

# Outgassing Compliant Power Inductors AE512PGA



- High temperature materials allow operation in ambient temperatures up to 155°C
- Passes NASA low outgassing specifications
- Tin-lead (Sn-Pb) termination for the best possible board adhesion
- Exceptionally low DCR; soft saturation
- Passes vibration testing to 80 G and shock testing to 1000 G

**Core material** Composite

**Terminations** Tin-lead (63/37) over copper. Other terminations available at additional cost.

**Weight:** 0.69 – 0.76 g

**Operating voltage:** 0 – 80 V

**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.

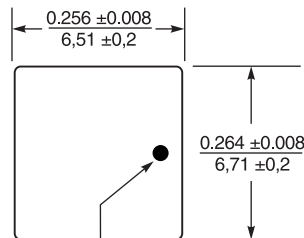
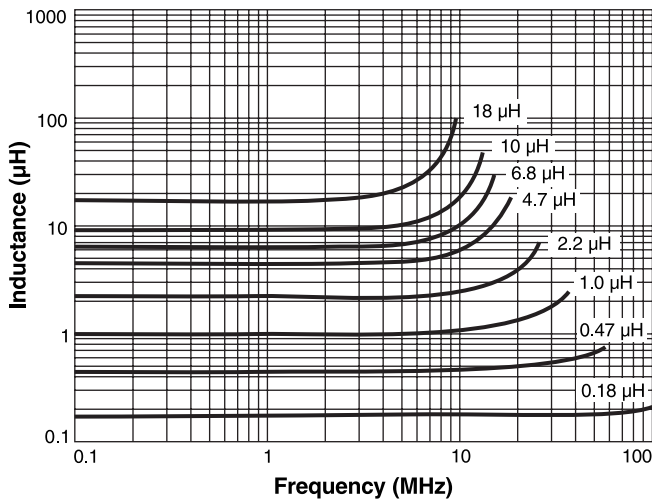
Tape and reel packaging: –55°C to +80°C

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

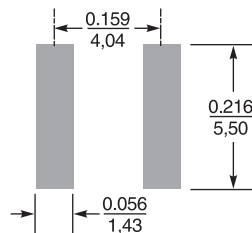
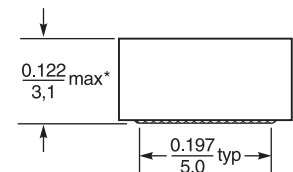
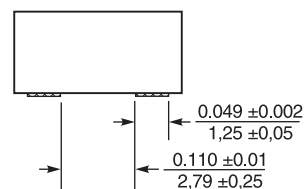
**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787\\_PCB\\_Washing.pdf](#).

## Typical L vs Frequency



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



**Suggested  
Land Pattern**

\* For optional tin-lead and tin-silver-copper terminations, dimensions are for the mounted part. Dimensions before mounting can be an additional 0.008 inch / 0.2 mm.

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

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Document AE1635-1 Revised 11/02/22

This product may not be used in medical or high risk applications without prior Coilcraft approval. Specifications subject to change without notice. Please check our web site for latest information.

# AE512PGA Series

Part number <sup>1</sup>	Inductance <sup>2</sup> ±20% (µH)	DCR (mOhms) <sup>3</sup>		SRF (MHz) <sup>4</sup>		Isat (A) <sup>5</sup>			Irms (A) <sup>6</sup>	
		typ	max	min	typ	10% drop	20% drop	30% drop	20°C rise	40°C rise
AE512PGA181MSZ	0.18	1.0	1.2	112	140	17.5	29.5	43.0	18.9	26.0
AE512PGA221MSZ	0.22	1.2	1.5	104	130	16.5	27.5	39.0	17.3	24.0
AE512PGA381MSZ	0.38	2.0	2.4	58	72	12.5	20.5	29.0	14.9	21.0
AE512PGA471MSZ	0.47	2.2	2.7	53	66	11.5	18.7	26.5	13.6	18.8
AE512PGA681MSZ	0.68	2.9	3.5	42	52	9.2	15.3	22.0	11.9	16.9
AE512PGA821MSZ	0.82	3.4	4.0	40	50	9.1	14.9	21.0	11.2	15.8
AE512PGA102MSZ	1.0	4.2	4.9	34	42	7.5	12.4	17.7	9.8	13.6
AE512PGA122MSZ	1.2	4.6	5.4	34	42	7.4	12.3	17.3	9.0	12.4
AE512PGA152MSZ	1.5	6.2	7.3	28	35	6.3	10.3	14.5	7.8	11.3
AE512PGA182MSZ	1.8	7.5	8.9	26	33	5.9	9.4	13.0	7.1	9.8
AE512PGA222MSZ	2.2	8.7	10.3	22	28	5.4	8.7	12.2	6.4	9.0
AE512PGA332MSZ	3.3	13.1	15.4	20	25	4.6	7.5	10.4	5.7	7.9
AE512PGA472MSZ	4.7	17.5	21.0	15	19	3.8	6.1	8.6	5.4	7.5
AE512PGA562MSZ	5.6	20.5	24.1	14	18	3.5	5.9	8.2	4.9	6.6
AE512PGA682MSZ	6.8	25.1	29.5	13	16	3.2	5.2	7.3	4.5	6.2
AE512PGA822MSZ	8.2	35.0	40.0	11	14	2.8	4.6	6.5	3.8	5.3
AE512PGA103MSZ	10	38.0	44.0	10	13	2.7	4.4	6.2	3.7	5.2
AE512PGA123MSZ	12	46.0	53.0	10	12	2.4	3.9	5.5	3.3	4.5
AE512PGA153MSZ	15	62.1	72.0	8	10	2.1	3.4	4.6	2.9	3.9
AE512PGA183MSZ	18	69.6	80.0	8	9.5	1.9	3.1	4.4	2.6	3.5

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

## AE512PGA183MSZ

- Screening:** **Z** = Unscreened  
**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.  
• Custom testing also available.

2. Inductance tested at 1 MHz, 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 the specified inductance drop from its value without current.

[Click for temperature derating information.](#)

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. [Click for temperature derating information.](#)

7. Electrical specifications at 25°C.

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

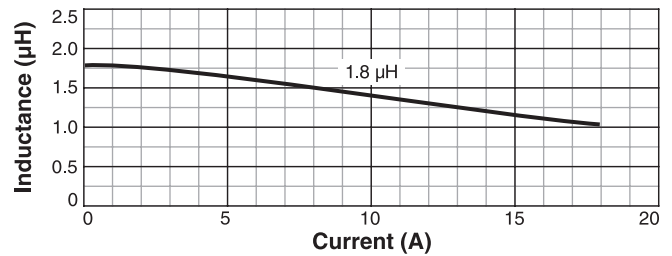
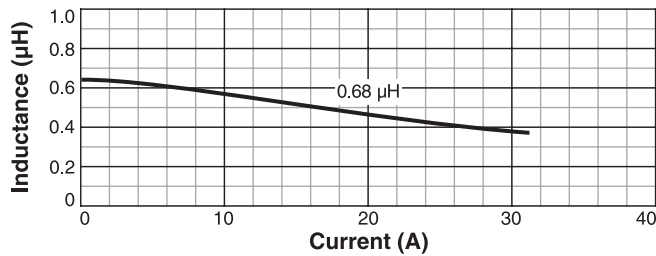
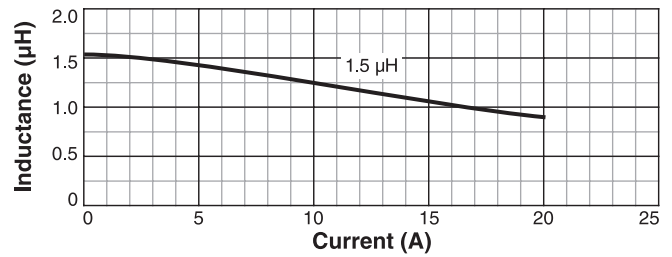
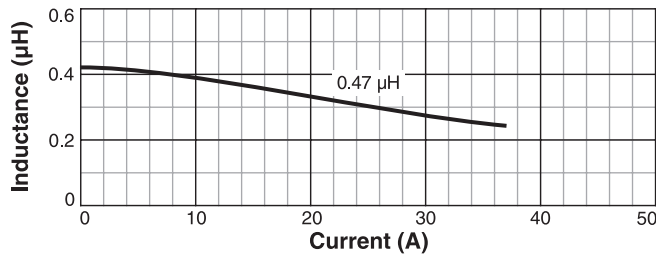
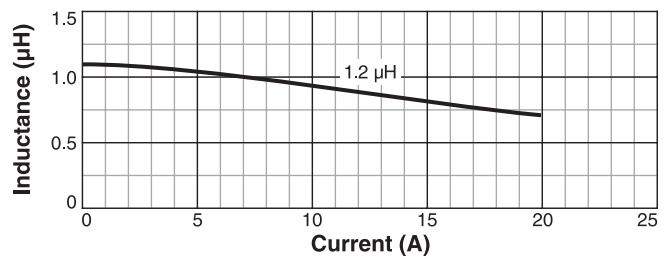
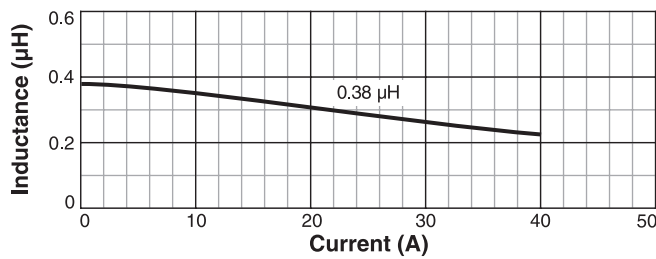
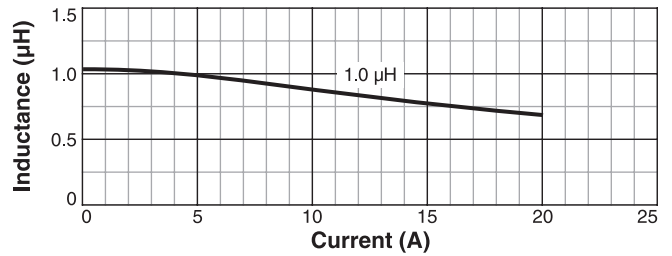
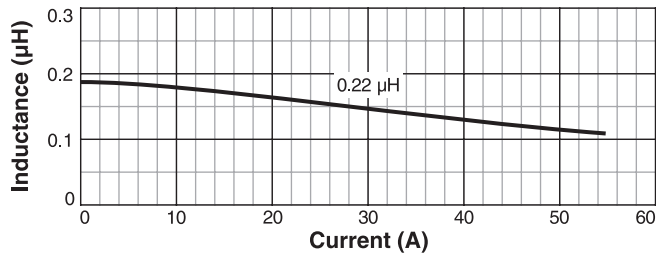
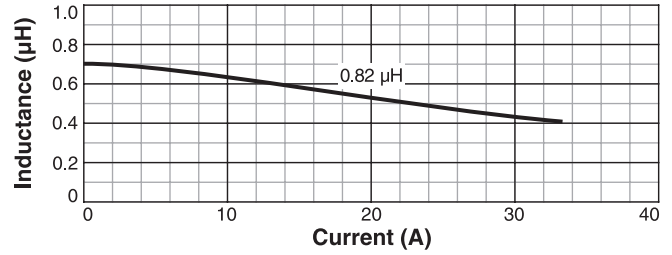
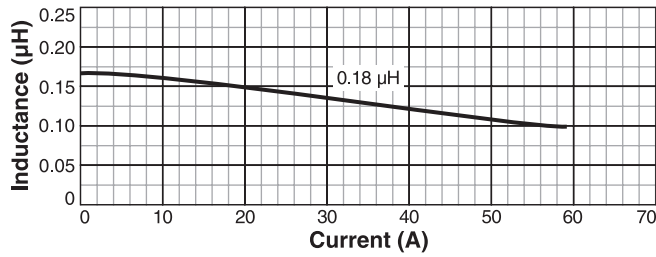
## Irms Testing

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.

# AE512PGA Series

## L vs Current



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