SPECIFICATION FOR APPROVAL

REF. :

PROD. NAME	Shielded SMD Power Inductor	ABC'S DWG NO.	HC0412□□□□S□-□□□		
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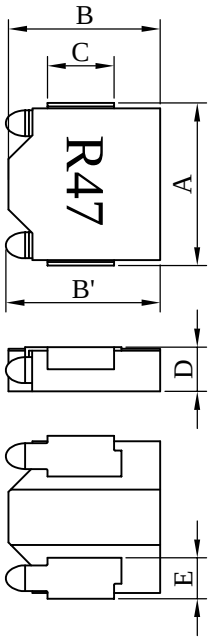
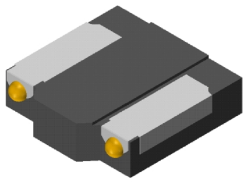
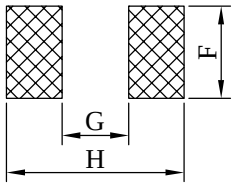
Ⅰ．Configuration and dimensions：







(PCB Pattern)

Unit：m/m

A	B	B'	C	D	E	F	G	H
4.40 ±0.2	4.10 ±0.2	4.40 max.	2.00 ref.	1.20 max.	1.10 ±0.1	2.50 ref.	1.80 ref.	4.80 ref.

Ⅱ．Description：

a．Powder molding construction

b．Magentically shielded

c．Enamelled copper wire：F class

d．Product weight：0.10g（ref.）

e．Moisture sensitivity Level 2a

f．Products comply with RoHS' requirements

g．Halogen free

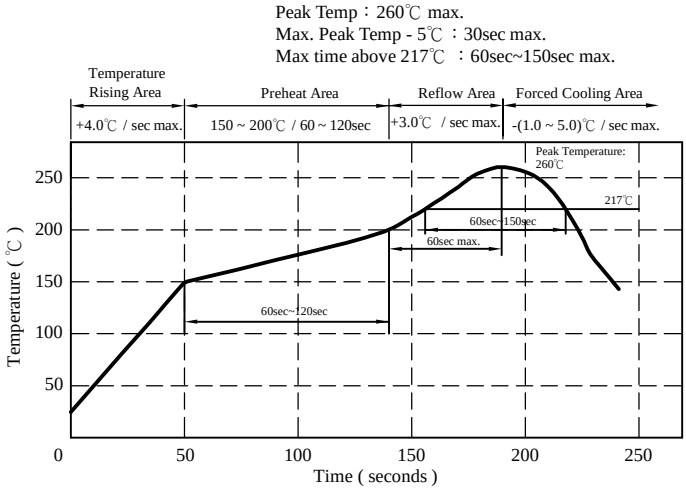
Ⅲ．General specification：

a．Storage temp.：-40℃ ----+125℃

b．Operating temp.：-40℃----+125℃

（Temp. rise included）

c．Resistance to solder heat：260℃.10 secs.



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Ⅳ．Electrical characteristics：

DWG. No.	Inductance (uH)	RDC (mΩ)		Isat (A)	Irms (A)
		typ.	max.	typ.	typ.
HC0412R47KS□-□□□	0.47 ±10%	13.2	15.3	9.7	7.6
HC0412R60KS□-□□□	0.60 ±10%	16.2	18.8	9.2	6.6
HC0412R68KS□-□□□	0.68 ±10%	21.7	25.1	8.0	5.6
HC04121R0KS□-□□□	1.00 ±10%	30.0	35.0	7.3	4.7
HC04121R5KS□-□□□	1.50 ±10%	43.7	50.6	5.4	3.9
HC04122R2KS□-□□□	2.20 ±10%	66.1	76.6	4.7	3.0
HC04123R3KS□-□□□	3.30 ±10%	91.4	105.8	3.5	2.4
HC04124R7KS□-□□□	4.70 ±10%	160.0	190.0	2.8	2.0

1). Electrical specifications at 25℃

2). Inductance test condition. :100kHz / 1V

3). Isat base on ΔL / L0A=30% typ.(Approximately transient current)

4). Irms base on Temp. rise 40℃ typ.

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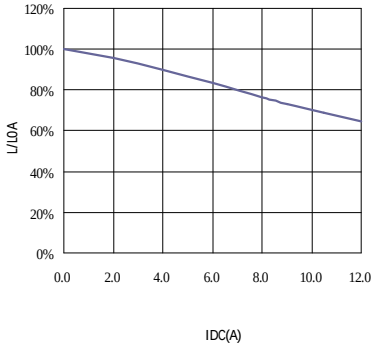
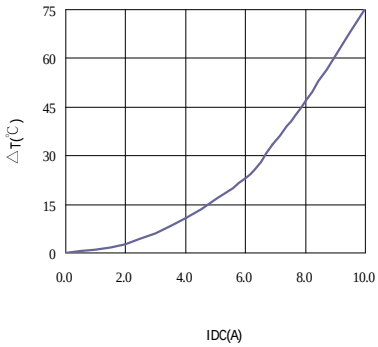
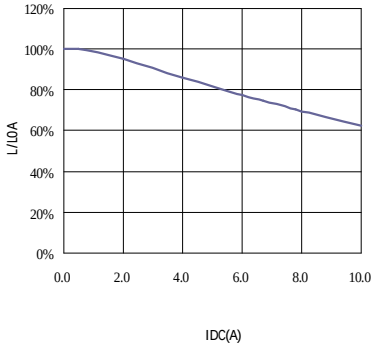
V ．Curve：

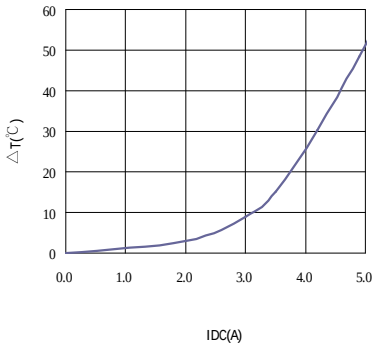
HC0412R47KS□



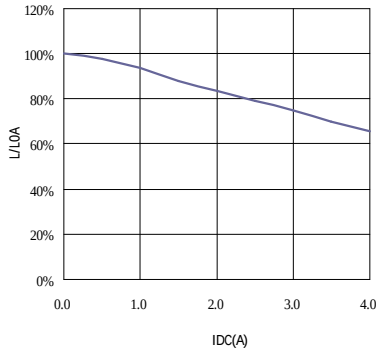


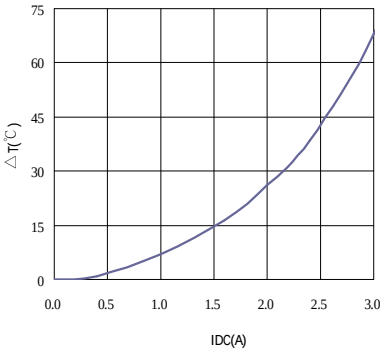
HC04121R0KS□



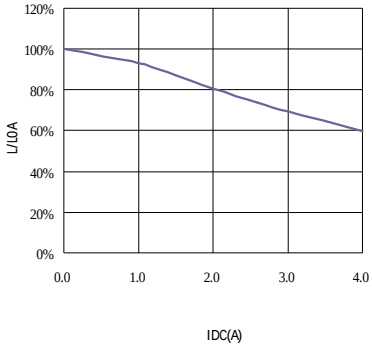


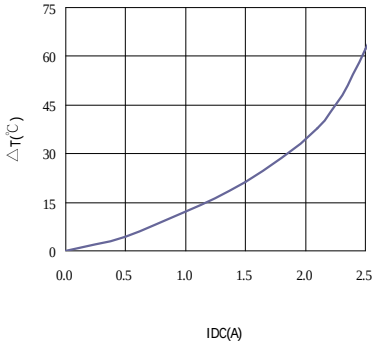
HC04123R3KS□





HC04124R7KS□





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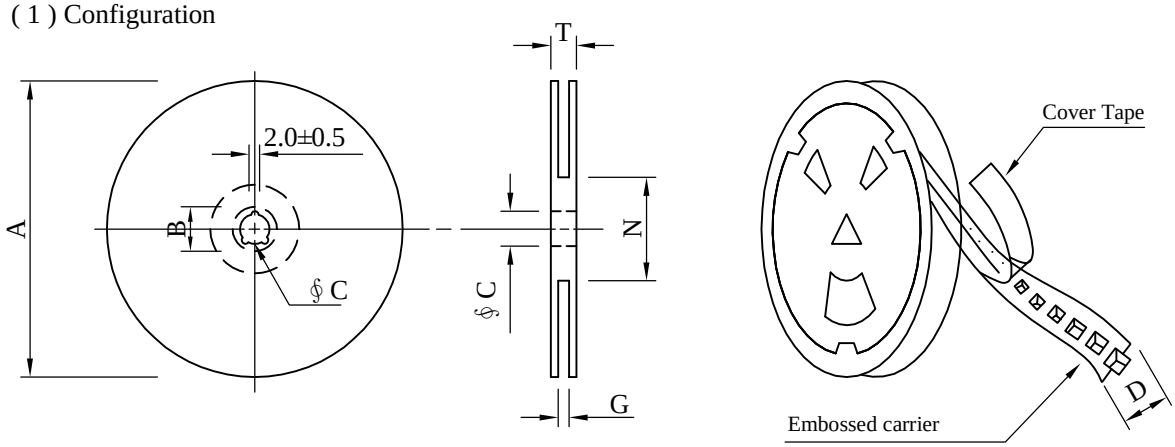
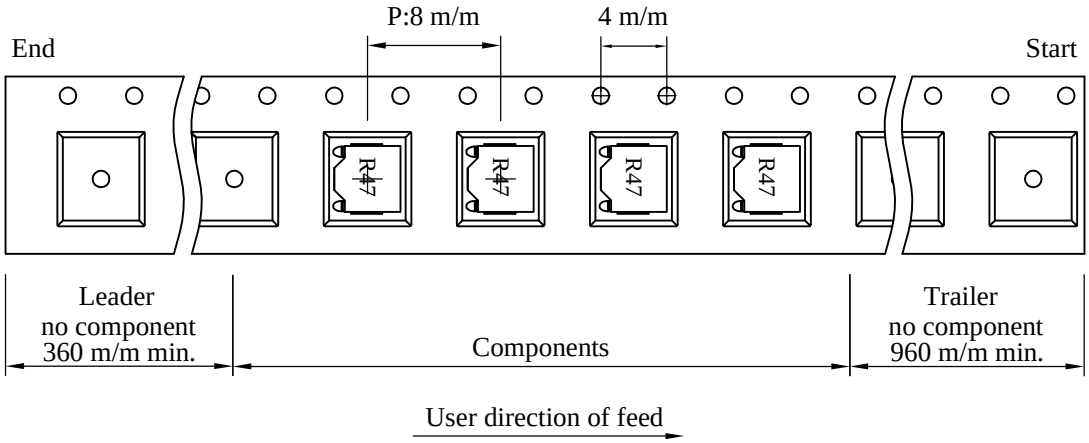
Ⅵ．Packaging information：

(1) Configuration



※Carrier tape width : D



(2) Dimensions

Unit:m/m

Style	A	B	C	D	G	N	T
13 - 12	330	21±0.8	13±0.5	12	14^{+0}	50^{-0}	18.4

(3) Q'TY & G.W. Per package

Code	Inner : Reel			Outer : Carton		
	Q'TY (pcs)	G.W. (g)	Style	Q'TY (pcs)	G.W. (Kg)	Size (cm)
B	4,500	1,000	13 - 12	27,000	9.0	38 x 37 x 22

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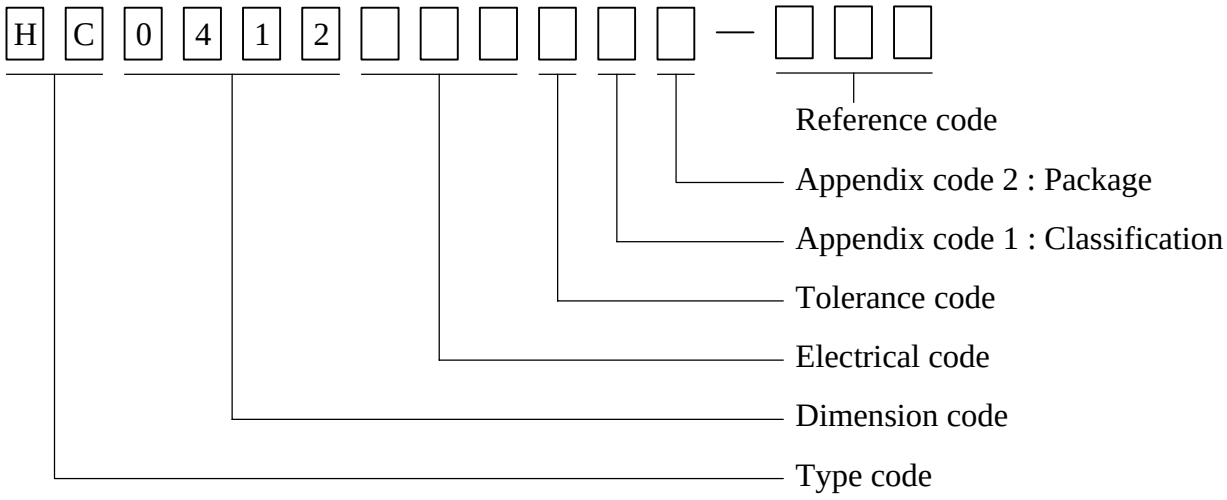
Ⅶ．Drawing number expression：



Appendix code 1：Product Classification

Appendix code 2：Package Information

Code	Inner package	Cover tape	Carrier tape	Bag	Package Q'TY	Remark
B	T /R (Reel package)	Heat seal	Non-antistatic	Non-antistatic	4,500 pcs	

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Ⅷ．Reliability test：

Item	Reference documents	Test Condition	Test Specification
1.High Temperature Exposure	MIL-STD-202 Method 108	1.Temperature: 125±2℃ 2.Time:96±2 hours.	1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%.
2.Temperature Cycling	JESD22-A 104	1.Temperature: -40℃ ~ +125℃ 2.Number of cycle:100 cycle 3.Dwell time:30 minutes	1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%.
3.Biased Humidity Test	MIL-STD-202 Method 103	1.Temperature：85±2 ℃ 2.Humidity: 85% RH. 3.Time:96±2 Hours	1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%.
4.Operational Life	JESD22-A 108	1.Temperature: 125℃ (Temp. rise included) 2.Time:96±2 hours. 3.Rated current	1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%.
5.External Visual	JESD22-B 101 & MIL-STD-883 Method 2009	Inspect product constructions, marking and workmanship.	1.No pollution on the surface of products. 2.Clear marking. 3.No crack.
6.Physical Dimensions	JESD22-B 100	Verify physical dimensions to the applicable product detail specification.	Per product specification standard
7.Resistance to solvents	MIL-STD-202 Method 215	Immerse into solvent for 3±0.5 minutes & brush 10 times for 3 cycles.	1.No body change in apperarance. 2.No marking blurred. 3.Inductance shall not change more than ±20%.
8.Vibration Test	MIL-STD-202 Method 204	1.Frequency and Amplitued : 10-2000-10 Hz, 1.5 mm. 2.Direction:X, Y, Z 3.Test duration:2 hours for each direction, 6 hours in total.	1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%.
9.Resistance To Soldering Heat Test	MIL-STD-202 Method 210 & J-STD020D.1	1.Highest temperature：260±5℃. 2.Time（temp.≧ 217℃）：60~150 Seconds. 3.IR reflow times：3 times.	1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%.
10.Saturation Current	JIS C 6436 & User SPEC.	1.Applied rated current for 5 seconds. 2.Saturation current	Inductance shall not drop more than 30% typ.
11.Over load	JIS C 6436 & User SPEC.	1.Applied one and half rated current for a period of 5 minutes. 2.Rated current	No electrical or mechanical damage
12.Temperature Rise Current	JIS C 6436 & User SPEC.	1.Applied rated current for 10 minutes. 2.Temperature measure by digital surface thermometer. 3.Irms current	Surface temperature rise is less than 40℃ typ.
13.Solderability Test	J-STD-002 & JESD22-B 102	1.Baking in pre-testing： 150±5℃ / 16Hours±30 min. 2.Peak temperature：240±5℃ 3.Time（temp.≧217℃）：60~150 seconds. 4.IR reflow times：1 time.	More than 95% soldering coverage min on terminations.
14.Electrical Characteriazation	MIL-STD-202 Method 304 & User SPEC.	1.Operating temperature：-40℃~125℃ 2.Room temperature：25℃.	1.No mechanical or electrical damage. 2.Inductance shall not change more than ±20%.
15.Drop	CNS-C6354 & GB/T 2423.8	1.Products shall be mounted on SPEC. PCB and dropped down from a height of 1m 2.Drop total time：6 times (Every side of sample drop 2 times)	1. Adhesion on PCB shall be enough. 2. Product appearance shall not break. 3. No electrical damage.
16.Terminal Strength Test	IEC 60068-2-21	1.Apply push force to samples mounted on PCB. 2.Force of 1.8 kg for 60±1 seconds.	After test, inductors shall be no mechanical damage.

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Ⅸ．Change history：

DATE/REV.	DISCRIPTION	DRAWN	CHECKED	APPROVED
20170626-A	Released	Colin	Leo	Nick
20170717-B	Change the Outer Carton Size (cm)： 36 x 36 x 20 → 38 x 37 x 22	Miz	Nick	Nick
20170818-C	Add Inductor HC04123R3KS□-□□□	Colin	Leo	Nick
20171120-D	1. Change Carrier tape's description 2. Modify the Electrical characteristics	Sammy	Leo	Nick