

# Common Mode Chokes – MSD1278



- Only 12.3 mm square and 8 mm high
- Ideal for use in both power line and signal line applications
- Common- and differential-mode filtering in a single device
- Up to 110 MHz differential mode cutoff frequency
- 500 Vrms, one minute winding-to-winding isolation
- Can be used as coupled inductors for SEPIC applications

**Core material** Ferrite

**Weight:** 3.7 – 4.4 g

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

**Ambient temperature** -40°C to +85°C with Irms current.

**Maximum part temperature** +125°C (ambient + temp rise).

**Storage temperature** Component: -40°C to +125°C.

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

**Winding-to-winding isolation** 500 Vrms, one minute

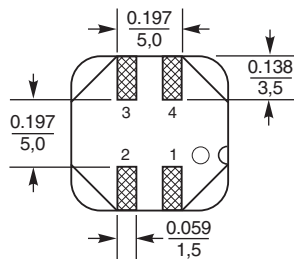
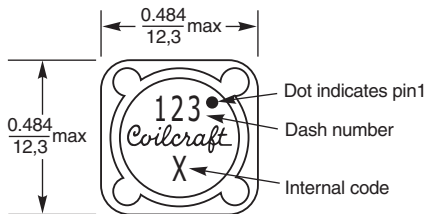
**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

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

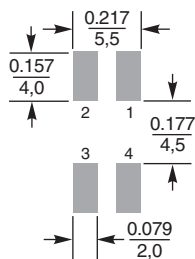
**Failures in Time (FIT) / Mean Time Between Failures (MTBF)** 38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332

**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](#).

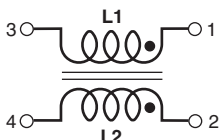


### Recommended Land Pattern



\* 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  $\frac{\text{inches}}{\text{mm}}$





# Common Mode Chokes – MSD1278 Series

Partnumber <sup>1</sup>	Common mode impedance max (kOhms)	Cutoff <sup>2</sup> frequency (MHz)	Inductance (µH) <sup>3</sup>		DCR max <sup>4</sup> (Ohms)	Isolation (Vrms)	Irms (A)
			min	nom			
MSD1278-472ML_	7.74 @ 32 MHz	110	3.76	4.7	0.038	500	3.16
MSD1278-562ML_	7.70 @ 25 MHz	81	4.48	5.6	0.046	500	2.87
MSD1278-682ML_	9.71 @ 22 MHz	63	5.44	6.8	0.048	500	2.81
MSD1278-822ML_	10.77 @ 21 MHz	87	6.56	8.2	0.050	500	2.76
MSD1278-103ML_	11.29 @ 19 MHz	58	8.00	10	0.058	500	2.56
MSD1278-123ML_	13.41 @ 17 MHz	57	9.60	12	0.062	500	2.48
MSD1278-153ML_	17.44 @ 16 MHz	53	12.0	15	0.072	500	2.30
MSD1278-183ML_	16.96 @ 15 MHz	43	14.4	18	0.080	500	2.18
MSD1278-223ML_	19.54 @ 12 MHz	35	17.6	22	0.096	500	1.99
MSD1278-273ML_	22.40 @ 11 MHz	39	21.6	27	0.12	500	1.78
MSD1278-333ML_	39.00 @ 9.8 MHz	37	26.4	33	0.15	500	1.59
MSD1278-393ML_	47.17 @ 9.0 MHz	42	31.2	39	0.16	500	1.54
MSD1278-473ML_	48.28 @ 8.6 MHz	28	37.6	47	0.18	500	1.45
MSD1278-563ML_	55.35 @ 7.7 MHz	26	44.8	56	0.19	500	1.41
MSD1278-683ML_	63.59 @ 6.8 MHz	22	54.4	68	0.21	500	1.35
MSD1278-823ML_	76.76 @ 6.1 MHz	22	65.6	82	0.28	500	1.16
MSD1278-104ML_	79.30 @ 5.8 MHz	22	80.0	100	0.30	500	1.13
MSD1278-124KL_	95.79 @ 4.9 MHz	18	108	120	0.41	500	0.96
MSD1278-154KL_	80.01 @ 4.3 MHz	23	135	150	0.46	500	0.91
MSD1278-184KL_	82.56 @ 3.9 MHz	13	162	180	0.51	500	0.86
MSD1278-224KL_	114.9 @ 3.7 MHz	13	198	220	0.69	500	0.74
MSD1278-274KL_	140.0 @ 2.9 MHz	12	243	270	0.90	500	0.65
MSD1278-334KL_	101.7 @ 2.8 MHz	9.4	297	330	1.02	500	0.61
MSD1278-394KL_	87.12 @ 2.6 MHz	9.4	351	390	1.12	500	0.58
MSD1278-474KL_	159.6 @ 2.3 MHz	11	423	470	1.43	500	0.50
MSD1278-564KL_	142.6 @ 2.2 MHz	8.7	504	560	1.69	500	0.47
MSD1278-684KL_	165.0 @ 1.9 MHz	7.4	612	680	2.29	500	0.41
MSD1278-824KL_	138.0 @ 1.8 MHz	6.9	738	820	2.55	500	0.39
MSD1278-105KL_	154.0 @ 1.7 MHz	6.0	900	1000	2.83	500	0.37

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

MSD1278-105KLD

- 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 Frequency at which the differential mode attenuation equals -3 dB  
3 Inductance shown for each winding, measured at 100 kHz, 0.1 Vrms, 0 Adc on an Agilent/HP 4284A LCR meter or equivalent.  
4 DCR is for each winding.  
5 Interwinding isolation (hipot) tested for one minute.  
6 Current that causes a 40°C temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.  
9. Electrical specifications at 25°C.  
Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



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Document 1332-2 Revised 09/13/17

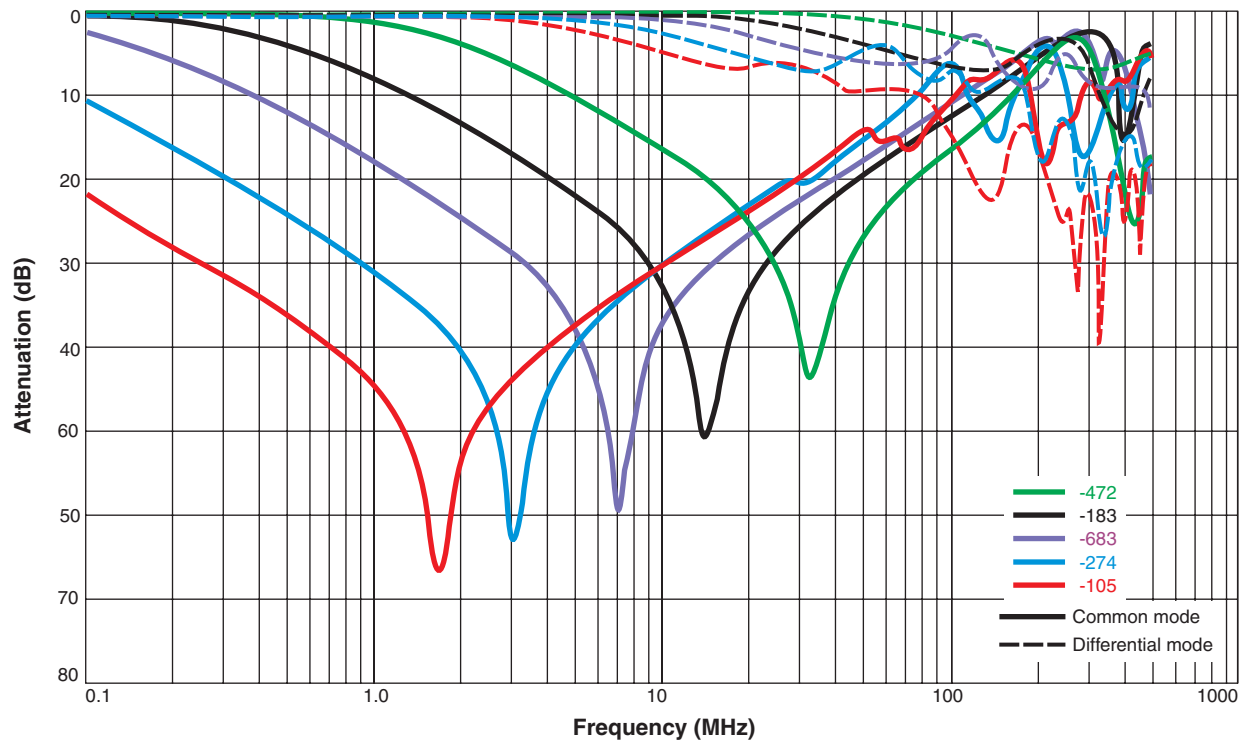
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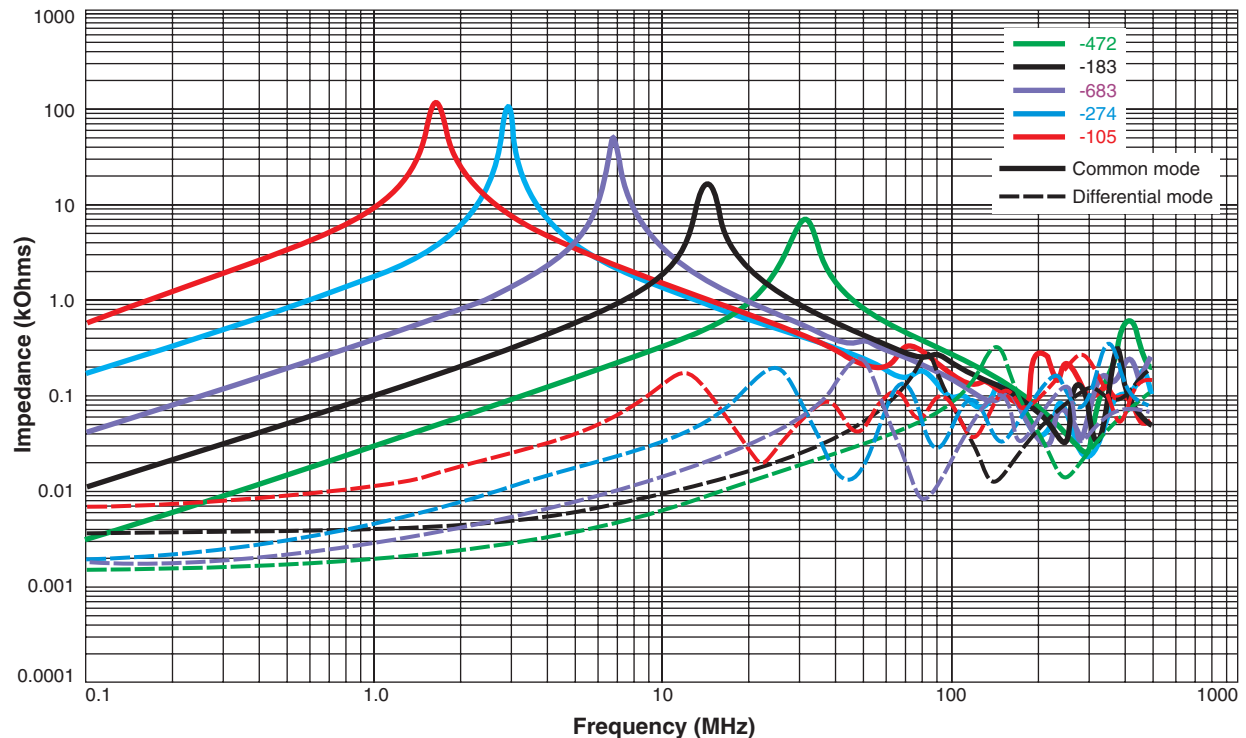


# Common Mode Chokes – MSD1278 Series

Typical Attenuation (Ref: 50 Ohms)



## Typical Impedance vs Frequency



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Document 1332-3 Revised 09/13/17

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