Compliant

All parts are Pb free and comply with EU RoHS Directive 2011/65/EU with amendment EU 2015/863 (RoHS 3)

Description:

The HM73 series shielded low profile surface mount inductor is a rectangular flat wire with low resistance which means has low power loss. This series are shielded construction for EMI noise suppression, high power density, optimized miniaturization and high saturation current. It has wide range of inductance values with many case sizes.

Applications:

- Switching power supplies
- EMI/RFI filtering, output chokes
- Power amplifier circuits

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Electrical Specifications

Part Number	Inductance 100 kHz, 0.1V		I_{rated} (1) Rated Current (A)	Heating(2) Current (A)	I_{sat} (3) Saturation Current (A)	DC Resistance		Height Inch/mm Max	Fig
	@ 0Adc µH ± 20%	@ I_{rated} µH Typ				mΩ Typ	mΩ Max		
HM73-10R10LF	0.10	0.09	22.0	26.7	38.0	1.40	1.65	.138/3.50	2
HM73-10R10LLF	0.10	0.09	22.0	28.0	38.0	1.20	1.40	.124/3.15	1
HM73-10R20LF	0.22	0.20	17.0	23.0	23.0	1.80	2.10	.138/3.50	2
HM73-10R20LLF	0.22	0.20	17.0	23.0	23.0	1.80	2.10	.124/3.15	1
HM73-10R47LF	0.47	0.42	15.0	19.2	23.0	2.70	3.16	.158/4.00	1
HM73-10R68LF	0.68	0.64	12.0	14.9	28.0	4.50	5.20	.158/4.00	1
HM73-101R0LF	1.00	1.00	8.5	14.9	15.0	5.20	7.00	.158/4.00	1
HM73-101R5LF	1.50	1.30	6.5	12.7	11.0	6.20	8.30	.177/4.50	1
HM73-102R0LF	2.00	1.70	8.0	11.8	11.0	7.20	8.30	.177/4.50	1
HM73-106R0LF	6.00	5.00	4.8	6.0	4.8	26.00	30.00	.197/5.00	1
HM73-106R4LF	6.40	5.80	3.5	6.0	6.0	26.00	30.00	.197/5.00	1
HM73-12R68LF	0.68	0.60	16.0	20.0	30.0	2.70	3.20	.197/5.00	1
HM73-S121R8LF	1.80	1.40	6.0	8.0	7.0	7.00	7.30	.177/4.50	1
HM73-15R10LF	0.108	0.103	30.0	40.8	51.0	0.60	0.70	.185/4.70	1
HM73-15R20LF	0.20	0.17	21.0	35.3	40.0	0.80	0.90	.158/4.00	1
HM73-15R47LF	0.47	0.42	17.0	26.7	35.0	1.40	1.55	.158/4.00	1
HM73-15R70LF	0.70	0.65	16.0	27.7	30.0	1.30	1.50	.220/5.60	1
HM73-151R0LF	1.00	0.95	10.0	22.0	34.0	2.00	2.20	.220/5.60	1
HM73-151R2LF	1.20	1.07	14.0	23.0	23.0	2.00	2.30	.232/5.90	1
HM73-151R5LF	1.50	1.33	10.0	22.9	25.0	1.90	2.20	.216/5.50	1
HM73-S152R1LF	2.10	1.68	11.0	12.0	16.0	6.50	7.80	.177/4.50	1
HM73-152R2LF	2.20	2.10	8.0	16.1	13.0	3.85	4.60	.216/5.50	1
HM73-152R4LF	2.40	1.92	15.0	17.0	20.0	3.35	4.00	.224/5.70	1
HM73-154R7LF	4.70	3.50	10.0	15.6	16.0	4.80	5.30	.288/7.30	1
HM73-201R0LF	1.00	0.91	16.0	18.8	32.0	2.80	3.30	.177/4.50	1
HM73-201R5LF	1.50	1.43	13.0	16.4	22.0	3.70	4.40	.177/4.50	1
HM73-30R60LF	0.60	0.54	27.0	30.1	40.0	1.10	1.40	.216/5.50	1
HM73-301R0LF	1.00	0.89	23.0	25.8	34.0	1.50	1.85	.216/5.50	1

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	@ 0Adc µH ± 20%	@ I_{rated} µH Typ				mΩ Typ	mΩ Max		
HM73-301R5LF	1.50	1.25	18.0	16.0	30.0	1.90	2.30	.216/5.50	1
HM73-302R2LF	2.20	2.00	12.0	15.0	24.0	4.40	5.10	.216/5.50	1
HM73-303R9LF	3.90	3.60	10.0	13.7	18.0	5.70	7.20	.216/5.50	1
HM73-304R6LF	4.60	4.10	9.0	12.4	14.0	6.50	8.30	.216/5.50	1
HM73-316R4LF	6.40	5.65	6.5	7.8	16.0	16.60	25.00	.197/5.00	2
HM73-318R2LF	8.20	7.72	5.6	7.3	16.0	18.80	26.00	.197/5.00	2
HM73-31100LF	10.0	8.90	6.0	6.9	10.0	20.80	26.00	.197/5.00	2
HM73-40R15LF	0.15	0.13	40.0	44.7	80.0	0.50	0.55	.256/6.50	1
HM73-40R30LF	0.30	0.27	40.0	40.8	73.0	0.60	0.75	.256/6.50	1
HM73-40R40LF	0.40	0.37	40.0	40.0	61.0	0.65	1.00	.256/6.50	1
HM73-40R50LF	0.50	0.46	40.0	40.0	49.0	0.80	1.00	.256/6.50	1
HM73-40R90LF	0.90	0.80	25.0	28.8	40.0	1.20	1.40	.256/6.50	1
HM73-402R2LF	2.20	1.90	15.0	20.8	27.0	2.30	2.60	.256/6.50	1
HM73-403R0LF	3.00	2.40	17.0	19.0	23.0	3.90	4.70	.256/6.50	1
HM73-403R3LF	3.30	2.64	17.0	21.0	24.0	3.30	4.20	.276/7.00	1
HM73-509R1LF	9.10	7.40	8.0	10.5	15.0	9.10	10.80	.295/7.50	1
HM73-50100LF	10.0	8.00	8.0	10.2	15.0	9.60	11.40	.295/7.50	1
HM73-50120LF	12.0	10.59	7.0	8.7	13.0	13.00	15.00	.295/7.50	1
HM73-50140LF	14.0	12.00	5.5	9.5	10.0	11.00	13.20	.335/8.50	1
HM73-5015R5LF	15.5	13.00	5.0	9.9	10.0	15.00	18.20	.315/8.00	1
HM73-5020R9LF	20.9	17.00	4.5	8.0	8.0	16.00	19.00	.335/8.50	1
HM73-5026R5LF	26.5	22.50	4.6	7.0	8.8	21.00	25.20	.355/9.00	1
HM73-601R0LF	1.00	0.80	30.0	38.0	45.0	1.00	1.20	.287/7.30	1
HM73-602R02LF	2.02	1.62	20.0	28.0	28.0	1.85	2.22	.323/8.20	1

Notes: (1) The rated current is the approximate current at which inductance will be decreased by 20% from its initial (zero DC) value.
(2) The heating current is the DC current which causes the component temperature to increase by approximately 50°C. This current is determined by soldering the component on a typical application PCB, and then applying the current to the component for 30 minutes
(3) Isat is the saturation current at which inductance rolls off approximately 30% from its initial unbiased inductance value.
(4) PC Board layout, proximity of other components, trace size and airflow will affect temperature rise and must be considered when selecting an inductor

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Outline Dimensions (Inch/mm)

Figure 1

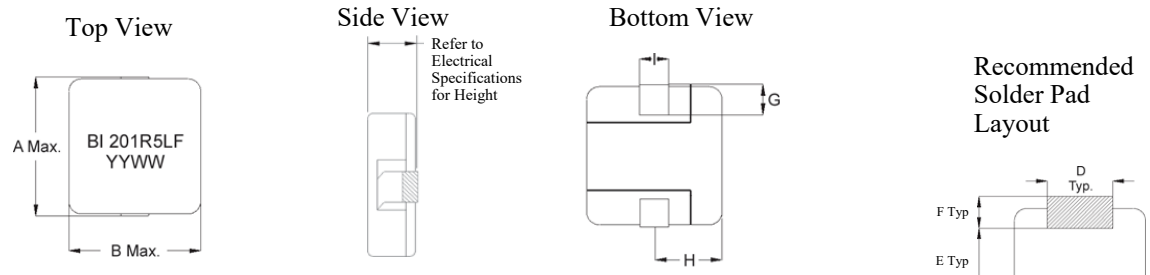
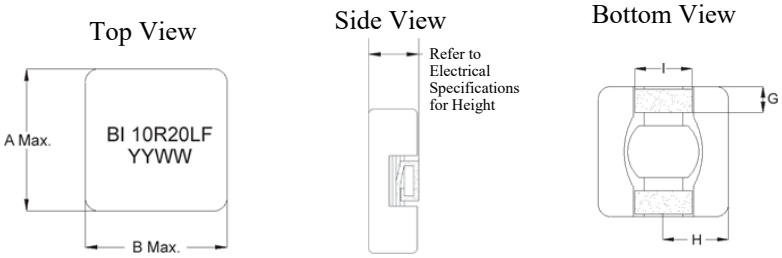


Figure 2



Case size	Inductance Code	Fig.	A	B	D	E	F	G	H	I
10	R10, R20	2	.295 7.50	.271 6.90	.138 3.50	.138 3.50	.098 2.50	.079 ± .020 2.0 ± 0.5	.126 ± .020 3.2 ± 0.5	.118 ± .020 3.0 ± 0.5
	R10L, R20L, R47, R68, 1R0, 1R5, 2R0, 6R0, 6R4	1	.285 7.23	.265 6.73	.086 2.20	.098 2.50	.098 2.50	.079 ± .020 2.0 ± 0.5	.126 ± .020 3.2 ± 0.5	.053 ± .020 1.35 ± 0.5
12	All Models	1	.295 7.50	.265 6.73	.086 2.20	.098 2.50	.098 2.50	.079 ± .020 2.0 ± 0.5	.126 ± .020 3.2 ± 0.5	.053 ± .020 1.35 ± 0.5
15	All Models	1	.461 11.70	.413 10.50	.098 2.50	.177 4.50	.142 3.60	.09 ± .020 2.3 ± 0.5	.197 ± .020 5.0 ± 0.5	.079 ± .020 2.0 ± 0.5
20	All Models	1	.531 13.5	.512 13.0	.158 4.00	.236 6.00	.158 4.00	.118 ± .020 3.0 ± 0.5	.240 ± .020 6.1 ± 0.5	.091 ± .020 2.3 ± 0.5
30	All Models	1	.552 14.0	.512 13.0	.158 4.00	.236 6.00	.167 4.25	.118 ± .020 3.0 ± 0.5	.240 ± .020 6.1 ± 0.5	.091 ± .020 2.3 ± 0.5
31	All Models	2	.512 13.0	.512 13.0	.295 7.50	.236 6.00	.177 4.50	.118 ± .020 3.0 ± 0.5	.240 ± .020 6.1 ± 0.5	.217 ± .020 5.5 ± 0.5
40	R15, R40 & 3R3	1	.575 14.6	.512 13.0	.158 4.00	.236 6.00	.177 4.50	.118 ± .020 3.0 ± 0.5	.240 ± .020 6.1 ± 0.5	.091 ± .020 2.3 ± 0.5
	R30, R50 R90, 2R2 & 3R0	1	.556 14.1	.512 13.0	.158 4.00	.236 6.00	.167 4.25	.118 ± .020 3.0 ± 0.5	.240 ± .020 6.1 ± 0.5	.091 ± .020 2.3 ± 0.5
50	All Models	1	.531 13.5	.512 13.0	.158 4.00	.236 6.00	.158 4.00	.118 ± .020 3.0 ± 0.5	.240 ± .020 6.1 ± 0.5	.091 ± .020 2.3 ± 0.5
60	All Models	1	.591 15.0	.512 13.0	.165 4.20	.236 6.00	.197 5.00	.118 ± .020 3.0 ± 0.5	.250 ± .020 6.35 ± 0.5	.094 ± .020 2.4 ± 0.5

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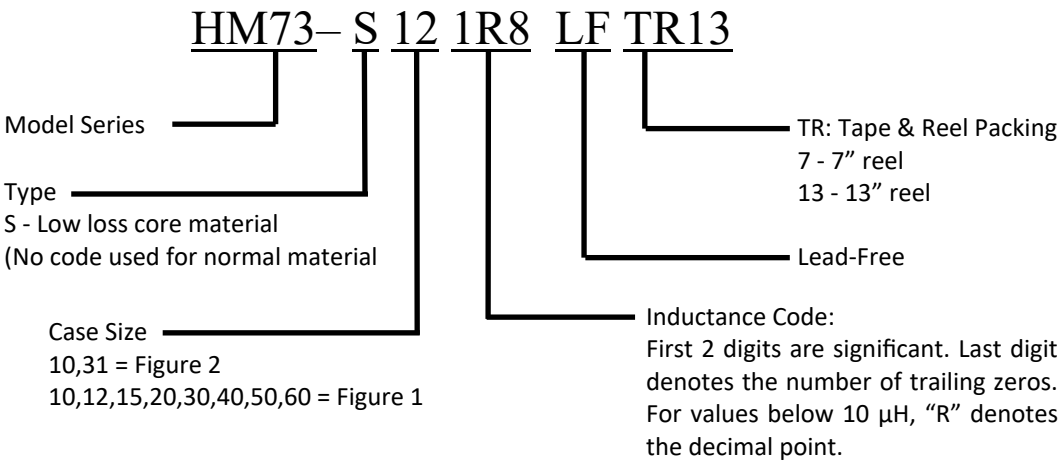
Packaging

Standard	Tape and Reel				
	(1) Case size 10 & 12				
	Reel	Diameter	=	7” (177.8mm)	13”(330.2mm)
		Capacity	=	250 units	1000 units
	(2) Other case size				
	Reel	Diameter	Case size 15,20,30,31,40,50,60	=	13”(330.2mm)
		Capacity	Case size 20,30,31,40*	=	400 units
			Case size 15	=	500 units
			Case size 50,60	=	250 units
			* Except for HM73-403R3LFTR13 which is 300 units per reel		

Ordering Information



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Cautions & Warnings

1. All components are manufactured, designed, and promoted for application in general electronics devices. For specific application use such as in automotive, medical, military and aerospace industry other than for general electronic devices, BI Technologies must be asked for written approval before incorporating the components into those areas.
2. Any components that will be used in high-reliability / high level of safety applications should be pre-evaluated by the end customer especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health.
3. The customer shall be responsible for evaluating and confirming BI Technologies product is suitable for use in customer's applications. If customer applications requiring a very high level of operational safety and especially in customer applications in which a failure of an electronic component could endanger human life or health, it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer such that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.
4. Customer must be cautioned to verify that data sheets are the updated ones before placing orders especially of standard series.
5. Customer need to use the part within warranty period as stated in quotation. Any trouble or failure of electronic components happening during their long life span which cannot be eliminated even after following the instruction within existing technology, BI Technologies would not be liable for it.
6. Many coating/potting materials would shrink as they harden. They therefore applies a pressure on the plastic housing or core. This pressure can have an effect on electrical properties and in extreme cases can damage the core or plastic housing mechanically. It is necessary to check whether the coating/potting material used may attacks or destroys the wire insulation, plastics or glue. The effect of the coating/potting material can change the high-frequency behavior of the components. Many coating/potting materials have a negative effect (chemically and mechanically) on the winding wires, insulation materials and connecting points. Customers are always obligated to determine whether and to what extent their coating materials influence the component. Customers are responsible and bear all risk for the use of the coating material. BI Technologies does not assume any liability for failures of our components that are caused by the coating material.
7. Washing / Cleaning process may jeopardize the product and cause a defect. Washing agents may harm the long-term functionality of the product. The customer shall be responsible for evaluating and confirming the product is suitable for use in customer's applications upon washing/cleaning process as its customer process application related.
8. Products should not be kept in unsuitable storage conditions, such as areas susceptible to high humidity, high temperatures, dust or corrosion where for example atmospheres should be free of chlorine and sulfur bearing compounds. Recommended storage condition in general is +10°C … +40 °C, humidity ≤75% RH. Temperature fluctuations should be minimized to avoid condensation on the parts. Avoid storage near strong magnetic fields, as this might magnetize the product.
9. The storage period should not be longer than 12 months (In the specific storage environment). Oxidization may occur on the terminals. Hence all products shall be consumed within 12 months after the shipping date. If the time is more than 12 months, please check the solderability before use it.
10. Don't touch electrodes terminals directly with bare hands as oil stains may inhibit proper soldering. Always ensure optimum conditions for soldering.
11. Terminals should not be bend or subjected to excessive stress. If the terminals are cable harness type, do not use cable harness to carry the unit or pull the cable harness with a force. It may cause failure on unit immediately or latent effect.
12. Avoid placing magnetic components near the edge of the PCB. It is in customer discretion to have proper design and PCB layout such that component are not damaged in any way of handling nor causing any EMI issue.

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13. Don't touch any exposed winding part and avoid coming into contact with the guide of the electrode as due to charge stored it may cause an electric shock. It is customer discretion to inform all relevant personal handling the components accordingly.
14. The inductor / coil / common mode choke generates heat when current is applied. Please take consideration on this during the design or testing stage.
15. Ferrites are sensitive to direct impact. This can cause the core material to flake, or lead to breakage of the core. Always handle the product with care to prevent any damage.
16. Our specification specifies the quality of the component as a single unit. Please ensure the component is thoroughly evaluated in customer application circuit, therefor even for customized products, conclusive validation of the component in the circuit can only be carried out by customer.
17. The general testing condition is in the room temperature 25°C +/- 5°C and humidity under 70% RH, which is applied to all products. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer.
18. If have any query, please feel free to contact our sales team.

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