Return to menu

Power Inductor for Critical Applications ST631PYA

- Exceptionally low DCR – 6.8 mOhm
- Soft saturation makes them ideal for VRM/VRD applications.

Terminations Tin-silver (96.5/3.5) over copper.

Core material Composite

Weight 18.7 g

Ambient temperature –40°C to +125°C with Irms current

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

Storage temperature Component: –55°C to +165°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)

Packaging 100/13″ reel   Plastic tape: 32 mm wide, 0.35 mm thick, 24 mm pocket spacing, 13.26 mm pocket depth.

Part number[1]	Inductance[2] ±20% (μH)	DCR (mOhms)[3] typ	DCR (mOhms)[3] max	SRF typ (MHz)[4]	Isat (A)[5]	Irms (A)[6] 20°C rise	Irms (A)[6] 40°C rise
ST631PYA153MLZ	15	6.8	7.5	8.0	25.5	12	16.5

1. When ordering, please specify **screening** code:

   ST631PYA153M**L**Z

   Screening: **Z** = Unscreened
   Y = Unscreened (SLDC Option A)
   W = Unscreened (SLDC Option B)
   H = Coilcraft CP-SA-10001 Group A
   G = Coilcraft CP-SA-10001 Group A (SLDC Option A)
   D = Coilcraft CP-SA-10001 Group A (SLDC Option B)
   • Screening performed to the document's latest revision.
   • Custom testing also available.

2. Inductance tested at 100 kHz, 0.1 Vrms, 0 Adc.
3. DCR measured on a micro-ohmmeter.
4. SRF measured using Agilent/HP 4395A or equivalent.
5. DC current at 25°C that causes an inductance drop of 30% (typ) 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.
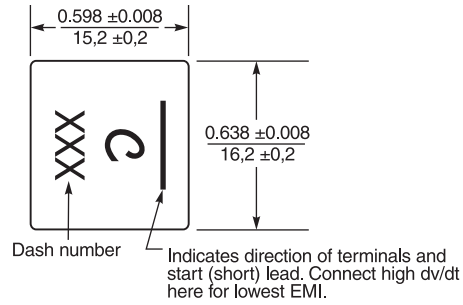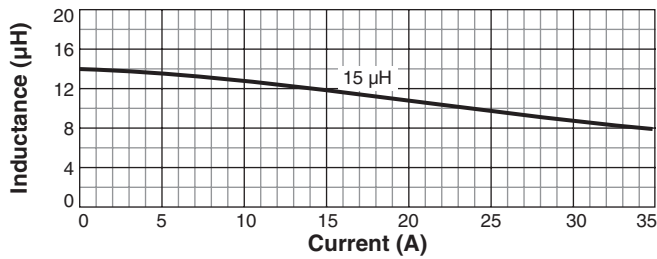Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

Irms Testing

Irms testing was performed on a 0.060" inch thick pcb with 4 oz copper traces optimized to minimize additional termperature 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.

ST631PYA153 Power Inductor

L vs Current

Inductance (µH) vs Current (A)
15 µH

L vs Frequency

Inductance (µH) vs Frequency (MHz)
15 µH

0.598 ±0.008 / 15,2 ±0,2

0.638 ±0.008 / 16,2 ±0,2

Dash number

Indicates direction of terminals and start (short) lead. Connect high dv/dt here for lowest EMI.

0.512 / 13,0 max*

0.118 ±0.004 / 3,00 ±0,10

0.299 ±0.010 / 7,6 ±0,254

0.492 / 12,5 typ

0.417 / 10,6

0.520 / 13,2

0.125 / 3,18

*Height dimension shown is for the mounted part after reflow. Dimensions before mounting can be an additional 0.008 inch / 0,2 mm.

Suggested Land Pattern

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

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Coilcraft CPS

CRITICAL PRODUCTS & SERVICES

© Coilcraft, Inc. 2023

1102 Silver Lake Road
Cary, IL 60013
Phone 800-981-0363

Fax 847-639-1508
Email cps@coilcraft.com
www.coilcraft-cps.com