



SPECIFICATION FOR APPROVAL

CUSTOMER

CUSTOMER'S P/N

DATE 17/Dec/2021 **REVISION NO.** A

PART NO. AMPI107855GDR12MT

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

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RoHS+HF

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CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI107855GDR12MT

DRAWN NO.

PAGE

1/9

REVISION

A

DATE

2021/12/17

PRODUCT IDENTIFICATION

<u>A M P I</u>	<u>1 0 7 8 5 5</u>	<u>G D</u>	<u>R 1 2</u>	<u>M</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): R12=0.12

⑤ ToleranceM=±20%

⑥ Package:T=Taping

SPECIFICATION FOR APPROVAL

CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI107855GDR12MT

DRAWN NO.

PAGE

2/9

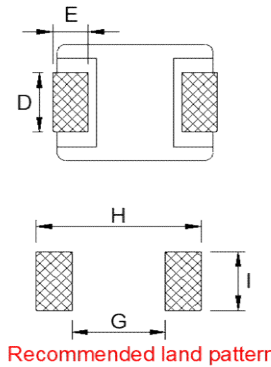
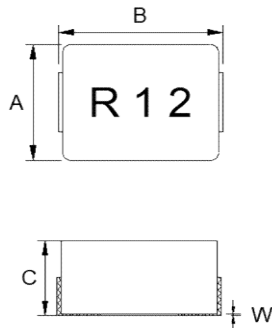
REVISION

A

DATE

2021/12/17

SHAPE & DIMENSION (UNIT: mm)



Recommended land pattern

A	7.9±0.2
B	11.2±0.5
C	5.3±0.2
D	5.0±0.5
E	2.0±0.5
W	0.15±0
G	5.7
H	12.5
I	5.5

ELECTRICAL SPECIFICATION

MEAS. ITEM	SPEC.	TEST FREQ.	CONDITIONS
L_0	0.12 μ H $\pm$ 20%	100KHz/1V	Ta=20~25°C, Idc=0A
DCR	0.46m Ω Typ 0.50m Ω Max		Ta=20°C
Isat	140A Typ.	100KHz/1V	$\Delta L/L \leq 30\%$
Irms	54A Typ.	100KHz/1V	$\Delta T \leq 40^\circ\text{C}$

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)

※Isat : For Inductance drop approximately 30% from its value without bias current.

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

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ARLITECH P/N AMPI107855GDR12MT

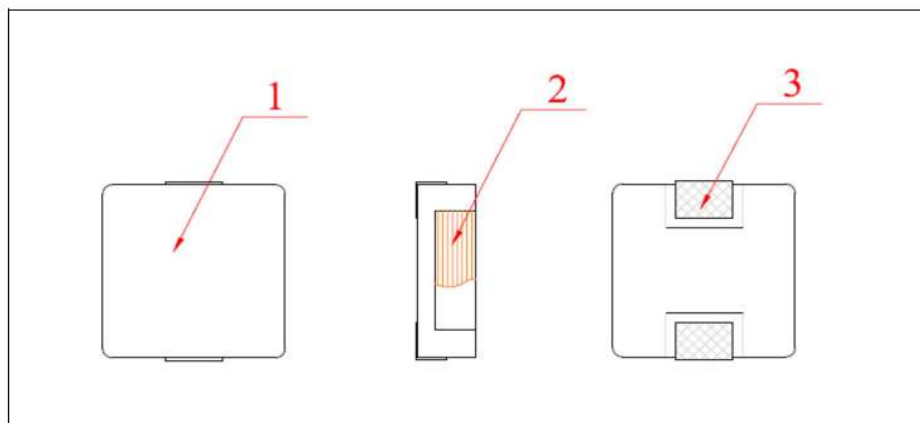
DRAWN NO.

PAGE 3/9

REVISION A

DATE 2021/12/17

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 AMPI107855GDR12MT

DRAWN NO.

PAGE

4/9

REVISION

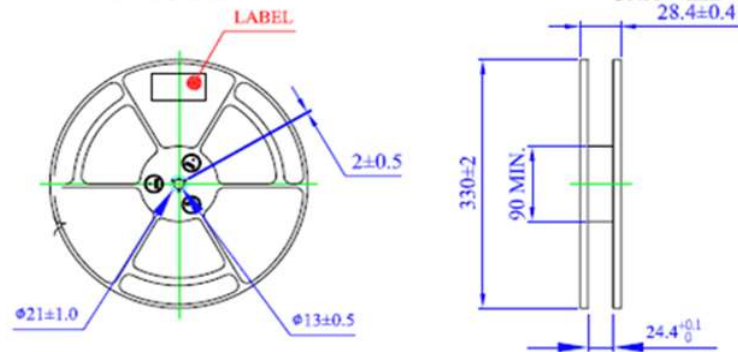
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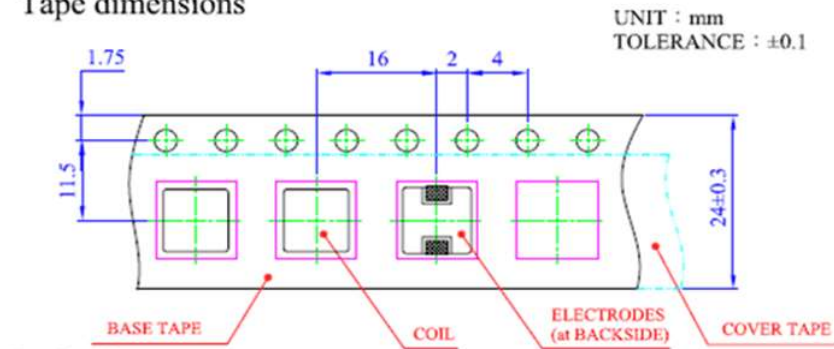
2021/12/17

PACKAGING

Reel dimensions



Tape dimensions



Packaging

Quantity : 500 pcs/reel

SPECIFICATION FOR APPROVAL

CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI107855GDR12MT

DRAWN NO.

PAGE

5/9

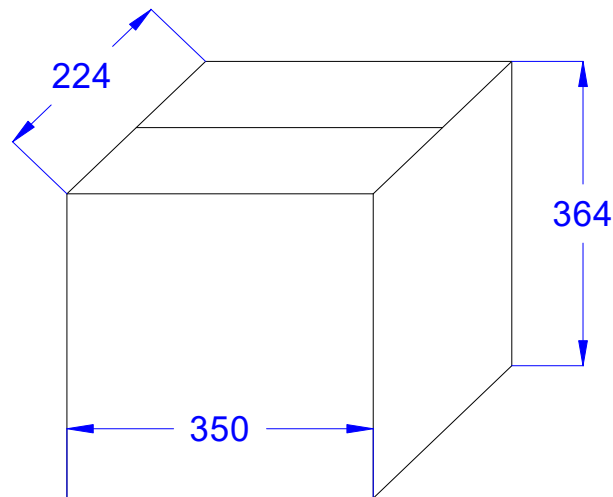
REVISION

A

DATE

2021/12/17

CARTON



500 pcs/reel

5 reel/carton

2500pcs/carton

Carton:350x224x364mm

SPECIFICATION FOR APPROVAL

CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI107855GDR12MT

DRAWN NO.

PAGE

6/9

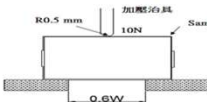
REVISION

A

DATE

2021/12/17

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 AMPI107855GDR12MT

DRAWN NO.

PAGE

7/9

REVISION

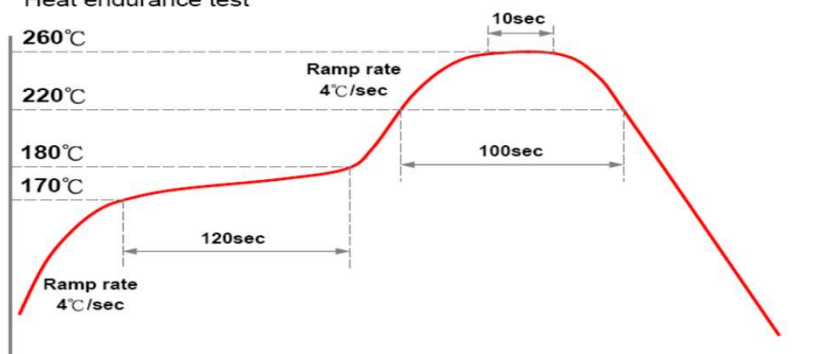
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DATE

2021/12/17

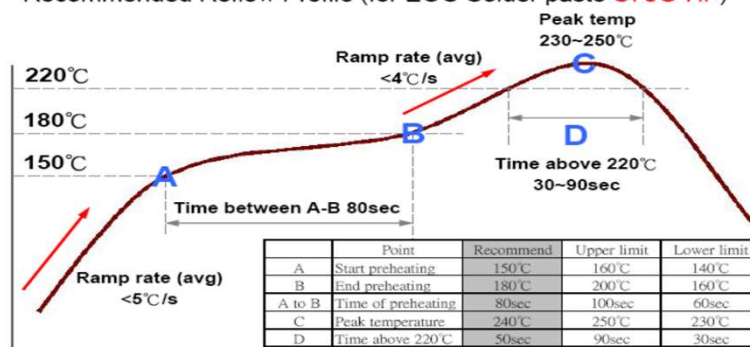
REFLOW-PROFILE

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.

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CUSTOMER

CUSTOMER'S P/N

ARLITECH P/N AMPI107855GDR12MT

DRAWN NO.

PAGE 8/9

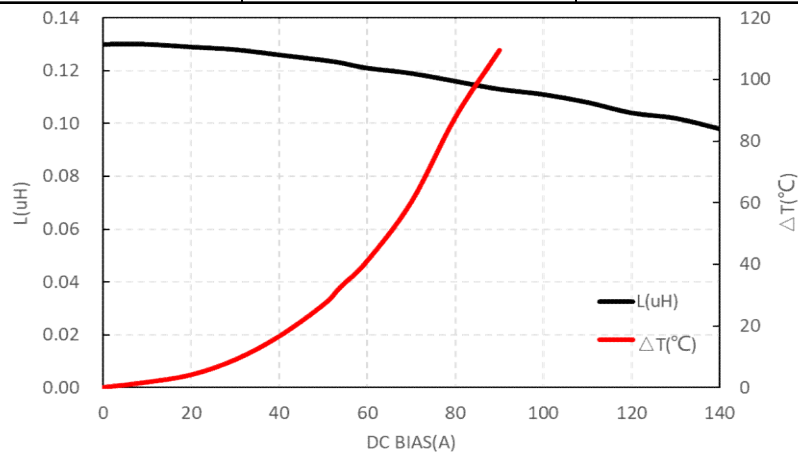
REVISION A

DATE 2021/12/17

Isat(Saturation Current):Transient current

AMPI107855GDR12MT

DC BIAS(A)	L(uH)	$\Delta T(^{\circ}\text{C})$
0	0.130	0.0
10	0.130	1.7
20	0.129	4.1
30	0.128	9.0
40	0.126	16.6
50	0.124	26.8
54	0.123	32.7
60	0.121	41.1
70	0.119	60.2
80	0.116	87.7
90	0.113	109.4
100	0.111	
110	0.108	
120	0.104	
130	0.102	
140	0.098	



* 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 AMPI107855GDR12MT

DRAWN NO.

PAGE 9/9

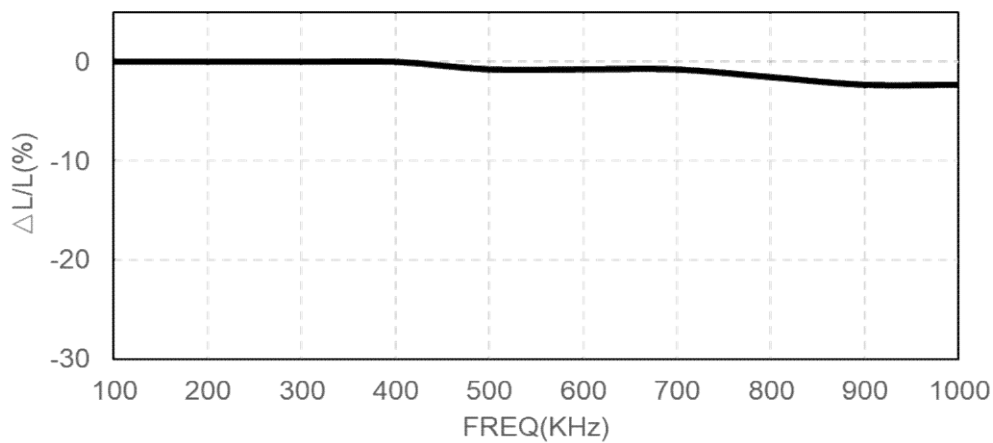
REVISION A

DATE 2021/12/17

L-F CURVE

AMPI107855GDR12MT

FREQ(KHz)	L(uH)	$\Delta L/L(\%)$
100	0.129	0.00%
200	0.129	0.00%
300	0.129	0.00%
400	0.129	0.00%
500	0.128	-0.78%
600	0.128	-0.78%
700	0.128	-0.78%
800	0.127	-1.55%
900	0.126	-2.33%
1000	0.126	-2.33%



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

TEST TEMP. 20~25°C

DATE 2021/12/17

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.	0.12 ± 20%	0.46Typ. 0.50Max	140A Typ. ΔL/L≒30%	54A Typ. ΔT≒40°C				7.9±0.2	11.2±0.5	5.3±0.2	5.0±0.5	2.0±0.5
TEST FREQ.	100KHz/1V		100KHz/1V	100KHz/1V								
1	0.130	0.456	0.098	32.7				7.99	11.47	5.39	4.92	2.18
2	0.129	0.458	0.097	33.2				7.99	11.45	5.42	4.89	2.15
3	0.130	0.467	0.098	33.0				7.98	11.46	5.40	4.95	2.21
4	0.128	0.462	0.096	32.9				7.98	11.47	5.44	4.88	2.23
5	0.129	0.455	0.097	32.8				7.94	11.45	5.41	4.89	2.21
6	0.127	0.461	0.096	32.6				7.96	11.48	5.38	4.98	2.18
7	0.131	0.459	0.099	32.9				7.97	11.47	5.42	4.92	2.24
8	0.130	0.463	0.098	33.3				7.96	11.47	5.45	4.93	2.20
9	0.128	0.460	0.096	33.1				7.95	11.45	5.43	4.93	2.16
10	0.128	0.458	0.096	32.9				7.99	11.46	5.44	4.94	2.19
AVG.	0.129	0.4599	0.0971	32.94				7.971	11.463	5.418	4.923	2.195
R	0.004	0.012	0.003	0.7				0.05	0.03	0.07	0.10	0.09

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