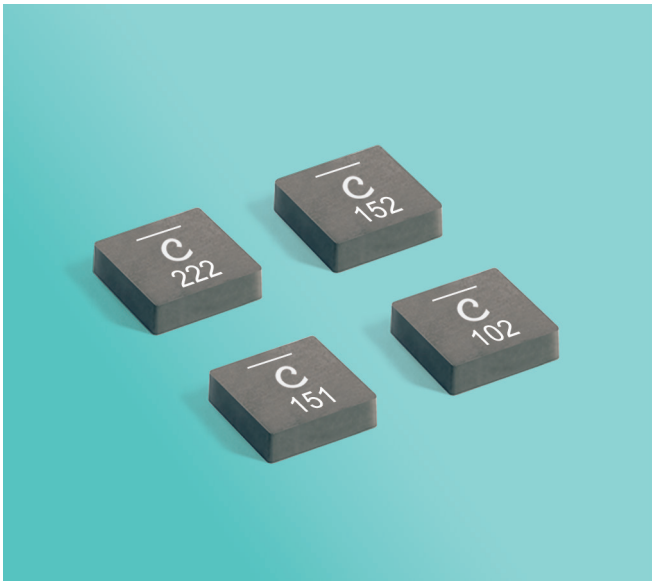
High-Reliability Power Inductors MS513PYA



- High temperature materials allow operation in ambient temperatures up to 155°C
- Passes vibration testing to 80 G and shock testing to 1000 G
- Tin-lead (Sn-Pb) termination for the best possible board adhesion
- High current and very low DCR
- Soft saturation makes them ideal for VRM/VRD applications.

Core material Composite
Terminations Tin-lead (63/37) over copper.
Weight 0.83 g
Ambient temperature –55°C to +105°C with Irms current
Maximum part temperature +155°C (ambient + temp rise).
Storage temperature Component: –55°C to +155°C.
Tape and reel packaging: –55°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)
Enhanced crush-resistant packaging 500 per 7″ reel
Plastic tape: 16 mm wide, 0.30 mm thick, 12 mm pocket spacing, 2.2 mm pocket depth

Part number[1]	Inductance[2] ±20% (µH)	DCR (mOhms)[3] typ	DCR (mOhms)[3] max	SRF (MHz)[4] min	SRF (MHz)[4] typ	Isat[5] (A)	Irms (A)[6] 20°C rise	Irms (A)[6] 40°C rise
MS513PYA151MSZ	0.15	1.9	2.5	129	161	46.0	13.5	18.0
MS513PYA271MSZ	0.27	2.9	3.8	90	112	30.0	11.3	15.8
MS513PYA331MSZ	0.33	4.0	5.2	70	88	28.0	10.5	15.0
MS513PYA471MSZ	0.47	5.3	6.4	59	72	24.3	9.0	12.8
MS513PYA681MSZ	0.68	7.9	9.5	43	54	22.3	7.5	9.8
MS513PYA102MSZ	1.0	9.8	10.8	37	46	18.0	6.0	8.3
MS513PYA122MSZ	1.2	11.5	12.8	34	42	17.6	5.3	7.5
MS513PYA152MSZ	1.5	17.6	19.3	30	37	15.0	4.5	6.8
MS513PYA222MSZ	2.2	28.7	31.6	23	29	13.6	3.8	5.3

Irms Testing

Irms testing was performed on a 0.060″ thick pcb with 4 oz. copper traces optimized to minimize additional temperature rise.

Temperature rise is highly dependent on many factors including pcb land pattern, trace size, and proximity to other components. Therefore temperature rise should be verified in application conditions.

1. When ordering, please specify **testing** code:
   MS513PYA222MSZ
   Testing: Z = Unscreened
   H = Group A screening per Coilcraft CP-SA-10001
   All screening performed to the document's latest revision
2. Inductance tested at 100 kHz, 0.1 Vrms using an Agilent/HP 4192A.
3. DCR measured using a micro-ohmmeter.
4. SRF measured using an Agilent/HP 4395A or equivalent.
5. DC current at 25°C that causes a 30% (typ) inductance drop from its value without current.
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.
7. Electrical specifications at 25°C.

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

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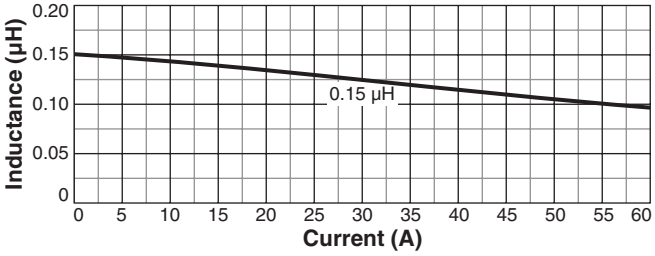
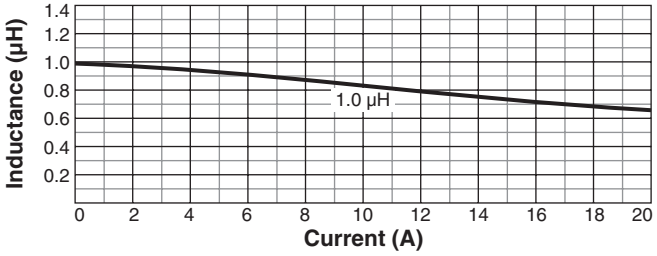
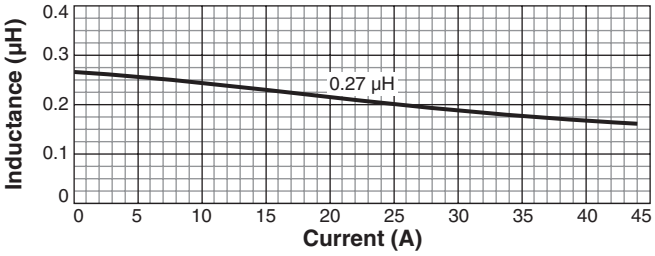
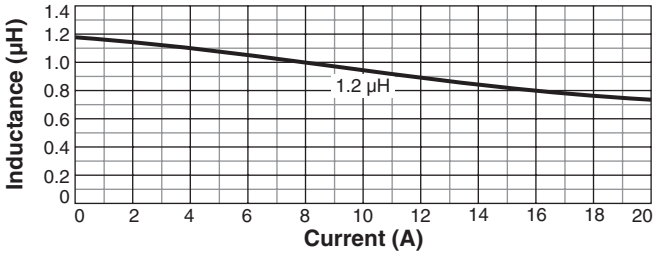
MS513PYA Series (7020)

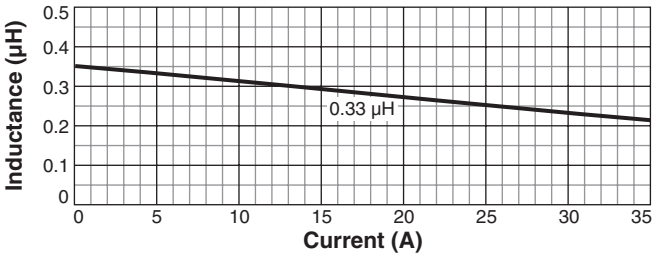
L vs Current

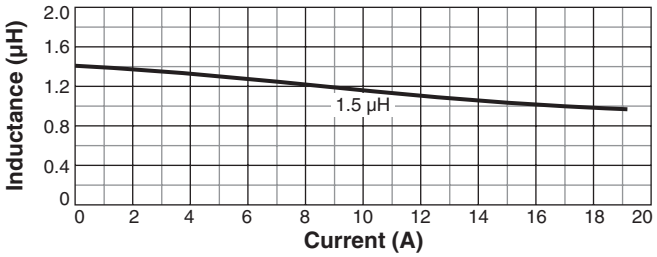


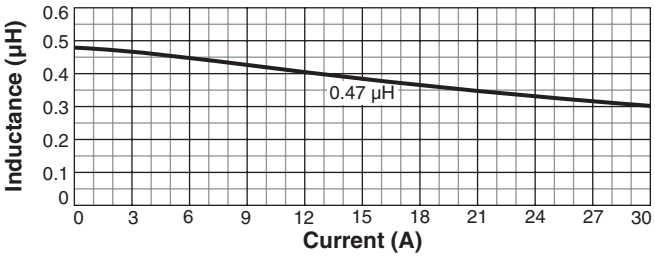


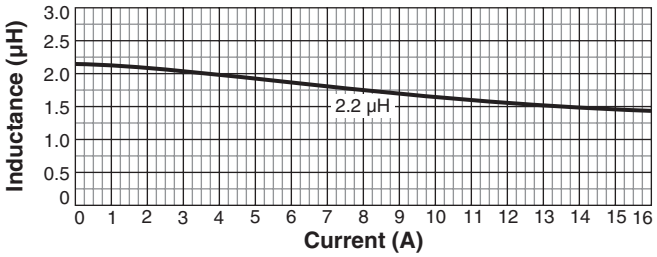


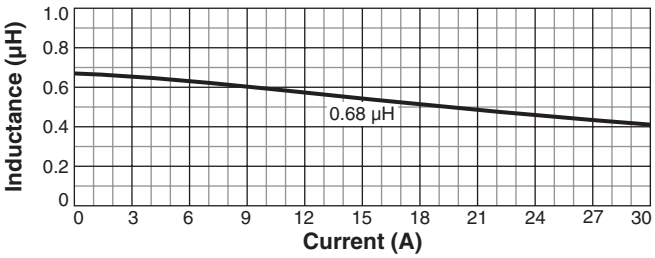












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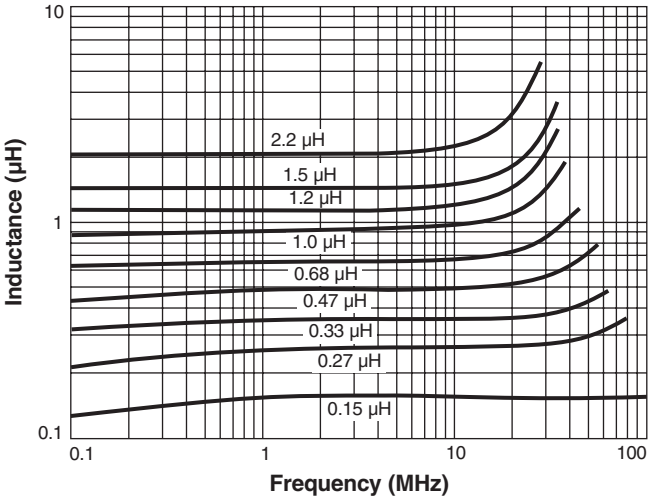
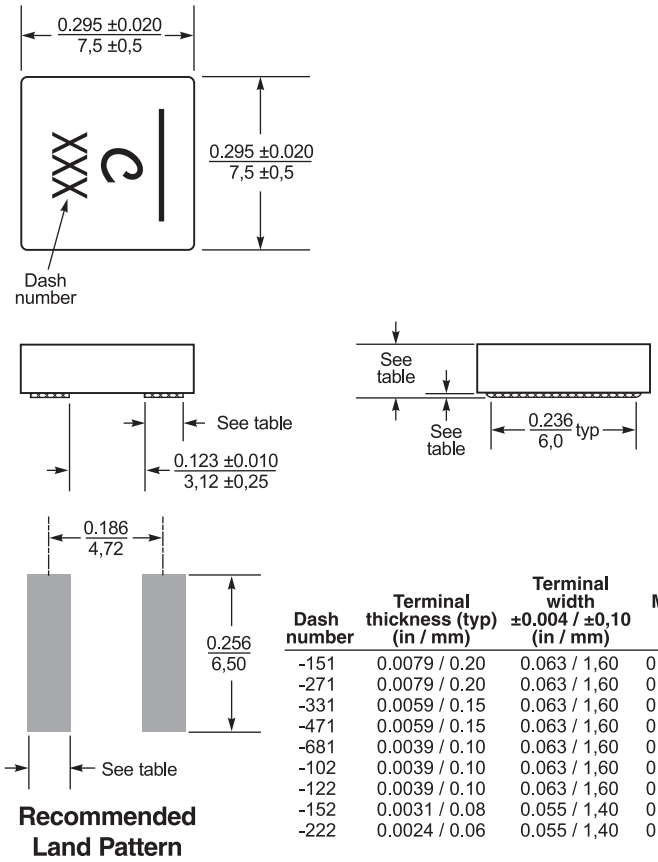
L vs Frequency





Dash number	Terminal thickness (typ) (in / mm)	Terminal width ±0.004 / ±0,10 (in / mm)	Maximum* height (in / mm)	Land Pattern Width (in / mm)
-151	0.0079 / 0.20	0.063 / 1,60	0.081 / 2.05	0.070 / 1.78
-271	0.0079 / 0.20	0.063 / 1,60	0.081 / 2.05	0.070 / 1.78
-331	0.0059 / 0.15	0.063 / 1,60	0.079 / 2.00	0.070 / 1.78
-471	0.0059 / 0.15	0.063 / 1,60	0.079 / 2.00	0.070 / 1.78
-681	0.0039 / 0.10	0.063 / 1,60	0.079 / 2.00	0.070 / 1.78
-102	0.0039 / 0.10	0.063 / 1,60	0.079 / 2.00	0.070 / 1.78
-122	0.0039 / 0.10	0.063 / 1,60	0.079 / 2.00	0.070 / 1.78
-152	0.0031 / 0.08	0.055 / 1,40	0.079 / 2.00	0.062 / 1.58
-222	0.0024 / 0.06	0.055 / 1,40	0.079 / 2.00	0.062 / 1.58

Dimensions are in inches / mm

*Height dimension shown is for the mounted part after reflow. Dimensions before mounting can be an additional 0.008 inch / 0.2 mm.

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