




SPECIFICATIONS

ITEM	SMD POWDER INDUCTOR					
DESCRIPTION	4.7uH±20% 78mΩMax 2.10A 4.0×4.0×3.0mm					
MAKER PART No.	CMI-DCP4030NH-4R7M					
CODE_No.	2703-005401					
APPLIED TO	ALL					
REFERENCE	INITIAL-Approval					
Weight	Part	0.16g	Net	320g	Gross	1,280g

Green Procurement



Vendor Code : BJQB
 Registration Date :

DRAWING	CHECK	AGREEMENT	APPROVAL
	S.H. HAN		

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NO	DATA		Issued	Description	작성	검토	승인
0	2015.08.27		0	Initial Spec Release		S.H. HAN	
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1. GENERAL SPECIFICATION

1) SCOPE

This specificaiton applies to part number CMI-DCP4030NH-4R7M for use in electronic appliances with is supplied for SAMSUNG ELECTRONICS CO., LTD.

2. MECHANICAL CHARACTERISTIC

to the part drawing attached here to.

- 1) MARKING : SMD INDUCTOR shall be permanently and legibly marked with the part number on the specification position.
- 2) TERMINAL STRENGTH : Terminal shall withstand for 10 seconds without breakdown on losing when a static load of 1.05 Kg is applied in the drawing direction to the terminal at the point whre the external load.

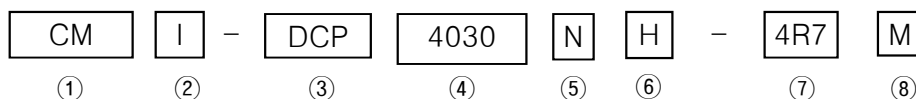
3. ENVIRONMENTAL & LIFE CHARACTERISTIC

- 1) TEMPERATURE RISE : Temperature rise of the each winding and core shall be less then ambient + 65°C, when the SMD INDUCTOR continuously operated at full load(test lead) until constant temperature is attained.
- 2) HEAT-RESISTANCE : After 96 hours, 85°C the insulation resistance should more than 100MΩ when be measured after 1~2hours in the standard condition.
- 3) MOISTURE RESISTANCE : After 96 hours, 40±2°C and 90~95% relative humidity the insulation resistance should more than 10MΩ when be measured after 1~2hours in the standard condition and wipped a drop of water.
- 4) SAFETY CONSIDERATION : SMD INDUCTOR shall meet the all requirements subject to IEC-950 standards for safety of information technology equipment including electrical business equipment.

4. TEMPERATURE & CHARACTERISTICS

- 1) STORAGE CONDITION : -40°C ~ +125°C, 40% ~ 80% RH
- 2) OPERATING CONDITION (including self temperature) : -40°C ~ +125°C, 40% ~ 80% RH

5. REGULATION OF PART NUMBER

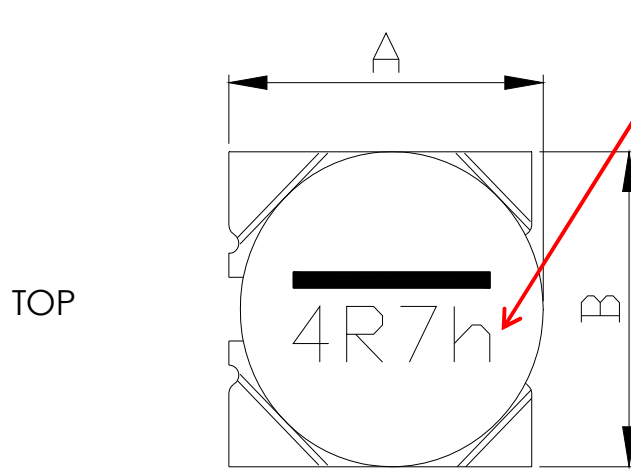


- ① - CM : CoilMaster's initial
- ⑤ - N : Material
- ② - I : Inductor
- ⑥ - H : Lead Free, Halogen Free
- ③ - DCP : Series Name
- ⑦ - 4R7 : Typical inductance value
- ④ - 4030 : Core size (unit: mm)
- ⑧ - M : Inductance tolerance : 20%



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6. DIMENSION (UNIT: mm)

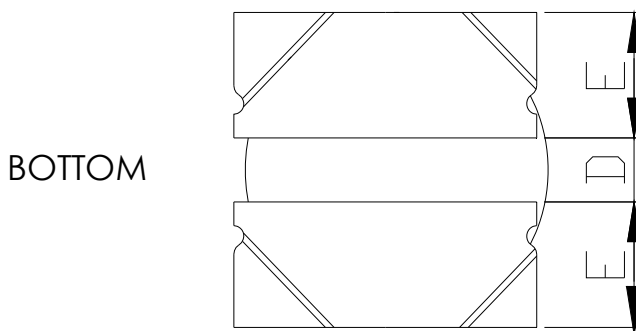
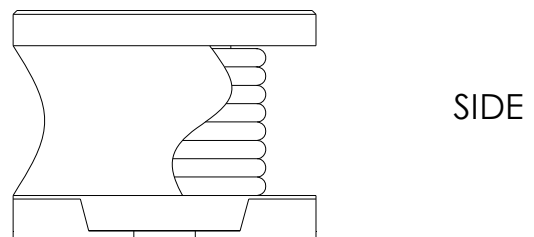
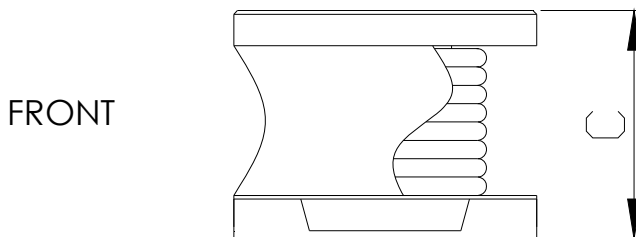


※ Marking

1. ██████ : CoilMaster Vender Mark
2. 4R7 : Inductance Value
3. h

2015 YEAR	2016 YEAR
a : JANUARY	n : JANUARY
b : FEBRUARY	p : FEBRUARY
~	~
m : DECEMBER	z : DECEMBER

Move in a cycle circulate periodically
 an odd number : a,b,c~~ m
 an even numbe : n,p,q~~z
 (o, i must exclude)

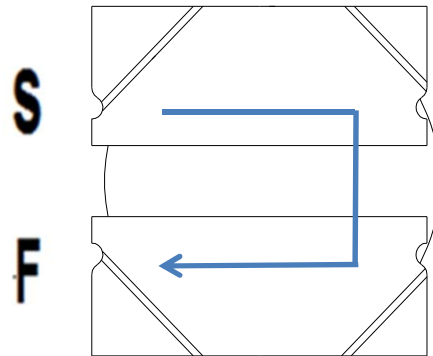
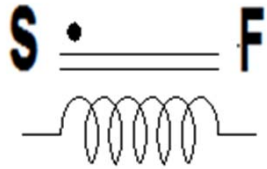


A	B	C	D	E
4.0±0.2	4.0±0.2	3.0Max	0.80	1.60



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7. SCHEMATIC DIAGRAM



WINDING

BOTTOM VIEW

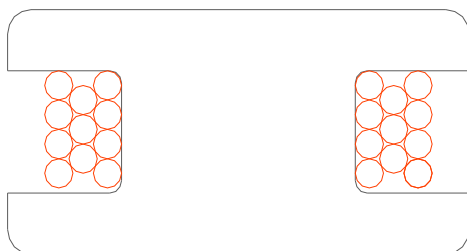
CCW

8. Winding Specification

TERMINEL (S - F)	TYPE OF WIRE	TURNS	WINDING METHOD
#S - #F	1 E180 Φ0.23	16.5ts±1	SOLENOID WINDING

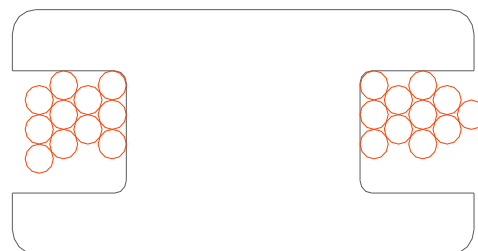
※ Wire that has been winding is covered with EPOXY so it can be protected from outside.

Good Winding



(O)

No Good Winding

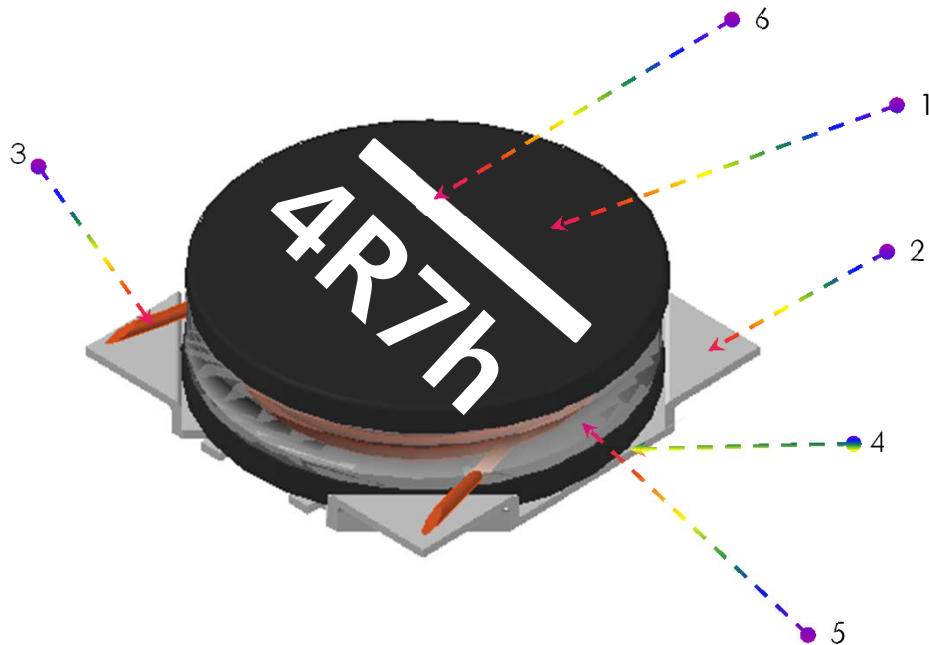


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9. Internal Construction



NO	ITEM	MATERIAL	DIMENISON	MANUFACTURER	SAFETY
1	DR CORE	L4A	4.0*2.8 B1.75 F1.9	SINCORE	
2	PIN	C-DCP4030R1 PA		LIANCHENG METALS(CHINA) SEGWANG(KOREA)	
3	WIRE	1 E180	Φ0.23	ELEKTRISOLA	E258243
4	PIN EPOXY	EP2221-09D		POWER BOND	
5	SIDE EPOXY	E-500AH		ASIA SEAL	
6	MARK	WHITE		BON MARK	



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10. Electrical Characteristics

ITEM	MESURE	ELECTRICAL CHARACTERISTICS	TOLERANCE	CON DITION	REMARKS
INDUCTANCE	S - F	4.80 μ H	$\pm 20\%$	1kHz	E4980A [Agilent] 1Vrms
		4.70 μ H	$\pm 20\%$	100kHz	
		4.40 μ H	$\pm 15\%$	1MHz	
DC RESISTANCE	S - F	78m Ω	MAX		3540A [HIOKI]
RATED CURRENT	S - F	2.10 A	-	100kHz	
REFERANCE CURRENT (IDC1)	S - F	2.50 A	warranty spec Drop rate $\leq 10\%$	100kHz	42841A [Agilent]
SATURATION RATED CURRENT(IDC1)	S - F	2.60 A	warranty spec Drop rate $\leq 20\%$	100kHz	42841A [Agilent]
TEMPERATURE RISE CURRENT (IDC2)	S - F	2.10 A	warranty spec $\Delta T 40^{\circ}C$	100kHz	
SELF-RESONANT FREQUENCY	S - F	35 MHz	Min		4194A [HP]
Q SPEC	S - F	15	Min	100kHz	E4980A [Agilent]

IDC1 : Depends on inductance saturation. (20% reduction from initial L value) Inductance reduction from initial value shall be under 20%

IDC2 : The temperature rise current value(IDC2) is the DC current value having temperature increase up to 40°C (at 20°C)



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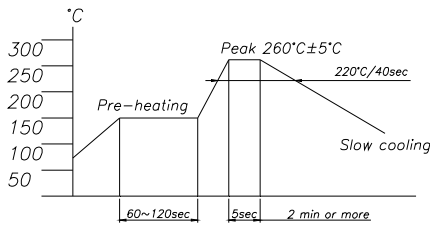
11. RELIABILITY AND SPECIFICATION

11-1. ENVIRONMENT & ELECTRICAL TESTS

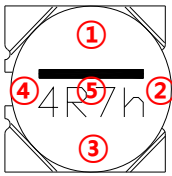
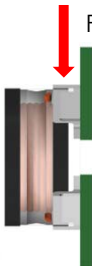
No.	TEST ITEM	SPECIFICATION	TEST METHOD												
1	High Temperature Storage	$\Delta L/Lo \leq \pm 10\%$ There shall be no mechanical damage	The sample shall be left for 500±12 hours in an atmosphere with a temperature of 125±2°C and normal humidity. Upon completion of the test the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour.												
2	Low Temperature Storage	$\Delta L/Lo \leq \pm 10\%$ There shall be no mechanical damage	The sample shall be left for 500±12 hours in an atmosphere with a temperature of -40±3°C. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour.												
3	Terminal Shock	$\Delta L/Lo \leq \pm 10\%$ There shall be no mechanical damage	The sample shall be subject to 5 continuous cycles such as shown in table 2 below Then it shall be subjected to standard atmospheric conditions for 1 hour after which measurement shall be made. Table 2												
<table border="1"> <thead> <tr> <th>No.</th> <th>Temperature</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40°C±3°C</td> <td>30 min × 500 cycle</td> </tr> <tr> <td colspan="3" style="text-align: center;">↕</td> </tr> <tr> <td>2</td> <td>85°C±2°C</td> <td>30 min × 500 cycle</td> </tr> </tbody> </table>				No.	Temperature	Duration	1	-40°C±3°C	30 min × 500 cycle	↕			2	85°C±2°C	30 min × 500 cycle
No.	Temperature	Duration													
1	-40°C±3°C	30 min × 500 cycle													
↕															
2	85°C±2°C	30 min × 500 cycle													
4	Damp heat test (Static humidity)	$\Delta L/Lo \leq \pm 10\%$ There shall be no mechanical damage	The sample shall be left 500±4 hours in a temperature of +60±2°C and a humidity (RH) of 90 ~ 95% Upon completion of the test, the measurement shall be made of left in a normal temperature and normal humidity more than 1 hour. (NO Bias)												
5	Humidity load resistance	$\Delta L/Lo \leq \pm 10\%$	85°C ±3°C, 85%Rh, 240Hrs, Rated current												
6	High Temperature resistance	$\Delta L/Lo \leq \pm 10\%$	105°C ±3°C, 240Hrs, Rated current												
7	PCT (High-pressure heating)	$\Delta L/Lo \leq \pm 5\%$	(121°C & 2kgf/cm ²)×24Hrs												



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No.	TEST ITEM	SPECIFICATION	TEST METHOD
8	Solderability	At least 75% Area should be covered with new solder	The sample shall be immersed for 5 to 10 seconds in flux. Then immersed in molten solder at 240±5°C for 3+1/-0 seconds
9	Resistance to soldering heat (Reflow soldering)	There shall be no damage	Then remain the following condition 2 times. Measure the test items after leaving them in normal temperature and humidity for more than 1 hour. 
	(Manual soldering)	$\Delta L/Lo \leq \pm 10\%$ There shall be no mechanical damage	Using soldering iron Max. tip temperature : 350±10°C Max. exposure time : 3±1 sec Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity for hour.

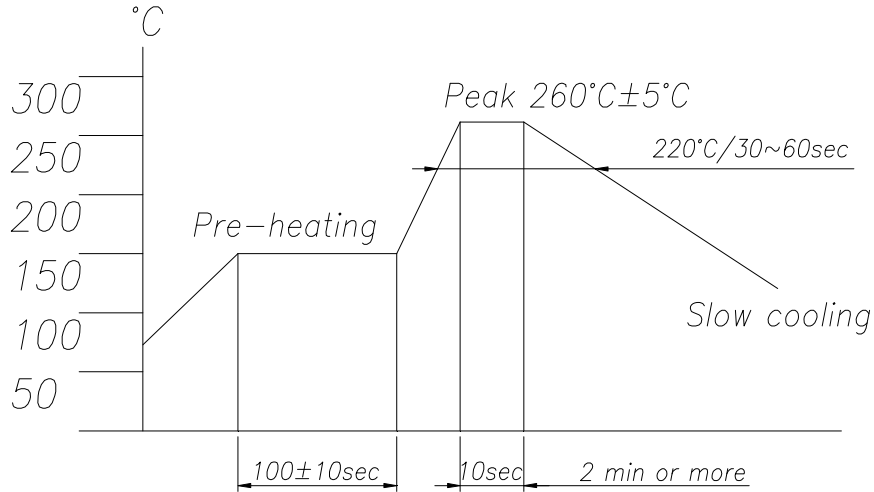
11-2. MECHANICAL TESTS

No.	TEST ITEM	SPECIFICATION	TEST Condition
10	Core Strength test	Check point : 5 point (center and outer in 1mm check)	 standard-30N(9.8N=1kgf)
11	PCB Bond strength	After applying soldering in PCB, and measure product strength by pushing product side	 Force(3.5kgf) standard-3.5kgf
12	Vibration Test	$\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage	'The sample is solderde onto the printed circuit board. It is then a vibration test as follows : Vibration Amplitude = 1.5mm Frequency varies from 10Hz to 55Hz and back over a 1 minute period The test is carried out in the 3 directions (X, Y, Z) for 2 hours each (A total of 6 hours)



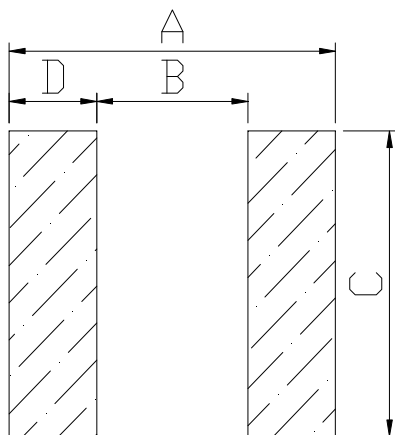
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12. RECOMMENDATION REFLOW CONDITION



(Min peak temperature : 255°C, Max peak temperature : 265°C)

13. RECOMMENDATION LAND PATTERN



(Unit : mm)

A	B	C	D
4.10	1.90	3.70	1.10

14. Plating Spec



*Plating SPEC	Element	Thickness
Plating a grade	Cu(μm)	
	Ni(μm)	0.5~2.0
	Sn(μm)	3.0~5.0
	The surface	Not Gloss
The main Component	Sn 100%	



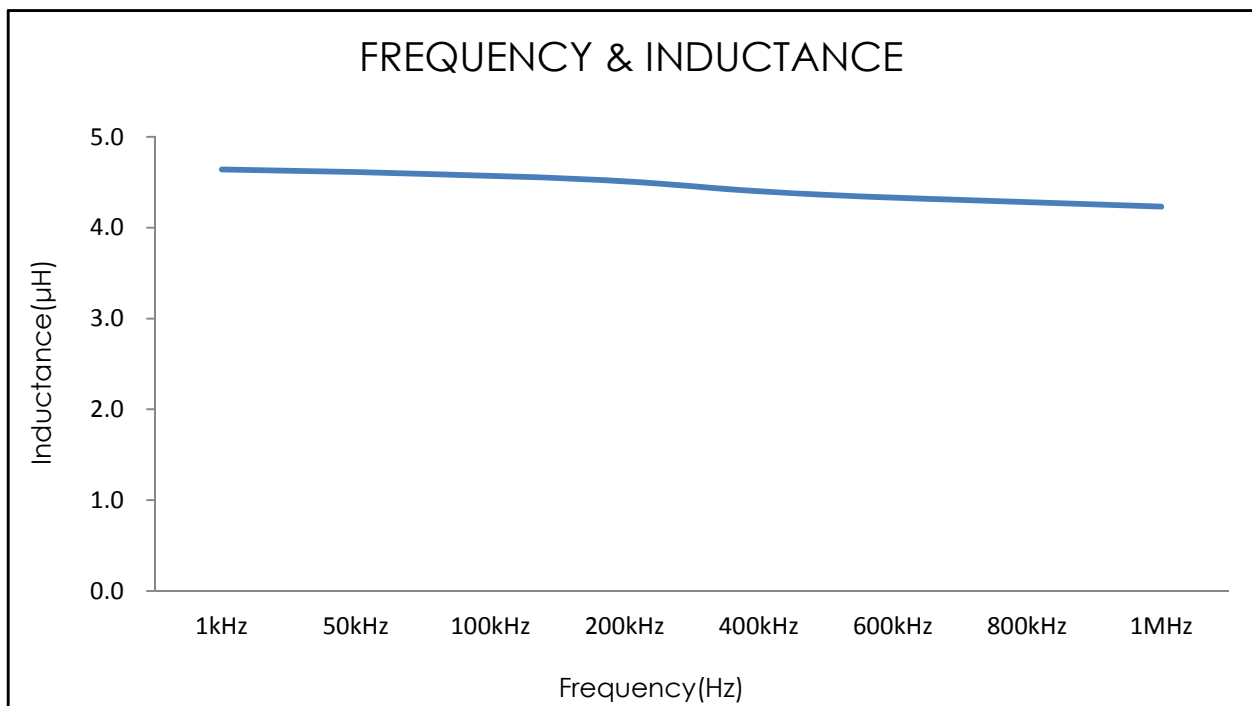
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15. Dynamic characteristic

15-1. FREQUENCY vs INDUCTANCE CHARACTERISTIC (25°C)

(Unit : uH)

	1kHz	50kHz	100kHz	200kHz	400kHz	600kHz	800kHz	1MHz
1	4.72	4.68	4.65	4.58	4.48	4.40	4.35	4.31
2	4.64	4.61	4.58	4.53	4.43	4.36	4.31	4.27
3	4.64	4.60	4.55	4.48	4.37	4.29	4.24	4.19
\bar{X}	4.64	4.61	4.57	4.51	4.40	4.33	4.28	4.23

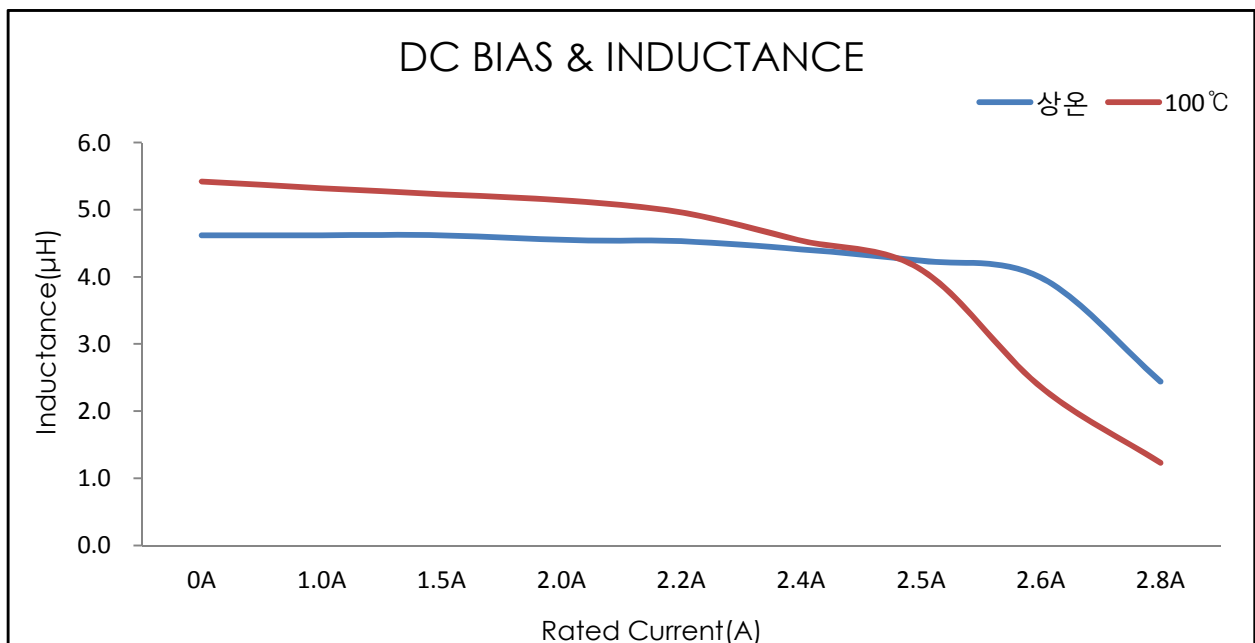


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15-2. DC BIAS vs INDUCTANCE CHARACTERISTIC

(Unit : uH)

No	0A	1.0A	1.5A	2.0A	2.2A	2.4A	2.5A	2.6A	2.8A	
1	4.63	4.63	4.63	4.57	4.55	4.44	4.29	4.02	2.48	상온
2	4.57	4.58	4.57	4.49	4.48	4.39	4.18	3.97	2.39	
3	4.67	4.66	4.66	4.60	4.57	4.40	4.25	3.98	2.44	
\bar{X}	4.62	4.62	4.62	4.55	4.53	4.41	4.24	3.99	2.44	
DROP	0.0%	0.0%	0.1%	1.5%	1.9%	4.6%	8.3%	13.7%	47.3%	
1	5.38	5.29	5.27	5.17	4.98	4.57	4.10	2.39	1.21	100℃
2	5.45	5.34	5.21	5.12	4.99	4.53	4.12	2.31	1.25	
3	5.42	5.33	5.22	5.14	4.91	4.53	4.10	2.38	1.22	
\bar{X}	5.42	5.32	5.23	5.14	4.96	4.54	4.11	2.36	1.23	
DROP	0.0%	1.8%	3.4%	5.0%	8.4%	16.1%	24.2%	56.4%	77.4%	

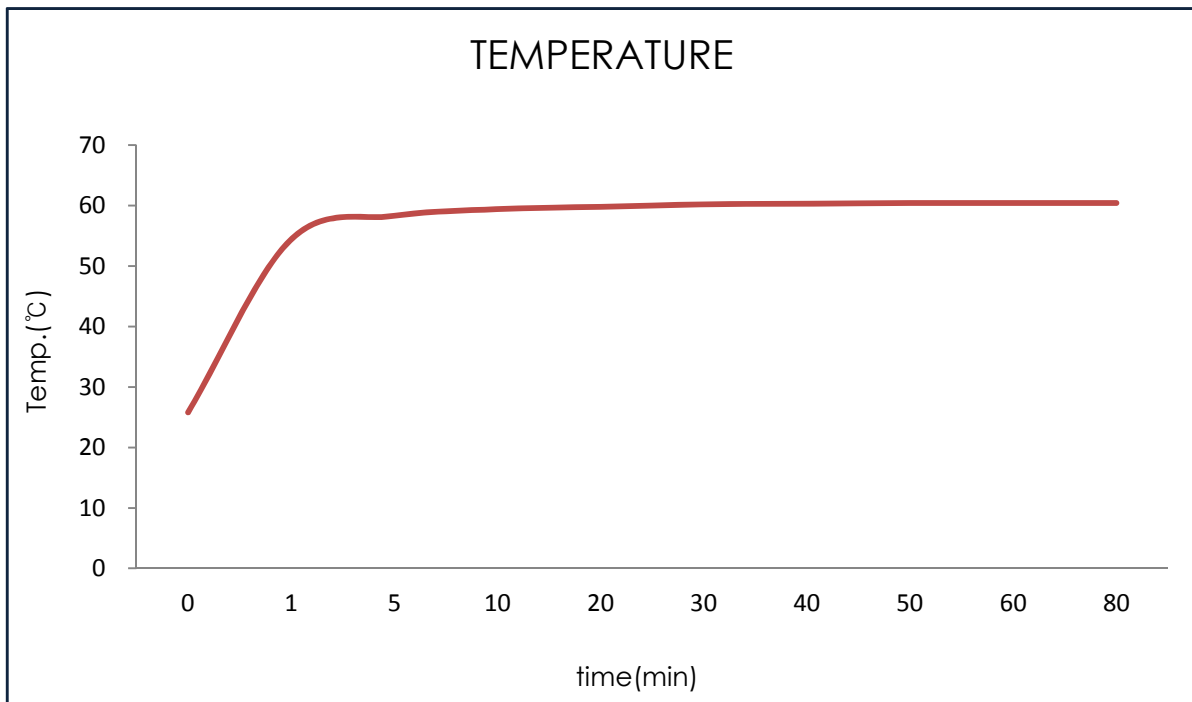


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15-3. TEMPERATURE CHARACTERISTIC

→ At 2.10A Rating current condition

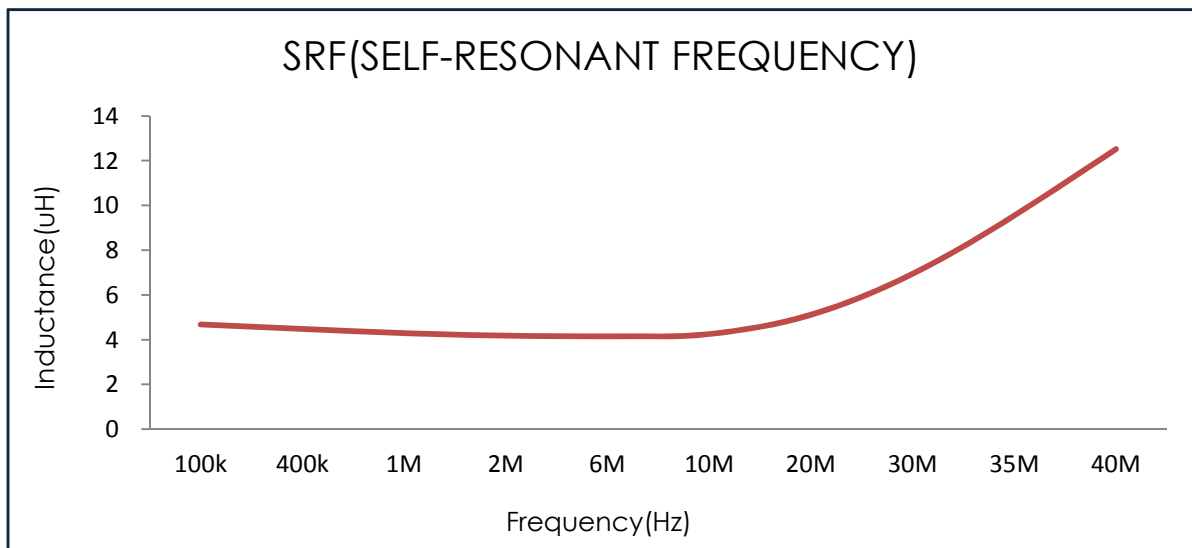
No	0	1	5	10	20	30	40	50	60	80
1	26.7	53.2	57.4	58.3	58.8	59.3	59.5	59.6	59.6	59.6
2	24.5	54.9	58.4	59.4	59.7	60.1	60.4	60.4	60.4	60.4
3	26.1	55.1	59.2	60.4	60.8	61.1	61.0	61.1	61.1	61.1
\bar{X}	25.8	54.4	58.3	59.4	59.8	60.2	60.3	60.4	60.4	60.4
ΔT	0.0	28.6	32.6	33.6	34.0	34.4	34.5	34.6	34.6	34.6



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15-4. SRF(SELF-RESONANT FREQUENCY)

No	100k	400k	1M	2M	6M	10M	20M	30M	35M	40M
1	4.72	4.54	4.35	4.25	4.23	4.34	5.29	7.40	10.46	12.21
2	4.59	4.40	4.22	4.11	4.08	4.17	4.98	6.67	9.03	12.48
3	4.72	4.51	4.30	4.18	4.14	4.23	5.05	6.76	9.17	12.86
\bar{X}	4.68	4.48	4.29	4.18	4.15	4.25	5.11	6.94	9.55	12.52



15-5. Q SPEC

→ At 100KHz condition

No	1	2	3	4	5	6	7	8	9	10	\bar{X}
Q	18.4	22.0	22.5	21.4	22.6	19.9	20.5	21.4	18.9	20.1	20.8



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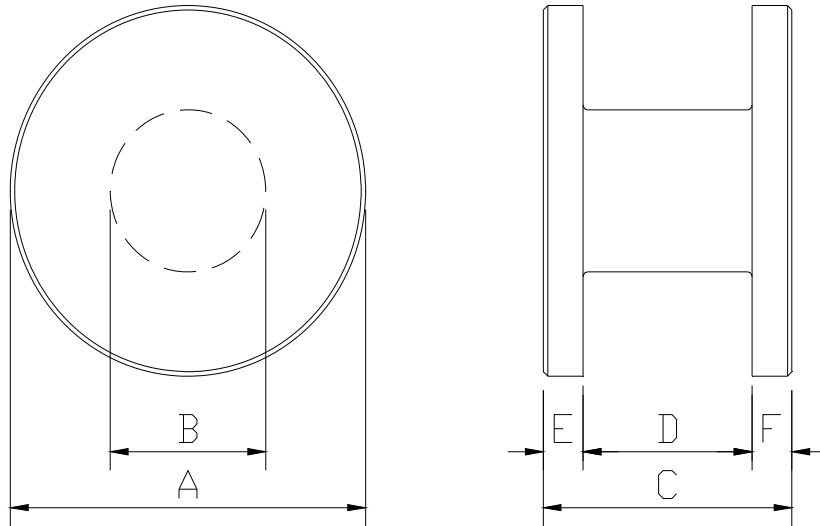
16. MATERIAL LIST

NO	ITEM	MATERIAL	DIMENISON	MANUFACTURER	SAFETY
1	DR CORE	L4A	4.0*2.8 B1.75 F1.9	SINCORE	
2	PIN	C-DCP4030R1 PA		LIANCHENG METALS(CHINA) SEGWANG(KOREA)	
3	WIRE	1 E180	Φ0.23	ELEKTRISOLA	E258243
4	PIN EPOXY	EP2221-09D		POWER BOND	
5	SIDE EPOXY	E-500AH		ASIA SEAL	
6	MARK	WHITE		BON MARK	



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16-1. CORE DIMENSIONS



A	B	C	D	E	F
4.00±0.05	1.75±0.05	2.80±0.05	1.90±0.05	0.45±0.05	0.45±0.05

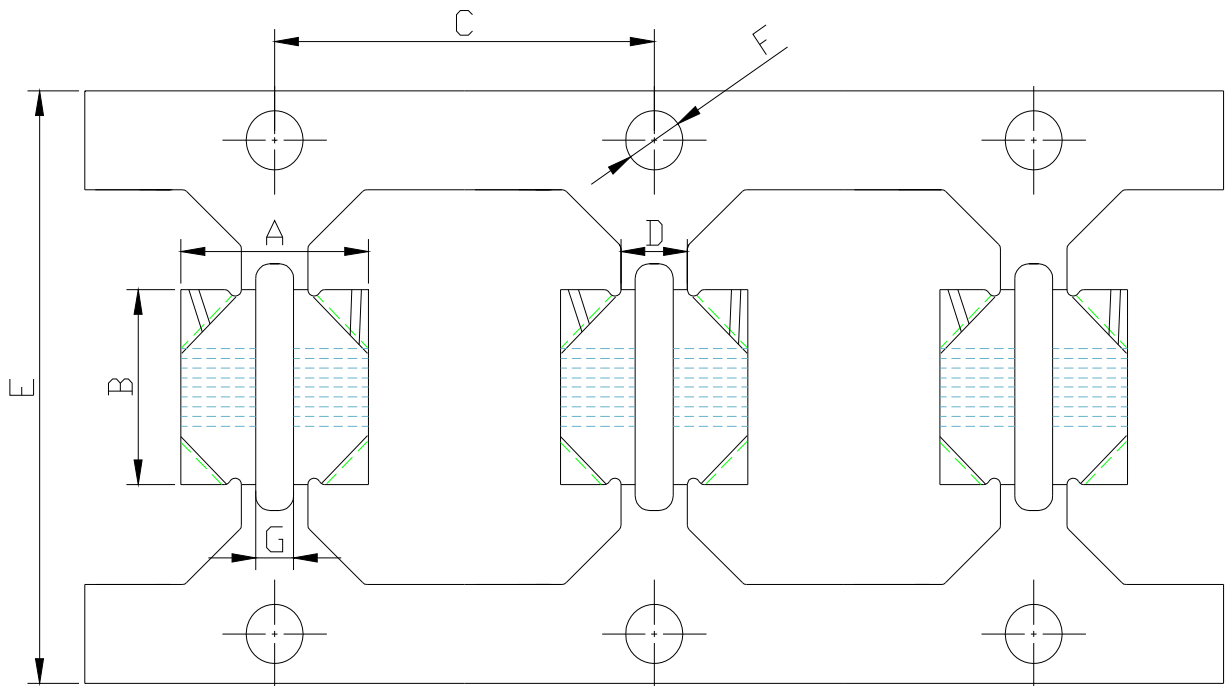
16-1-1. CORE MATERIAL

L4A	
Practical Frequency [MHz]	0.05 ~ 1.0
Initial Permeability [μ iac] ±25%	400
Curie Temperature [°C]	> 240
saturation flux density [gauss]	4500
specific gravity [g/cm ³]	5.1
Relative Temperature Coefficient [$\times 10^{-6}/^{\circ}\text{C}$, 20°C~70°C]	10 ~ 20



SPECIFICATION		REVISION	0
		PAGE	18/22
PART No.	2703-005401	COILMASTER P/N	CMI-DCP4030NH-4R7M

16-2. PIN



A	B	C	D	E	F	G
3.95±0.05	3.95±0.05	8.00±0.03	1.40±0.05	12.0±0.05	1.2±0.01	0.80±0.05

16-2-1. PIN MATERIAL

(1) CHEMICAL COMPOSITION (unit:%)

Cu	Sn	Ni	Zn	P	Fe	Pb
93.47	6.43	0.022	0.024	0.15	0.012	0.002

(2) PHYSICAL PROPERTY

Tensile Strength [MPa]	Elongation [%]	Hardness [Hv]	Surface roughness [μm]
617	27	198	/



SPECIFICATION		REVISION	0
		PAGE	19/22
PART No.	2703-005401	COILMASTER P/N	CMI-DCP4030NH-4R7M

16-3. WIRE UL SAFETY

ELEKTRISOLA HANGZHOU CO LTD

E258243

Xiao Ling Tou

Pingyao

Yuhang

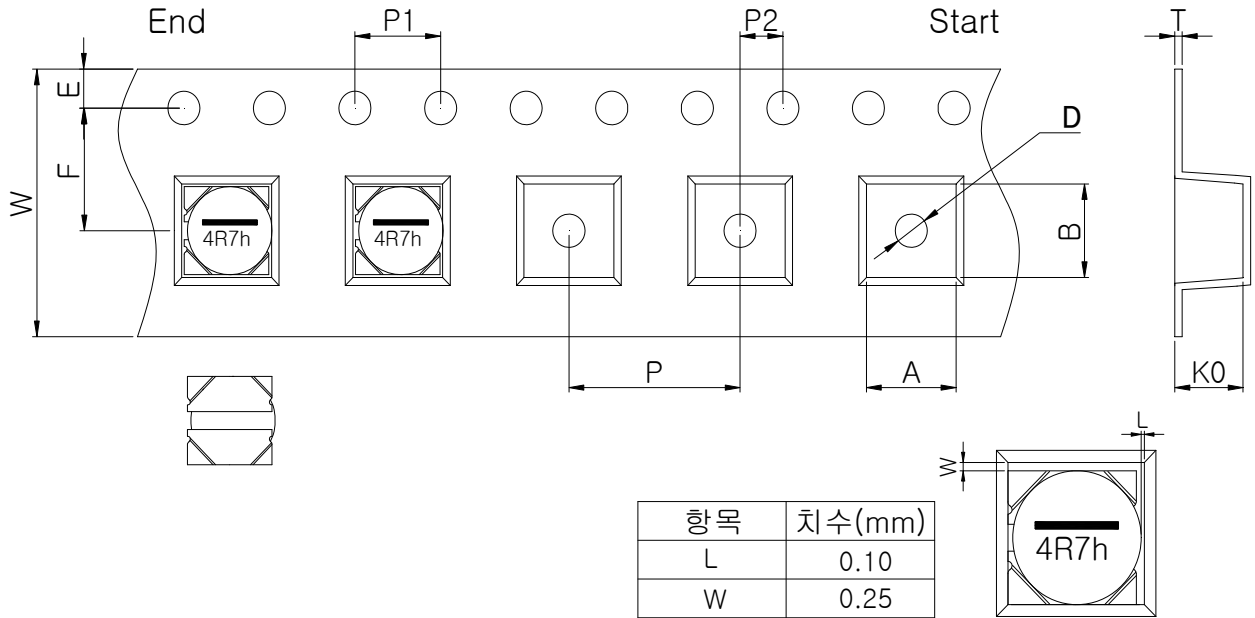
Hangzhou, Zhejiang 311115 CHINA

Material Designation	Mark Dsg	Base Coat	Top Coat	ANSI Type	Temp Class
Amidester 200	A200	Polyester-imide	-	MW 74-C	200
Amidester AI210	AI210	Polyester-imide	Polyamide-imide	MW 35-C	200
		Polyester-imide	Polyamide-imide	MW 73-C	200
Estersol 180	E180	Solderable Polyester-imide	-	MW 77-C	180
Polysol 155	P155, G155	Polyurethane	-	MW 79-C	155
		Polyurethane	-	MW 75-C	130[#]
Polysol 155g	Pg155	Polyurethane	-	MW 75-C	130[#]
Polysol 155p	Pp155, Gp155	Polyurethane	-	MW 79-C	155[#]
Polysol 170	P170, G170	Polyurethane	-	MW 79-C	155
Polysol 180	P180, G180, Pv180	Polyurethane	-	MW 82-C	180
		Polyurethane	-	MW 79-C	155[#]
Polysol N155	PN155	Polyurethane	Polyamide	MW 80-C	155
		Polyurethane	Polyamide	MW 28-C	130[#]
Polysol N180	PN180	Polyurethane	Polyamide	MW 83-C	180
Polysol P155p	P155p, G155p	Polyurethane	-	MW 79-C	155



<h1>SPECIFICATION</h1>		REVISION	0
		PAGE	20/22
PART No.	2703-005401	COILMASTER P/N	CMI-DCP4030NH-4R7M

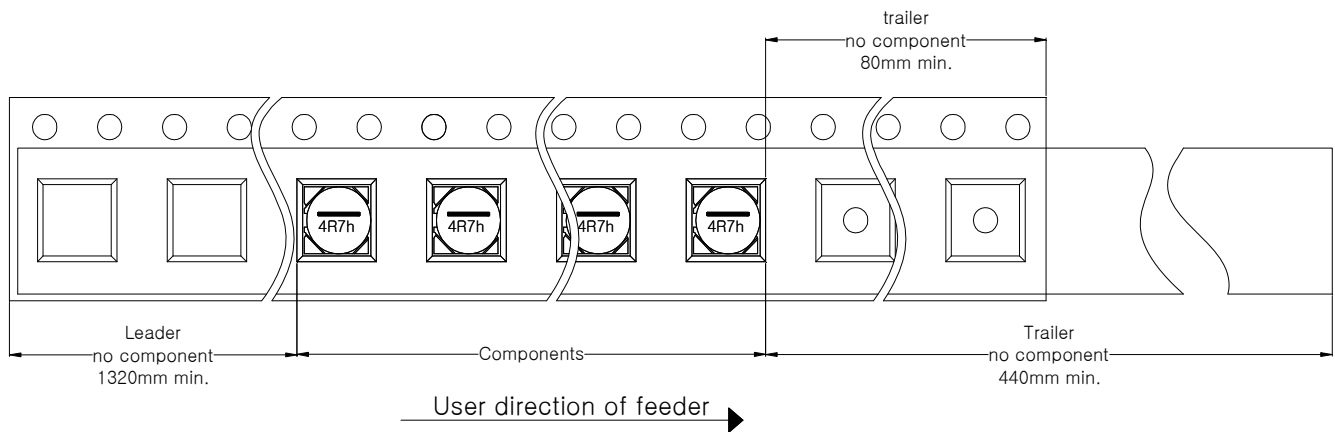
17. PACKING SPECIFICATIONS
17-1. CARRIER TAPE DIMENSIONS



항목	치수(mm)
L	0.10
W	0.25

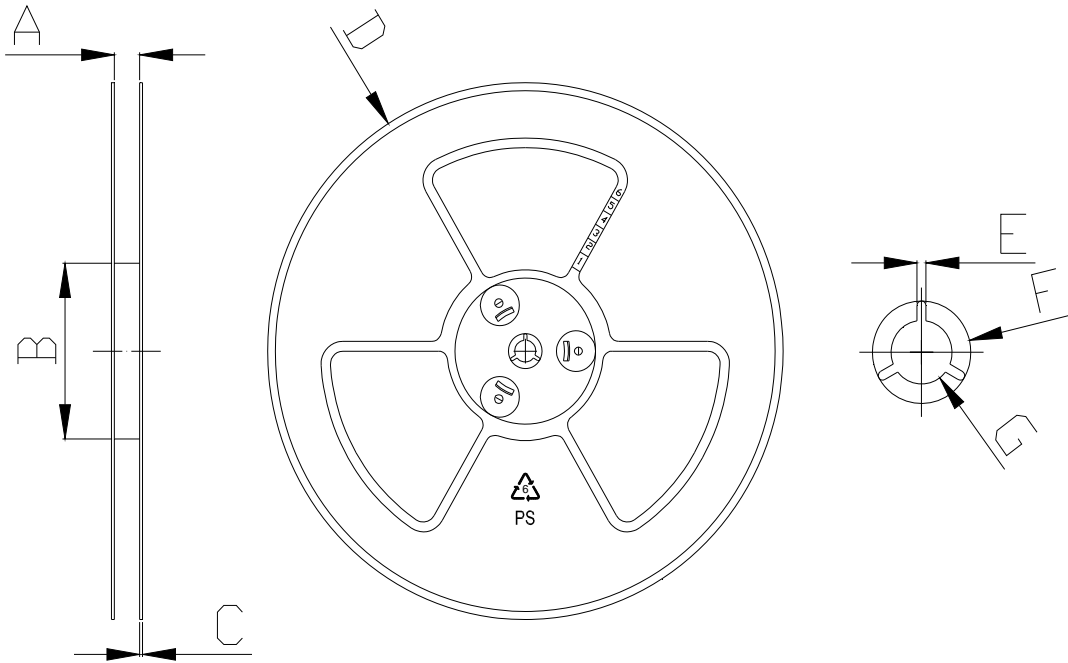
W	A	B	D	E	F	P	P1	P2	K0	T
12.00	4.20	4.20	1.50	1.75	5.50	8.00	4.00	2.00	3.20	0.35
+0.30	+0.10	+0.10	+0.10	+0.10	+0.10	+0.10	+0.10	+0.10	+0.10	+0.05
-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.05

17-2. DIRECTION OF ROLLING



<h1>SPECIFICATION</h1>		REVISION	0
		PAGE	21/22
PART No.	2703-005401	COILMASTER P/N	CMI-DCP4030NH-4R7M

17-3. REEL DIMENSIONS



A	B	C	D	E	F	G
12.50	100.0	2.00	330.0	1.90	21.00	13.00
+1.00	+1.50	+0.10	+1.00	+0.40	+0.40	+0.40
-1.00	-1.50	-0.10	-1.00	-0.40	-0.40	-0.40




<h1>SPECIFICATION</h1>	REVISION	0
	PAGE	22/22
PART No.	2703-005401	COILMASTER P/N
		CMI-DCP4030NH-4R7M

17-4. REEL PACKING


※ 2,000 pcs / reel





2703-005401 BJQB 150101Z 001 002000

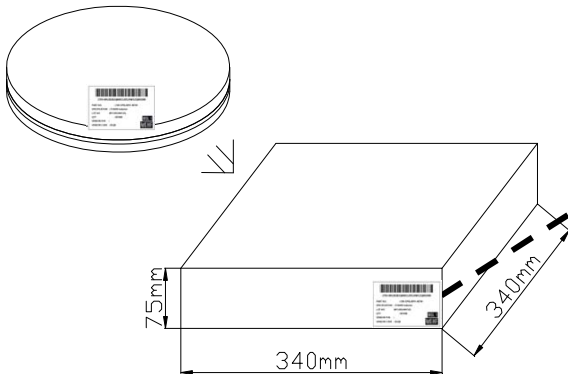
PART NO. : 2703-005401
SPECIFICATION : 4030 4.7uH
LOT NO : 150101Z
QTY : 002000
VENDOR P/N : CMI-DCP4030NH-4R7M
VENDOR CODE : BJQB




SILICA GEL : 2pcs

17-5. Middle box


※ 2Reel / box (4,000 pcs)





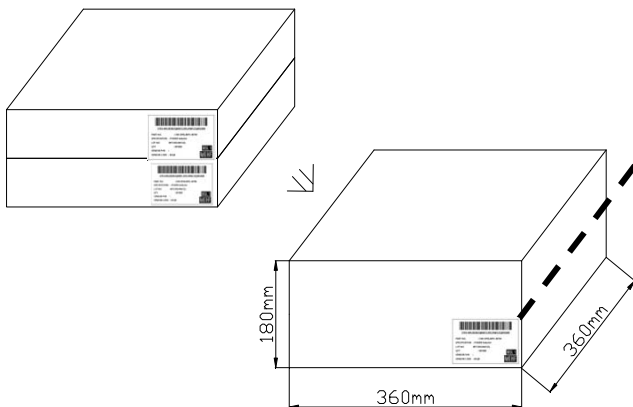
2703-005401 BJQB 150101Z 001 004000


PART NO. : 2703-005401
SPECIFICATION : 4030 4.7uH
LOT NO : 150101Z
QTY : 004000
VENDOR P/N : CMI-DCP4030NH-4R7M
VENDOR CODE : BJQB



17-6. Large box


※ 2 Middle boxes, 4 Reels (8,000 pcs)





2703-005401 BJQB 150101Z 001 008000

PART NO. : 2703-005401
SPECIFICATION : 4030 4.7uH
LOT NO : 150101Z
QTY : 008000
VENDOR P/N : CMI-DCP4030NH-4R7M
VENDOR CODE : BJQB



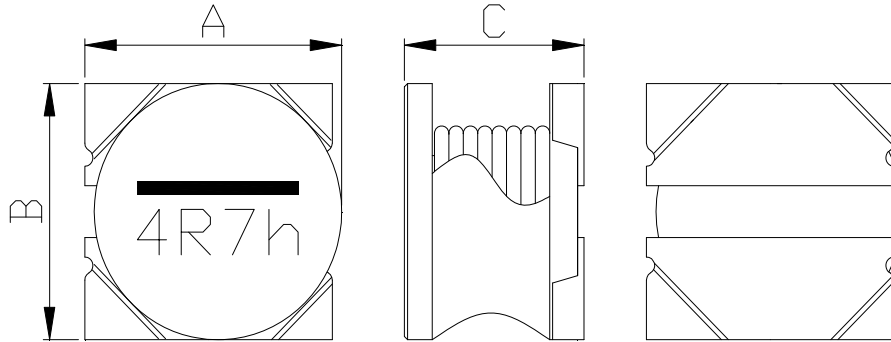
※ when load large box in pallet, load limit should be lower than 6 level



RESULT OF INSPECTION

ORIGINATED	CHECKED	APPROVED
	S.H. HAN	

CUSTOMER : S/S VD COMMODITY : SMD POWER INDUCTOR	QUANTITY: 10Pcs PART NO.: CMI-DCP4030NH-4R7M	ISSUE : DATE: 2015.08.28 TEMP: °C HUMI: %
--	--	--



ITEM	INDUCTANCE	DCR	RATED CURRENT		DIMENSION		
			L value(uH)	L Drop(%)	A	B	C
STANDARD	4.7uH ±20%	78mΩ Max	2.10A		A	B	C
	3.76uH~5.64uH		L value(uH)	L Drop(%)	4.0±0.2	4.0±0.2	3.0MAX
1	4.60	60.1	4.48	2.6%	4.00	4.00	2.92
2	4.61	62.2	4.43	3.9%	4.15	4.04	2.94
3	4.57	62.0	4.44	2.8%	4.01	4.05	2.95
4	4.59	62.0	4.48	2.4%	4.01	4.00	2.94
5	4.66	60.5	4.53	2.8%	4.02	4.05	2.95
6	4.63	62.1	4.48	3.2%	4.07	4.01	2.94
7	4.65	62.0	4.50	3.2%	4.01	4.00	2.93
8	4.50	60.6	4.41	2.0%	4.00	4.03	2.92
9	4.61	60.1	4.49	2.6%	4.06	4.03	2.94
10	4.67	60.7	4.51	3.4%	4.03	4.02	2.95
X	4.61	61.2	4.475	0.02904	4.04	4.02	2.94
R	0.17	2.10	0.120	0.019	0.15	0.05	0.03
σ	0.050	0.851	0.036	0.005	0.047	0.020	0.011
CP	6.2961						
CPK	5.6866						

◆TESTING INSTRUMENT : 1) LCR METER (E4980A) 2) DC BIAS CURRENT SOURCE(42841A)	◆TEST CONDITION INDUCTANCE at 100kHz, 1V
◆INDUCTANCE DROP ≤20%typ. at Rated Current	
QRA JUDGMENT	

19. Reliability Test Report

(1) High temperature test

Test condition	Temp. : 125°C±3°C		Run time : 500hrs		Standard : 10%				RESULT : PASS	
No.	1	2	3	4	5	6	7	8	9	10
Initial Value	4.20	4.25	4.24	4.26	4.24	4.19	4.22	4.20	4.21	4.26
Final Value	4.26	4.31	4.27	4.28	4.27	4.23	4.23	4.23	4.22	4.29
Deviation (%)	-1.43%	-1.41%	-0.71%	-0.47%	-0.71%	-0.95%	-0.24%	-0.71%	-0.24%	-0.70%

(2) Low Temperature test

Test condition	Temp. : -40°C±3°C		Run time : 500hrs		Standard : 10%				RESULT : PASS	
No.	1	2	3	4	5	6	7	8	9	10
Initial Value	4.38	4.43	4.35	4.38	4.37	4.34	4.33	4.37	4.40	4.32
Final Value	4.35	4.39	4.34	4.37	4.37	4.32	4.33	4.33	4.35	4.28
Deviation (%)	0.68%	0.90%	0.23%	0.23%	0.00%	0.46%	0.00%	0.92%	1.14%	0.93%

(3) Terminal Shock test

Test condition	Low temp. : -40°C±3°C		High temp. : 85°C±2°C		Run time : 30 min×500 cycle		Standard : 10%		RESULT : PASS	
No.	1	2	3	4	5	6	7	8	9	10
Initial Value	4.22	4.18	4.21	4.24	4.27	4.28	4.25	4.26	4.23	4.29
Final Value	4.28	4.25	4.30	4.31	4.34	4.36	4.33	4.32	4.31	4.33
Deviation (%)	-1.42%	-1.67%	-2.14%	-1.65%	-1.64%	-1.87%	-1.88%	-1.41%	-1.89%	-0.93%

(4) Damp heat test (Static humidity)

Test condition	Temp. : 60°C±2°C		R. Humidity 90%~95%		Run time : 500hrs		Standard : 10%		RESULT : PASS	
No.	1	2	3	4	5	6	7	8	9	10
Initial Value	4.23	4.24	4.25	4.21	4.27	4.24	4.25	4.27	4.18	4.24
Final Value	4.30	4.29	4.29	4.26	4.31	4.28	4.32	4.34	4.29	4.31
Deviation (%)	-1.65%	-1.18%	-0.94%	-1.19%	-0.94%	-0.94%	-1.65%	-1.64%	-2.63%	-1.65%

(5) Humidity load resistance

Test condition	Temp. : 85°C±3°C		R. Humidity 85%		Run time : 240hrs		Standard : 10%		RESULT : PASS	
	Rated Current : 2.10A									
No.	1	2	3	4	5	6	7	8	9	10
Initial Value	4.17	4.17	4.15	4.18	4.17	4.18	4.13	4.18	4.13	4.12
Final Value	4.20	4.20	4.16	4.21	4.21	4.20	4.17	4.22	4.17	4.15
Deviation (%)	-0.72%	-0.72%	-0.24%	-0.72%	-0.96%	-0.48%	-0.97%	-0.96%	-0.97%	-0.73%

(6) high Temperature resistance

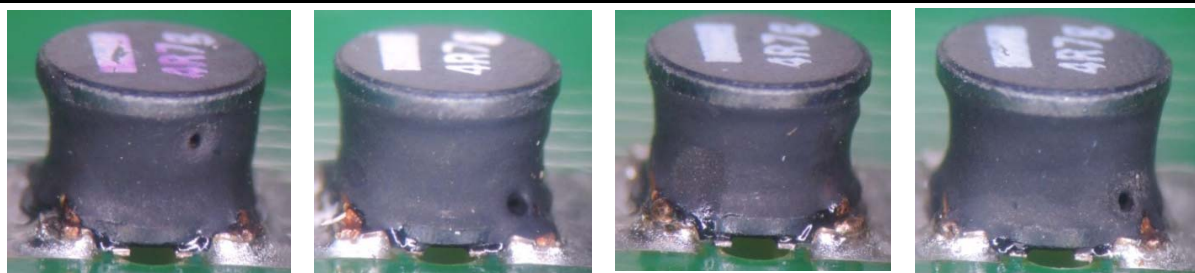
Test condition	Temp. : 125°C±3°C		Rated Current : 2.10A		Run time : 240hrs		Standard : 10%		RESULT : PASS	
No.	1	2	3	4	5	6	7	8	9	10
Initial Value	4.19	4.18	4.21	4.21	4.21	4.18	4.23	4.19	4.19	4.20
Final Value	4.16	4.15	4.19	4.18	4.19	4.16	4.20	4.16	4.18	4.17
Deviation (%)	0.72%	0.72%	0.48%	0.71%	0.48%	0.48%	0.71%	0.72%	0.24%	0.71%

(7) PCT

Test condition	Temp. /Run time : 121°C/24hrs		R. Humidity 100%		Air pressure : 2.0kg/cm ²		Standard : 5%		RESULT : PASS	
No.	1	2	3	4	5	6	7	8	9	10
Initial Value	4.28	4.27	4.26	4.24	4.25	4.22	4.25	4.29	4.22	4.24
Final Value	4.32	4.33	4.30	4.28	4.33	4.32	4.29	4.36	4.28	4.31
Deviation (%)	-0.93%	-1.41%	-0.94%	-0.94%	-1.88%	-2.37%	-0.94%	-1.63%	-1.42%	-1.65%

(8) Solderability

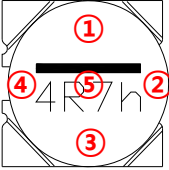
Test condition	Temp. : 240°C±5°C	Frequencies : 1 times	Run time : 6 min	Cover : 75% ↑	RESULT : PASS
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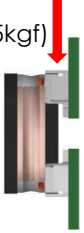
(9) Resistance to soldering heat

Test condition	Temp. : 260°C±5°C		Frequencies : 3 times		Run time : 6 min		Standard : 10%		RESULT : PASS	
No.	1	2	3	4	5	6	7	8	9	10
Initial Value	4.17	4.16	4.14	4.18	4.21	4.17	4.15	4.27	4.19	4.18
Final Value	4.13	4.11	4.09	4.16	4.15	4.14	4.10	4.25	4.15	4.13
Deviation (%)	0.96%	1.20%	1.21%	0.48%	1.43%	0.72%	1.20%	0.47%	0.95%	1.20%

(10) Core Strength test

Test condition	Standard : 3.06kgf ↑						RESULT : PASS	
Check point : 5 point (center and outer in 1mm check)		No.	1	2	3	4	5	
		1	3.87	4.21	5.06	6.23	27.17	
		2	5.54	4.77	5.23	4.56	19.50	
		3	4.65	4.85	5.33	5.22	23.46	
		4	4.53	6.15	4.74	5.64	17.85	
		AVE	4.65	5.00	5.09	5.41	22.00	

(11) PCB Bond strength test

Test condition	Standard : 3.5kgf ↑					RESULT : PASS	
After applying soldering in PCB, and measure product strength by pushing produt side		No.	Value	No.	Value	No.	Value
		1	5.11	5	3.98	9	4.56
		2	5.07	6	5.42	10	3.90
		3	4.85	7	5.84	Ave	4.92
		4	6.62	8	3.84		

(12) Vibration Test

Test condition	Amplitude : 1.5mm		Frequencies : 10~55~10/min		Run time : x,y,z/2hrs		Standard : 5%		RESULT : PASS	
No.	1	2	3	4	5	6	7	8	9	10
Initial Value	3.98	3.99	4.02	3.99	4.05	4.06	3.96	4.06	4.02	3.97
Final Value	4.02	3.99	4.02	4.05	4.03	4.03	3.98	4.02	4.00	4.00
Deviation (%)	-1.01%	0.00%	0.00%	-1.50%	0.49%	0.74%	-0.51%	0.99%	0.50%	-0.76%

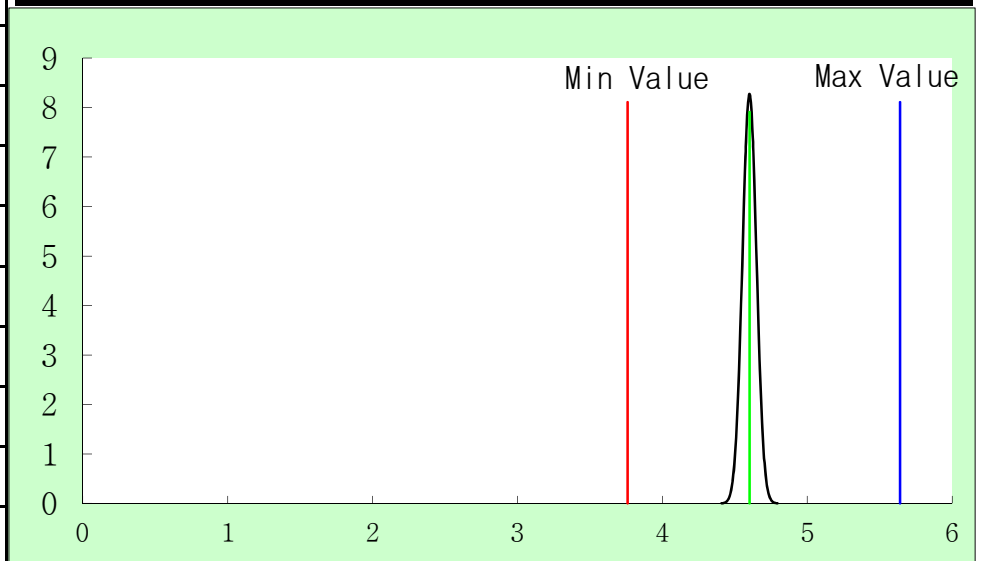
산포관리(CP&CPK) DATA

100kHz

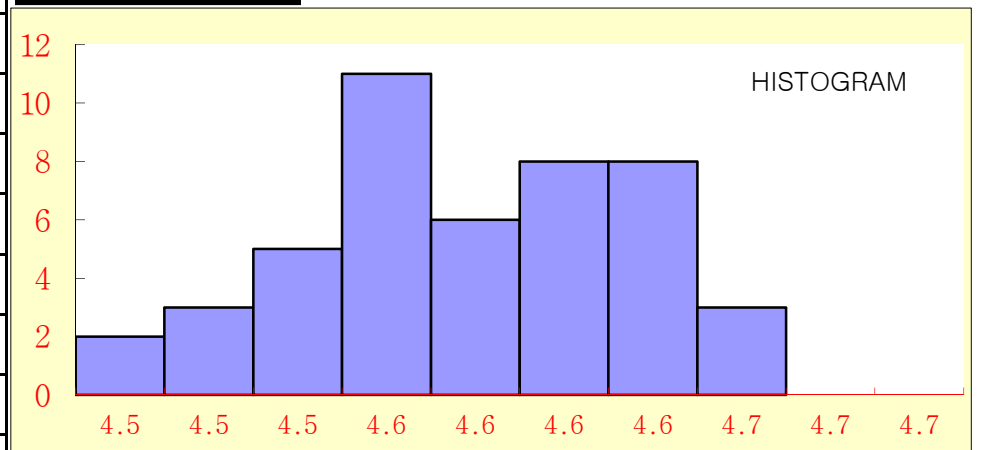
CODE NO	2703-005401	ITEM	SMD INDUCTOR	SPEC	CMI-DCP4030NH-4R7M
MANUFACTURE	COILMASTER	QUAN	50	DATE	2015.09.07
Measure Item	L(μ H)	STD.DECL	0.05	Minimum fail ratio(PPM)	0
MAX Value	5.64	C P	6.499	Maximum fail ratio(PPM)	0
MIN Value	3.76	CPK	5.81	RESULT	VERY GOOD

NO	DATA	NO	DATA
1	4.60	26	4.64
2	4.61	27	4.55
3	4.57	28	4.50
4	4.59	29	4.52
5	4.66	30	4.53
6	4.63	31	4.57
7	4.65	32	4.56
8	4.50	33	4.58
9	4.61	34	4.64
10	4.67	35	4.57
11	4.64	36	4.52
12	4.63	37	4.59
13	4.58	38	4.66
14	4.65	39	4.52
15	4.63	40	4.55
16	4.54	41	4.63
17	4.63	42	4.62
18	4.60	43	4.61
19	4.67	44	4.65
20	4.68	45	4.66
21	4.63	46	4.58
22	4.60	47	4.59
23	4.58	48	4.61
24	4.66	49	4.57
25	4.65	50	4.55

REGULAR DISTRIBUTION CURVE



HISTOGRAM



COMMENT

\bar{x} : 4.6006

6 σ : 0.2892549

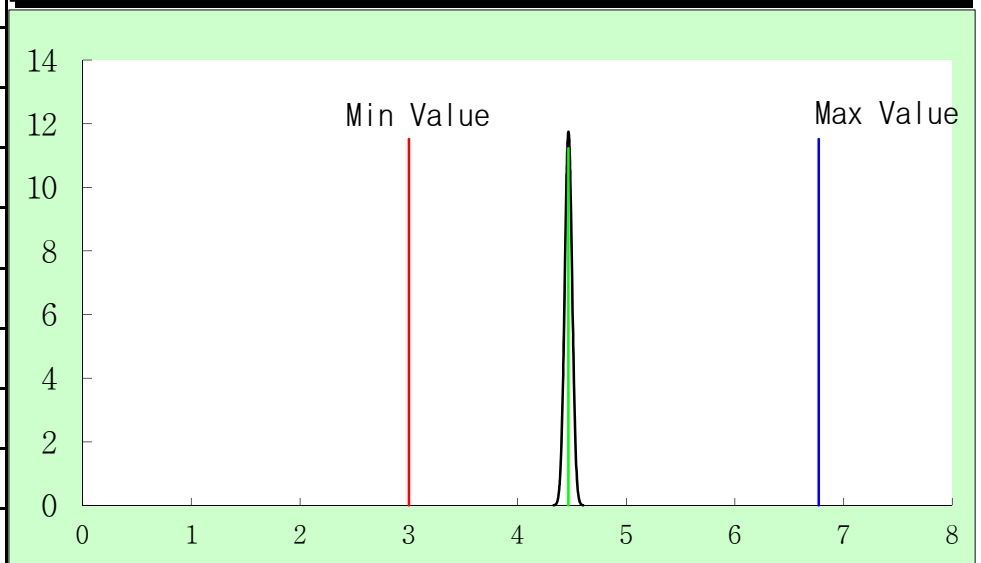
산포관리(CP&CPK) DATA

2.10A

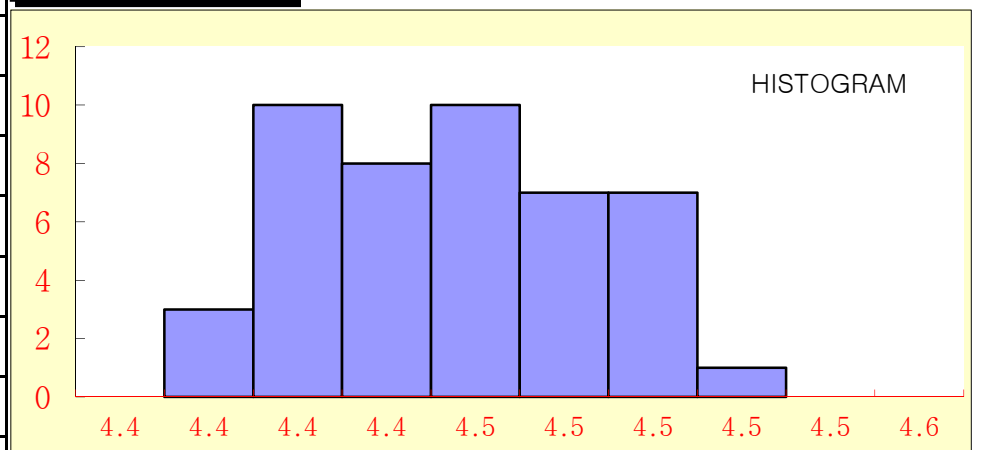
CODE NO	2703-005401	ITEM	SMD INDUCTOR	SPEC	CMI-DCP4030NH-4R7M
MANUFACTURE	COILMASTER	QUAN	50	DATE	2015.09.07
Measure Item	L(μH)	STD.DECL	0.03	Minimum fail ratio(PPM)	0
MAX Value	6.77	C P	18.499	Maximum fail ratio(PPM)	0
MIN Value	3.00	CPK	14.41	RESULT	VERY GOOD

NO	DATA	NO	DATA
1	4.48	26	4.48
2	4.43	27	4.44
3	4.44	28	4.41
4	4.48	29	4.43
5	4.53	30	4.43
6	4.48	31	4.45
7	4.50	32	4.43
8	4.41	33	4.43
9	4.49	34	4.50
10	4.51	35	4.46
11	4.49	36	4.40
12	4.48	37	4.48
13	4.45	38	4.52
14	4.52	39	4.41
15	4.49	40	4.50
16	4.43	41	4.50
17	4.48	42	4.48
18	4.49	43	4.45
19	4.51	44	4.45
20	4.51	45	4.44
21	4.49	46	4.51
22	4.47	47	4.48
23	4.43	48	4.46
24	4.49	49	4.45
25	4.52	50	4.45

REGULAR DISTRIBUTION CURVE



HISTOGRAM



COMMENT

\bar{X} : 4.4688

6σ: 0.203791

PB-053-049

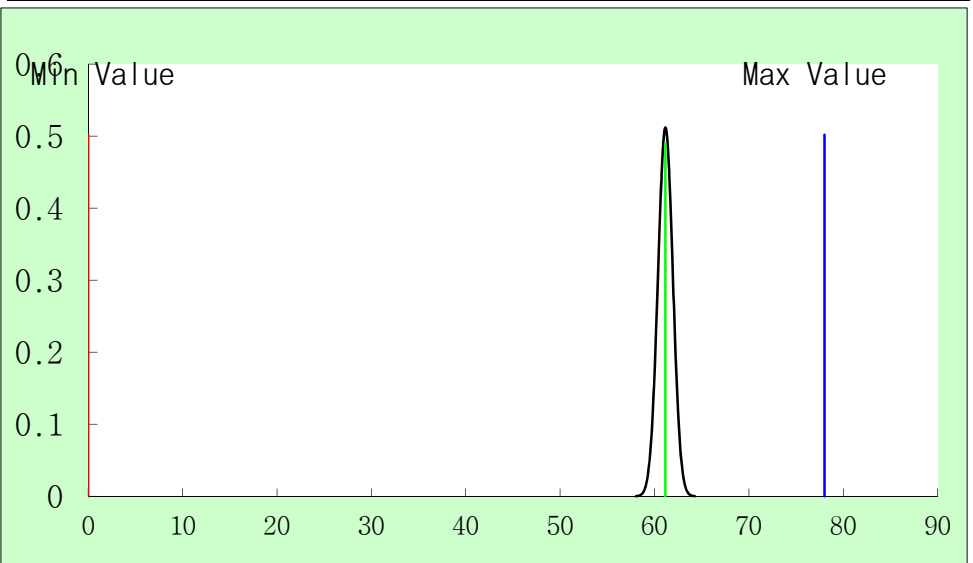
산포관리(CP&CPK) DATA

DCR

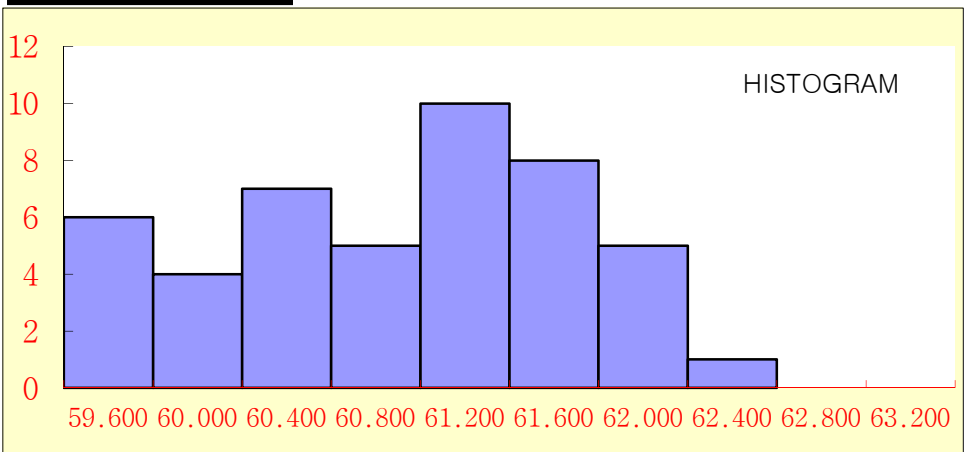
CODE NO	2703-005401	ITEM	SMD INDUCTOR	SPEC	CMI-DCP4030NH-4R7M
MANUFACTURE	COILMASTER	QUAN	50	DATE	2015.09.07
Measure Item	DCR(mΩ)	STD.DECL	0.78	Minimum fail ratio(PPM)	0
MAX Value	78.0	C P	16.68	Maximum fail ratio(PPM)	0
MIN Value		CPK	7.20	RESULT	VERY GOOD

NO	DATA	NO	DATA
1	60.1	26	61.4
2	62.2	27	60.0
3	62.0	28	61.7
4	62.0	29	61.3
5	60.5	30	62.0
6	62.1	31	61.8
7	62.0	32	62.4
8	60.6	33	61.3
9	60.1	34	62.1
10	60.7	35	61.3
11	61.4	36	61.0
12	62.4	37	59.8
13	60.5	38	60.9
14	60.8	39	59.9
15	60.4	40	60.2
16	61.2	41	60.2
17	61.2	42	60.0
18	61.6	43	60.0
19	60.7	44	61.3
20	61.7	45	61.4
21	61.3	46	60.0
22	61.5	47	61.2
23	61.3	48	62.0
24	62.6	49	62.1
25	61.2	50	60.5

REGULAR DISTRIBUTION CURVE



HISTOGRAM



COMMENT

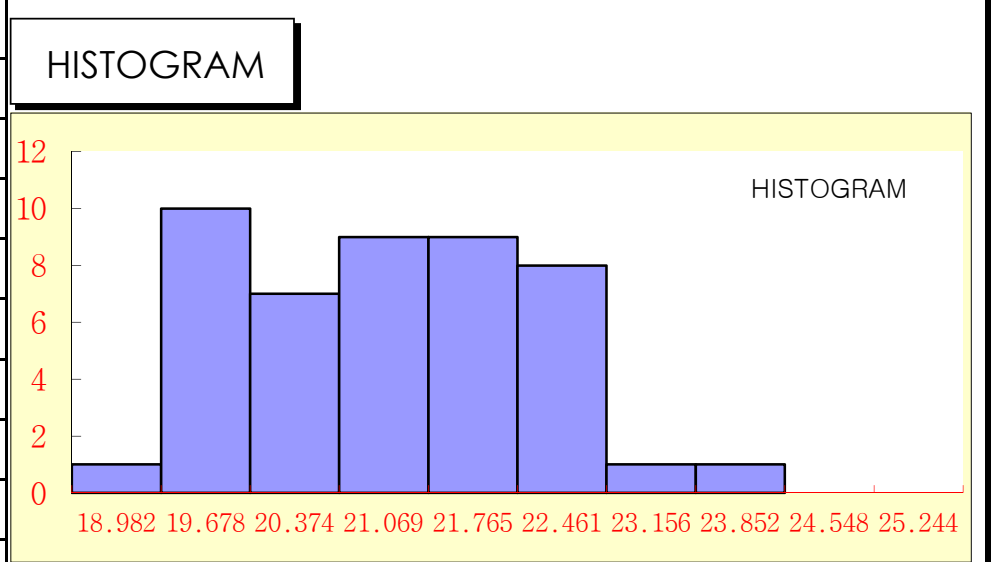
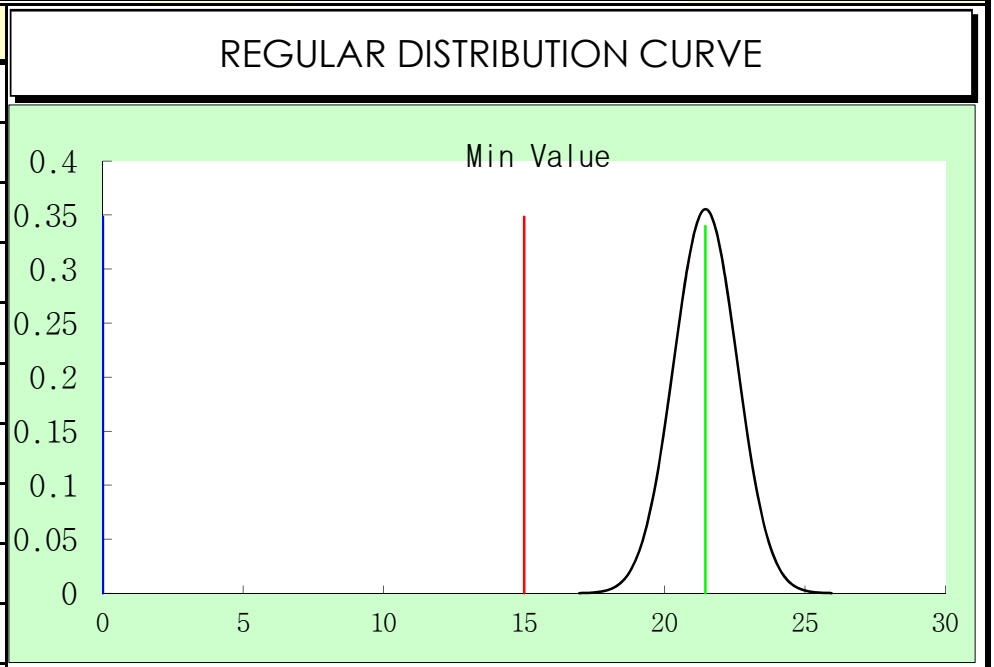
\bar{X} : 61.158

6σ: 4.6760894

산포관리(CP&CPK) DATA

CODE NO	2703-005401	ITEM	SMD INDUCTOR	SPEC	CMI-DCP4030NH-4R7M
MANUFACTURE	COILMASTER	QUAN	50	DATE	2015.09.07
Measure Item	Q	STD.DECL	1.12	Minimum fail ratio(PPM)	0
MAX Value		C P	2.23	Maximum fail ratio(PPM)	0
MIN Value	15.0	CPK	1.9174	RESULT	VERY GOOD

NO	DATA	NO	DATA
1	23.11	26	20.30
2	22.55	27	22.80
3	20.90	28	21.35
4	19.33	29	19.78
5	21.10	30	22.41
6	21.24	31	22.54
7	22.36	32	22.37
8	20.58	33	20.18
9	21.80	34	21.07
10	23.11	35	22.22
11	21.53	36	22.49
12	21.54	37	22.88
13	20.60	38	21.28
14	20.70	39	21.93
15	21.30	40	22.04
16	22.30	41	20.58
17	21.30	42	19.98
18	22.40	43	20.22
19	20.50	44	21.12
20	20.30	45	19.87
21	22.87	46	20.74
22	24.20	47	20.15
23	22.60	48	21.11
24	22.12	49	19.87
25	23.19	50	20.05



COMMENT

22	24.20	47	20.15	\bar{X} : 21.4572
23	22.60	48	21.11	6 σ : 6.735431
24	22.12	49	19.87	3 σ : 3.3677155
25	23.19	50	20.05	

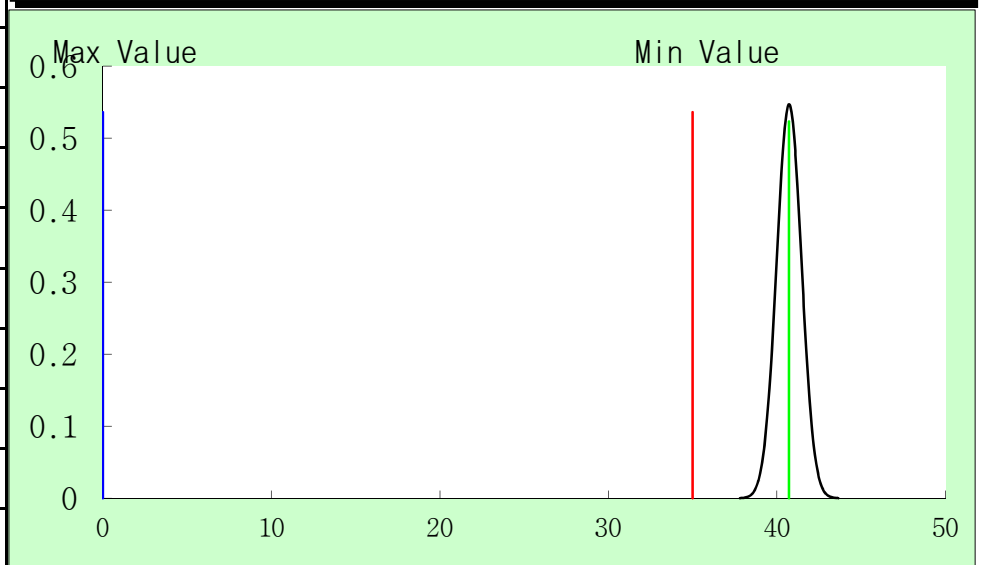
산포관리(CP&CPK) DATA

SRF

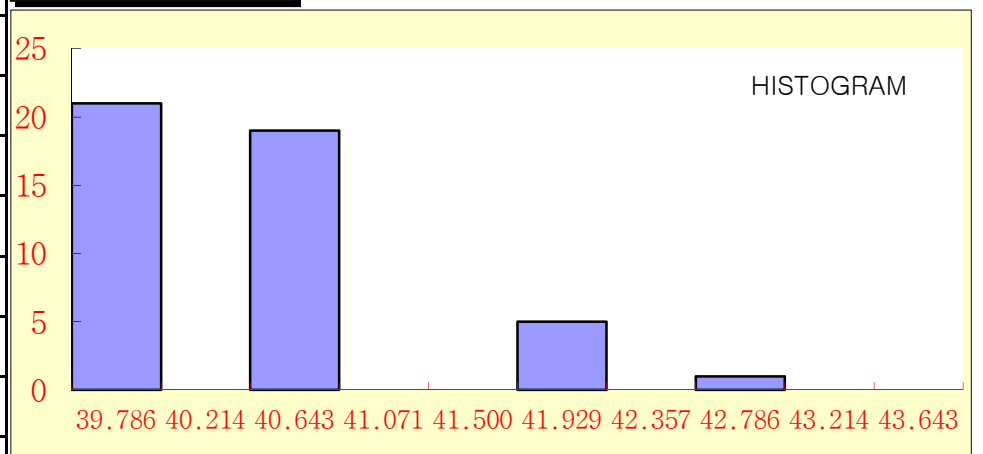
CODE NO	2703-005401	ITEM	SMD INDUCTOR	SPEC	CMI-DCP4030NH-4R7M
MANUFACTURE	COILMASTER	QUAN	50	DATE	2015.09.07
Measure Item	SRF(MHz)	STD.DECL	0.73	Minimum fail ratio(PPM)	0
MAX Value		C P	8.00	Maximum fail ratio(PPM)	0
MIN Value	35.0	CPK	2.61	RESULT	VERY GOOD

NO	DATA	NO	DATA
1	41.0	26	41.0
2	41.0	27	41.0
3	42.0	28	41.0
4	40.0	29	40.0
5	40.0	30	40.0
6	40.0	31	40.0
7	41.0	32	41.0
8	41.0	33	40.0
9	41.0	34	41.0
10	41.0	35	41.0
11	41.0	36	41.0
12	40.0	37	43.0
13	40.0	38	40.0
14	42.0	39	41.0
15	40.0	40	41.0
16	40.0	41	40.0
17	40.0	42	40.0
18	41.0	43	40.0
19	42.0	44	41.0
20	40.0	45	42.0
21	40.0	46	40.0
22	40.0	47	41.0
23	40.0	48	41.0
24	42.0	49	41.0
25	41.0	50	41.0

REGULAR DISTRIBUTION CURVE



HISTOGRAM
















COMMENT

\bar{X} : 40.72

6 σ : 4.377307

3 σ : 2.1886535

Product	CMI-DP/DCP/DOP series	<h1>QC Flow Chart</h1>	Approval
Rev.	1		
Date	2015.08.01		

No	Flow Chart	Process	Equipment	Control Item	Measurement & methods	Document
0		IQC	Microscope Calipers LCR Meter XRF	1)Appearance 2)Size 3)Characteristic 4)Noxious substance	1)Core, Pin size 2)Core, Pin visual Inspection 3)Core Inductance 4)RoHs/HF	Inspection guidelines
1		Pin Adhesion (CTQ)	Thermometer Electronic scale Push/Pull gague	1)Epoxy Standard 2)Epoxy storage temperature 3)Epoxy paint condition 4)Epoxy spread volume 5)Dry time/temperature 6)Bonding Strength	1)Checking Label 2)Checking refrigerator temp. 3)Checking visual 4)Weight of epoxy 5)Profile & setting condition 6)Tensile strength	Process instructions
2		Winding	Tension gague	1)Wire Standard 2)Wire Turn number 3)Wire tension 4)Wire condition	1)Checking Label 2)Sample testing/setting 3)Tension 4)Checking wire scratch	Process instructions
3		Welding	Welding M/C	1)Welding condition 2)Welding tip life time	1)Current/Voltage/Time 2)Welding tip changing cycle	Process instructions
4		Wire cutting	cutting M/C	1)Cutter life time	1)Cutter changing cycle	Process instructions
5		Epoxy painting		1)Epoxy Standard 2)Epoxy storage condition 3)Epoxy paint condition	1)Checking Label 2)Checking storage temp. 3)Checking visual	Process instructions
6		Dry	Dry oven	1)Dry time/temperature	1)Profile & setting condition	Process instructions
7		Laser (CTQ)	Laser Cutting M/C	1)Laser condition	1)Checking laser energy	Process instructions
8		Laser Inspection		1)Wire & Pin tensile strength	1)Visual connect wire & pin	Process instructions
9		Marking	Marking M/C	1)INK Standard 2)Marking condition	1)Visual Label 2)Check of product	Process instructions
10		Dry	Dry oven	1)Dry time/temperature 2)Dry condition	1)Timer/Thermometer 2)Sample testing	Process instructions
11		PIN cutting	Cutting Jig	1)Cutting condition 2)Pin bent	1)Pin gap 2)Visual	Process instructions
12		Visual sorting		1)Appearance	1)Crack, Damage, Pin foreign body, etc	Process instructions
13		Characteristic sorting(CTQ)	Characteristic sorting M/C	1)Electronical characteristic	1)Inductance, DCR	Process instructions
14		Characteristic Inspection	LCR METER DCR METER DC Bias	1)Electronical characteristic 2)Rated current	1)Inductance, DCR 2)Idc1, Idc2	Process instructions
15		Visual sorting		1)State of appearance	1)Crack, Damage, Pin foreign body, etc	Process instructions
16		Visual Inspection		1)Appearance	1)Crack, Damage, Pin foreign body, etc	Process instructions
17		OQC 1	LCR METER DCR METER DC Bias Calipers	1)Electronical characteristi 2)Rated current 3)Aging test 4)Dimension	1)Inductance, DCR 2)Idc1, Idc2 3)Reflow 4times/PCB tensile strength 4)L/W/T	Inspection guidelines
18		REEL Packing	Strength measuring gauge	1)Packing setting condition 2)Packing Quantity 3)Sealing condition	1)Tip setting temperature 2)Display setting Q'ty 3)Adhesive Strength	Process instructions
19		Packing Inspection	LCR Meter	1)Visual Inspection 2)Characteristic Inspection 3)Label	1)Carrier tape open 2)Inductance 3)Checking product.	Inspection guidelines
20		OQC 2		1)Packing condition 2)Label condition	1)Box damage 2)Out label scan	Inspection guidelines

Process Quality Control Plan

Vendor Name	CoilMaster Co., Ltd.	Manufacturer Site	China
Item	SMD POWER INDUCTOR	Drafter	Park Young Ho
SPEC	CMI-DCP4030NH-4R7M	Date(Orig.)	2015-06-22
CODE-NO	2703-005401	Date(Rev.)	2015-08-27

Pro. No	Process Name	Failure				Method					결과	
		Failure Mode	SEV (심각도)	Control Item	Occur (발생도)	Spec. / Tolerance	Evaluation Measurement Technique	SPL Size	SPL Freq.	Detes (검출도)	RPN	note
1	PIN Adhesion	Pin & Core Separation	6	Epoxy standard	1	EP2221-09D	Operating standard	Full check	LOT	1	6	
			4	Epoxy storage temperature	1	0~5℃	Operating standard	2	everyday	1	4	
			7	Epoxy paint condition	1	The epoxy painting uniform	Operating standard	2	everyday	1	7	
			7	Epoxy spread volume	1	0.30±0.07mg	Operating standard	5	3 times / day	5	35	CTQ
			7	Dry time/temperature	1	150±10℃/50±5 min	Operating standard	1	everyday	1	7	
			8	Bonding Strength	2	0.8 Kg/f MIN	Operating standard	5	3 times / day	3	48	CTQ
2	Winding	Electrical characteristics NG	7	Wire standard	1	E180 Ø0.23	Operating standard	Full check	LOT	1	7	
			7	Wire turn number	1	16.5Turns	Operating standard	2	LOT	1	7	
			5	Wire tension	1	90±10gf	Operating standard	2	LOT	1	5	
		Short	8	Wire Condition	1	Don't have the wire damage	Operating standard	2	LOT	2	16	
3	Welding	Open	6	Current/Voltage/Time	1	410±100A/220±5V/280±20ms	Operating standard	2	LOT	1	6	
			6	Welding tip changing cycle	1	20000 times	Operating standard	2	LOT	1	6	
4	Wire cutting	Open	2	Cutter changing cycle	1	1440,000 times	Operating standard	1	everyday	1	2	
5	Eoxy painting	Epoxy deformation	4	Epoxy standard	1	E-500AH	Operating standard	Full check	LOT	1	4	
			4	Epoxy storage condition	1	5~25℃	Operating standard	2	everyday	1	4	
		Wire exposure	6	Epoxy paint condition	2	The epoxy painting uniform	Operating standard	2	everyday	1	8	
6	Dry	Epoxy no drying	4	Drying time/temperature	1	135±10℃/50±5min	Operating standard	1	everyday	1	4	
7	Laser	Open	9	Laser condition	2	1.9±0.3 KW	Operating standard	2	LOT	2	36	CTQ
8	Laser Inspection	Open	9	Wire & Pin tensile strength	2	150g/f MIN	SPEC	5	3 times / day	2	36	CTF
9	Marking	Marking NG	2	INK standard	1	WHITE	Operating standard	2	everyday	2	4	
			2	Marking conditon	1	Marking clearing and according to the Spec	Operating standard	2	LOT	2	4	
10	Drying	INK no drying	2	Drying time/temperature	1	160±10℃/200±20S	Operating standard	1	everyday	1	2	
			2	Drying condition	1	No the Epoxy on the PIN and the epoxy Less	Operating standard	2	everyday	1	2	
11	Pin cutting	Pin bent	2	Cutting condition	1	No PIN open	Operating standard	2	LOT	2	4	
			7	Pin bent("v" cut)	2	ok	Operating standard	2	LOT	2	8	
12	Visual sorting	Appearance NG	7	State of appearance	2	welding,CORE,PIN Marking Condition	Limit Sample	Full check	LOT	1	14	

13	Electrical Characteristic sorting	Electrical characteristics NG	9	Inductance	3	4.7±20% uH	SPEC	Full check	LOT	1	27	CTF
			9	DCR	3	$\bar{X}+3\sigma/-4\sigma$	SPEC	Full check	LOT	1	27	CTF
14	Electrical Characteristic Inspection	Electrical characteristics NG	9	Inductance	1	4.7±20% uH	SPEC	30	LOT	1	9	
			9	DCR	1	78mΩMax	SPEC	30	LOT	1	9	
			9	IDC1	1	2.6A Drop20%	SPEC	3	LOT	2	18	
			9	IDC2	1	2.1A ΔT 40°C(at 20°C)	SPEC	3	LOT	2	18	
15	Visual sorting	Appearance NG	7	State of appearance	2	welding,CORE,PIN, Marking Condition	Limit Sample	Full check	LOT	1	14	
16	Visual Inspection	Marking NG	2	Marking condition	1	Printing must be clearly visible.	Limit Sample	2	LOT	1	2	
		Core crack/damage	6	Core condition	2	No CORE crack	Limit Sample	2	LOT	1	12	
		Pin pollution/bent	7	Pin condition	2	No PIN open PIN deformation	Limit Sample	2	LOT	1	14	
17	OQC1	Electrical characteristics NG	9	Inductance/DCR	1	4.7±20% uH/78mΩMax	SPEC	30	LOT	1	9	
			9	DC bias	1	2.6A Drop20%	SPEC	30	LOT	1	9	
		Crack/open/short	9	Reflow test 4차	1	No CORE crack	Limit Sample/SPEC	50	LOT	1	9	
			9	PCB tensile strength	1	3.5 Kg/f MIN	SPEC	15	LOT	1	9	
		Dimension	9	L/W/T	1	A:4.0±0.2/B:4.0±0.2/H:3.0MAX	Limit Sample/SPEC	15	LOT	1	9	
18	Reel Packing	Sealing NG	7	Packing tio temperature	1	150±20°C	Operating standard	1	everyday	1	7	
			7	Adhesive strength	1	20~60g	Operating standard	2	everyday	2	14	
		Product count error	7	Packing quantity	1	2000	Operating standard	2	LOT	1	7	
		Mixed	9	Label	1	Record production LOT and according to the Spec	Operating standard	Full check	LOT	1	9	
19	Packing Inspection	Appearance NG/Mixed	7	Visual Inspection	1	No printing, fuzzy PIN dirty etc	SPEC	Full check	LOT	1	7	
			9	Characteristic inspection	1	Values were in the range reference	SPEC	Full check	LOT	1	9	
			9	Label	1	The number of LOT, right	SPEC	Full check	LOT	1	9	
20	OQC2	Packing condition NG	5	Packing condition	1	2000/Reel,2Ree/1In box, 2In box/1 outer box	SPEC	Full check	LOT	1	5	
			5	Label condition	1	Record production LOTand according to the Spec	SPEC	Full check	LOT	1	5	

PQCP Results

Pro. No	Process Name	Failure		Method			Inspection Data													
		Failure Mode	Control Item	Spec./Tolerance	SPL Size	SPL Freq.	1	2	3	4	5	6	7	8	9	10	Cpk	Result		
1	PIN Adhesion	Pin & Core Separation	Epoxy standard	EP2221-09D	Full check	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
			Epoxy storage temperature	0-5°C	2	everyday	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
			Epoxy paint condition	The epoxy painting uniform	2	everyday	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
			Epoxy spread volume	0.30±0.07mg	5	3 times / day	0.31	0.32	0.29	0.3	0.28	0.27	0.28	0.29	0.28	0.27	1.1824	OK		
			Dry time/temperature	150±10°C/50±5 min	1	everyday	150	151	150	150	150	151	150	150	151	150	150	6.6936	OK	
2	Winding	Electrical characteristics NG	Wire standard	E180 Ø0.23	Full check	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
			Wire turn number	16.5Turns	2	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
			Wire tension	90±10gf	2	LOT	95	92	92	92	93	90	93	94	91	91	1.7175	OK		
3	Welding	Open	Wire Condition	Don't have the wire damage	2	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		
			Current/Voltage/Time	410±100A/220±5V/280±20ms	2	LOT	420	419	410	420	430	438	428	415	415	425	3.5228	OK		
6	Wire cutting	Open	Welding tip changing cycle	20000 times	2	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		
			Cutter changing cycle	1440,000 times	1	everyday	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		
4	Eoxy painting	Epoxy deformation	Epoxy standard	E-500AH	Full check	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		
			Epoxy storage condition	5~25°C	2	everyday	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		
			Wire exposure	Epoxy paint condition	The epoxy painting uniform	2	everyday	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		
5	Dry	Epoxy no drying	Drying time/temperature	135±10°C/50±5min	1	everyday	134	135	134	136	136	135	134	135	135	134	4.1413	OK		
6	Laser	Open	Laser condition	1.9±0.3 KW	2	everyday	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	3.0569	OK		
7	Laser Inspection	Open	Wire & Pin tensile strength	150g/f MIN	5	3 times / day	246	252	223	233	245	266	248	265	256	255	2.4749	OK		
8	Marking	Marking NG	INK standard	WHITE	2	everyday	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		
			Marking conditon	Marking clearing and according to the Spec	2	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		
9	Drying	INK no drying	Drying time/temperature	160±10°C/200±20S	1	everyday	162	160	163	160	160	163	161	160	162	161	2.3862	OK		
			Drying condition	No the Epoxy on the PIN and the epoxy Less	2	everyday	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		
10	Pin cutting	Pin bent	Cutting condition	No PIN open	2	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		
			Pin bent('v' cut)	ok	2	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK			
11	Visual sorting	Appearance NG	State of appearance	welding,CORE,PIN, Marking Condition	Full check	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK			
12	Electrical Characteristic sorting	Electrical characteristics NG	Inductance	4.7±20% uH	Full check	LOT	4.41	4.39	4.41	4.36	4.32	4.34	4.36	4.38	4.38	4.40	6.8545	OK		
			DCR	X+3σ/-4σ	Full check	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK			
13	Electrical Characteristic Inspection	Electrical characteristics NG	Inductance	4.7±20% uH	30	LOT	4.30	4.40	4.38	4.31	4.35	4.41	4.33	4.38	4.31	4.41	4.5919	OK		
			DCR	78mΩMax	30	LOT	63	64	63	62	63	62	63	64	64	63	6.7311	OK		
			IDC1	2.6A Drop20%	3	LOT	13.61%	11.85%	11.34%								3.4332	OK		
			IDC2	2.1A 40°C(at 20°C)	3	LOT	51	52	52								4.8113	OK		

14	Visual sorting	Appearance NG	State of appearance	welding,CORE,PIN, Marking Condition	Full check	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
15	Visual Inspection	Marking NG	Marking condition	Printing must be clearly visible.	2	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
		Core crack/damage	Core condition	No CORE crack	2	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
		Pin pollution/bent	Pin condition	No PIN open PIN deformation	2	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
16	OQC1	Electrical characteristics NG	Inductance	4.7±20% uH	30	LOT	4.43	4.41	4.4	4.34	4.36	4.43	4.4	4.38	4.36	4.39	6.9572	OK	
			DCR	78mΩMax	30	LOT	64	63	64	63	64	64	64	63	65	64	7.4841	OK	
			DC bias	2.6A Drop20%	30	LOT	12.14%	12.79%	13.04%	12.28%	11.20%	11.48%	11.83%	12.25%	11.54%	11.36%	6.4784	OK	
		Crack/open/short	Reflow test 4차	No CORE crack	50	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
			PCB tensile strength	3.5 Kg/f MIN	15	LOT	3.68	4.57	3.89	4.25	4.65	5.05	3.98	4.68	4.69	5.14	-3.0279	OK	
		Dimension	L/W/T	A:4.0±0.2/B:4.0±0.2/H:3.0MAX	15	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
17	Reel Packing	Sealing NG	Packing tio temperature	150±20℃	1	everyday	153	152	152	150	151	154	150	152	151	151	4.8488	OK	
			Adhesive strength	20~60g	2	everyday	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
		Product count error	Packing quantity	2000	2	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
		Mixed	Label	Record production LOT and according to the Spec	Full check	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
18	Packing Inspection	Appearance NG/Mixed	Visual Inspection	No printing, fuzzy PIN dirty etc	Full check	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
			Characteristic inspection	Values were in the range reference	Full check	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
			Label	The number of LOT, right	Full check	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	
19	OQC2	Packing condition NG	Packing condition	2000/Reel,2Ree/1In box 2In box/1 outer box	Full check	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK		
			Label condition	Record production LOT and according to the Spec	Full check	LOT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	

신규부품 수율평가 결과

노란색 부위만 입력

■ 부품정보

부품명	코드명	협력사명	평가일자
CMI-DCP4030NH-4R7M	2703-005401	코일마스터	6.27

■ 평가결과

구분	Main Process	Sub Process	
	권선	조립	특성
투입수	1000	996	992
이탈수	5	3	6
불량율(%)	1%	0%	1%
초기수율(FTY)	100%	100%	99%
PPM	50	30	60
시그마수준(Zst)	4.08	4.25	4.01
누적수율(RTY)	99%		
전체공정 시그마수준	3.70		

■ Main Process 이탈 이력

권선	투입수:	1000
불량내용	수량	비고
권선	2	권선이탈
응착	3	WIRE + 핀 응착
	0	
	0	
Total	5	

■ Sub Process 이탈 이력

조립	투입수:	996
불량내용	수량	비고
에폭시	3	에폭시 넘침
	0	
	0	
	0	
Total	3	

특성	투입수:	992
불량내용	수량	비고
외관불량	1	핀 이물
L값	5	L값하한
	0	
	0	
Total	6	

Environment Management Substances

구성 부품명 (조립부품/단부품)	구성 부품 Spec	원재료명 (균질재질)	성적서 번호	분석기관	시험일자 (YYYY-MM-DD)	분석결과(ppm=mg/kg)										
						Type	Cd	Pb	Hg	Cr6+	PBB	PBDE	T-Br	T-Cl	Br+Cl	
						유기물	5	100	100	100	100	100	900	900	1500	
SMD Power inductor	CMI- DCP4030NH -4R7M	CORE	CANEC1512218406 CANEC1500295512 CANEC1504628801	SGS	2015-07-30 2015-01-16 2015-04-03	무기물	N.D.	N.D.								N.D.
		PIN (Cu)	CANEC1419732905 CANML1420664001 SHAEC1501309415	SGS	2014-12-03 2014-12-12 2015-01-28	무기물	N.D.	13	N.D.	Negative	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		PIN (Ni)	CANEC1419051801 CANEC1505011701	SGS	2014-11-24 2015-04-10	무기물	N.D.	N.D.	N.D.	Negative	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		PIN (Sn)	CANEC1419051802 CANEC1505011702	SGS	2014-11-24 2015-04-10	무기물	N.D.	39	N.D.	Negative	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		WIRE (Cu)	CE/2015/44585	SGS	2015-04-27	무기물	N.D.	N.D.	N.D.	Negative						
		WIRE (Coating)	CE/2015/44584	SGS	2015-04-27	유기물	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
		EPOXY1	SCL01H011762001 SCL01H048306002E	CTI	2015-02-12 2015-06-15	유기물	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	463	463
		EPOXY2	CANML1502754901	SGS	2015-03-06	유기물	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	264	264
		INK	CE/2014/C6508 CE/2014/C0375A CE/2014/C0375B	SGS	2015-01-12 2014-12-09 2014-12-09	유기물	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	415	415

SMD DATA (승인원용)

CMI-DCP4030NH-4R7M

1. 고정으로 기재되는 부품 마킹 정보

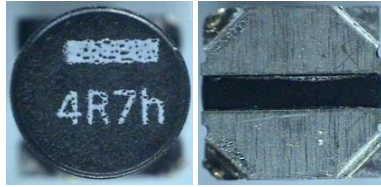


항목	문자 or 숫자
고정 마킹정보	4R7

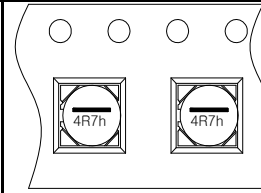
4. Carrier / TRAY입고 방향 (부품 극성 방향 필수 포함)

항목	기준 (100V)
Cover tape 내측	9~10Mohm
Carrier tape	9~10Mohm
Tray	
접합방식	열 압착방식

실물 사진 (부품 상, 하면 동일)



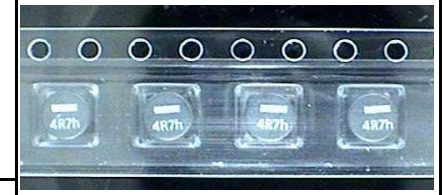
극성 관리 필요 유무



극성이 필요한 경우

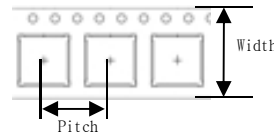
무극성

실물사진
(Reel 담긴 사진, 부품3ea이상)



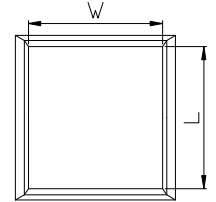
2. Carrier Width, Pitch

항목	치수(mm)
Width	12.0
Pitch	8.0
Pocket재질	EMBOSS



3. 포켓 흡착면 사이즈

항목	치수(mm)
L	4.2
W	4.2



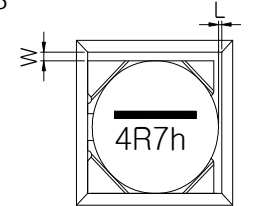
3. Carrier / TRAY Height

항목	치수(mm)
Nozzle 흡착깊이	0.20
부품T값 (typ)	3.00
Carrier Height	3.20
Tray Height	-

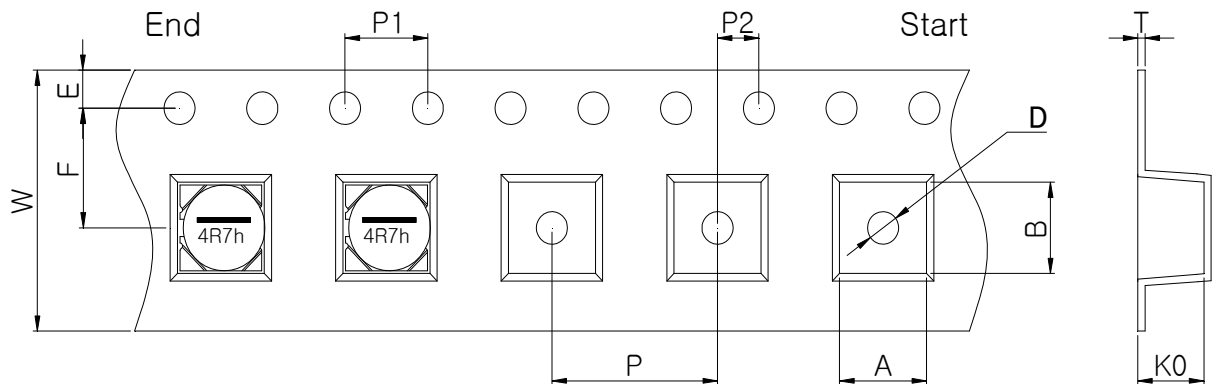
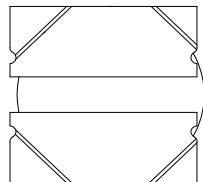
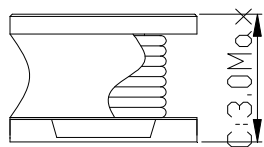
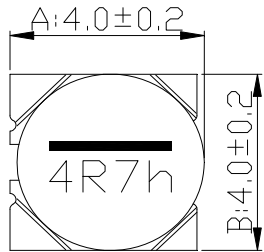


5. Carrier 내부와 부품간의 GAP

항목	치수(mm)
L	0.10
W	0.25



※ 첨부 도면 (부품 / TAPE & REEL & TRAY)



W	A	B	D	E	F	P	P1	P2	K0	T
12.00	4.20	4.20	1.50	1.75	5.50	8.00	4.00	2.00	3.20	0.35
+0.30	+0.10	+0.10	+0.10	+0.10	+0.10	+0.10	+0.10	+0.10	+0.10	+0.05
-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.05

单击下面可查看定价，库存，交付和生命周期等信息

[>>coilmaster\(卡尔马斯特\)](#)