KOA SPEER ELECTRONICS, INC.

RoHS COMPLIANT

spec sheet

SS-195 R6
AHA 6/29/06

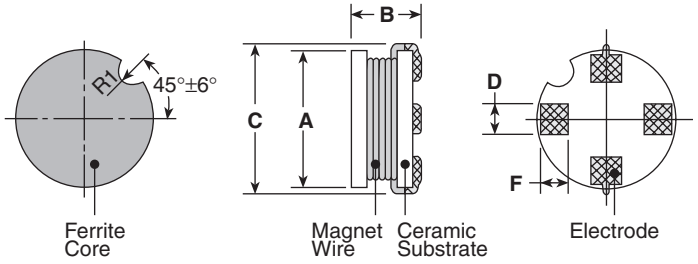
Power Chip Inductors
Type LPC9040N

ISO 9001:2000 CERTIFIED
TS-16949 CERTIFIED

1. Scope

This specification shall be applied to the LPC9040N manufactured by KOA Corporation.

2. Dimensions and Construction



Size	Dimensions inches (mm)				
	A	B	C	D	F
9040N	ø.354±$^{+.002}_{-.004}$ (ø9.0 $^{+0.05}_{-0.1}$)	.193 Max. (4.9 Max.)	.402 Max. (10.2 Max.)	.079±.008 (2.0±0.2)	.071±.008 (1.8±0.2)

3. Type Designation

The type designation shall be the following form:

New Type

LPC	9040N	A	TED	101	K
Type	Size	Termination Material	Packaging	Nominal Inductance	Tolerance
	9040N	A: SnAg (Other termination styles available, contact factory for options)	TED: 10" Embossed Plastic 500 pcs/reel	101: 100µH 221: 220µH 152: 1500µH	K: ±10% M: ±20%

Bolivar Drive ■ P.O. Box 547 ■ Bradford, PA 16701 ■ USA ■ 814-362-5536 ■ Fax 814-362-8883 ■ www.koaspeer.com

4. Standard Applications

Part Designation	Inductance (µH)	Inductance Tolerance	Quality Factor Minimum (MHz)	Self Resonant Frequency Minimum (MHz)	DC Resistance Maximum (Ω)	Allowable DC Current Maximum (Amps)	Measured Frequency (Hz)
LPC9040NATED100M	10	M: ±20%	40	25.0	0.07	1.55	10 kHz
LPC9040NATED150K	15	K: ±10%	30	21.0	0.09	1.40	
LPC9040NATED220K	22			15.0	0.11	1.25	
LPC9040NATED330K	33		20	13.5	0.14	1.10	
LPC9040NATED470K	47			11.5	0.20	0.99	
LPC9040NATED680K	68		10	10.0	0.27	0.91	
LPC9040NATED101K	100			8.0	0.41	0.70	
LPC9040NATED151K	150			7.0	0.55	0.60	
LPC9040NATED221K	220			5.0	0.81	0.50	
LPC9040NATED331K	330			3.3	1.86	0.29	
LPC9040NATED471K	470			2.8	2.07	0.22	
LPC9040NATED681K	680			1.2	2.65	0.14	

5. Rating

No.	Item	Specification
1	Nominal inductance range	10 µ ~ 680 µ H (E-6 series)

Heat fluctuation of DC resistance shall be calculated to 20°C using 0.4% for each 1°C. Measuring Conditions: Normal testing is conducted at normal temperatures (5°C ~ 35°C) and at nominal humidity (45% ~ 85% R. H.). If there is concern, the test may be conducted at a temperature of 20 ± 2°C and at a relative humidity of 65 ± 5% R. H.

6. Environmental Characteristics

No.	Item	Test Methods	Standard
1	High temperature, leaving test	85 ± 2°C 500 Hr	Within ± 5%
2	Low temperature, leaving test	-40 ± 2°C 500 Hr	Within ± 5%
3	Moisture leaving test	40 ± 2°C 90 ~ 95% R. H. 500 Hr	Within ± 5%
4	Heat shock test	-25 ± 2°C/0.5 Hr ↔ 85 ± 2°C/0.5 Hr 100 cycles 85°C / -25°C 0.5 Hr	Within ± 5%
5	Vibration test	2 hours in each direction of X, Y, Z at a frequency range of 10 ~ 55 Hz with 1.5 mm /min.	Within ± 5%
6	Temperature Characteristics	-40°C/+85°C Reference to L at +25°C	Within ± 10%
7	Operating temperature range	-30°C ~ +80°C	
8	Storage temperature range	-40°C ~ +85°C	
9	Resistance to soldering heat	With the temperature of the solder at 260 ±5°C, soak for 10 ± 1 seconds. There shall be no abnormalities.	
10	Resistance to solvent	MIL-STD-202F Method 215	

There shall be no abnormalities under the above conditions.
Measurement: Inductance HIOKI 3520 DC Superposed characteristics LCR Meter YHP 4262A DC Resistance HIOKI 3520
Frequency: Inductance 1 KHz DC Superposed characteristics 10 KHz

Bolivar Drive ■ P.O. Box 547 ■ Bradford, PA 16701 ■ USA ■ 814-362-5536 ■ Fax 814-362-8883 ■ www.koaspeer.com

7. Packaging

7.1 Direction of Travel

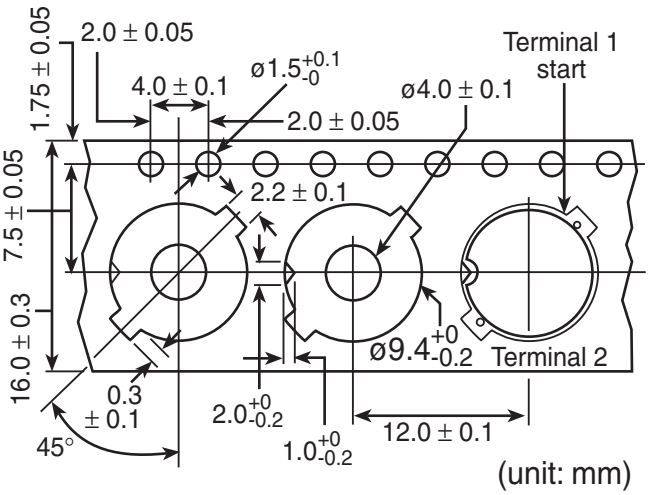
Perform taping so that the grooved section (R1) is in the opposite direction of travel.

7.2 Taping

The tapes for taping shall be embossed carrier tapes of 16 mm width and 12 mm pitches. The standard quantity per reel shall be 500 pieces.

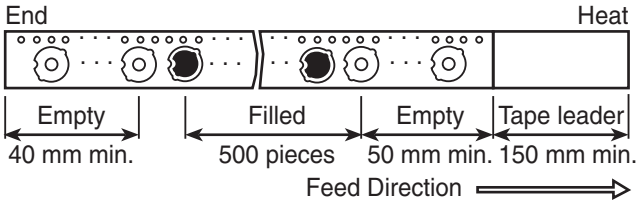
7.3 Dimensions of Carrier Tape

Top tape seperation strength: 20 ~ 70 g.



(unit: mm)

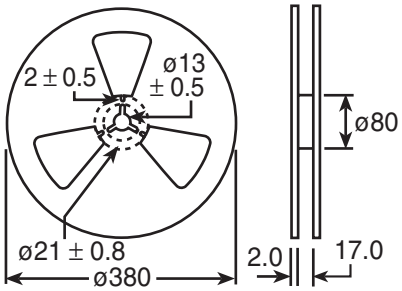
7.4 Packaging Method



7.5 Markings

The following information is provided on the reel.

(1) Product name (2) Part number (3) Quality
(4) Lot number (5) Manufacture origin



(unit: mm)

7.6 Packaging Method

A specially designed cardboard box is used for the external packaging and can hold a maximum of 15 reels.

7.7 Lot Number

(Example) January 21, 2006

41	21	D	K
Year and Month of Manufacture	Day of Manufacture	Manufacture Plant	Additional Number

41···2006.1 42···2006.2 43···2006.3

Bolivar Drive ■ P.O. Box 547 ■ Bradford, PA 16701 ■ USA ■ 814-362-5536 ■ Fax 814-362-8883 ■ www.koaspeer.com

8. General Information

8.1 Storage

Chip inductors shall not be stored under high temperature and high humidity conditions. Especially, do not store taping where they are exposed to heat or direct sunlight, otherwise, material may be deformed, causing problems during mounting.

8.2 Mounting

Placement force should not be excessive.

8.3 Soldering

When using a soldering iron, temperature shall not exceed 350°C and within 3 seconds. Soldering iron time shall be allowed only one time. After soldering, chip inductors shall not be stressed excessively.

8.4 Cleaning

There is no problem using organic solvents. Since these chip inductors are a coil of ultra-thin wire, they are susceptible to vibration. If an ultrasonic cleaning unit is used, check for any possibility of problem generation before practical use, since such cleaning units differ considerably in vibration level and mode. Although the conditions vary depending on the printed board size, Ultrasonic cleaning is generally used in the conditions described in the following examples:

Power: Within 20W/L
Cleaning times: Within 5 minutes

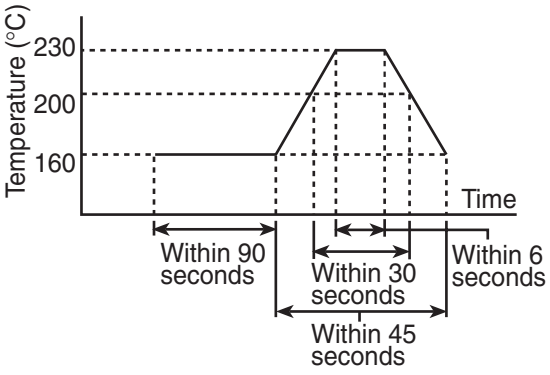
8.5 Pattern Design

When low or more chip inductors are closely mounted, they must be separated by means of solder resists to prevent excessive solder.

9. Soldering

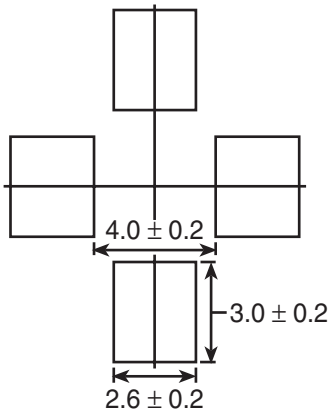
9.1 Conditions for Reflow Soldering

The time and temperature for reflow solder applications are as shown below.



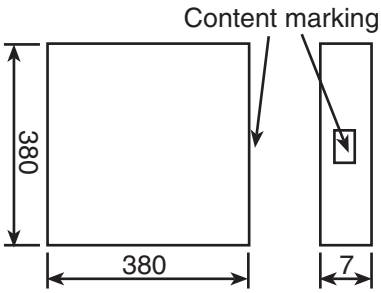
10. Land Pattern Design

(unit: mm)



11. Packaging Box

(unit: mm)



Bolivar Drive ■ P.O. Box 547 ■ Bradford, PA 16701 ■ USA ■ 814-362-5536 ■ Fax 814-362-8883 ■ www.koaspeer.com