

## Shielded Surface Mount Inductors

### Model HA78

#### Features and Benefits

- Operating Temperature Range -40°C to +125°C
- Temperature Rise, Maximum 40°C
- Storage Temperature -40°C to +155°C
- Operating Frequency up to 3MHz
- AEC-Q200 CERTIFIED
- RoHS Compliant



### Specification @ 25°C

Part Number	Inductance <sup>(1)</sup> ( $\mu$ H)	DC Resistance <sup>(4)</sup> Max. ( $\Omega$ )	Isat <sup>(2)</sup> (A)	Irms <sup>(3)</sup> (A)
HA78-10100LFTR	10 $\pm$ 20%	0.08	1.00	2.6
HA78-10680LFTR	68 $\pm$ 20%	0.52	0.42	1.3
HA78-20100LFTR	10 $\pm$ 20%	0.055	1.65	3.5
HA78-20271LFTR	270 $\pm$ 20%	1.25	0.31	0.7
HA78-30100LFTR	10 $\pm$ 20%	0.072	1.68	1.83
HA78-30120LFTR	12 $\pm$ 20%	0.098	1.52	1.73
HA78-30150LFTR	15 $\pm$ 20%	0.13	1.33	1.51
HA78-30180LFTR	18 $\pm$ 20%	0.14	1.20	1.41
HA78-30220LFTR	22 $\pm$ 20%	0.19	1.07	1.38
HA78-30270LFTR	27 $\pm$ 20%	0.21	0.96	1.27
HA78-30330LFTR	33 $\pm$ 20%	0.24	0.91	1.22
HA78-30390LFTR	39 $\pm$ 20%	0.32	0.77	1.03
HA78-30470LFTR	47 $\pm$ 20%	0.36	0.76	0.85
HA78-30560LFTR	56 $\pm$ 20%	0.47	0.68	0.84
HA78-30680LFTR	68 $\pm$ 20%	0.52	0.61	0.74
HA78-30820LFTR	82 $\pm$ 20%	0.69	0.57	0.69
HA78-30101LFTR	100 $\pm$ 20%	0.79	0.50	0.62
HA78-30121LFTR	120 $\pm$ 20%	0.89	0.49	0.60
HA78-30151LFTR	150 $\pm$ 20%	1.27	0.43	0.56
HA78-30181LFTR	180 $\pm$ 20%	1.45	0.39	0.49
HA78-30221LFTR	220 $\pm$ 20%	1.65	0.35	0.43
HA78-30271LFTR	270 $\pm$ 20%	2.31	0.32	0.40
HA78-30331LFTR	330 $\pm$ 20%	2.62	0.28	0.32
HA78-30391LFTR	390 $\pm$ 20%	2.94	0.26	0.30
HA78-30471LFTR	470 $\pm$ 20%	4.18	0.24	0.30
HA78-30102LFTR	1000 $\pm$ 20%	6.50	0.16	0.20
HA78-40100LFTR	10 $\pm$ 20%	0.055	2.00	2.00
HA78-40120LFTR	12 $\pm$ 20%	0.058	1.71	1.82
HA78-40150LFTR	15 $\pm$ 20%	0.081	1.47	1.60
HA78-40180LFTR	18 $\pm$ 20%	0.091	1.31	1.50
HA78-40220LFTR	22 $\pm$ 20%	0.11	1.23	1.41

#### General Note

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Part Number	Inductance(1)( $\mu$ H)	DC Resistance <sup>(4)</sup> Max. ( $\Omega$ )	Isat(2) (A)	Irms(3) (A)
HA78-40270LFTR	27 $\pm$ 20%	0.15	1.12	1.24
HA78-40330LFTR	33 $\pm$ 20%	0.17	1.00	1.13
HA78-40390LFTR	39 $\pm$ 20%	0.23	0.91	1.11
HA78-40470LFTR	47 $\pm$ 20%	0.26	0.88	1.03
HA78-40560LFTR	56 $\pm$ 20%	0.35	0.75	0.93
HA78-40680LFTR	68 $\pm$ 20%	0.38	0.69	0.87
HA78-40820LFTR	82 $\pm$ 20%	0.43	0.61	0.84
HA78-40101LFTR	100 $\pm$ 20%	0.61	0.60	0.79
HA78-40121LFTR	120 $\pm$ 20%	0.66	0.52	0.67
HA78-40151LFTR	150 $\pm$ 20%	0.88	0.46	0.52
HA78-40181LFTR	180 $\pm$ 20%	0.98	0.42	0.51
HA78-40221LFTR	220 $\pm$ 20%	1.17	0.36	0.44
HA78-40271LFTR	270 $\pm$ 20%	1.64	0.34	0.43
HA78-40331LFTR	330 $\pm$ 20%	1.86	0.32	0.39
HA78-40391LFTR	390 $\pm$ 20%	2.85	0.29	0.38
HA78-40471LFTR	470 $\pm$ 20%	3.01	0.26	0.29
HA78-40561LFTR	560 $\pm$ 20%	3.62	0.23	0.28
HA78-40681LFTR	680 $\pm$ 20%	4.63	0.22	0.23
HA78-40821LFTR	820 $\pm$ 20%	5.20	0.20	0.21
HA78-453R9LFTR	3.9 $\pm$ 20%	0.015	6.50	5.90
HA78-454R7LFTR	4.7 $\pm$ 20%	0.018	5.70	5.20
HA78-456R8LFTR	6.8 $\pm$ 20%	0.023	4.90	4.30
HA78-45100LFTR	10 $\pm$ 20%	0.028	4.50	3.80
HA78-45120LFTR	12 $\pm$ 20%	0.038	4.00	3.50
HA78-45180LFTR	18 $\pm$ 20%	0.057	3.10	3.20
HA78-45220LFTR	22 $\pm$ 20%	0.066	2.90	2.90
HA78-45330LFTR	33 $\pm$ 20%	0.097	2.70	2.30
HA78-45470LFTR	47 $\pm$ 20%	0.150	1.90	2.00
HA78-45101LFTR	100 $\pm$ 20%	0.308	1.20	1.30
HA78-45221LFTR	220 $\pm$ 20%	0.700	0.80	0.95
HA78-45331LFTR	330 $\pm$ 20%	0.990	0.50	1.20
HA78-501R5LFTR	1.5 $\pm$ 25%	0.012	13.00	9.50
HA78-502R2LFTR	2.2 $\pm$ 25%	0.014	7.00	9.00
HA78-503R1LFTR	3.1 $\pm$ 25%	0.017	6.00	7.50
HA78-504R4LFTR	4.4 $\pm$ 25%	0.020	5.00	6.50
HA78-505R2LFTR	5.2 $\pm$ 25%	0.021	4.40	5.60
HA78-507R5LFTR	7.5 $\pm$ 25%	0.024	4.20	6.25
HA78-50100LFTR	10 $\pm$ 20%	0.025	4.00	5.00
HA78-50120LFTR	12 $\pm$ 20%	0.027	3.50	3.91
HA78-50150LFTR	15 $\pm$ 20%	0.030	3.30	3.75
HA78-50180LFTR	18 $\pm$ 20%	0.034	3.00	3.48
HA78-50220LFTR	22 $\pm$ 20%	0.036	2.80	3.37
HA78-50270LFTR	27 $\pm$ 20%	0.051	2.30	2.97
HA78-50330LFTR	33 $\pm$ 20%	0.057	2.10	2.68
HA78-50390LFTR	39 $\pm$ 20%	0.068	2.00	2.49
HA78-50470LFTR	47 $\pm$ 20%	0.075	1.80	2.21
HA78-50560LFTR	56 $\pm$ 20%	0.11	1.70	2.01
HA78-50680LFTR	68 $\pm$ 20%	0.12	1.50	1.91

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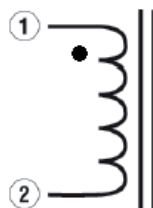
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Model HA78

Part Number	Inductance(1)( $\mu$ H)	DC Resistance(4) Max. ( $\Omega$ )	Isat(2) (A)	Irms(3) (A)
HA78-50820LFTR	82 $\pm$ 20%	0.14	1.40	1.65
HA78-50101LFTR	100 $\pm$ 20%	0.16	1.50	1.53
HA78-50121LFTR	120 $\pm$ 20%	0.17	1.10	1.30
HA78-50151LFTR	150 $\pm$ 20%	0.23	1.00	1.21
HA78-50181LFTR	180 $\pm$ 20%	0.29	0.90	1.06
HA78-50221LFTR	220 $\pm$ 20%	0.40	0.80	0.96
HA78-50271LFTR	270 $\pm$ 20%	0.46	0.75	0.89
HA78-50331LFTR	330 $\pm$ 20%	0.51	0.68	0.78
HA78-50391LFTR	390 $\pm$ 20%	0.69	0.65	0.68
HA78-50471LFTR	470 $\pm$ 20%	0.77	0.58	0.64
HA78-50561LFTR	560 $\pm$ 20%	0.86	0.54	0.62
HA78-50681LFTR	680 $\pm$ 20%	1.20	0.48	0.55
HA78-50821LFTR	820 $\pm$ 20%	1.34	0.43	0.51
HA78-50102LFTR	1000 $\pm$ 20%	1.53	0.40	0.43
HA78-50182LFTR	1800 $\pm$ 20%	3.20	0.30	0.70
HA78-601R4LFTR	1.4 $\pm$ 30%	0.007	12.00	10.00
HA78-602R4LFTR	2.4 $\pm$ 30%	0.012	8.00	8.10
HA78-603R9LFTR	3.9 $\pm$ 30%	0.014	7.50	7.80
HA78-604R7LFTR	4.7 $\pm$ 30%	0.016	6.80	7.00
HA78-605R6LFTR	5.6 $\pm$ 30%	0.018	6.60	6.50
HA78-607R6LFTR	7.6 $\pm$ 30%	0.020	5.90	6.10
HA78-60100LFTR	10 $\pm$ 20%	0.022	5.40	6.00
HA78-60120LFTR	12 $\pm$ 20%	0.025	4.90	5.90
HA78-60150LFTR	15 $\pm$ 20%	0.027	4.50	5.00
HA78-60180LFTR	18 $\pm$ 20%	0.039	3.90	4.20
HA78-60220LFTR	22 $\pm$ 20%	0.043	3.60	4.10
HA78-60270LFTR	27 $\pm$ 20%	0.046	3.40	4.50
HA78-60330LFTR	33 $\pm$ 20%	0.065	3.00	3.20
HA78-60390LFTR	39 $\pm$ 20%	0.073	2.75	3.00
HA78-60470LFTR	47 $\pm$ 20%	0.085	2.50	2.70
HA78-60221LFTR	220 $\pm$ 20%	0.370	1.20	1.30

- Notes:
- (1) Inductance is measured at 1 kHz, 1Vac without DC current.
  - (2) Isat is the saturation current at which inductance rolls off approximately 10% from its initial (zero DC).
  - (3) I rms is the approximate current at which  $\Delta T = 40^\circ \text{C}$ .
  - (4) DC resistance is measure at  $25^\circ \text{C}$ .

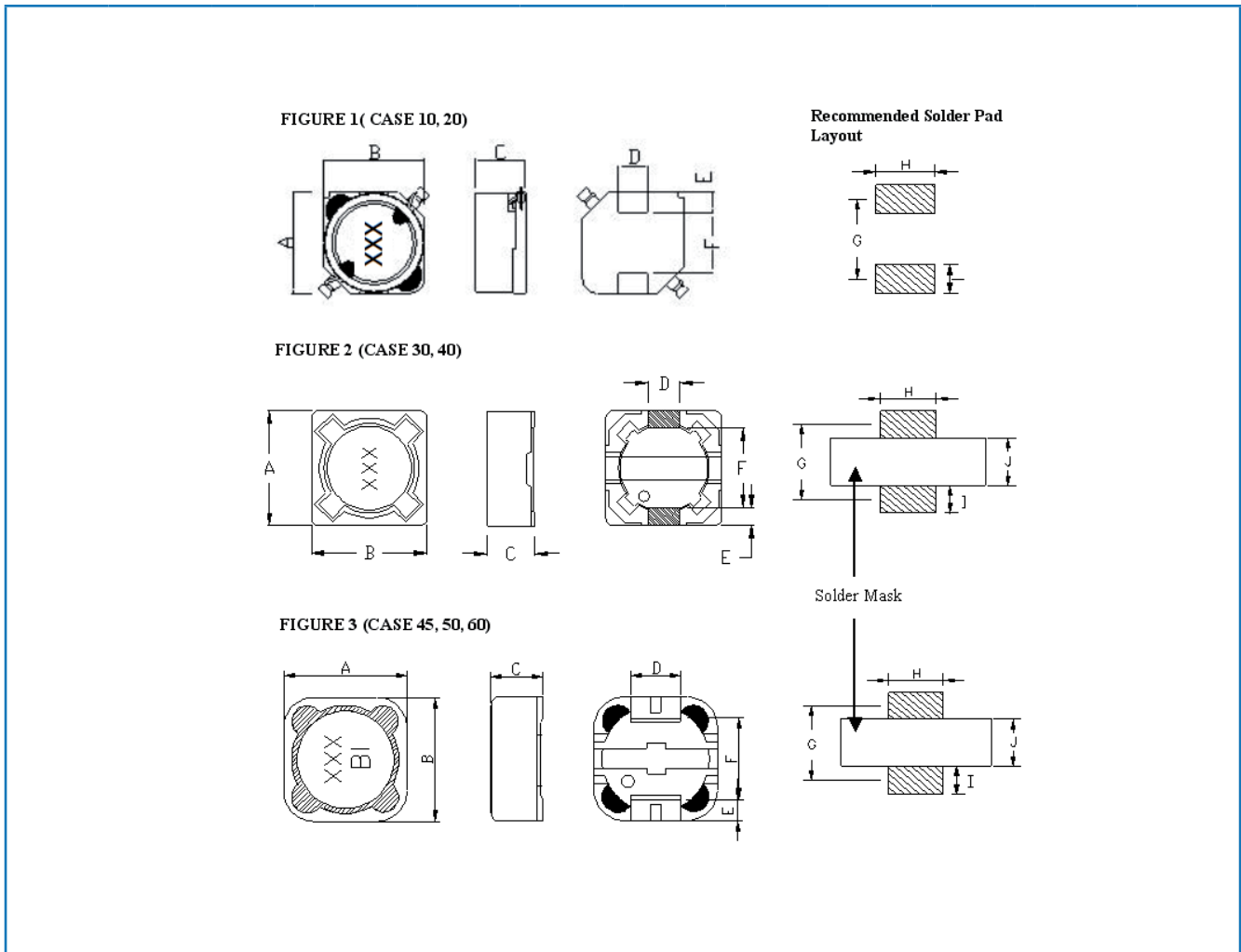
## Specification @ $25^\circ \text{C}$



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## Mechanical Outline Dimensions (mm)



Case Size	Fig	A (Max)	B (Max)	C (Max)	D	E	F	G	H	I	J
10	1	7.4	7.4	3.8	2.0	0.85	5.6	6.5	3.0	1.91	-
20	1	7.4	7.4	5.2	2.0	0.85	5.6	6.5	3.0	1.91	-
30	2	7.5	7.5	3.5	2.0	1.10	5.08	6.3	3.0	1.91	4.5
40	2	7.5	7.5	4.5	2.0	1.10	5.08	6.3	3.0	1.91	4.5
45	3	12.5	12.5	4.5	5.0	2.0	7.6	10.0	6.0	3.0	7.0
50	3	12.5	12.5	6.2	5.0	2.0	7.6	10.0	6.0	3.0	7.0
60	3	12.5	12.5	8.0	5.0	2.0	7.6	10.0	6.0	3.0	7.0

**General Note**

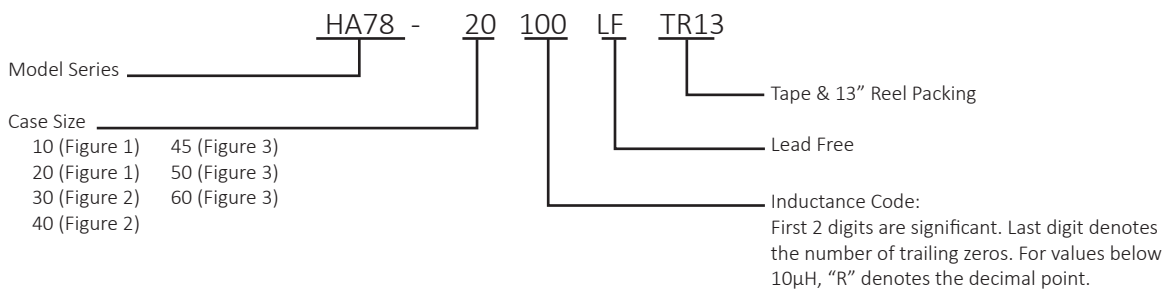
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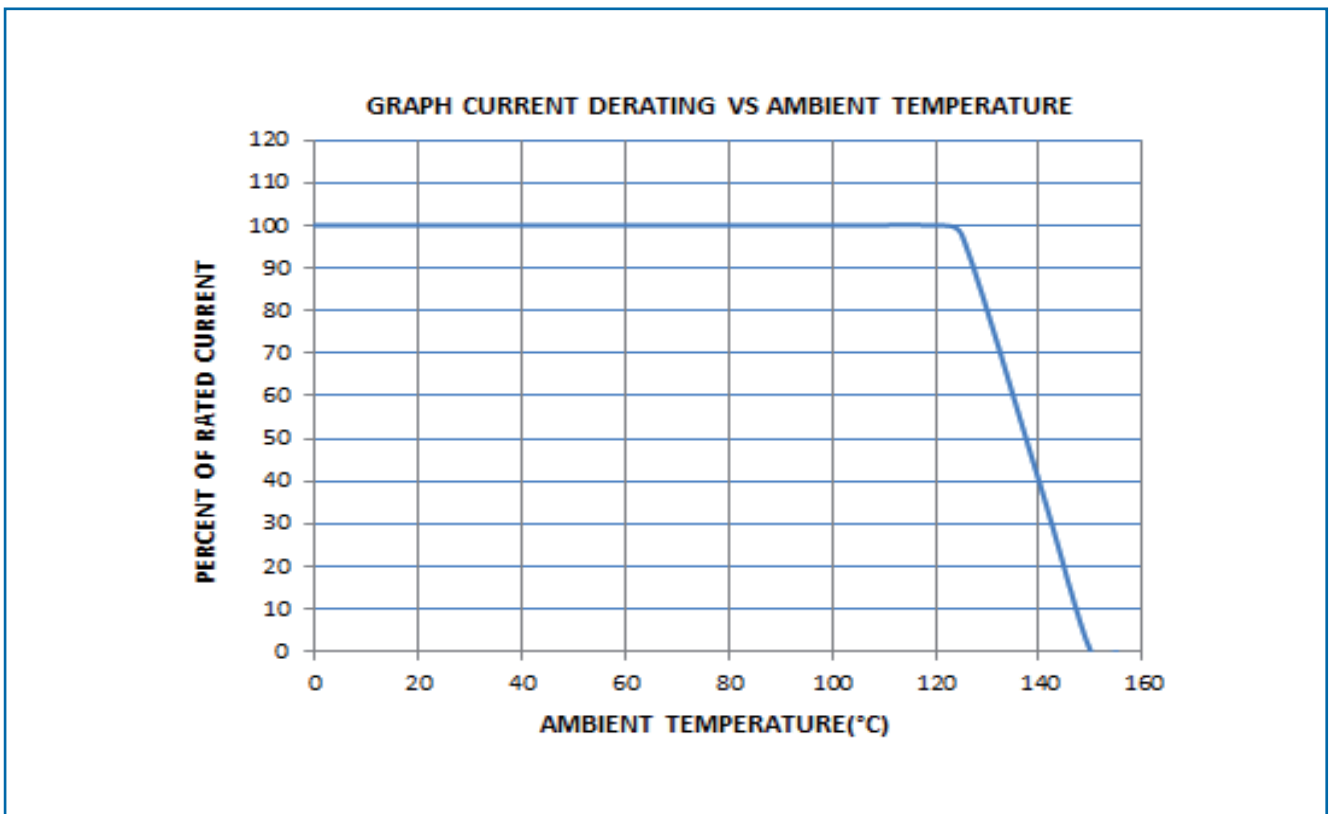
### Mechanical Outline Dimensions (mm)

Standard	Embossed Tape and Reel		
	Reel	Diameter ;	= 13" (330.2mm)
	Capacity : Case size 10, 30, 40		= 1,000 Units
	Case size 20, 45, 50, 60		= 500 Units

### Ordering Information



### Current Derating Vs Ambient Temperature Graph



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