

Power Inductors

HA78M series



Features:

- Operating temperature range -55°C to $+155^{\circ}\text{C}$
- Ambient temperature, max $+115^{\circ}\text{C}$
- Temperature rise, 40°C
- Operating frequency up to 3MHz
- AECQ-200 certified



Description:

The HA78M series consists of ferrite based, SMD shielded power inductors designed with a wide range of inductances and package sizes. This series offers inductances ranging from $1.0\mu\text{H}$ to $1000\mu\text{H}$, and rated current from 0.1A up to 15.0A. The HA78M has 4 case sizes; 10, 20, 30 and 50. The series is also magnetically shielded with winding soldered to the terminals. The windings are made from enamel copper wire.

Applications:

- Filtering of supply voltages
- Coupling, decoupling
- DC/DC converter
- Automotive electronics

General Note

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A-1445, Jalan Tanjung Api, 25050 Kuantan, Pahang Darul Makmur, Malaysia

Ph: +60 9 565 8888

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Electrical Specifications

Part Number	Inductance ($\mu\text{H} \pm 20\%$ @0A)	DCR (m Ω) Max	Isat (A) - max	Irms (A)- max
HA78M-101R5LFTR13	1.5 $\pm$ 30%	18.5	4.50	4.50
HA78M-102R2LFTR13	2.2	27.0	3.50	3.50
HA78M-103R3LFTR13	3.3	32.0	3.00	3.00
HA78M-104R7LFTR13	4.7	50.0	3.00	3.00
HA78M-106R8LFTR13	6.8	70.0	2.00	1.80
HA78M-10100LFTR13	10.0	76.0	1.68	1.60
HA78M-10150LFTR13	15.0	130.0	1.60	1.60
HA78M-10220LFTR13	22.0	190.0	1.40	1.30
HA78M-10330LFTR13	33.0	240.0	1.30	1.30
HA78M-10470LFTR13	47.0	360.0	0.90	0.70
HA78M-10680LFTR13	68.0	520.0	0.70	0.60
HA78M-10101LFTR13	100.0	790.0	0.50	0.50
HA78M-10151LFTR13	150.0	1270.0	0.50	0.40
HA78M-10221LFTR13	220.0	1650.0	0.45	0.35
HA78M-10331LFTR13	330.0	2620.0	0.28	0.20
HA78M-10471LFTR13	470.0	4180.0	0.24	0.15
HA78M-10681LFTR13	680.0	5730.0	0.19	0.10
HA78M-201R0LFTR13	1.0 $\pm$ 30%	15.0	8.00	5.00
HA78M-202R2LFTR13	2.2	28.0	6.00	4.50
HA78M-203R3LFTR13	3.3	32.0	4.80	4.00
HA78M-204R7LFTR13	4.7	38.0	4.00	3.50
HA78M-206R8LFTR13	6.8	45.0	3.00	2.50
HA78M-20100LFTR13	10.0	50.0	1.84	2.00
HA78M-20150LFTR13	15.0	81.0	1.40	1.50
HA78M-20220LFTR13	22.0	130.0	1.23	1.30
HA78M-20330LFTR13	33.0	170.0	0.96	1.00
HA78M-20470LFTR13	47.0	260.0	0.88	0.90
HA78M-20680LFTR13	68.0	380.0	0.70	0.80

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HA78M-20101LFTR13	100.0	610.0	0.60	0.70
HA78M-20151LFTR13	150.0	880.0	0.46	0.60
HA78M-20221LFTR13	220.0	1170.0	0.36	0.45
HA78M-20331LFTR13	330.0	1860.0	0.32	0.40
HA78M-20471LFTR13	470.0	3010.0	0.26	0.35
HA78M-20681LFTR13	680.0	4630.0	0.22	0.30
HA78M-301R5LFTR13	1.5	8.0	7.00	6.00
HA78M-302R2LFTR13	2.2	9.5	6.50	5.50
HA78M-303R3LFTR13	3.3	9.6	6.00	5.00
HA78M-304R7LFTR13	4.7	15.0	5.70	4.50
HA78M-306R8LFTR13	6.8	23.0	4.90	4.00
HA78M-30100LFTR13	10.0	28.0	4.50	3.50
HA78M-30150LFTR13	15.0	50.0	3.20	3.00
HA78M-30220LFTR13	22.0	66.0	2.90	2.50
HA78M-30330LFTR13	33.0	97.0	2.70	2.20
HA78M-30470LFTR13	47.0	160.0	1.90	1.90
HA78M-30680LFTR13	68.0	220.0	1.50	1.50
HA78M-30101LFTR13	100.0	308.0	1.20	1.20
HA78M-30151LFTR13	150.0	530.0	0.95	0.90
HA78M-30221LFTR13	220.0	700.0	0.80	0.80
HA78M-30331LFTR13	330.0	990.0	0.60	0.60
HA78M-30471LFTR13	470.0	1580.0	0.50	0.50
HA78M-501R0LFTR13	1.0 $\pm$ 30%	5.5	19.90	15.00
HA78M-501R8LFTR13	1.8 $\pm$ 30%	6.5	13.40	12.00
HA78M-502R5LFTR13	2.5 $\pm$ 30%	8.0	12.16	11.50
HA78M-503R5LFTR13	3.5 $\pm$ 30%	9.7	12.00	11.00
HA78M-504R7LFTR13	4.7 $\pm$ 30%	11.0	11.00	10.00

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HA78M-505R8LFTR13	5.8 $\pm$ 30%	11.3	10.50	9.00
HA78M-506R8LFTR13	6.8	11.5	10.00	8.50
HA78M-507R5LFTR13	7.5	14.0	8.48	8.00
HA78M-50100LFTR13	10.0	17.0	8.20	7.00
HA78M-50120LFTR13	12.0	18.5	7.04	6.00
HA78M-50150LFTR13	15.0	25.0	5.80	5.50
HA78M-50220LFTR13	22.0	29.0	5.12	4.50
HA78M-50330LFTR13	33.0	53.0	4.25	3.60
HA78M-50470LFTR13	47.0	63.0	3.60	3.00
HA78M-50560LFTR13	56.0	68.0	2.85	2.50
HA78M-50680LFTR13	68.0	93.0	2.76	2.00
HA78M-50820LFTR13	82.0	99.0	2.62	1.80
HA78M-50101LFTR13	100.0	126.0	2.31	1.70
HA78M-50121LFTR13	120.0	154.0	2.05	1.60
HA78M-50151LFTR13	150.0	174.0	1.80	1.50
HA78M-50181LFTR13	180.0	191.0	1.66	1.40
HA78M-50221LFTR13	220.0	246.0	1.64	1.30
HA78M-50331LFTR13	330.0	386.0	1.28	1.20
HA78M-50471LFTR13	470.0	471.0	1.06	1.10
HA78M-50561LFTR13	560.0	650.0	1.01	1.00
HA78M-50681LFTR13	680.0	730.0	0.83	0.90
HA78M-50821LFTR13	820.0	824.0	0.81	0.80
HA78M-50102LFTR13	1000.0	1220.0	0.70	0.70

- Notes: (1) Isat is the saturation current at which inductance rolls off at 35% max from its initial (zero DC)
- (2) Irms is the approximate current at which $\Delta T = 40^\circ\text{C}$ max
- (3) Test condition for all case sizes is 100kHz @ 0.25V
- (4) Tested at 25°C
- (5) Operating temperature range -55°C to 155°C

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Outline Dimensions (mm)

Figure 1 :

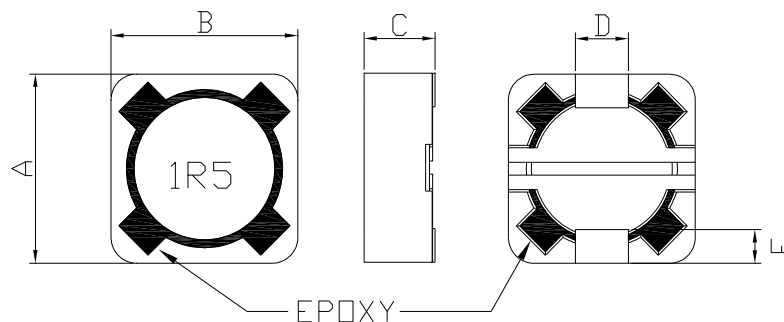
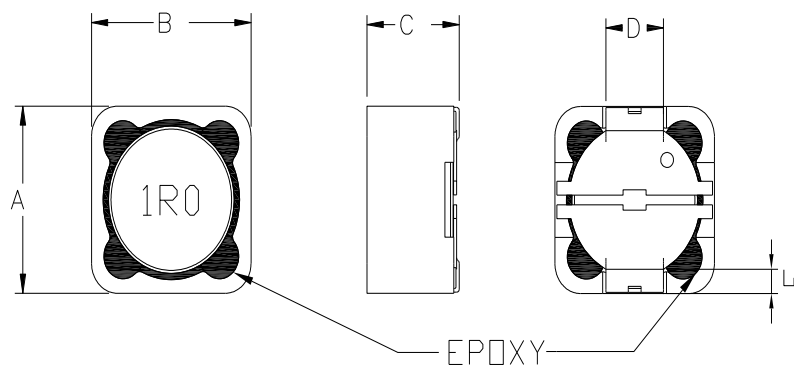


Figure 2 :



CASE SIZE	Figure	A(mm)	B(mm)	C(mm) - Max	D(mm) - ref	E(mm) ± 0.3
HA78M-10 series	1	7.3 ± 0.5	7.3 ± 0.5	4.0	2.0	1.2
HA78M-20 series	1	7.3 ± 0.5	7.3 ± 0.5	4.5	2.0	1.2
HA78M-30 series	2	12.5 max	12.5 max	5.0	5.0	2.2
HA78M-50 series	2	12.5 max	12.5 max	10.0	5.0	2.2

General Note

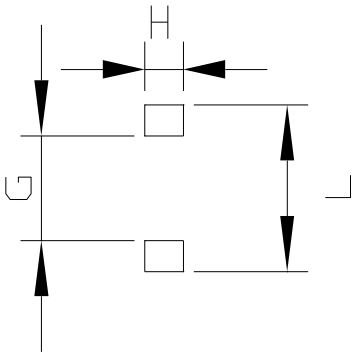
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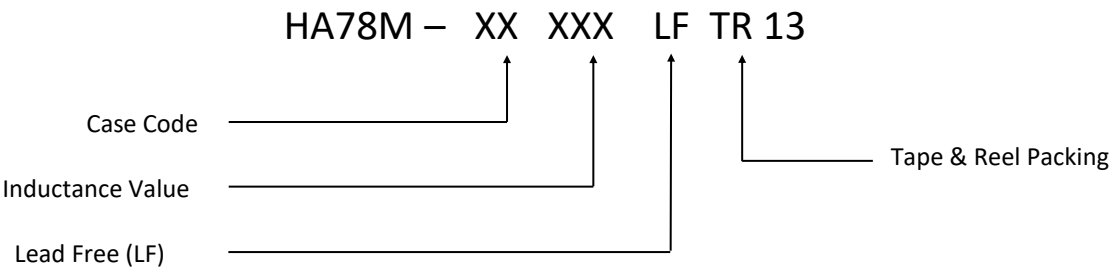
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PCB layout (mm)



CASE SIZE	L(mm) - ref	G(mm) - ref	H(mm) - ref
HA78M-10,20 series	8.0	4.7	2.3
HA78M-30,,50 series	12.8	7.3	5.3

Packaging



Standard:	Embossed Tape and Reel				
	Reel:	Diameter:	All case size	=	13" (330mm)
		Capacity:	Case size 10 series	=	1,000 units
			Case size 20 series	=	1,000 units
			Case size 30 series	=	500 units
			Case size 50 series	=	300 units