Power Inductor
Automotive Grade
APCI Series

Overview

Power inductors are passive electronic components used in various circuits to store energy in a magnetic field when electrical current flows through them. They are critical in filtering, energy storage, and noise suppression in power electronic systems.
They are designed to handle higher currents and are optimized for minimal power loss and thermal efficiency.

Benefits

1. Automotive grade available
2. Ferrite SMD Shielded Type
3. No thermal aging

Applications

1. Automotive Systems for Infotainment, Dashboard, ADAS
2. IPC Equipment
3. Net working

Product Information

Series	L (mm)	W(mm)	T (mm)	Inductance (μH)
APCI	7.3	7.3	4.6	0.33 ~ 10000
	12.0	12.0	5.0	
	12.0	12.0	6.0	
	12.0	12.0	8.0	
	12.0	12.0	10.0	

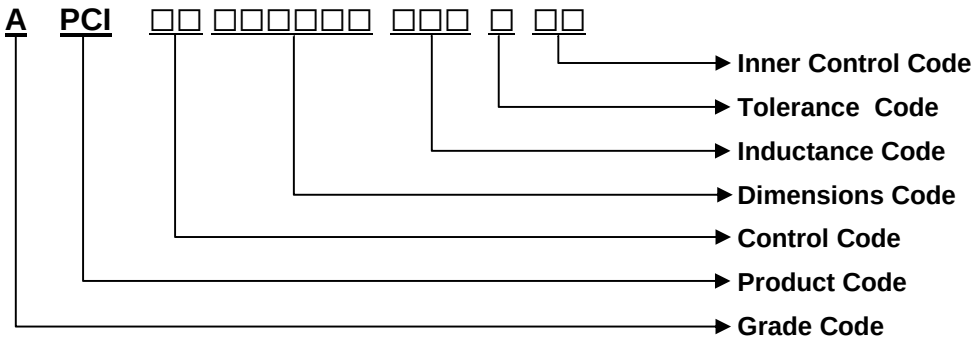
APCI00121260 Series Specification

AEC-Q200

1 Scope:

This specification applies to the Pb Free high current type SMD inductors

2 Part Numbering:



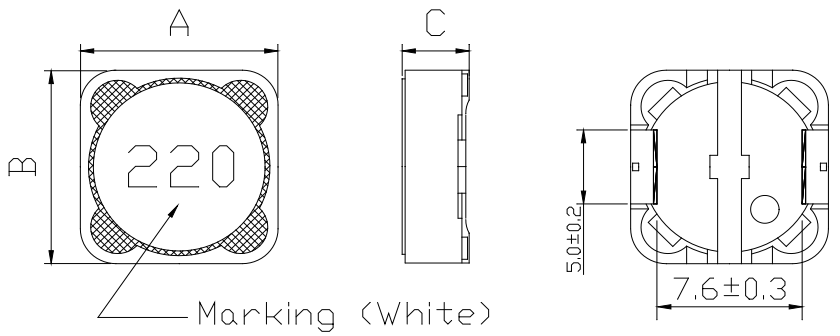
3 Rating:

Operating Temperature: - 55℃ ~ + 150℃ (Including self temp. rise)
Storage Temperature: - 55℃ ~ + 150℃(For after the circuit board is mounted)
Storage Temperature(on tape & reel): -20°C to +40°C; 75% RH max.

4 Standard Testing Condition:

	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature(15 to 35°C)	20 to 30℃
Humidity	Ordinary Humidity(25 to 85% RH)	50 to 80 %RH

5 Configuration and Dimensions:



A: 12.0±0.5 mm
B: 12.0±0.5 mm
C: 6.0 Max. mm

Net Weight (grms)

SIZE CODE	Net Weight (grms)
121260	3.12(Typ.)

6 Electrical Characteristics:

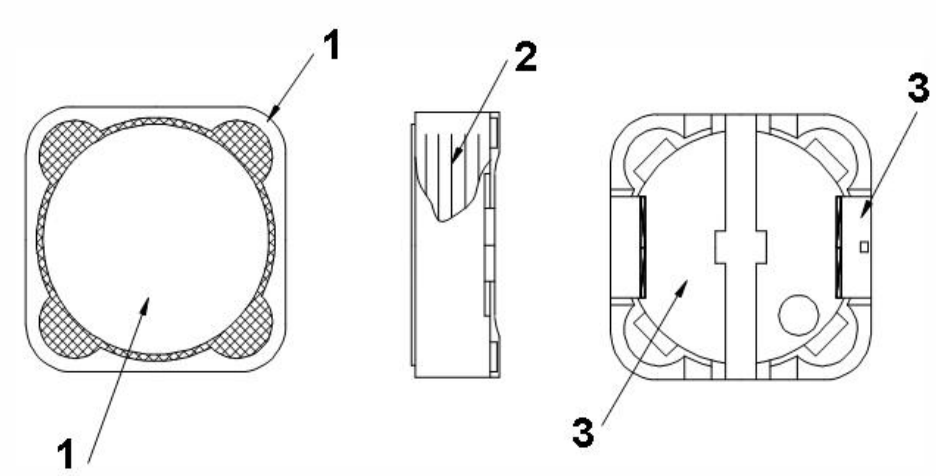
Part No.	Inductance L(μH)	Test Frequency	Resistance RDC(Ω) Max.	Rated DC Current		Percent Tolerance	Marking
				Isat (A)	Irms (A)		
APCI001212601R0□80	1.0	100kHz/0.25V	3.1m	23.60	15.00	T	1R0
APCI001212602R2□80	2.2	100kHz/0.25V	8.2m	13.50	12.50	T	2R2
APCI001212602R4□80	2.4	100kHz/0.25V	8.2m	13.50	12.50	M,T	2R4
APCI001212602R7□80	2.7	100kHz/0.25V	9.3m	13.00	10.50	M,T	2R7
APCI001212603R3□80	3.3	100kHz/0.25V	11.4m	12.00	9.00	M,T	3R3
APCI001212604R7□80	4.7	100kHz/0.25V	13.0m	10.00	8.00	M,T	4R7
APCI001212605R6□80	5.6	100kHz/0.25V	14.0m	9.00	7.00	M,T	5R6
APCI001212606R8□80	6.8	100kHz/0.25V	15.0m	8.00	7.00	M,T	6R8
APCI001212608R2□80	8.2	100kHz/0.25V	22.0m	7.50	6.50	M,T	8R2
APCI00121260100□80	10	100kHz/0.25V	26.5m	7.20	5.60	M,T	100
APCI00121260150□80	15	100kHz/0.25V	31.9m	5.80	5.00	M,T	150
APCI00121260220□80	22	100kHz/0.25V	46.3m	4.50	4.00	M,T	220
APCI00121260330□80	33	100kHz/0.25V	66.3m	4.00	3.50	M,T	330
APCI00121260470□80	47	100kHz/0.25V	92.5m	3.24	2.90	M,T	470
APCI00121260680□80	68	100kHz/0.25V	0.13	2.70	2.50	M,T	680
APCI00121260101□80	100	100kHz/0.25V	0.17	2.00	2.20	M	101
APCI00121260151□80	150	100kHz/0.25V	0.26	1.80	1.70	M,T	151
APCI00121260221□80	220	100kHz/0.25V	0.43	1.60	1.39	M	221
APCI00121260271□80	270	100kHz/0.25V	0.45	1.50	1.32	M	271
APCI00121260331□80	330	100kHz/0.25V	0.65	1.30	1.10	M	331
APCI00121260471□80	470	100kHz/0.25V	0.82	0.90	0.95	M	471
APCI00121260152□80	1500	100kHz/0.25V	2.00	0.58	0.60	M	152
APCI00121260222□80	2200	100kHz/0.25V	2.90	0.49	0.50	M	222

NOTE: tolerance K = ±10%，M = ±20%，T = ±30%

1. Isat : Based on inductance change (△L/Lo：drop 25% Max.) @ ambient Temperature : 25°C

2. Irms : Based on temperature rise (△T： 40℃ TYP.)

6 6.1 Construction:



6.2 Material List:

NO.	ITEM	DESCRIPTION & TYPE
1	CORE	FERRITE
2	WIRE	MAGNET WIRE (P180)
3	TERMINAL	Ag/Cu/Ni/Sn

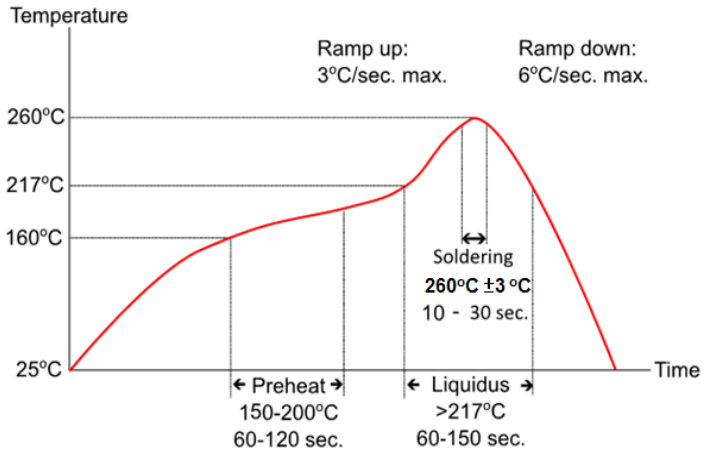
ELECTRICAL

TEST ITEM	SPECIFICATION	TEST DETAILS
Temperature characteristics	△L/L20℃≦±10% 0～2000 ppm/℃	The test shall be performed after the sample has stabilized in an ambient temperature of -20 to +85℃,and the value calculated based on the value applicable in a normal temperature and narmal humidity shall be △L/L20℃≦±10%.

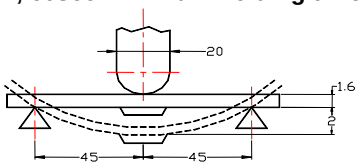
MECHANICAL

TEST ITEM	SPECIFICATION	TEST DETAILS
High Temperature Exposure (Storage)	1.△L/Lo≦±10% 2. Appearance-No damage (OM)	Refer to MIL-STD-202 Method 108 1.preconditioning :reflow 3 times. 2.1000hrs. at rated operating temperature, part can be stored for 1000 hrs. @ 150°C. Unpowered. Measurement at 24±4 hours after test conclusion.
Temperature Cycling	1.△L/Lo ≦±10% 2. Appearance-No damage (OM)	Refer to JESD22 Method JA-104 1.preconditioning :reflow 3 times. 2.1000 cycles (-55°C to +150°C). Measurement at 24±4 hours after test conclusion. 30min maximum dwell time at each temperature extreme. 1 min. maximum transition time.
Biased Humidity	1.△L/Lo≦±10% 2. Appearance-No damage (OM)	Refer to MIL-STD-202 Method 103 1.preconditioning :reflow 3 times. 2.1000 hrs 85°C/85%RH. Unpowered. Measurement at 24±4 hours after test conclusion.
Operational Life	1.△L/Lo≦±10% 2. Appearance-No damage (OM)	Refer to MIL-PRF-27 1.preconditioning :reflow 3 times. 2.1000 hrs. @150 °C. Measurement 24±4 hours after test conclusion.
Physical Dimensions	Product spec	Refer to JESD22-B100 Verify physical dimensions to the applicable device detail specification.

MECHANICAL

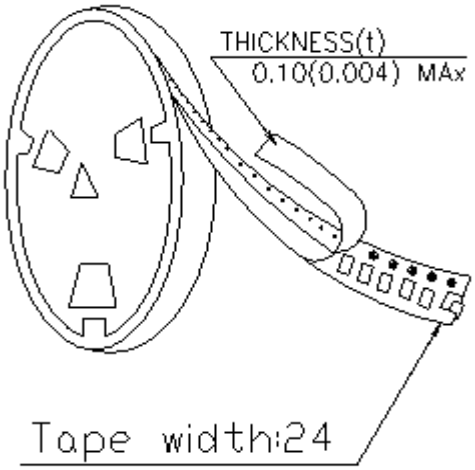
TEST ITEM	SPECIFICATION	TEST DETAILS
Resistance to Solvent	1. Marking -No constitute failure 2. No damage or degradation that has occurred due to solvent	Refer to MIL-STD-202 Method 215 Immersion 3+0.5/-0 minutes in Terpene defluxer. Brush 10 strokes (wet bristle) 2 to 3 oz. Rinse in water. Air blow dry.
Mechanical Shock	1.△L/Lo≦±10% 2.Appearance-No damage (OM)	MIL-STD-202 Method 213 Units are non-operating. Pulse shape : Half-sine waveform Impact acceleration : 100 g's Pulse duration : 6 ms Number of shocks : 18 shocks (3 shocks for each face)
Vibration	1.△L/Lo≦±10% 2.Appearance-No damage (OM)	MIL-STD-202 Method 204 5 g's for 20 minutes, 12 cycles each of 3 orientations. Test from 10-2000Hz.
Resistance to Soldering Heat (reflow soldering)	1. △L/Lo≦±10% 2. Appearance-No damage (OM)	Temperature profile of reflow soldering  Refer to MIL-STD-202 Method 210 SMD: Condition K, time above 217°C, 60s – 150s, 3Cycles
Solderability	All terminations shall exhibit a continuous solder coating free from defects for a minimum of 95% of the critical area of any individual termination.	Refer to J-STD-002 For both Leaded & SMD. Electrical Test not required. Test Method B @ 245±5°C, dwell for 5+0/-0.5 seconds

MECHANICAL

TEST ITEM	SPECIFICATION	TEST DETAILS
Board Flex	1.△L/Lo≦±10% 2.No Crack	Refer to AEC-Q200-005 Bend the board (D) X =2mm, 60sec minimum holding time. 
Terminal Strength	1.△L/Lo≦±10% 2. Appearance-No damage (OM)	Refer to AEC-Q200-006 Apply a 1.8Kg force to the side of a device bending tested. The force shall be applied for 60+1 seconds.
Electrical Characterization	User Specification.	Parametrically test per lot and sample size requirements. Summary to show minimum, maximum, meanand standard deviation at room, minimum andmaximum operating temperatures.
ESD		Refer to AEC-Q200-002 or ISO/DIS 10605 Refer to attachment third party report
Flammability	The marking and A side have no obvious broken, and the marking are clearly	Refer to UL 94 Burning stops within 10 seconds on a vertical specimen; drips of particles allowed as long as they are not inflamed.

7 Packaging:

7.1 Packaging -Cover Tape

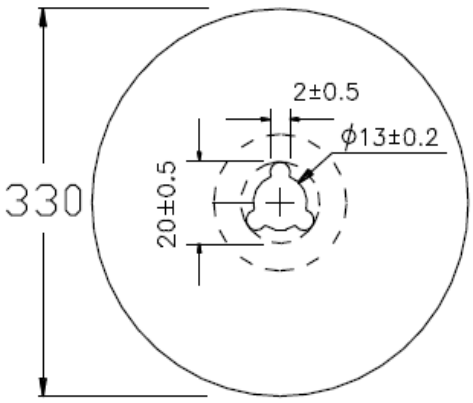


7.2 Packaging Quantity

TYPE	PCS/REEL
APCI00121260	500

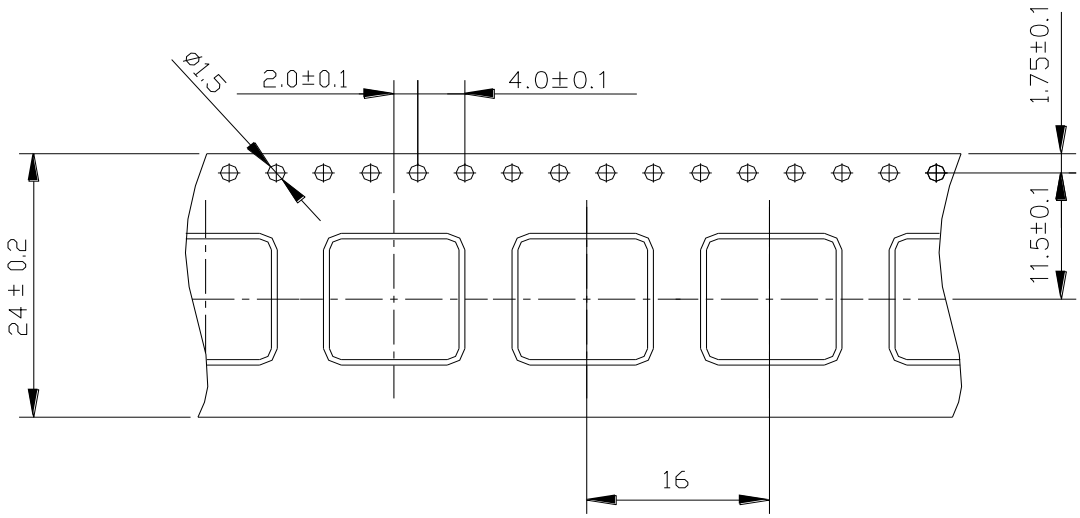
7.3 Reel Dimensions

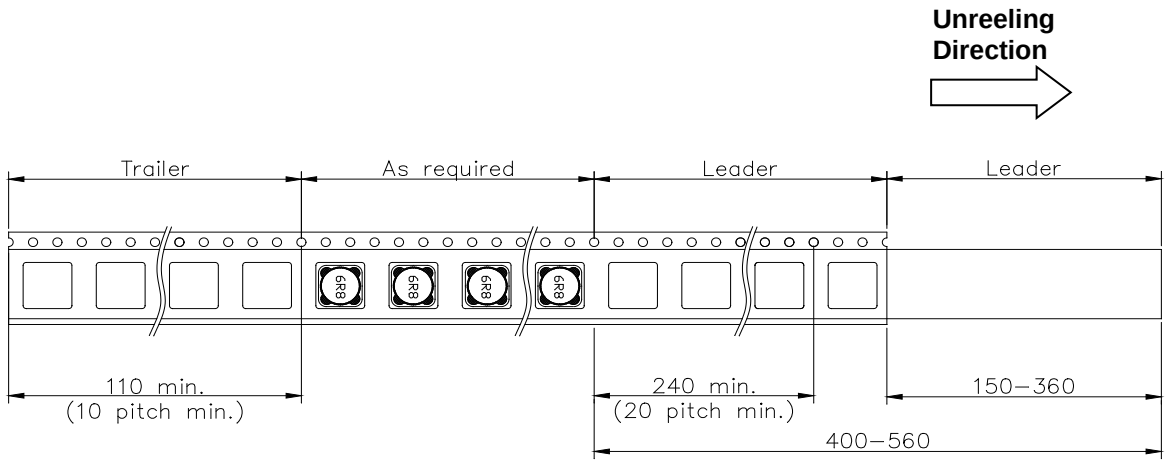
Unit : mm



7 Packaging:

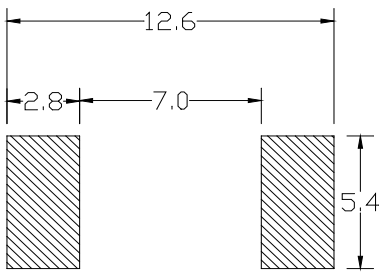
7.4 Tape Dimensions in mm





8 Recommended Land Pattern:

(STANDARD PATTERN) **Unit : mm**



9 Note:

1. Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.
2. Do not knock or drop.
3. All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose,under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement.
4. Please keep the distance between transformer/coil and other components (refer to the standard IEC 950)
5. The moisture sensitivity level (MSL) of products is classified as level 1.
6. Suggestion

   On customer side this product series need to be fixed by the glue after IR reflow.

   Please refer to below example photo: