

# High Temp Power Inductors MSS1278T



- Designed for high ambient temperatures
- Magnetic shielding, very low DCR, excellent current handling

**Designer's Kit C419** contains 3 of each value

**Core material** Ferrite

**Core and winding loss** See [www.coilcraft.com/coreloss](http://www.coilcraft.com/coreloss)

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

**Weight:** 3.8 g – 4.6 g

**Ambient temperature** –40°C to +125°C with (40°C rise) Irms current.

**Maximum part temperature** +165°C (ambient + temp rise). **Derating.**

**Storage temperature** Component: –40°C to +165°C.

Tape and reel packaging: –40°C to +80°C

**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** 500/13" reel; Plastic tape: 24 mm wide, 0.5 mm thick, 16 mm pocket spacing, 8.7 mm pocket depth

**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787\\_PCB\\_Washing.pdf](#).

| Part number <sup>1</sup> | Inductance <sup>2</sup><br>(µH) | DCR <sup>3</sup><br>(mOhms) |       | SRF<br>typ <sup>4</sup><br>(MHz) | Isat (A) <sup>5</sup> |             |             | Irms (A) <sup>6</sup> |              |
|--------------------------|---------------------------------|-----------------------------|-------|----------------------------------|-----------------------|-------------|-------------|-----------------------|--------------|
|                          |                                 | typ                         | max   |                                  | 10%<br>drop           | 20%<br>drop | 30%<br>drop | 20°C<br>rise          | 40°C<br>rise |
| MSS1278T-102NL_          | 1.0 ±30%                        | 6.3                         | 7.0   | 115                              | 31.84                 | 35.04       | 36.84       | 7.1                   | 10.1         |
| MSS1278T-142NL_          | 1.4 ±30%                        | 8.8                         | 9.8   | 85                               | 25.04                 | 27.76       | 29.52       | 6.8                   | 9.8          |
| MSS1278T-222NL_          | 2.2 ±30%                        | 9.4                         | 10.5  | 60                               | 22.56                 | 24.80       | 25.96       | 6.3                   | 9.2          |
| MSS1278T-272NL_          | 2.7 ±30%                        | 10.1                        | 11.3  | 40                               | 18.76                 | 20.72       | 22.04       | 6.1                   | 8.6          |
| MSS1278T-392NL_          | 3.9 ±30%                        | 11.7                        | 13.0  | 35                               | 16.52                 | 18.24       | 19.20       | 5.7                   | 7.7          |
| MSS1278T-472ML_          | 4.7 ±20%                        | 13.9                        | 15.5  | 33                               | 15.30                 | 16.90       | 17.76       | 4.3                   | 6.2          |
| MSS1278T-562ML_          | 5.6 ±20%                        | 15.7                        | 17.5  | 30                               | 13.38                 | 14.86       | 15.74       | 4.3                   | 6.2          |
| MSS1278T-682ML_          | 6.8 ±20%                        | 19.1                        | 21.3  | 23                               | 12.10                 | 13.56       | 14.20       | 4.2                   | 6.0          |
| MSS1278T-822ML_          | 8.2 ±20%                        | 20.3                        | 22.6  | 20                               | 11.38                 | 12.60       | 13.28       | 4.1                   | 5.9          |
| MSS1278T-103ML_          | 10 ±20%                         | 21.8                        | 24.3  | 17                               | 10.62                 | 11.82       | 12.48       | 4.0                   | 5.7          |
| MSS1278T-123ML_          | 12 ±20%                         | 23.2                        | 25.8  | 15                               | 8.90                  | 9.88        | 10.44       | 3.7                   | 5.2          |
| MSS1278T-153ML_          | 15 ±20%                         | 27.9                        | 31.0  | 13                               | 8.36                  | 9.32        | 9.94        | 3.5                   | 4.9          |
| MSS1278T-183ML_          | 18 ±20%                         | 30.8                        | 34.3  | 12                               | 8.00                  | 8.88        | 9.36        | 3.0                   | 4.5          |
| MSS1278T-223ML_          | 22 ±20%                         | 35.5                        | 39.5  | 11                               | 7.08                  | 7.88        | 8.34        | 2.9                   | 4.0          |
| MSS1278T-273ML_          | 27 ±20%                         | 45.0                        | 50.0  | 10                               | 6.32                  | 7.08        | 7.54        | 2.6                   | 3.6          |
| MSS1278T-333ML_          | 33 ±20%                         | 61.9                        | 68.8  | 9.5                              | 5.96                  | 6.56        | 6.98        | 2.3                   | 3.1          |
| MSS1278T-393ML_          | 39 ±20%                         | 69.1                        | 76.8  | 8.5                              | 5.38                  | 5.94        | 6.28        | 2.1                   | 3.0          |
| MSS1278T-473ML_          | 47 ±20%                         | 72.3                        | 80.4  | 7.5                              | 4.76                  | 5.40        | 5.66        | 2.0                   | 2.9          |
| MSS1278T-563ML_          | 56 ±20%                         | 80.2                        | 89.2  | 7.0                              | 4.40                  | 4.98        | 5.30        | 1.9                   | 2.7          |
| MSS1278T-683ML_          | 68 ±20%                         | 91.3                        | 101.5 | 6.5                              | 3.92                  | 4.46        | 4.74        | 1.8                   | 2.6          |
| MSS1278T-823ML_          | 82 ±20%                         | 125.9                       | 139.9 | 5.0                              | 3.66                  | 4.08        | 4.38        | 1.6                   | 2.3          |
| MSS1278T-104ML_          | 100 ±20%                        | 135.1                       | 150.2 | 4.5                              | 3.12                  | 3.56        | 3.78        | 1.5                   | 2.2          |
| MSS1278T-124KL_          | 120 ±10%                        | 182.3                       | 202.6 | 4.3                              | 3.02                  | 3.36        | 3.58        | 1.4                   | 1.9          |
| MSS1278T-154KL_          | 150 ±10%                        | 216.5                       | 240.6 | 4.1                              | 2.60                  | 2.94        | 3.10        | 1.3                   | 1.8          |
| MSS1278T-184KL_          | 180 ±10%                        | 229.0                       | 254.5 | 4.0                              | 2.36                  | 2.68        | 2.84        | 1.2                   | 1.7          |
| MSS1278T-224KL_          | 220 ±10%                        | 323.6                       | 359.6 | 3.4                              | 2.24                  | 2.50        | 2.62        | 1.0                   | 1.6          |
| MSS1278T-274KL_          | 270 ±10%                        | 415.6                       | 461.8 | 3.1                              | 1.94                  | 2.18        | 2.34        | 0.90                  | 1.2          |
| MSS1278T-334KL_          | 330 ±10%                        | 487.3                       | 541.5 | 2.9                              | 1.72                  | 1.92        | 2.06        | 0.80                  | 1.0          |
| MSS1278T-394KL_          | 390 ±10%                        | 533.6                       | 592.9 | 2.7                              | 1.62                  | 1.82        | 1.92        | 0.75                  | 1.0          |
| MSS1278T-474KL_          | 470 ±10%                        | 707.5                       | 786.2 | 2.2                              | 1.44                  | 1.64        | 1.74        | 0.66                  | 0.90         |
| MSS1278T-564KL_          | 560 ±10%                        | 777.4                       | 863.8 | 2.0                              | 1.40                  | 1.54        | 1.66        | 0.60                  | 0.80         |
| MSS1278T-684KL_          | 680 ±10%                        | 1045                        | 1162  | 1.7                              | 1.24                  | 1.32        | 1.46        | 0.55                  | 0.75         |
| MSS1278T-824KL_          | 820 ±10%                        | 1166                        | 1296  | 1.4                              | 1.14                  | 1.28        | 1.42        | 0.50                  | 0.70         |
| MSS1278T-105KL_          | 1000 ±10%                       | 1334                        | 1482  | 1.3                              | 0.982                 | 1.08        | 1.18        | 0.48                  | 0.68         |

1. Please specify **termination** and **packaging** codes:

**MSS1278T-105KLD**

**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:** D = 13" machine-ready reel. EIA-481 embossed plastic tape (500 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 D instead.

2. Inductance tested at 100 kHz, 0.1 Vrms, 0 Adc using an Agilent/HP 4263B LCR meter or equivalent.
  3. DCR measured on a micro-ohmmeter and a Coilcraft CCF858 test fixture.
  4. SRF measured using an Agilent/HP 8753D network analyzer and a Coilcraft SMD-D test fixture.
  5. DC current at 25°C that causes the specified inductance drop from its value without current. [Click for temperature derating information.](#)
  6. Current that causes the specified temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings. [Click for temperature derating information.](#)
  7. Electrical specifications at 25°C.
- Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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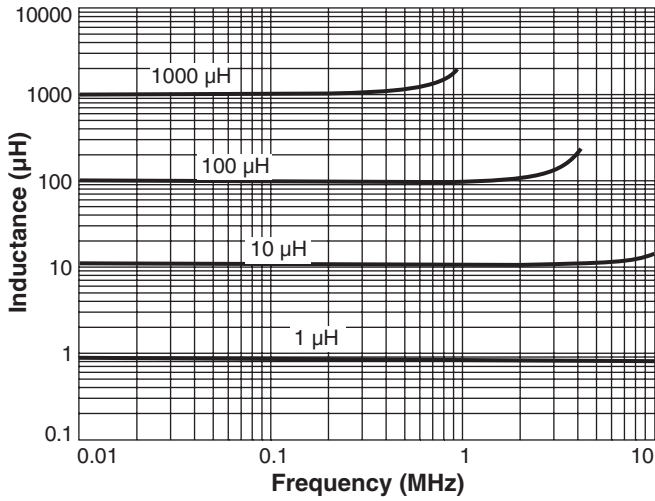
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# HIGH TEMPERATURE

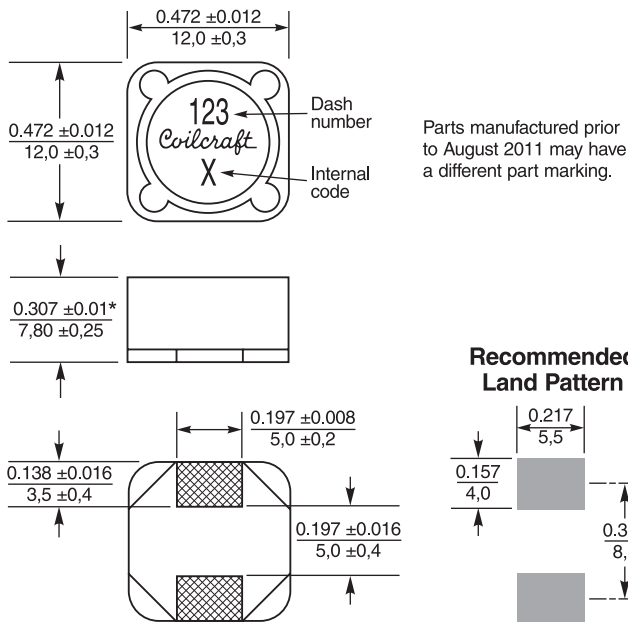
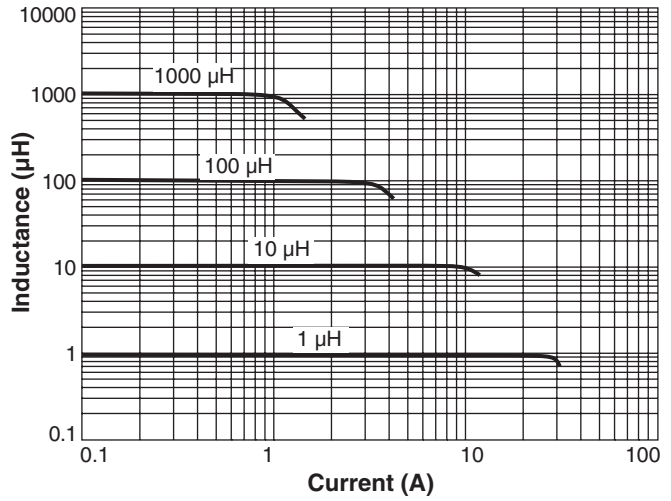
## SMT Power Inductors – MSS1278T Series



Typical L vs Frequency



Typical L vs Current



Parts manufactured prior to August 2011 may have a different part marking.

\* For optional tin-lead and tin-silver-copper terminations, dimensions are for the mounted part. Dimensions before mounting can be an additional 0.012 inch (0.3 mm).

Dimensions are in  $\frac{\text{inches}}{\text{mm}}$



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