



AIP0630GX-MPA Series

Data Sheet

Product Name	AIP0630GX-MPA Series
Series	Molding Power Inductor
Size	0630
Version	A0

Molding Power Inductor

Scope

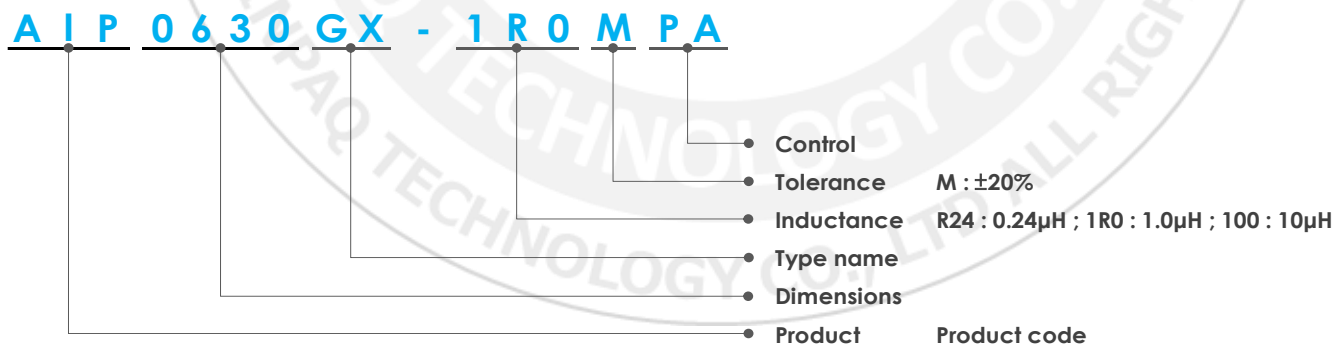
Features

- Thickness max. 3mm.
- Flux shielded structure, low radiation.
- High saturation current realized by coil design and alloy powder.
- Low power loss and temperature rising realized by low DC Resistance.
- Low AC loss realized by powder, binder and structure design.

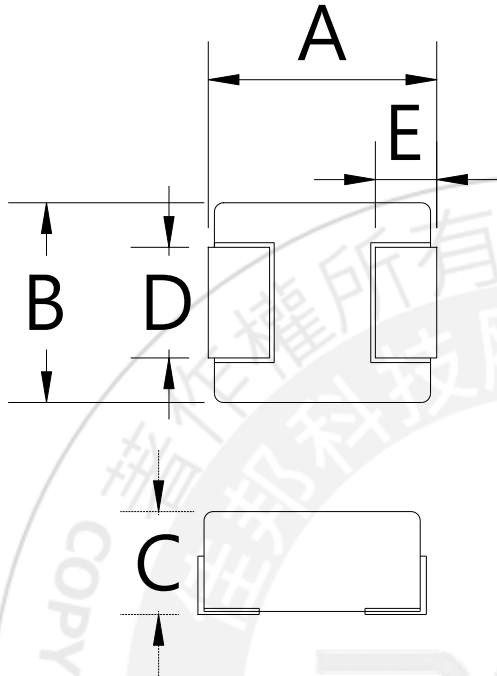
Applications

- 5G
- ADAS / Infotainment
- Server / Industry / VGA
- Desktop / NB / MB
- DC to DC converter in low profile high current system such as CPU, VRM, V-core, VGA card...etc.

Explanation of Part Number

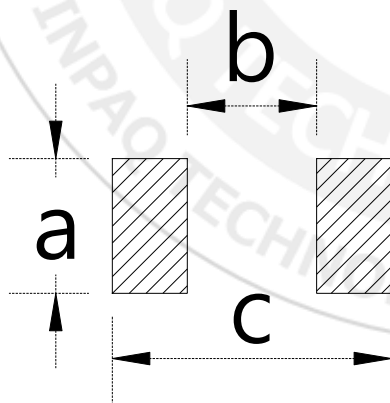


Dimensions



Code	Dimensions[mm]
A	7.1 ± 0.4
B	6.5 ± 0.3
C	3.0 max
D	3.0 ± 0.2
E	2.0 ± 0.4

Recommended land pattern



Code	Dimensions[mm]
A	3.5
B	2.7
C	8.4

Marking

The inductor is marked with a 3-digit code (using ink for marking).

Example: R24 means 0.24 μ H
1R0 means 1.0 μ H
100 means 10 μ H



1R0

Specifications

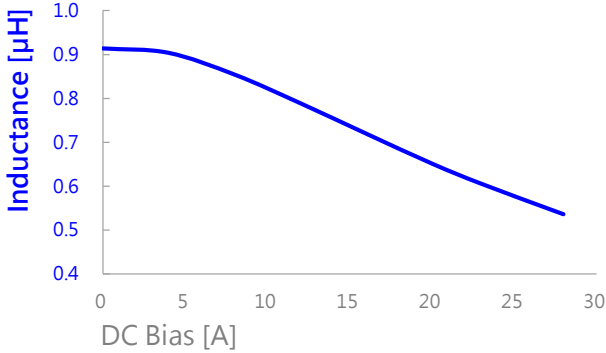
0630 Series PN	Li [μ H]	Rdc [m Ω]		Isat [A]		Irms [A]		SRF [MHz]
	Initial Value	DC resistance		Li drop 30%		Temp. rising 40°C		Resonance
	+/-20%	typ.	max.	typ.	max.	typ.	max.	typ.
AIP0630GX-1R0MPA	1.0	5.3	5.95	23	20.7	18	17.1	48
AIP0630GX-1R8MPA	1.8	8.5	9.5	18.2	16.4	13	12.4	34
AIP0630GX-2R2MPA	2.2	11.7	13.1	15.9	14.3	10.4	9.9	32
AIP0630GX-3R3MPA	3.3	17.5	19.2	12.2	11.0	8.4	8.0	25
AIP0630GX-4R7MPA	4.7	26.3	29.3	12.6	11.3	7.1	6.7	21
AIP0630GX-6R8MPA	6.8	39.5	44.5	10.8	9.7	5.5	5.2	16.5
AIP0630GX-100MPA	10	53	62	6.5	6.0	4.9	4.7	13.7
AIP0630GX-220MPA	22	115	134	5.0	4.5	3.5	3.3	9.1

Notes

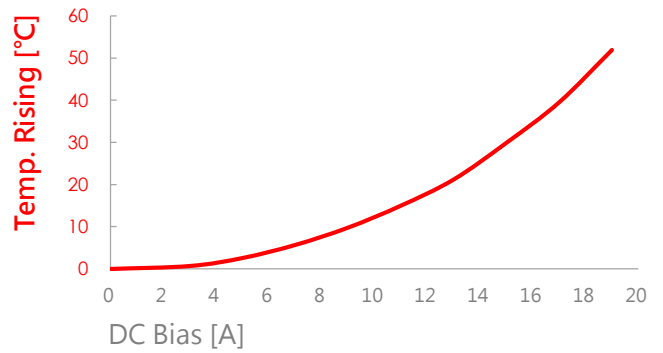
1. Test environment of all data is referenced to 25°C ambient.
2. Test conditions: 1MHz, 1Vrms.
3. Isat : DC current (A) that will cause L to drop approximately 30%.
4. Irms : DC current (A) that will cause an approximate ΔT of 40°C (reference ambient temperature is 25°C).
5. Operating temperature range – 40°C to +125°C.
6. The part temperature (ambient + temp rise) should not exceed 125°C under worst case operating conditions. PCB land pattern, trace size - thick, circuit design and proximity to other components are all the factors will affect the temperature performance of the device. Therefore should be approved in application conditions and end product.
7. Rdc Measured with DC resistance meters RM3543(HIOKI) or equivalent.

Typical Performance Curves

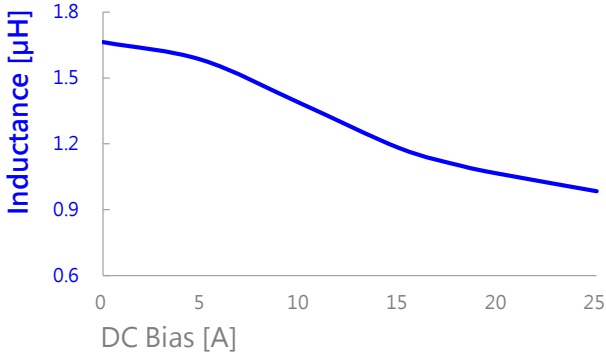
AIP0630GX-1R0MPA



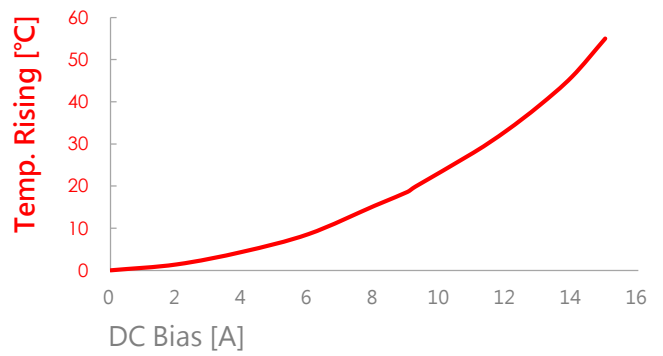
AIP0630GX-1R0MPA



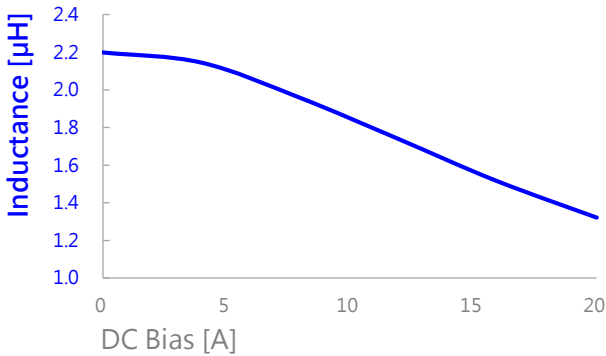
AIP0630GX-1R8MPA



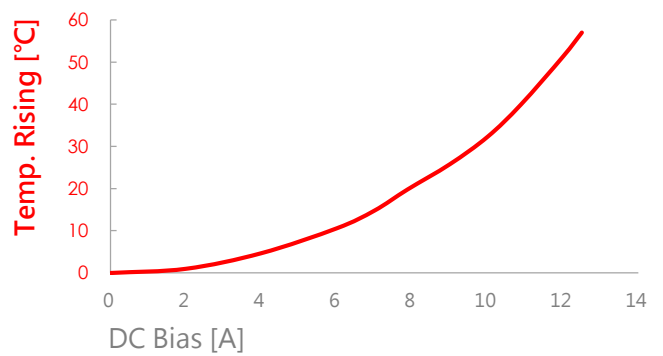
AIP0630GX-1R8MPA



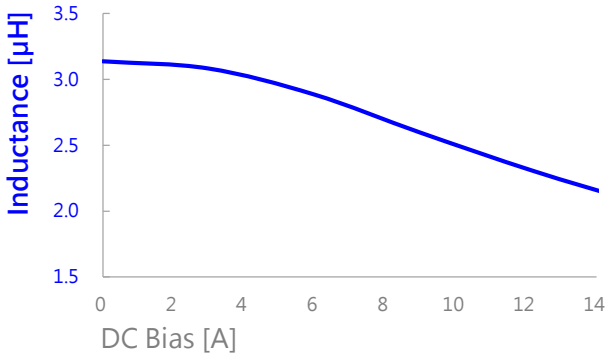
AIP0630GX-2R2MPA



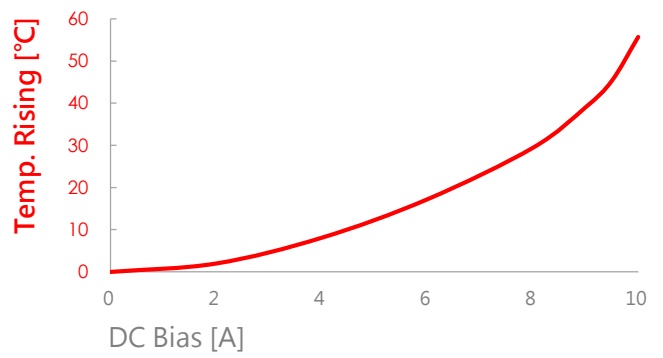
AIP0630GX-2R2MPA



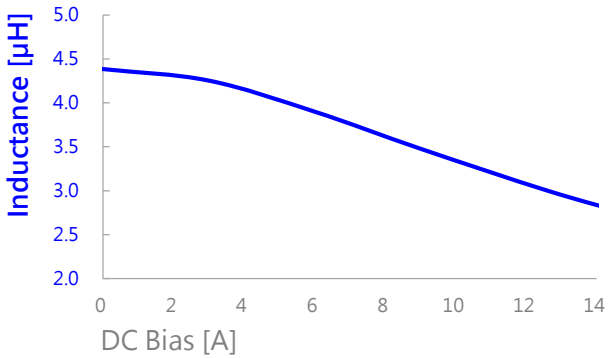
AIP0630GX-3R3MPA



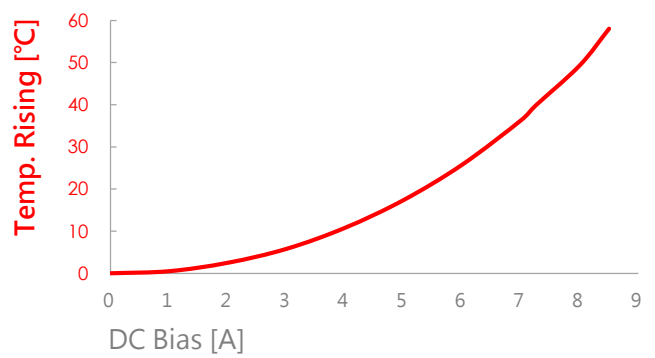
AIP0630GX-3R3MPA



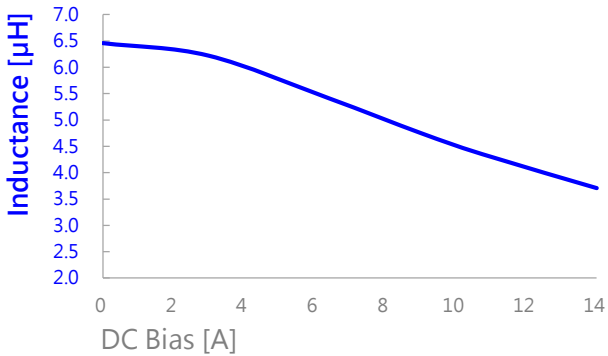
AIP0630GX-4R7MPA



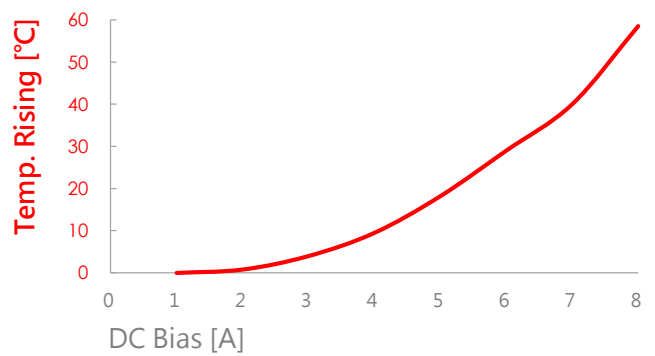
AIP0630GX-4R7MPA



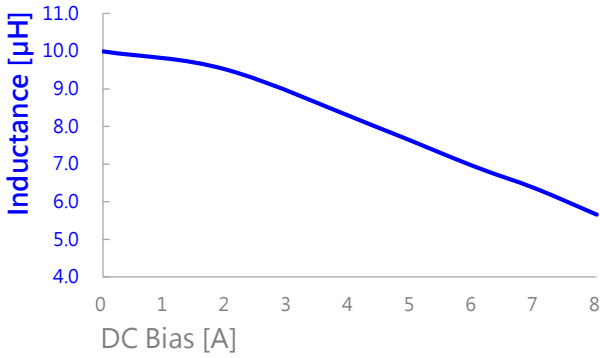
AIP0630GX-6R8MPA



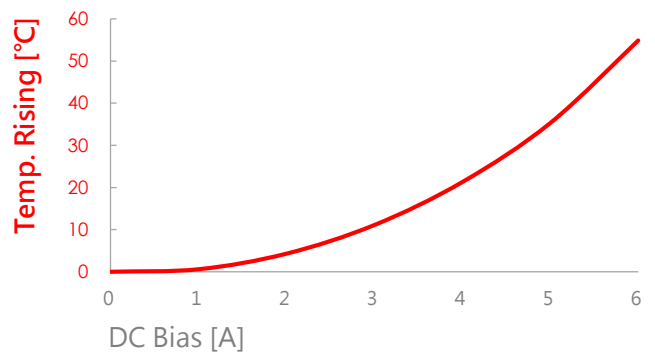
AIP0630GX-6R8MPA



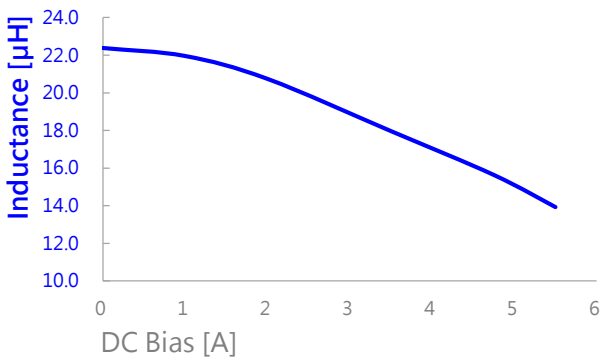
AIP0630GX-100MPA



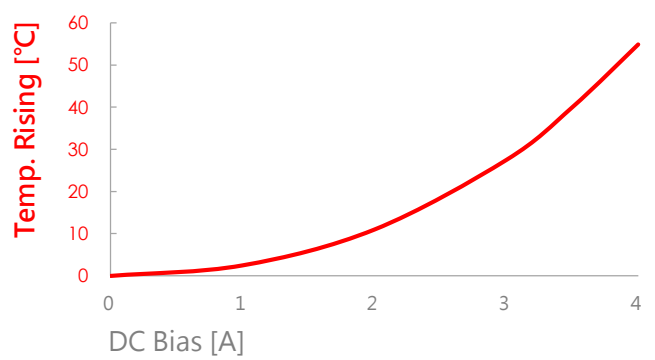
AIP0630GX-100MPA



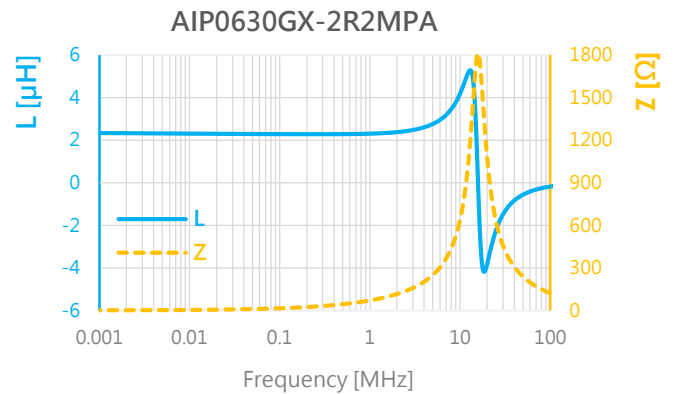
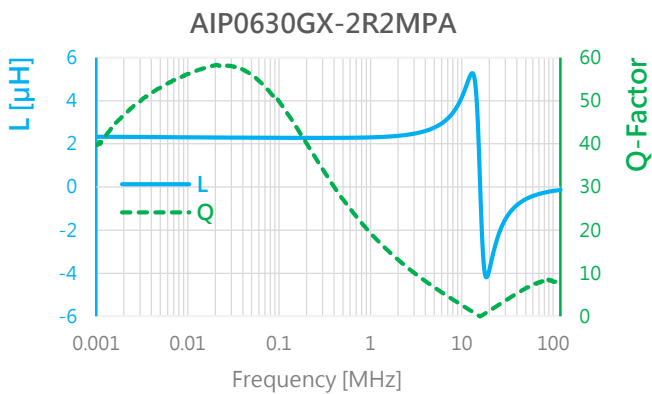
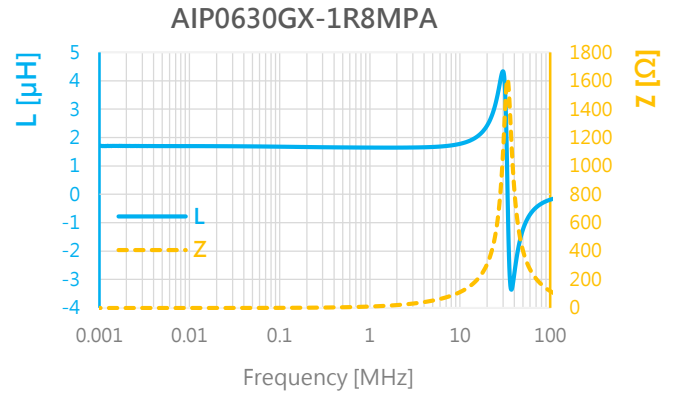
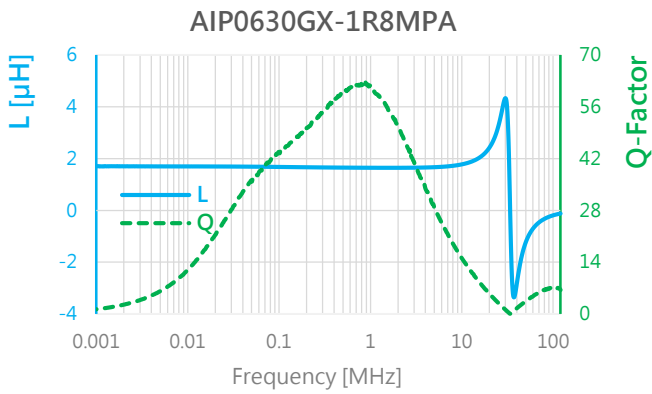
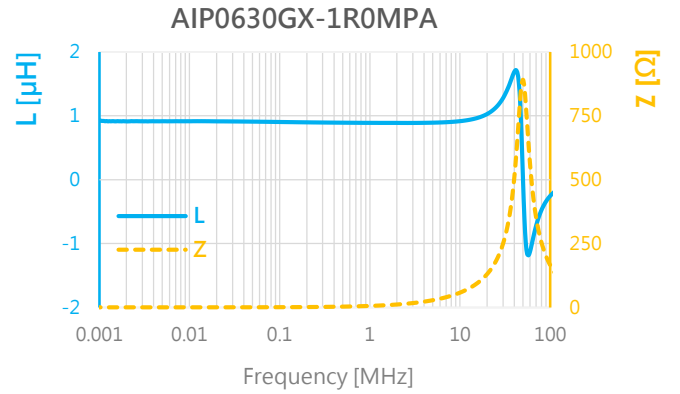
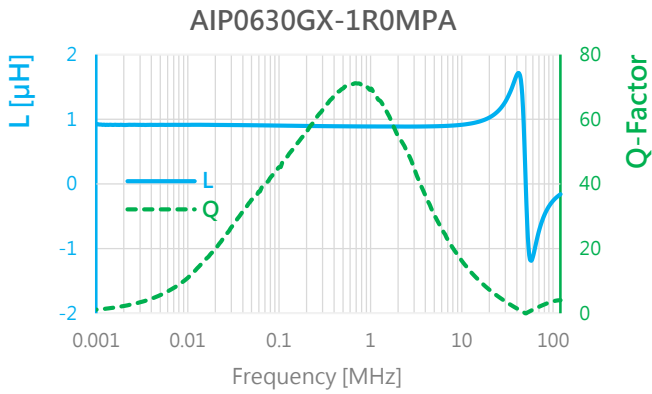
AIP0630GX-220MPA

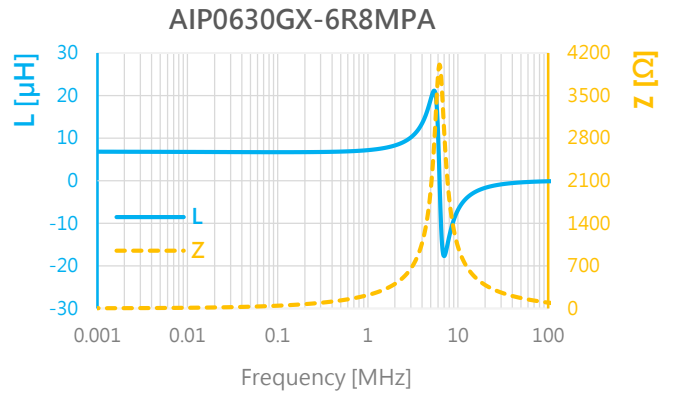
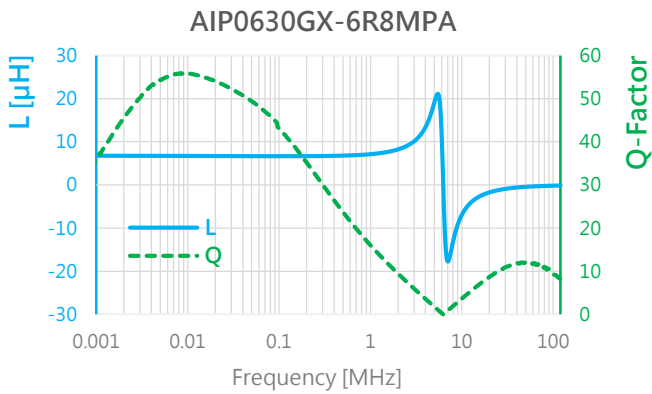
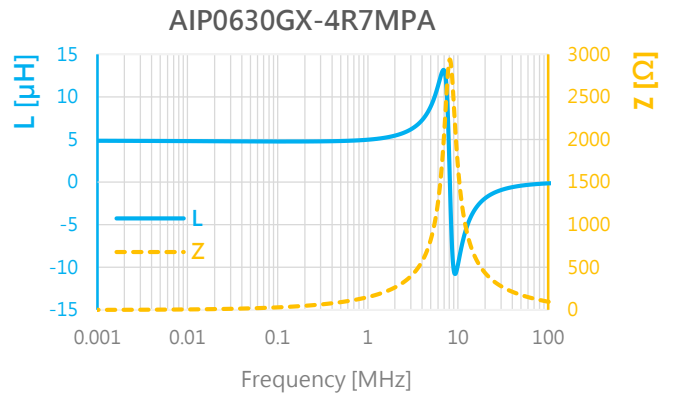
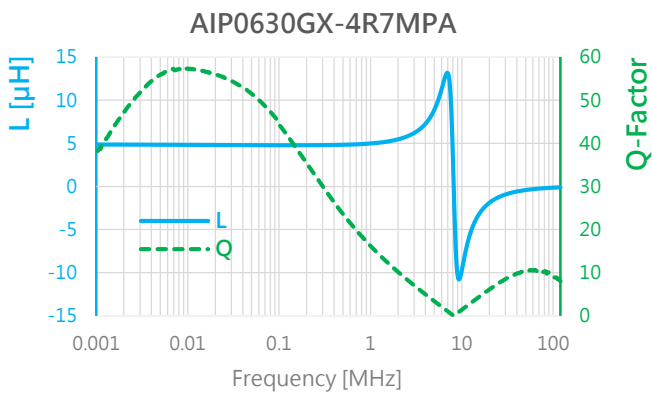
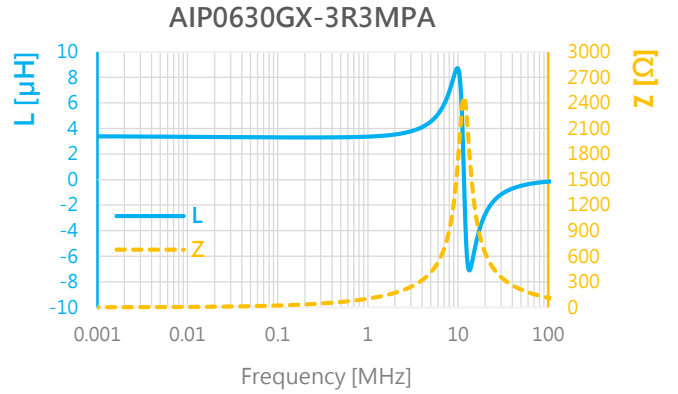
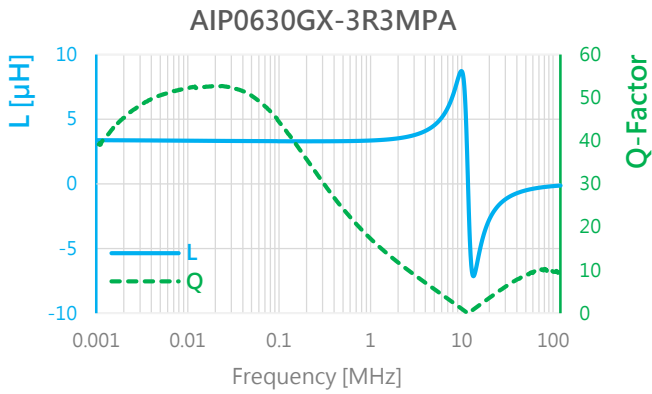


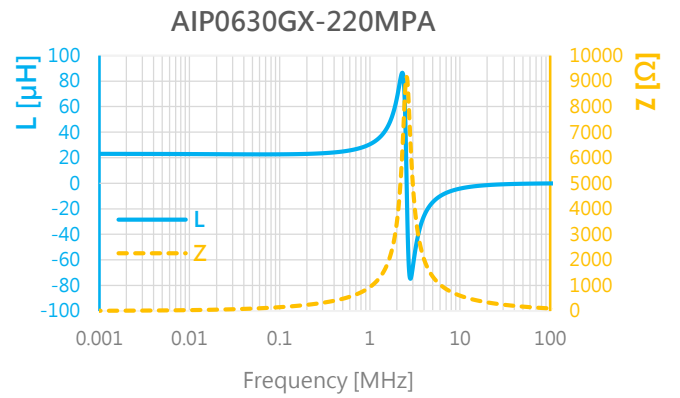
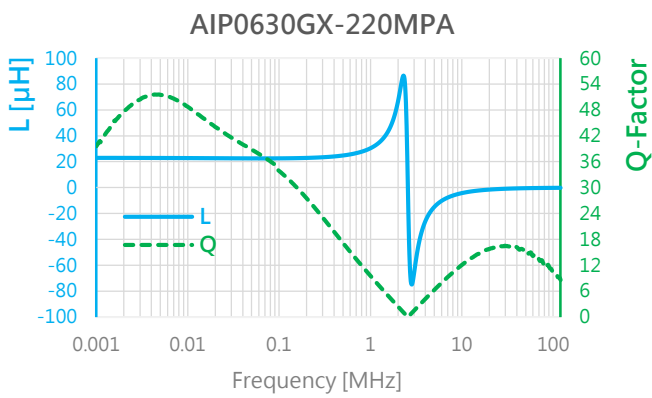
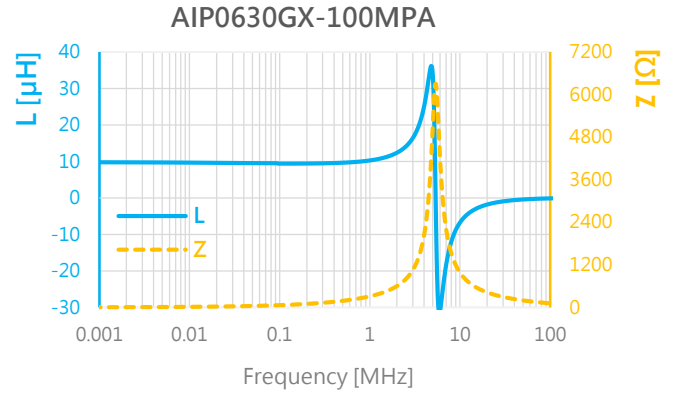
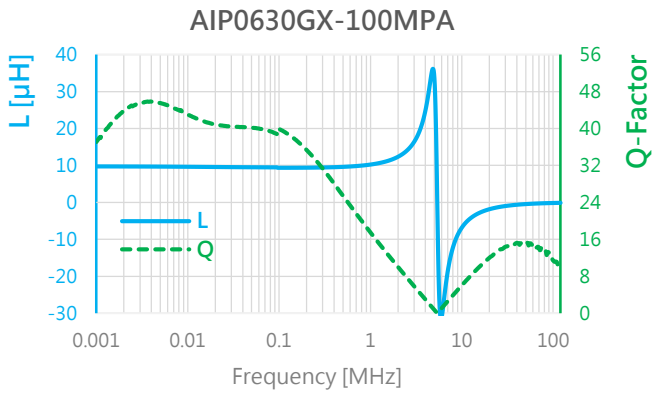
AIP0630GX-220MPA



Inductance and Q vs. Frequency



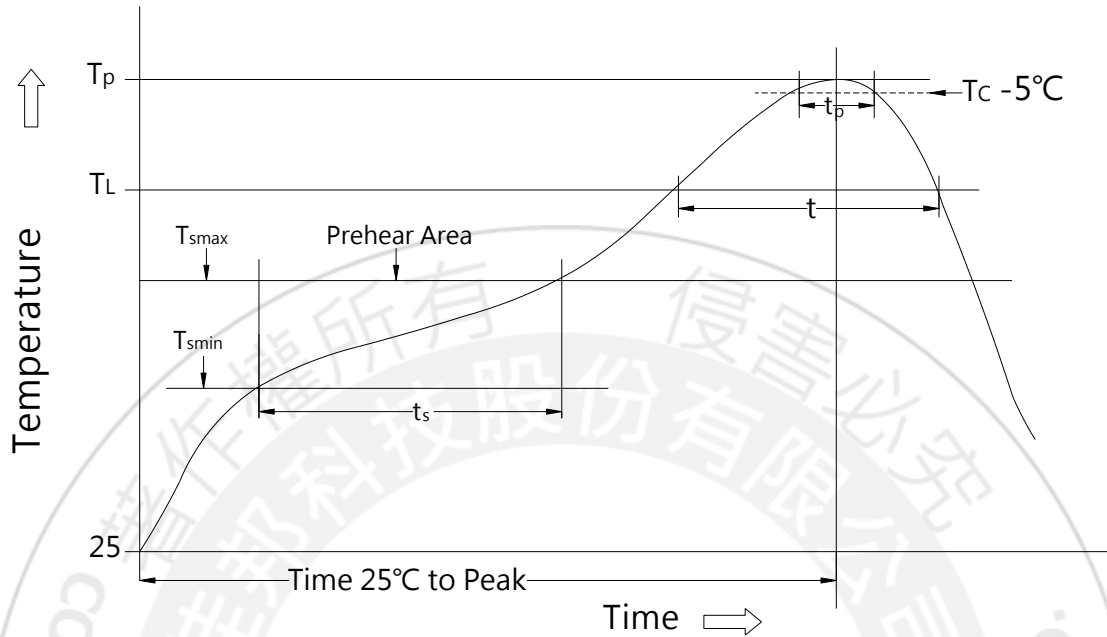




Reliability and Test Condition

TEST ITEM	SPECIFICATION	TEST DETAILS
High temperature	Inductance change is less than $\pm 10\%$ without obvious appearance damage.	The Samples are stored for 1000 hours at an ambient temperature of $+125 \pm 2^\circ\text{C}$. Measurement at hours after test conclusion.
HAST	Inductance change is less than $\pm 10\%$ without obvious appearance damage.	The sample operates at a rated current of 96 hours at an ambient temperature of $+130 \pm 2^\circ\text{C}$ and 85% relative humidity. Measurement at 1 hour after test conclusion.
Thermal Shock	Inductance change is less than $\pm 10\%$ without obvious appearance damage.	(1) 100 cycles, the temperature changes to -40°C for 30 minutes, $+125^\circ\text{C}$ for 30 minutes, the conversion time is less than 2 minutes (2) Recovery: 48 (+4, -0) hours of recovery under the standard condition after the test.
Operational Life	Inductance change is less than $\pm 10\%$ without obvious appearance damage.	The sample is adjusted to the current at $+85 \pm 2^\circ\text{C}$ ambient temperature until the surface temperature reaches $+125^\circ\text{C}$ and run for 168 hours. Measurement at 1 hour after test conclusion.
Bending	Inductance change is less than $\pm 10\%$ without obvious appearance damage.	Apply pressure gradually in the direction of the arrow at a rate of about 0.5mm/s until bent depth reaches 2mm and hold for 60 seconds.
Terminal Strength	Inductance change is less than $\pm 10\%$ without obvious appearance damage.	With the component mounted on a PCB Apply 20N force to the side of a device being tested. This force shall be applied for 60 +1 seconds.
Resistance to older Heat	More than 95% of terminal electrode should be covered with new solder. Inductance change is less than $\pm 10\%$ without obvious appearance damage.	The sample with the flux should be immersed to a depth of 1.5mm below the lower core surface into solder at a temperature of $+260^\circ\text{C}$ (+5, -5) for a duration of 10 (+1, -0) seconds for a duration of 2 times. Measurement at 1 hour after test conclusion.

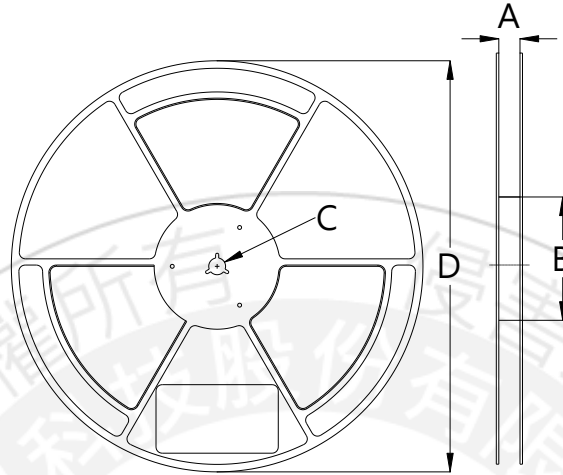
Recommendable Reflow Soldering



Profile Feature	Pb-Free Assembly
Preheat - Temperature Min (T_{smin}) - Temperature Max (T_{smax}) - Time (t_s) from (T_{smin} to T_{smax})	150°C 200°C 60-120 seconds
Ramp-up rate (T_L to T_P)	3°C / second max.
Liquidous temperature (T_L) Time (t) maintained above T_L	217°C 60-150 seconds
Peak package body temperature (T_P)	260°C +0/-5°C
Time within 5°C of actual peak temperature (t_p)	10-30 seconds
Ramp-down rate (T_P to T_L)	6°C / second max.
Time 25°C to peak temperature	8 minutes max.
Number of Reflow cycles allowed	2 cycles max.

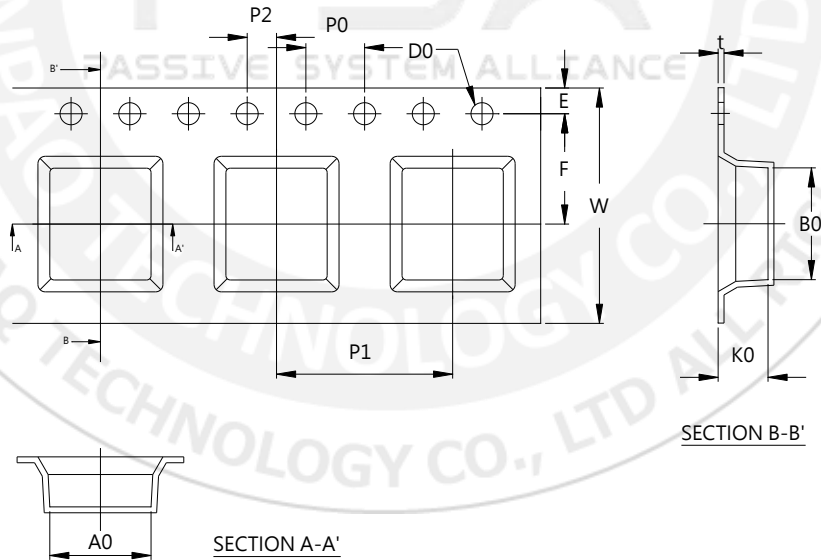
Tape & Reel

► Reel dimensions (unit: mm)



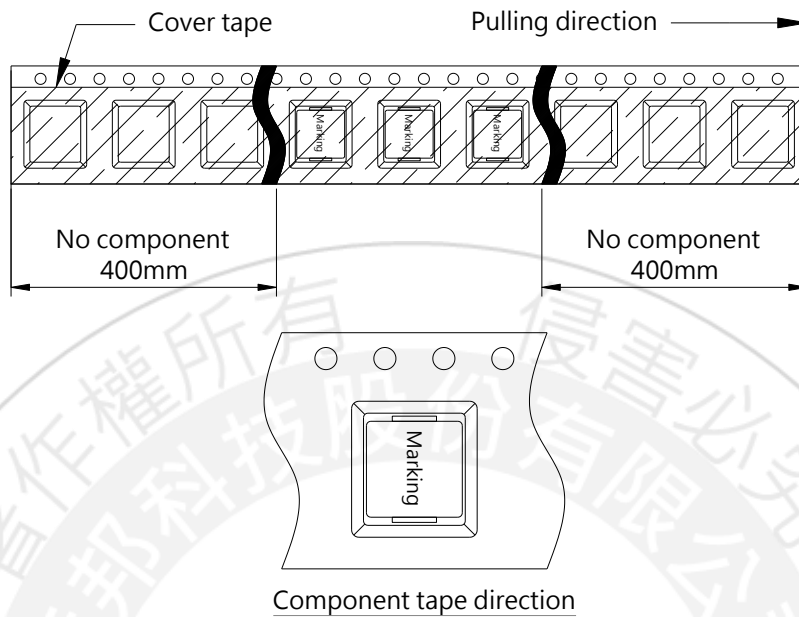
Type	A	B	C	D
13'x16	16.3±0.2	100±0.2	13+0.3/-0.1	330±1.0

► Tape dimensions (unit: mm)



Type	W	P1	P0	P2	D0	†	A0	B0	K0	E	F
AIP0630GX	16 ±0.3	12 ±0.1	4 ±0.1	2 ±0.1	1.5 +0.1	0.4 ±0.05	6.9 ±0.1	7.6 ±0.1	3.4 ±0.1	1.75 ±0.1	7.5 ±0.1

► Taping Drawings



► Taping Package Storage Condition

Storage Temperature: 5 to 40°C
Relative Humidity: < 65%RH
Storage Time: 12 months max

► Label Marking

The label specified as follows shall be put on the side of reel.

- (1) Part No.
- (2) Quantity.
- (3) Lot No.

* Part No. And Quantity shall be marked on outer packaging.

► Quantity of products in the package

Type	Reel
AIP0630GX	1000