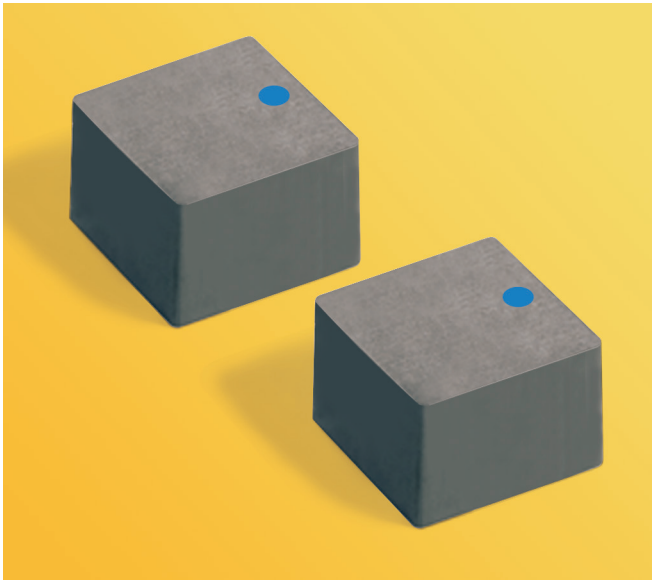
Power Inductor for Critical Applications AE631PYA



- High temperature materials allow operation in ambient temperatures up to 155°C
- High current; very low DCR
- Passes NASA low outgassing specifications
- Soft saturation makes them ideal for VRM/VRD applications
- Passes vibration testing to 30 G and shock testing to 100 G
- Special coating ensures DWV compliance with MIL-STD-981 screening

Core material Composite
Terminations Tin-lead (63/37) over copper
Weight 18.7 g
Working voltage 50 V
Ambient temperature –55°C to +105°C with (40°C rise) Irms current.
Maximum part temperature +155°C (ambient + temp rise). Derating.
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)
PCB washing Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.

Part number[1]	Inductance[2] ±20% (µH)	DCR (mOhms)[3] typ	DCR (mOhms)[3] max	SRF (MHz)[4] min	SRF (MHz)[4] typ	Isat (A)[5]	Irms (A)[6] 20°C rise	Irms (A)[6] 40°C rise
AE631PYA153MSZ	15	6.8	7.5	6.4	8.0	25.5	12	16.5

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

AE631PYA153MSZ

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)
1 = EEE-INST-002 (Family 1) Level 1
2 = EEE-INST-002 (Family 1) Level 2
3 = EEE-INST-002 (Family 1) Level 3
4 = MIL-STD-981 (Family 04) Class B
5 = MIL-STD-981 (Family 04) Class S
F = ESCC3201 (F4 operational life performed at 105°C)

- Screening performed to the document's latest revision.
- Lot qualification (Group B) available.
- Testing T and U have been replaced with more detailed codes 4, 5, and 1, 2, 3, respectively. Codes T and U can still be used, if necessary. Custom testing also available.
- Country of origin restrictions available; prefix option G.
- SLDC is limited to 1000 pcs lots

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″ 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.

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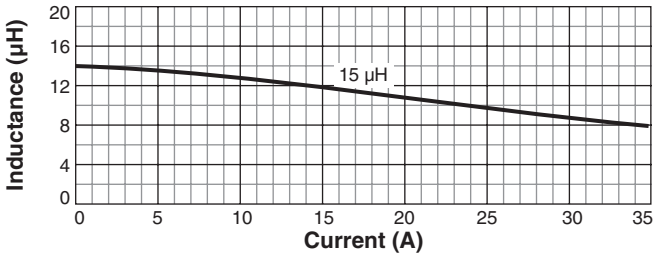
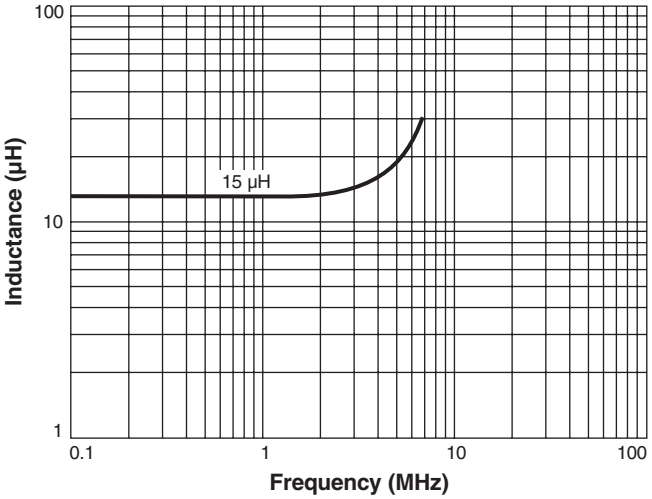
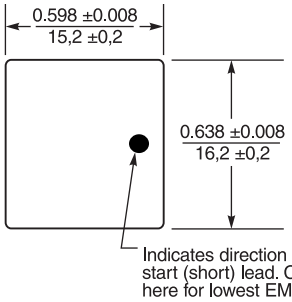
AE631PYA153 Power Inductor

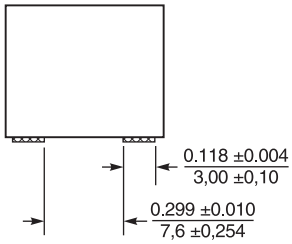
L vs Current

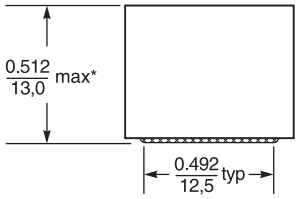


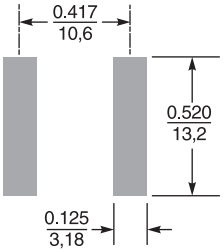
L vs Frequency











Suggested Land Pattern

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

Dimensions are in inches / mm

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