SPECIFICATION FOR APPROVAL

CUSTOMER	
CUSTOMER'S P/N	
DATE	03/Sep/2021 **REVISION NO.** A
PART NO.	AMPI0630GDR47MT
DRAWN NO.	

Signature		
Approved by	**Checked by**	**Drawn by**

ARLITECH ELECTRONIC CORP.

14F NO. 646 SEC.5, CHUNG HSING RD.,
SANCHUNG DIST., NEW TAIPEI CITY, TAIWAN
TEL: (02)2999-8313 FAX: (02)2995-7520

RoHS+HF

SPECIFICATION FOR APPROVAL

ECN HISTORY LIST

REV	DATE	DESCRIPTION	CHECK	APPROVED
A	21.09.03	New Release	Keyun Liu	

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PRODUCT IDENTIFICATION

A M P I	0 6 3 0	G D	R 4 7	M	T
①	②	③	④	⑤	⑥

① Product Series:AMPI=Arlitech Molding Power Inductors

② Dimension:Length*High

③ Type:Type Code

④ Inductance(uH):R47=0.47

⑤ Tolerance:M=±20%

⑥ Pakage:T=Taping

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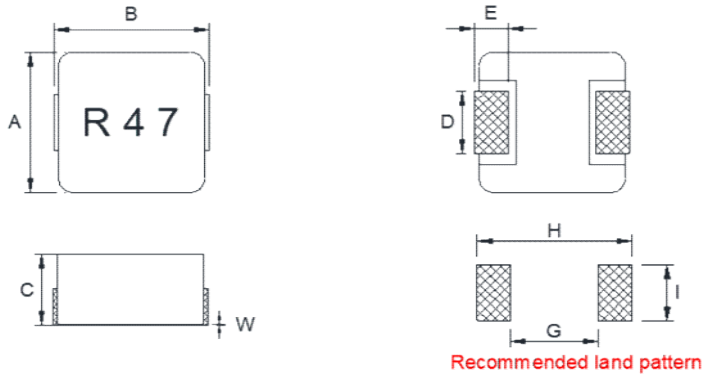
SHAPE & DIMENSION (UNIT: mm)



A	6.47±0.254
B	6.86±0.381
C	3.0MAX
D	3.18±0.3
E	1.27±0.3
W	0.15+0
G	3.71
H	7.37
I	3.43

ELECREICAL SPECIFICATION

MEAS. ITEM	SPEC.				TEST FREQ.	CONDITIONS
L_0	0.47	μH	±	20%	100KHz/1V	Ta=20~25°C，Idc=0A
DCR	4.0mΩ	Typ	4.2mΩ	Max		Ta=20°C
Isat	26	A	Typ.		100KHz/1V	△L/L≒20%
Irms	17.5	A	Typ.		100KHz/1V	△T≒40°C

GENERAL SPECIFICATION

Electrical specifications ：	at 20~25℃
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)

※Isat： For Inductance drop approximately 20% from its value without bias current.

※Irms： Typical Heat Rating D.C current would cause an approximately △T of 40°C (Ta=20~25°C)

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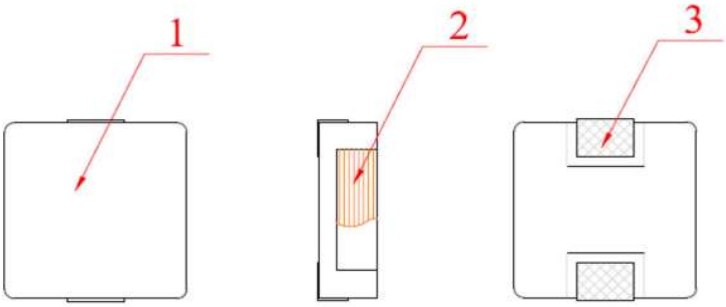
MATERIAL LIST



NO.	ITEM	MATREIAL	VENDER	Remark
1	Core	Powder	ARLITECH OR EQUIVALENT	
2	Wire	Copper Wire	JUNG SHING PACIFIC ELEKTRISOLA OR EQUIVALENT	UL No.E174837
3	Electrode	Cu-Ni-Sn	YANKANGDA OR EQUIVALENT	

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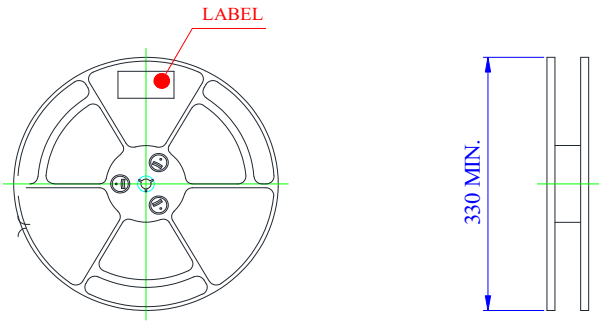
PACKAGING

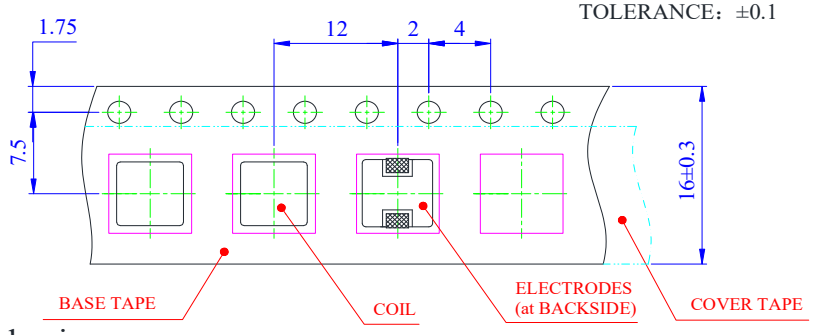
Reel dimensions

UNIT：mm



Tape dimensions

UNIT：mm
TOLERANCE：±0.1



Packaging

Quantity： 1000 pcs/reel

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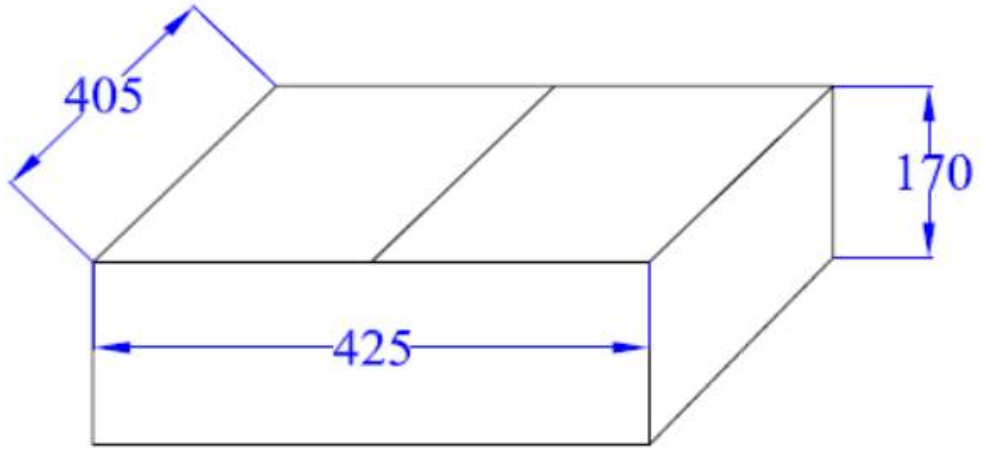
CARTON



1000 pcs/reel

5 reel/carton

5000pcs/carton

Carton:425x405x170mm

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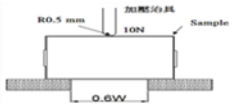
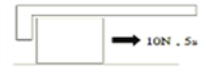
RELIABILITY TEST

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℃ 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℃ 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℃, 30min. ～ +125℃,30min. Number of cycles:100	change from an initial value L:within±10%
Humidity resistance	Placed at 90 to 95%RH,+60±2℃ 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℃ 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℃ for 3±0.5 seconds	New solder shall cover 90% minimun of the surface immersed.

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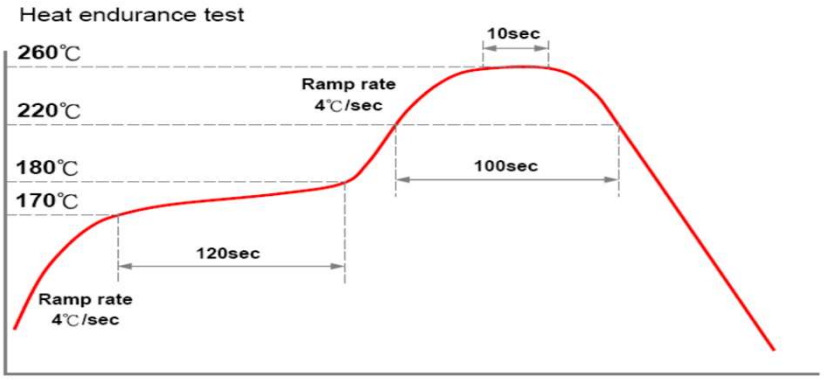
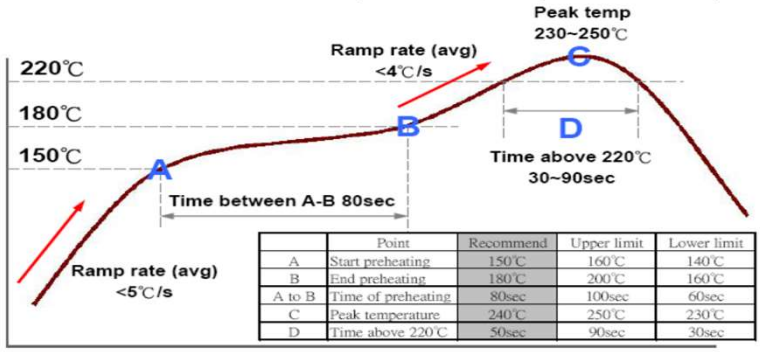
REFLOW-PROFILE



◎ 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)



	Point	Recommend	Upper limit	Lower limit
A	Start preheating	150℃	160℃	140℃
B	End preheating	180℃	200℃	160℃
A to B	Time of preheating	80sec	100sec	60sec
C	Peak temperature	240℃	250℃	230℃
D	Time above 220℃	50sec	90sec	30sec

◎ 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.

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Isat(Saturation Current):Transient current

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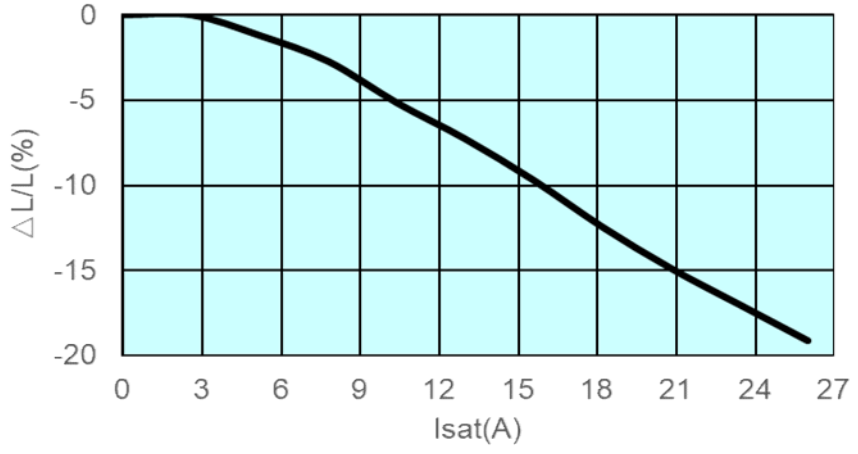
TIME(s)	Isat(A)	L(uH)	△L/L(%)
1.00	0	0.475	0.00%
1.00	2.6	0.475	0.00%
1.00	5.2	0.469	-1.21%
1.00	7.8	0.462	-2.73%
1.00	10.4	0.451	-5.15%
1.00	13	0.440	-7.27%
1.00	15.6	0.429	-9.70%
1.00	18.2	0.416	-12.42%
1.00	20.8	0.404	-14.85%
1.00	23.4	0.394	-16.97%
1.00	26	0.384	-19.09%

※ DC bias current characteristics in the ambient temerature 20~25℃ Frequency 100KHz/1V



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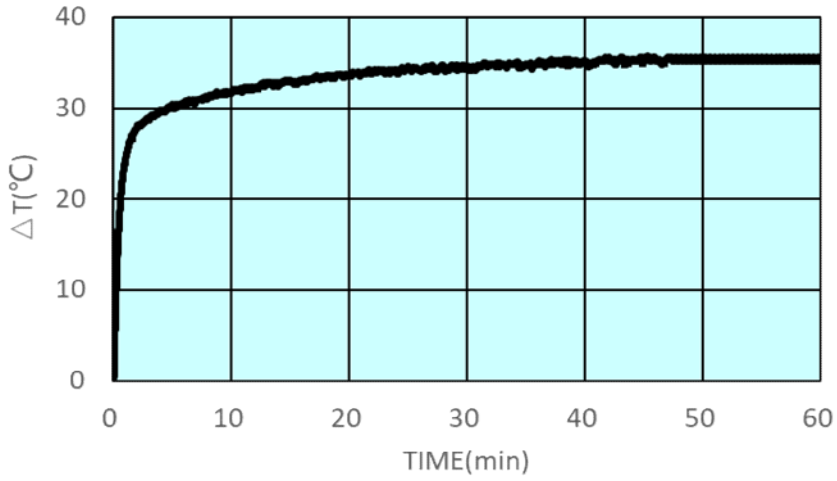
Irms(RMS current):The inductor can work continuously for a long time

AMPI0630GDR47MT

TIME(min)	Irms(A)	L(uH)	△L/L(%)	TEMP(℃)	△T(℃)
0	0	0.472	0	24.5	0
10	17.5	0.420	11.01	56.2	31.7
20	17.5	0.420	11.01	58.2	33.7
30	17.5	0.420	11.01	58.9	34.4
40	17.5	0.420	11.01	59.6	35.1
50	17.5	0.420	11.01	60.0	35.5
60	17.5	0.420	11.01	60.0	35.5

※ DC bias current characteristics in the ambient temerature 20~25℃ Frequency 100KHz/1V



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L-F CURVE

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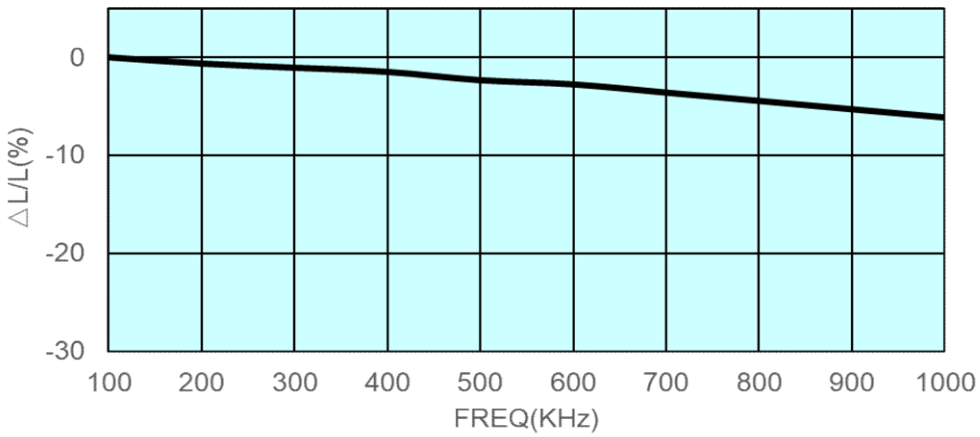
FREQ(KHz)	L(uH)	△L/L(%)
100	0.471	0.00%
200	0.468	-0.63%
300	0.466	-1.05%
400	0.464	-1.47%
500	0.460	-2.31%
600	0.458	-2.73%
700	0.454	-3.57%
800	0.450	-4.41%
900	0.446	-5.24%
1000	0.442	-6.08%



ARLITECH

RoHS Compliance

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TEST R.H.	40~85%
TEST TEMP.	20~25℃
DATE	2021/9/3

TEST DATA FOR PREPRODUCTION SAMPLE

TEST RESOLUTION								DIMENSION (Unit：mm)				
MEAS. ITEM	L0 μH	DCR mΩ	Isat uH	Irms °C				A	B	C	D	E
SPEC.	0.47 ± 20%	4.0Typ 4.2Max	26 A △L/L≒20%	17.5 A △T≒40℃				6.47 ± 0.254	6.86 ± 0.381	3.0 MAX	3.18 ± 0.3	1.27 ± 0.3
TEST FREQ.	100KHz/1V		100KHz/1V	100KHz/1V								
1	0.475	4.03	0.384	35.5				6.63	7.15	2.85	2.87	1.42
2	0.472	3.98	0.383	35.5				6.65	7.16	2.82	2.90	1.40
3	0.474	4.01	0.384	35.9				6.64	7.14	2.86	2.89	1.47
4	0.469	4.06	0.381	36.1				6.64	7.15	2.84	2.90	1.49
5	0.470	3.99	0.381	35.9				6.65	7.13	2.84	2.91	1.41
6	0.471	4.00	0.382	36.4				6.64	7.16	2.85	2.88	1.45
7	0.472	4.01	0.382	36.1				6.64	7.15	2.85	2.89	1.49
8	0.470	4.02	0.382	36.0				6.65	7.13	2.83	2.90	1.48
9	0.471	3.97	0.382	35.4				6.64	7.16	2.86	2.90	1.47
10	0.472	4.00	0.383	36.1				6.64	7.15	2.84	2.91	1.49
AVG.	0.4716	4.007	0.38	35.89				6.642	7.148	2.844	2.895	1.457
R	0.006	0.09	0.0	1.0				0.02	0.03	0.04	0.04	0.09

DRAWN BY	CHECKED BY	APPROVED BY