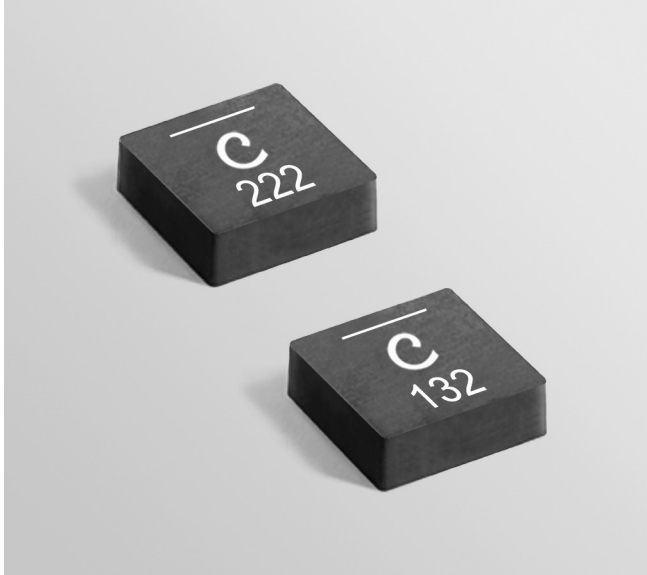


Power Inductors for Critical Applications ST591PYA



- High current and very low DCR
- Soft saturation makes them ideal for VRM/VRD applications

Core material Composite

Environmental RoHS compliant, halogen free

Terminations Tin-silver (96.5/3.5) over copper

Weight 4.5 – 4.9 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: –55°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 400/13" reel Plastic tape: 24 mm wide, 0.3 mm thick, 20 mm pocket spacing, 5.2 mm pocket depth

PCB washing Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787_PCB_Washing.pdf](#).

Part number ¹	Inductance ² (μ H)	Percent tolerance	DCR (mOhms) ³		SRF typ ⁴ (MHz)	Isat ⁵ (A)	Irms (A) ⁶	
			typ	max			20°C rise	40°C rise
ST591PYA631_LZ	0.63	30, 20	1.50	1.70	50	74	21.0	28.5
ST591PYA931_LZ	0.93	30, 20	2.00	2.20	42	60	18.7	24.7
ST591PYA132_LZ	1.3	30, 20	2.50	2.70	33	56	17.2	24.0
ST591PYA222_LZ	2.2	30, 20	4.16	4.80	23	46	14.2	18.0
ST591PYA302_LZ	3.0	30, 20	5.86	6.80	19	37	12.0	15.7

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

ST591PYA302NLZ

Tolerance: N = 30%, M = 20%

2. Inductance tested at 100 kHz, 0.1 Vrms, 0 Adc.
3. DCR measured on a micro-ohmmeter.
4. SRF measured using an Agilent/HP 4395A or equivalent.
5. DC current at which the inductance drops 30% (typ) from its value without current.
6. Current that causes the specified temperature rise from 25°C ambient.
7. Electrical specifications at 25°C.

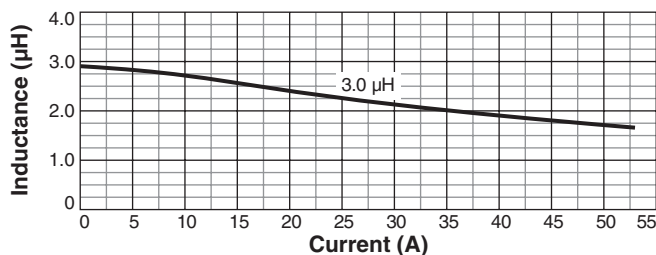
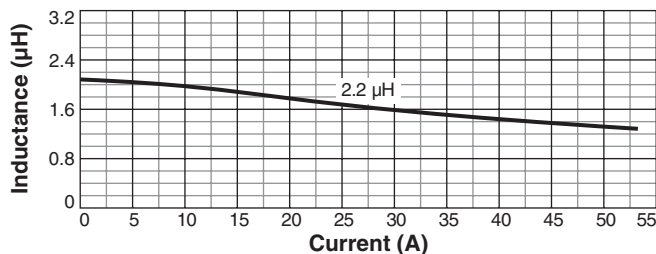
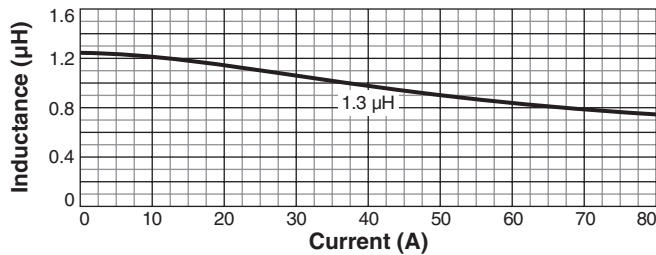
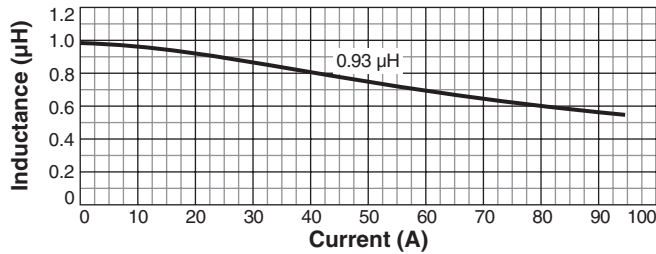
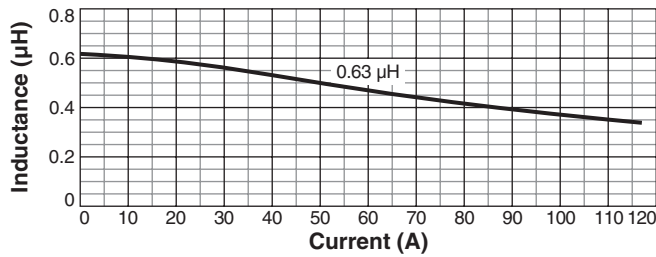
Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

Irms Testing

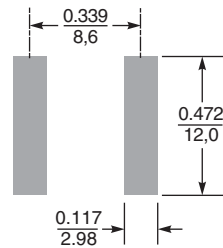
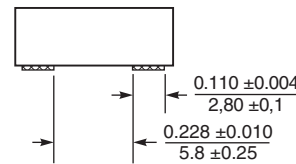
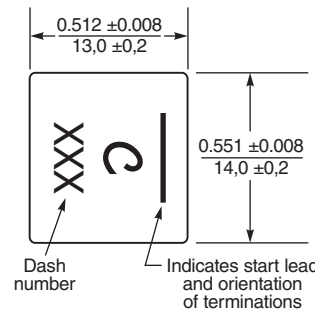
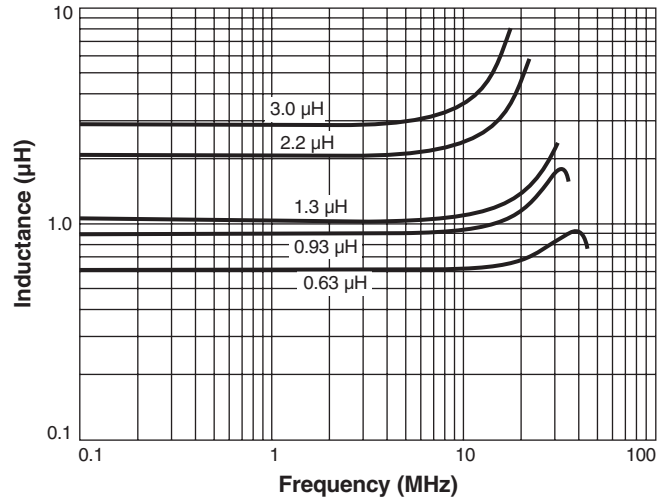
Irms testing was performed on a 0.060" thick pcb with 4 oz. copper traces optimized to minimize additional temperature rise.

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.

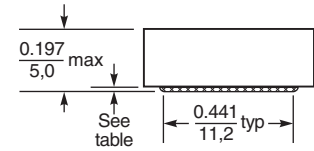
L vs Current



L vs Frequency



Recommended Land Pattern



Dash number	Terminal thickness (typ) (in / mm)
-631	0.0157 / 0.40
-931	0.0157 / 0.40
-132	0.0157 / 0.40
-222	0.0118 / 0.30
-302	0.0098 / 0.25

Dimensions are in inches / mm



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These parts are preproduction products available for evaluation only.

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