



Coupled Inductors - MSD7342 For Flyback, SEPIC and other Applications



- Tight coupling ($k \geq 0.97$) and 200V isolation make the MSD7342 series of coupled inductors ideal for use in a variety of circuits including flyback, multi-output buck and SEPIC.
- They provide high inductance, high efficiency and excellent current handling in a rugged, low cost part.
- Can also be used as two single inductors connected in series or parallel, as a common mode choke or as a 1 : 1 transformer.



Core material Ferrite

Core and winding loss [Go to online calculator](#)

Terminations RoHS compliant matte tin over nickel over phos bronze. Other terminations available at additional cost.

Weight 0.76 – 0.87g

Ambient temperature -40°C to +85°C with Irms current, +85°C to +125°C with derated current

Storage temperature Component: -40°C to +125°C. Tape and reel packaging: -40°C to +80°C

Winding to winding isolation 200 Vrms

Resistance to soldering heat Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

Moisture Sensitivity Level (MSL) 1 (unlimited floor life at <30°C / 85% relative humidity)

Failures in Time (FIT) / Mean Time Between Failures (MTBF) 38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332

Packaging 250/7" reel; 1000/13" reel Plastic tape: 16 mm wide, 0.4 mm thick, 12 mm pocket spacing, 4.9 mm pocket depth

PCB washing Tested with pure water or alcohol only. For other solvents, see Doc787_PCB_Washing.pdf.



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Document 621-1 Revised 11/07/13
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Coupled Inductors – MSD7342 Series

| Part number ¹ | Inductance ² ±20% (µH) | DCR max ³ (Ohms) | SRF typ ⁴ (MHz) | Coupling coefficient typ | Leakage L typ ⁵ (µH) | Isat (A) ⁶ | | | Irms (A) | |
|--------------------------|--------------------------------------|--------------------------------|-------------------------------|--------------------------------|---------------------------------------|-----------------------|-------------|-------------|-------------------------------|-----------------------------|
| | | | | | | 10% drop | 20% drop | 30% drop | both windings ⁷ | one winding ⁸ |
| MSD7342-252ML_ | 2.5 | 0.033 | 55 | 0.97 | 0.14 | 6.0 | 6.2 | 6.3 | 2.17 | 3.06 |
| MSD7342-332ML_ | 3.3 | 0.037 | 43 | 0.99 | 0.09 | 5.2 | 5.3 | 5.4 | 2.05 | 2.89 |
| MSD7342-472ML_ | 4.7 | 0.051 | 35 | 0.99 | 0.11 | 4.1 | 4.3 | 4.6 | 1.74 | 2.46 |
| MSD7342-562ML_ | 5.6 | 0.063 | 32 | 0.99 | 0.09 | 3.9 | 4.1 | 4.2 | 1.57 | 2.22 |
| MSD7342-682ML_ | 6.8 | 0.070 | 30 | 0.99 | 0.14 | 3.7 | 3.8 | 3.9 | 1.49 | 2.10 |
| MSD7342-822ML_ | 8.2 | 0.075 | 27 | 0.98 | 0.25 | 3.3 | 3.4 | 3.5 | 1.44 | 2.03 |
| MSD7342-103ML_ | 10 | 0.100 | 22 | 0.98 | 0.30 | 2.8 | 2.9 | 3.0 | 1.24 | 1.76 |
| MSD7342-123ML_ | 12 | 0.120 | 20 | 0.98 | 0.36 | 2.5 | 2.6 | 2.7 | 1.14 | 1.61 |
| MSD7342-153ML_ | 15 | 0.130 | 18 | 0.98 | 0.49 | 2.2 | 2.3 | 2.4 | 1.09 | 1.54 |
| MSD7342-183ML_ | 18 | 0.170 | 15 | >0.99 | 0.16 | 2.0 | 2.2 | 2.3 | 0.95 | 1.35 |
| MSD7342-223ML_ | 22 | 0.220 | 13.5 | >0.99 | 0.20 | 1.9 | 2.0 | 2.1 | 0.84 | 1.19 |
| MSD7342-273ML_ | 27 | 0.250 | 12.0 | >0.99 | 0.20 | 1.7 | 1.8 | 1.9 | 0.79 | 1.11 |
| MSD7342-333ML_ | 33 | 0.270 | 11.0 | >0.99 | 0.15 | 1.5 | 1.6 | 1.7 | 0.76 | 1.07 |
| MSD7342-393ML_ | 39 | 0.380 | 10.0 | 0.99 | 0.70 | 1.3 | 1.4 | 1.5 | 0.64 | 0.90 |
| MSD7342-473ML_ | 47 | 0.420 | 9.5 | >0.99 | 0.30 | 1.2 | 1.3 | 1.4 | 0.61 | 0.86 |
| MSD7342-563ML_ | 56 | 0.460 | 8.7 | >0.99 | 0.51 | 1.1 | 1.2 | 1.3 | 0.58 | 0.82 |
| MSD7342-683ML_ | 68 | 0.600 | 7.3 | >0.99 | 0.51 | 1.0 | 1.1 | 1.2 | 0.51 | 0.72 |
| MSD7342-823ML_ | 82 | 0.680 | 6.2 | 0.99 | 1.17 | 0.90 | 1.00 | 1.1 | 0.48 | 0.67 |
| MSD7342-104ML_ | 100 | 0.770 | 5.5 | >0.99 | 0.96 | 0.80 | 0.92 | 0.98 | 0.45 | 0.63 |
| MSD7342-124ML_ | 120 | 1.03 | 4.5 | >0.99 | 0.61 | 0.70 | 0.80 | 0.90 | 0.39 | 0.55 |
| MSD7342-154ML_ | 150 | 1.35 | 4.0 | >0.99 | 0.54 | 0.65 | 0.76 | 0.80 | 0.34 | 0.48 |
| MSD7342-184ML_ | 180 | 1.52 | 3.8 | >0.99 | 0.75 | 0.62 | 0.66 | 0.73 | 0.32 | 0.45 |
| MSD7342-224ML_ | 220 | 1.72 | 3.5 | >0.99 | 1.43 | 0.59 | 0.62 | 0.66 | 0.30 | 0.42 |
| MSD7342-274ML_ | 270 | 2.41 | 3.3 | >0.99 | 1.56 | 0.55 | 0.57 | 0.60 | 0.25 | 0.36 |
| MSD7342-334ML_ | 330 | 2.70 | 3.0 | >0.99 | 1.65 | 0.49 | 0.52 | 0.54 | 0.24 | 0.34 |
| MSD7342-394ML_ | 390 | 3.05 | 2.8 | 0.99 | 4.73 | 0.45 | 0.47 | 0.50 | 0.23 | 0.32 |
| MSD7342-474ML_ | 470 | 4.00 | 2.6 | 0.99 | 5.50 | 0.41 | 0.43 | 0.46 | 0.20 | 0.28 |
| MSD7342-564ML_ | 560 | 4.43 | 2.5 | >0.99 | 4.85 | 0.38 | 0.40 | 0.42 | 0.19 | 0.26 |
| MSD7342-684ML_ | 680 | 5.00 | 2.3 | 0.99 | 7.59 | 0.36 | 0.37 | 0.38 | 0.18 | 0.25 |
| MSD7342-824ML_ | 820 | 6.80 | 2.2 | >0.99 | 8.01 | 0.30 | 0.32 | 0.35 | 0.15 | 0.21 |
| MSD7342-105ML_ | 1000 | 7.80 | 2.0 | >0.99 | 8.69 | 0.27 | 0.29 | 0.31 | 0.14 | 0.20 |

1. When ordering, please specify **termination** and **packaging** codes:

MSD7342-105MLC

Termination: L = RoHS compliant matte tin over nickel over phos bronze.
Special order: T = RoHS tin-silver-copper (95.5/4/0.5) or S = non-RoHS tin-lead (63/37).

Packaging: C = 7" machine-ready reel. EIA-481 embossed plastic tape (250 parts per full reel).

B = Less than full reel. In tape, but not machine ready.
To have a leader and trailer added (\$25 charge), use code letter C instead.

D = 13" machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (1000 parts per full reel).

- Inductance shown for each winding, measured at 100 kHz, 0.1 Vrms, 0 Adc on an Agilent/HP 4284A LCR meter or equivalent. When leads are connected in parallel, inductance is the same value. When leads are connected in series, inductance is four times the value.
- DCR is for each winding. When leads are connected in parallel, DCR is half the value. When leads are connected in series, DCR is twice the value.
- SRF measured using an Agilent/HP 4191A or equivalent. When leads are connected in parallel, SRF is the same value.
- Leakage inductance is for L1 and is measured with L2 shorted.
- DC current, at which the inductance drops the specified amount from its value without current. It is the sum of the current flowing in both windings.
- Equal current when applied to each winding simultaneously that causes a 40°C temperature rise from 25°C ambient. See temperature rise calculation.
- Maximum current when applied to one winding that causes a 40°C temperature rise from 25°C ambient. See temperature rise calculation.
- Electrical specifications at 25°C.

Refer to Doc 639 "Selecting Coupled Inductors for SEPIC Applications."

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

Coupled Inductor Core and Winding Loss Calculator

This web-based utility allows you to enter frequency, peak-to-peak (ripple) current, and Irms current to predict temperature rise and overall losses, including core loss. [Go to online calculator](#)



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Document 621-2 Revised 11/07/13

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Coupled Inductors – MSD7342 Series

Typical L vs Current



Typical L vs Frequency



Irms Derating

