



SPECIFICATION FOR APPROVAL

CUSTOMER

CUSTOMER'S P/N

DATE 29/Sep/2021 **REVISION NO.** A

PART NO. AMPI090704GDR15LT

DRAWN NO.

Signature

Approved by	Checked by	Drawn by

ARLITECH ELECTRONIC CORP.

14F NO. 646 SEC.5, CHUNG HSING RD.,
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RoHS+HF

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CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI090704GDR15LT

DRAWN NO.

PAGE

1/10

REVISION

A

DATE

2021/09/29

PRODUCT IDENTIFICATION

<u>A M P I</u>	<u>0 9 0 7 0 4</u>	<u>G D</u>	<u>R 1 5</u>	<u>L</u>	<u>T</u>
①	②	③	④	⑤	⑥

① Product Series:AMPI=Arlitech Molding Power Inductors

② Dimension:Length*Width*High

③ Type:Type Code

④ Inductance(uH):R15=0.15

⑤ Tolerance:L=±15%

⑥ Package:T=Taping

SPECIFICATION FOR APPROVAL

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ARLITECH P/N AMPI090704GDR15LT

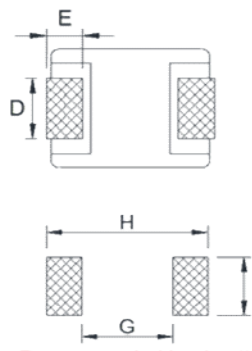
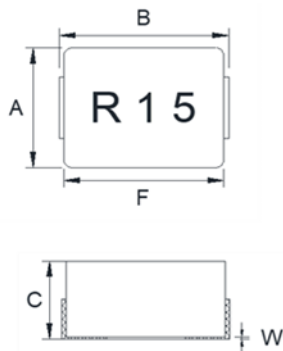
DRAWN NO.

PAGE 2/10

REVISION A

DATE 2021/09/29

SHAPE & DIMENSION (UNIT: mm)



Recommended land pattern

A	7.2±0.2
B	10.7±0.5
C	3.8±0.2
D	3.5±0.5
E	2.0±0.3
F	9.7±0.2
W	0.15±0
G	5.0
H	11.7
I	4.0

ELECREICAL SPECIFICATION

MEAS. ITEM	SPEC.			TEST FREQ.	CONDITIONS
L_0	0.15	μH	$\pm 15\%$	100KHz/1V	$T_a=20\sim 25^\circ\text{C}$, $I_{dc}=0\text{A}$
DCR	0.66	$\text{m}\Omega$	$\pm 4.5\%$		$T_a=20^\circ\text{C}$
I_{sat}	90	A	Typ.	100KHz/1V	$\Delta L/L \div 30\%$
I_{rms}	42	A	Typ.	100KHz/1V	$\Delta T \div 40^\circ\text{C}$

GENERAL SPECIFICATION

Electrical specifications : at 20~25°C

Operation Temperature : -40~+125°C (Including self-temperature rise)

Storage Temperature : -40~85°C(after PCBA);-5~35°C(before PCBA)

Storage R.H. : 40~70%(before PCBA)

Resistance to solder heat: 260°C/10 seconds

Coating: Gray

NOTE:

※Test Instrument : LCR METER(Chroma3250,Test1790), BIAS CURRENT SOURCE(Chroma1320,Chroma1320S)

※ I_{sat} : For Inductance drop approximately 30% from its value without bias current.

※ I_{rms} : Typical Heat Rating D.C current would cause an approximately ΔT of 40°C ($T_a=20\sim 25^\circ\text{C}$)

SPECIFICATION FOR APPROVAL

CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI090704GDR15LT

DRAWN NO.

PAGE

3/10

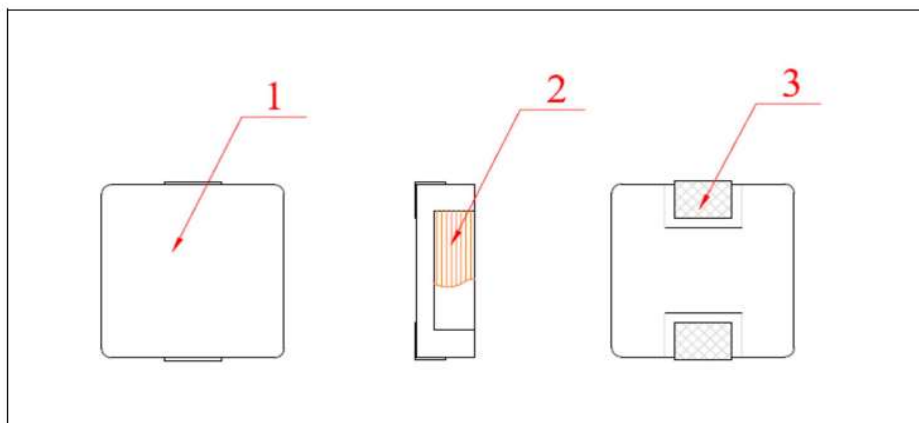
REVISION

A

DATE

2021/09/29

MATERIAL LIST



NO.	ITEM	MATERIAL	VENDER	Remark
1	Core	Powder	ARLITECH OR EQUIVALENT	
2	Wire	Copper Wire	JUNG SHING PACIFIC ELEKTRISOLA OR EQUIVALENT	
3	Electrode	Sn-Ag-Cu	YANKANGDA OR EQUIVALENT	

SPECIFICATION FOR APPROVAL

CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI090704GDR15LT

DRAWN NO.

PAGE

4/10

REVISION

A

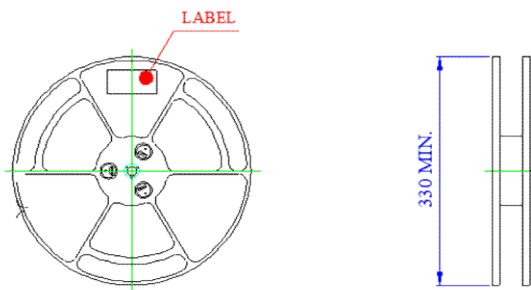
DATE

2021/09/29

PACKAGING

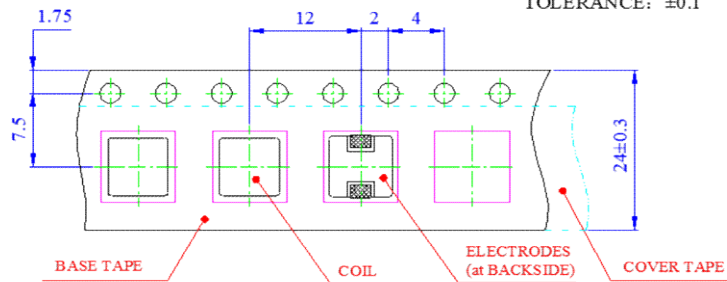
Reel dimensions

UNIT: mm



Tape dimensions

UNIT: mm
TOLERANCE: ± 0.1



Packaging

Quantity: **1000** pcs/reel

SPECIFICATION FOR APPROVAL

CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI090704GDR15LT

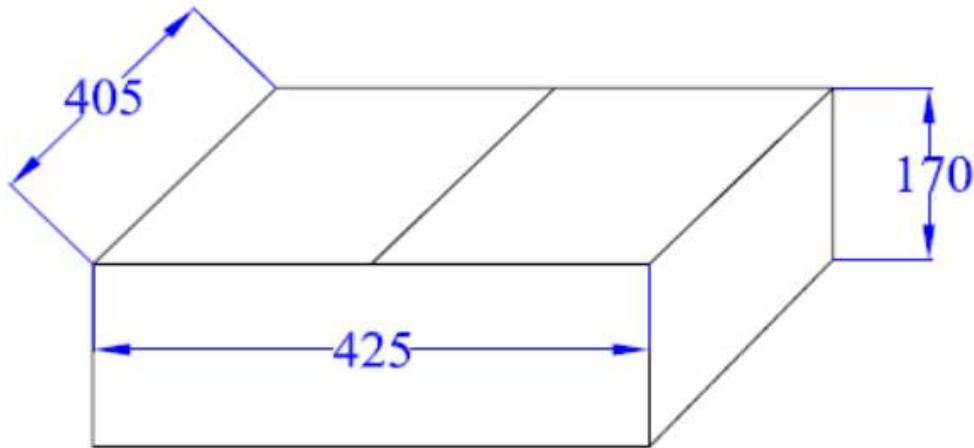
DRAWN NO.

PAGE 5/10

REVISION A

DATE 2021/09/29

CARTON



1000 pcs/reel

4 reel/carton

4000pcs/carton

Carton:425x405x170mm

SPECIFICATION FOR APPROVAL

CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI090704GDR15LT

DRAWN NO.

PAGE

6/10

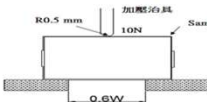
REVISION

A

DATE

2021/09/29

RELIABILITY TEST

MECHANICAL RELIABILITY		
Test Items	Test Conditions	Criteria
Adhesion strength	A static load using a R0.5 pressing tool with 10N shall be applied to the body of the specimen in the direction of the arrow and shall be hold for 10s,measure after removing pressure. 	change from an initial value L:within±10%
Terminal strength	Add static load 10N to inductor through hole of test board for 5±2 sec. 	no detachment of terminal pin and no breakage of wire.
Vibration test	Frequency: 10 ~ 55 ~ 10Hz Amplitude: 1.5mm Sweep time: 2 cycle Test Directions: X,Y,Z Test Time: 2 hours each direction	change from an initial value L:within±10%
Drop test	Drop specimen three times on concrete floor from a height of 1 meter which mounted on test board.	change from an initial value L:within±10%
ENDURANCE RELIABILITY		
Test Items	Test Conditions	Criteria
Withstanding voltage	Ac voltage of 50V and Ac current of 1mA applied between inductor's terminal and core for 3 secs.	Inductors shall have no evidence of electrical and mechanical damage
Low temperature storage	Placed at -40°C for 1000 hours, then measured at room ambient temperature after placing 24 hours.	change from an initial value L:within±10%
High temperature storage	Placed at +125°C for 1000 hours, then measured at room ambient temperature after placing 24 hours.	change from an initial value L:within±10%
Thermal shock	Condition for 1 cycle: -40°C, 30min. ~ +125°C, 30min. Number of cycles: 100	change from an initial value L:within±10%
Humidity resistance	Placed at 90 to 95%RH, +60±2°C for 500 hours, then measured at room ambient temperature after placing 24 hours.	change from an initial value L:within±10%
High temperature dynamic operation test	Placed at +85°C for 500 hours, then measured at room ambient temperature with current test after placing 24 hours.	Inductance shall be within ±10% of the initial value. Appearance: No damage
Solderability test	Terminals shall be immersed for 5 to 10 seconds in flux at room temperature. Dip sample into solder bath containing molten soldr at 245±3°C for 3±0.5 seconds	New solder shall cover 90% minimum of the surface immersed.

SPECIFICATION FOR APPROVAL

CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI090704GDR15LT

DRAWN NO.

PAGE

7/10

REVISION

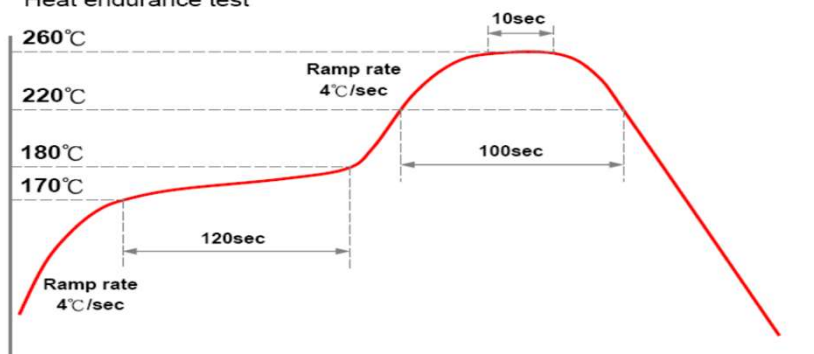
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DATE

2021/09/29

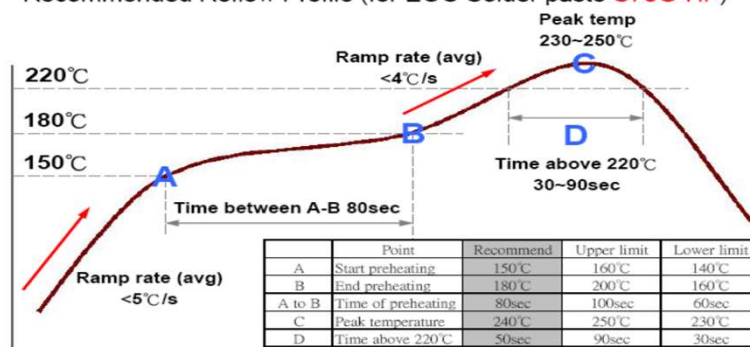
REFLOW-PROFILE

Heat endurance test



- ◎ The test should be made under the conditions according to the chart, after the test it is kept for 2 hours under the normal temperature and humidity.
- ◎ The reflow test can be done twice, but the interval should be more than one hour under the normal conditions.
- ◎ The reflow test conditions are based on the testing instruments available in Arlitech.

Recommended Reflow Profile (for EOC Solder paste **S70G-HF**)



- ◎ The reflow condition recommended above is according to the machine used by our company. Big differences will arise as a result of the type of machine, reflow conditions, method, etc used. Hence, before setting up your reflow conditions, please confirm with the above.

SPECIFICATION FOR APPROVAL

CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI090704GDR15LT

DRAWN NO.

PAGE 8/10

REVISION A

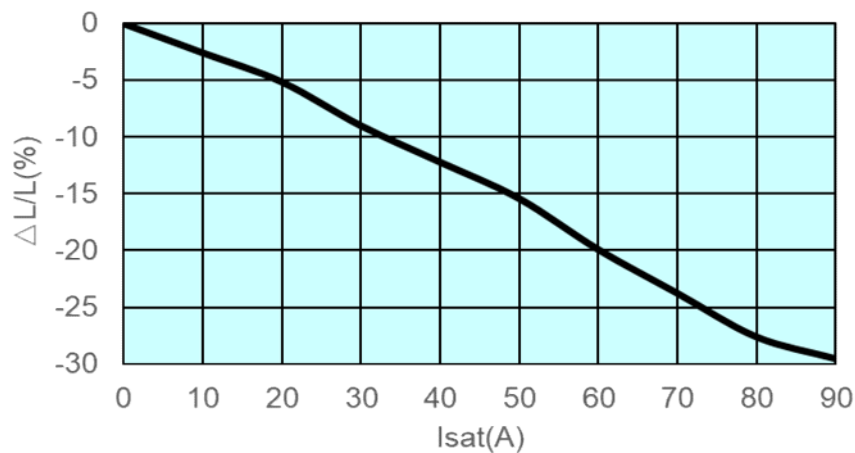
DATE 2021/09/29

Isat(Saturation Current):Transient current

AMPI090704GDR15LT

TIME(s)	Isat(A)	L(uH)	$\Delta L/L(\%)$
1.00	0	0.156	0.00%
1.00	10	0.152	-2.56%
1.00	20	0.148	-5.13%
1.00	30	0.142	-8.97%
1.00	40	0.137	-12.18%
1.00	50	0.132	-15.38%
1.00	60	0.125	-19.87%
1.00	70	0.119	-23.72%
1.00	80	0.113	-27.56%
1.00	90	0.110	-29.49%

* DC bias current characteristics in the ambient temperature 20~25°C Frequency 100KHz/1V



SPECIFICATION FOR APPROVAL

CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI090704GDR15LT

DRAWN NO.

PAGE 9/10

REVISION A

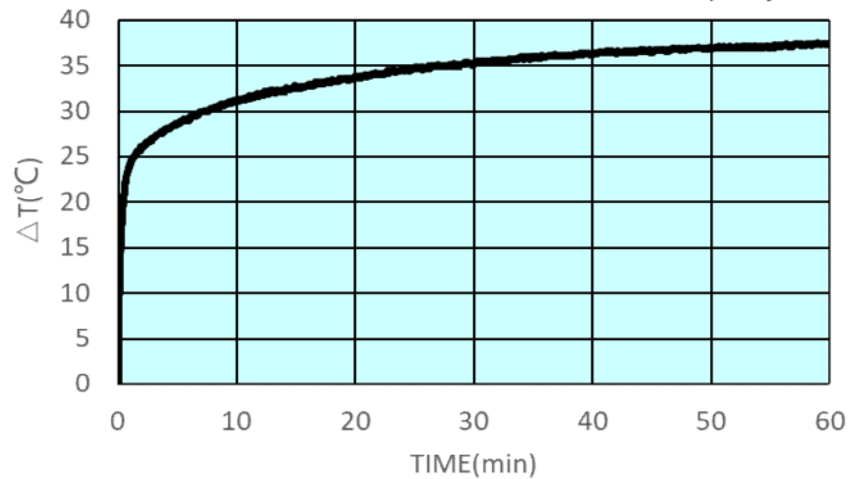
DATE 2021/09/29

I_{rms}(RMS current):The inductor can work continuously for a long time

AMPI090704GDR15LT

TIME(min)	I _{rms} (A)	L(uH)	ΔL/L(%)	TEMP(°C)	ΔT(°C)
0	0	0.155	0	24.3	0
10	42	0.136	12.26	55.5	31.2
20	42	0.136	12.26	58.1	33.8
30	42	0.136	12.26	59.7	35.4
40	42	0.136	12.26	60.6	36.3
50	42	0.136	12.26	61.3	37
60	42	0.136	12.26	61.6	37.3

* DC bias current characteristics in the ambient temperature 20~25°C Frequency 100KHz/1V



SPECIFICATION FOR APPROVAL

CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI090704GDR15LT

DRAWN NO.

PAGE 10/10

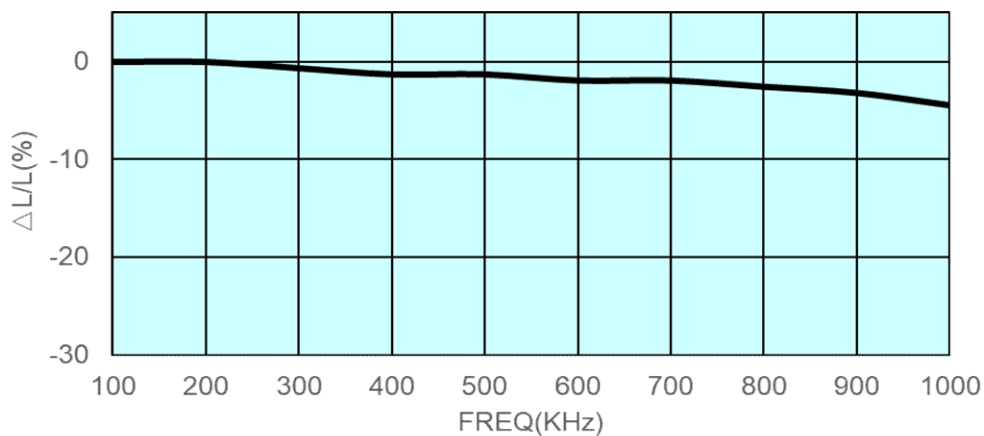
REVISION A

DATE 2021/09/29

L-F CURVE

AMPI090704GDR15LT

FREQ(KHz)	L(uH)	$\Delta L/L(\%)$
100	0.157	0.00%
200	0.157	0.00%
300	0.156	-0.64%
400	0.155	-1.27%
500	0.155	-1.27%
600	0.154	-1.91%
700	0.154	-1.91%
800	0.153	-2.55%
900	0.152	-3.18%
1000	0.150	-4.46%



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DRAWN NO.
TEST R.H. 40~85%

TEST TEMP. 20~25°C

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TEST DATA FOR PREPRODUCTION SAMPLE

TEST RESOLUTION								DIMENSION (Unit : mm)				
MEAS. ITEM	L0 μH	DCR mΩ	Isat A	Irms A				A	B	C	D	E
SPEC.	0.15 ± 15%	0.66 ± 4.5%	90 Typ. ΔL/L≒30%	42 Typ. ΔT≒40°C				7.2±0.2	10.7±0.5	3.8±0.2	3.5±0.5	2.0±0.3
TEST FREQ.	100KHz/1V		100KHz/1V	100KHz/1V								
1	0.156	0.658	0.110	36.7				7.17	10.97	3.86	3.33	2.05
2	0.155	0.654	0.110	37.3				7.17	10.99	3.89	3.34	2.09
3	0.157	0.660	0.111	36.9				7.17	10.99	3.88	3.34	2.01
4	0.159	0.669	0.113	36.8				7.16	10.97	3.90	3.38	2.04
5	0.160	0.661	0.114	37.5				7.16	10.98	3.91	3.41	2.09
6	0.158	0.661	0.112	36.8				7.17	10.98	3.92	3.40	2.07
7	0.159	0.658	0.113	36.7				7.16	10.99	3.90	3.34	2.07
8	0.161	0.659	0.115	37.8				7.17	10.96	3.89	3.35	2.11
9	0.161	0.663	0.115	37.6				7.17	10.98	3.90	3.42	2.07
10	0.157	0.664	0.111	36.9				7.17	10.98	3.86	3.41	2.06
AVG.	0.1583	0.6607	0.1124	37.1				7.167	10.979	3.891	3.372	2.066
R	0.006	0.015	0.005	1.1				0.01	0.03	0.06	0.09	0.10

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