

Shielded Surface Mount Inductors

MODELS HM78D1210XXXMLF

Features

- Operating Temperature Range -40°C to +125°C
- Temperature Rise, Maximum 40°C
- Ideal for SEPIC applications, high inductance, high efficiency and excellent current handling in rugged, low cost part
- Use as DC-DC converter and in applications like hand phones, CD/DVD player, digital camera, GPS system. Also used as two single inductors connected series or parallel or as 1:1 transformer
- RoHS Compliant



Electrical Schematic



Specifications @ 25°C

| Leads connected in parallel | | | | | | Leads connected in series | | | | |
|-----------------------------|------------|-------------|------------------------|----------------------|----------------------|---------------------------|-------------|------------------------|----------------------|----------------------|
| Part Number | L (μH) | DCR Max (Ω) | I _{rated} (A) | I _{sat} (A) | I _{rms} (A) | L (μH) | DCR Max (Ω) | I _{rated} (A) | I _{sat} (A) | I _{rms} (A) |
| HM78D-12104R7MLF | 4.70±20% | 0.014 | 10.60 | 18.00 | 3.250 | 18.80±25% | 0.056 | 5.30 | 9.00 | 1.625 |
| HM78D-12106R8MLF | 6.80±20% | 0.017 | 10.40 | 14.20 | 3.100 | 27.20±25% | 0.068 | 5.20 | 7.10 | 1.550 |
| HM78D-12108R2MLF | 8.20±20% | 0.018 | 9.50 | 12.85 | 2.250 | 32.80±25% | 0.072 | 4.75 | 6.45 | 1.125 |
| HM78D-1210100MLF | 10.00±20% | 0.020 | 8.60 | 11.75 | 3.200 | 41.12±25% | 0.080 | 4.30 | 5.85 | 1.600 |
| HM78D-1210220MLF | 22.00±20% | 0.040 | 5.40 | 8.20 | 2.700 | 88.00±25% | 0.160 | 2.70 | 4.10 | 1.350 |
| HM78D-1210330MLF | 33.00±20% | 0.050 | 4.50 | 6.60 | 2.000 | 132.00±25% | 0.200 | 2.25 | 3.30 | 1.000 |
| HM78D-1210470MLF | 47.00±20% | 0.065 | 3.70 | 5.50 | 1.900 | 188.00±25% | 0.260 | 1.85 | 2.75 | 0.950 |
| HM78D-1210560MLF | 56.00±20% | 0.081 | 3.28 | 4.90 | 0.850 | 224.00±25% | 0.324 | 1.64 | 2.45 | 0.425 |
| HM78D-1210680MLF | 68.00±20% | 0.098 | 2.96 | 4.45 | 0.800 | 272.00±25% | 0.392 | 1.48 | 2.20 | 0.400 |
| HM78D-1210101MLF | 100.00±20% | 0.128 | 2.54 | 3.70 | 0.700 | 400.00±25% | 0.512 | 1.27 | 1.85 | 0.350 |
| HM78D-1210121MLF | 120.00±20% | 0.170 | 2.38 | 3.40 | 0.630 | 480.00±25% | 0.680 | 1.19 | 1.70 | 0.315 |
| HM78D-1210331MLF | 330.00±20% | 0.440 | 1.32 | 2.10 | 0.410 | 1320.00±25% | 1.760 | 0.66 | 1.05 | 0.205 |
| HM78D-1210471MLF | 470.00±20% | 0.570 | 1.22 | 1.80 | 0.300 | 1880.00±25% | 2.280 | 0.61 | 0.90 | 0.150 |

- Notes : (1) Inductance is measured at 100kHz, 0.1V_{rms}, 0Adc.
 (2) When leads connected in parallel, DCR is half the value.
 (3) I_{sat} current is the saturation current at which inductance rolls off approximately 30% from its initial (zero DC) value.
 (4) I_{rms} equals DC current, that causes component to increase by 40°C from 25°C ambient.
 (5) I_{rated} current is the rated current at which inductance rolls off approximately 10% from its initial (zero DC) value.

Mechanical Outline (mm)



General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.
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Packaging

- 1) Tape and reel packaging.
- 2) 300pcs per 13" reel.

Ordering Information



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Shielded Surface Mount Coupled Inductors

MODELS HM78D-128XXXXLF, HM78D-755XXXMLF

- Operating Temperature Range -40°C to +125°C
- Temperature Rise, Maximum 40°C
- Operating Frequency Up to 3MHz
- RoHS Compliant



Electrical Schematic



Specifications @ 25°C

| Part Number | Parallel Connection | | | | Series Connection | | | |
|-----------------|-----------------------|------------------|-------------------------------------|-------------------------------------|-----------------------|------------------|-------------------------------------|-------------------------------------|
| | L ⁽¹⁾ (μH) | DCR Typ. (2) (Ω) | I _{sat} ⁽³⁾ (A) | I _{rms} ⁽⁴⁾ (A) | L ⁽¹⁾ (μH) | DCR Typ. (2) (Ω) | I _{sat} ⁽³⁾ (A) | I _{rms} ⁽⁴⁾ (A) |
| HM78D-1284R7MLF | 4.7 ± 20% | 0.019 | 14.90 | 7.40 | 18.8 ± 25% | 0.076 | 7.70 | 3.60 |
| HM78D-1285R6MLF | 5.6 ± 20% | 0.023 | 13.40 | 7.20 | 22.4 ± 25% | 0.092 | 6.60 | 3.50 |
| HM78D-1286R8MLF | 6.8 ± 20% | 0.024 | 13.10 | 6.90 | 27.2 ± 25% | 0.096 | 6.40 | 3.40 |
| HM78D-1288R2MLF | 8.2 ± 20% | 0.025 | 10.80 | 6.60 | 32.8 ± 25% | 0.100 | 5.60 | 3.30 |
| HM78D-128100MLF | 10 ± 20% | 0.029 | 10.50 | 6.20 | 40 ± 25% | 0.116 | 5.40 | 3.20 |
| HM78D-128120MLF | 12 ± 20% | 0.031 | 9.60 | 6.00 | 48 ± 25% | 0.124 | 4.80 | 2.90 |
| HM78D-128150MLF | 15 ± 20% | 0.036 | 9.10 | 5.80 | 60 ± 25% | 0.144 | 4.30 | 2.70 |
| HM78D-128180MLF | 18 ± 20% | 0.040 | 8.00 | 5.50 | 72 ± 25% | 0.158 | 3.90 | 2.50 |
| HM78D-128220MLF | 22 ± 20% | 0.048 | 6.80 | 5.20 | 88 ± 25% | 0.190 | 3.50 | 2.20 |
| HM78D-128270MLF | 27 ± 20% | 0.060 | 6.50 | 4.70 | 108 ± 25% | 0.240 | 3.40 | 2.00 |
| HM78D-128330MLF | 33 ± 20% | 0.075 | 5.60 | 4.20 | 132 ± 25% | 0.300 | 3.10 | 1.70 |
| HM78D-128390MLF | 39 ± 20% | 0.080 | 5.50 | 3.60 | 156 ± 25% | 0.320 | 2.80 | 1.60 |
| HM78D-128470MLF | 47 ± 20% | 0.090 | 5.20 | 3.00 | 188 ± 25% | 0.360 | 2.60 | 1.50 |
| HM78D-128560MLF | 56 ± 20% | 0.095 | 4.50 | 2.80 | 224 ± 25% | 0.380 | 2.40 | 1.40 |
| HM78D-128680MLF | 68 ± 20% | 0.105 | 4.10 | 2.60 | 272 ± 25% | 0.420 | 2.10 | 1.30 |
| HM78D-128820MLF | 82 ± 20% | 0.140 | 3.80 | 2.30 | 328 ± 25% | 0.560 | 1.90 | 1.20 |
| HM78D-128101MLF | 100 ± 20% | 0.150 | 3.40 | 2.00 | 400 ± 25% | 0.600 | 1.70 | 1.10 |
| HM78D-128121KLF | 120 ± 10% | 0.205 | 3.20 | 1.90 | 480 ± 25% | 0.820 | 1.60 | 1.00 |
| HM78D-128151KLF | 150 ± 10% | 0.230 | 2.80 | 1.80 | 600 ± 25% | 0.920 | 1.40 | 0.89 |
| HM78D-128181KLF | 180 ± 10% | 0.255 | 2.50 | 1.70 | 720 ± 25% | 1.02 | 1.30 | 0.84 |
| HM78D-128221KLF | 220 ± 10% | 0.345 | 2.30 | 1.60 | 880 ± 25% | 1.38 | 1.10 | 0.75 |
| HM78D-128271KLF | 270 ± 10% | 0.450 | 2.10 | 1.50 | 1080 ± 25% | 1.80 | 1.00 | 0.71 |
| HM78D-128331KLF | 330 ± 10% | 0.510 | 1.90 | 1.30 | 1320 ± 25% | 2.04 | 0.92 | 0.62 |
| HM78D-128391KLF | 390 ± 10% | 0.560 | 1.70 | 1.10 | 1560 ± 25% | 2.24 | 0.84 | 0.53 |
| HM78D-128471KLF | 470 ± 10% | 0.765 | 1.60 | 0.87 | 1880 ± 25% | 3.06 | 0.80 | 0.43 |
| HM78D-128561KLF | 560 ± 10% | 0.845 | 1.50 | 0.83 | 2240 ± 25% | 3.38 | 0.73 | 0.40 |
| HM78D-128681KLF | 680 ± 10% | 1.145 | 1.30 | 0.76 | 2720 ± 25% | 4.58 | 0.63 | 0.36 |
| HM78D-128821KLF | 820 ± 10% | 1.275 | 1.20 | 0.69 | 4000 ± 30% | 5.10 | 0.58 | 0.33 |
| HM78D-128102KLF | 1000 ± 10% | 1.415 | 1.10 | 0.60 | 4800 ± 30% | 5.66 | 0.56 | 0.30 |
| HM78D-755R33MLF | 0.33 ± 20% | 0.0074 | 18.4 | 0.620 | 1.176 ± 20% | 0.0295 | 9.18 | 3.10 |
| HM78D-7551R0MLF | 1.0 ± 20% | 0.0100 | 10.20 | 5.33 | 3.808 ± 20% | 0.0400 | 5.10 | 2.66 |
| HM78D-7551R5MLF | 1.5 ± 20% | 0.0115 | 8.35 | 4.96 | 5.688 ± 20% | 0.0461 | 4.17 | 2.48 |
| HM78D-7552R2MLF | 2.2 ± 20% | 0.0130 | 7.06 | 4.66 | 7.944 ± 20% | 0.0521 | 3.53 | 2.33 |
| HM78D-7553R3MLF | 3.3 ± 20% | 0.0183 | 5.40 | 3.94 | 13.58 ± 20% | 0.0732 | 2.70 | 1.97 |
| HM78D-7554R7MLF | 4.7 ± 20% | 0.0254 | 4.37 | 3.34 | 20.73 ± 20% | 0.102 | 2.19 | 1.67 |

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Specifications @ 25°C continued

| Part Number | Parallel Connection | | | | Series Connection | | | |
|-----------------|--------------------------|--------------------------------|--|--|--------------------------|--------------------------------|--|--|
| | L ⁽¹⁾ (μH) | DCR Typ. ⁽²⁾ (Ω) | I _{sat} ⁽³⁾ (A) | I _{rms} ⁽⁴⁾ (A) | L ⁽¹⁾ (μH) | DCR Typ. ⁽²⁾ (Ω) | I _{sat} ⁽³⁾ (A) | I _{rms} ⁽⁴⁾ (A) |
| HM78D-7556R8MLF | 6.8 ± 20% | 0.0418 | 3.67 | 2.60 | 29.38 ± 20% | 0.167 | 1.84 | 1.30 |
| HM78D-7558R2MLF | 8.2 ± 20% | 0.0441 | 3.40 | 2.53 | 34.26 ± 20% | 0.177 | 1.70 | 1.27 |
| HM78D-755100MLF | 10 ± 20% | 0.0489 | 3.17 | 2.41 | 39.53 ± 20% | 0.196 | 1.58 | 1.20 |
| HM78D-755150MLF | 15 ± 20% | 0.0637 | 2.48 | 2.11 | 64.36 ± 20% | 0.255 | 1.24 | 1.05 |
| HM78D-755220MLF | 22 ± 20% | 0.0925 | 2.13 | 1.75 | 86.92 ± 20% | 0.371 | 1.07 | 0.874 |
| HM78D-755330MLF | 33 ± 20% | 0.143 | 1.73 | 1.41 | 132 ± 20% | 0.574 | 0.87 | 0.702 |
| HM78D-755470MLF | 47 ± 20% | 0.216 | 1.41 | 1.15 | 198.6 ± 20% | 0.865 | 0.71 | 0.573 |
| HM78D-755680MLF | 68 ± 20% | 0.265 | 1.19 | 1.03 | 278.7 ± 20% | 1.06 | 0.60 | 0.517 |
| HM78D-755820MLF | 82 ± 20% | 0.345 | 1.11 | 0.91 | 323.8 ± 20% | 1.38 | 0.55 | 0.453 |
| HM78D-755101MLF | 100 ± 20% | 0.383 | 0.99 | 0.86 | 406.4 ± 20% | 1.53 | 0.49 | 0.430 |
| HM78D-755151MLF | 150 ± 20% | 0.591 | 0.81 | 0.69 | 600 ± 20% | 2.37 | 0.41 | 0.346 |
| HM78D-755221MLF | 220 ± 20% | 0.907 | 0.66 | 0.56 | 908 ± 20% | 3.63 | 0.33 | 0.279 |
| HM78D-755331MLF | 330 ± 20% | 1.41 | 0.54 | 0.45 | 1342 ± 20% | 5.66 | 0.27 | 0.224 |
| HM78D-755471MLF | 470 ± 20% | 1.74 | 0.46 | 0.40 | 1861 ± 20% | 6.97 | 0.23 | 0.202 |
| HM78D-755681MLF | 680 ± 20% | 2.58 | 0.38 | 0.33 | 2685 ± 20% | 10.30 | 0.19 | 0.166 |
| HM78D-755821MLF | 820 ± 20% | 2.93 | 0.35 | 0.31 | 3251 ± 20% | 11.70 | 0.17 | 0.156 |
| HM78D-755102MLF | 1000 ± 20% | 3.89 | 0.31 | 0.27 | 4036 ± 20% | 15.60 | 0.16 | 0.135 |

- Notes: (1) Inductance is measured at 100 kHz, 0.1Vrms without DC current.
 (2) DCR Typ. is only for 755 series while 128 series is of DCR Max.
 (3) I_{sat} is the saturation current at which inductance rolls off approximately 30% from its initial (zero DC) value.
 (4) I_{rms} is the approximate current at which ΔT = 40°C.

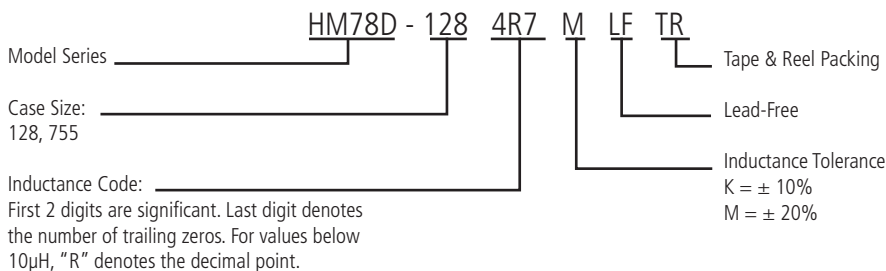
Outline Dimensions (mm)

| Case Size | A | B | C | D | E | F | G | H | I | J | K | L | M | N | P | Q | R | S |
|-----------|------|------|------|-----|-----|------|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|
| 128 | 12.5 | 12.5 | 8.05 | 5.0 | 5.0 | 3.5 | 1.5 | 4.2 | 5.5 | 4.5 | 2.0 | 12.8 | 4.2 | 4.5 | 2.0 | 4.2 | 5.5 | 4.5 |
| 755 | 7.7 | 7.7 | 4.8 | 3.9 | 2.7 | 1.55 | 0.72 | 2.2 | 2.8 | 3.1 | 1.0 | 7.5 | 2.2 | 3.1 | 1.0 | 2.2 | 2.8 | 3.1 |

Packaging

| | | |
|-----------|------------------------|--|
| Standard: | Embossed Tape and Reel | |
| | Reel: | Diameter: = 13" (330.2mm) |
| | | Capacity: Case size 128 = 500 Units Case size 755 = 1,000 Units |

Ordering Information



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