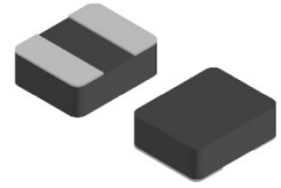


FEATURES

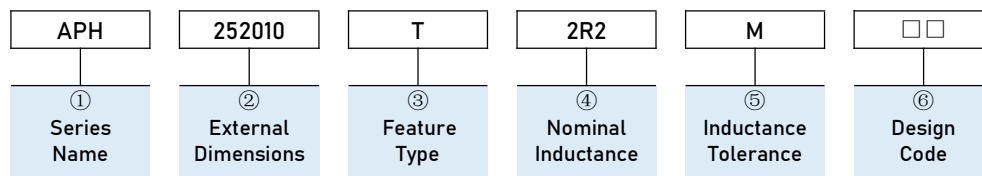
- Metal material for large current and low loss.
- Ultra low buzz noise.
- Metal material for large current and low loss.
- Closed magnetic circuit design reduces leakage.



APPLICATIONS

- Smart phone, set top box, VR, AR
- SSD, Bluetooth, Wi-Fi module
- Laptops and PCs
- Base stations
- RoHS, REACH Compliance.

PART NUMBERING



| ① Series Name | |
|---------------|----------------------------|
| APH | Molded SMD Power Inductors |

| ② External Dimensions(L×W×H) [mm] | |
|-----------------------------------|-------------|
| 201208 | 2.0x1.2x0.8 |
| 201610 | 2.0x1.6x1.0 |
| 252010 | 2.5x2.0x1.0 |
| 252012 | 2.5x2.0x1.2 |

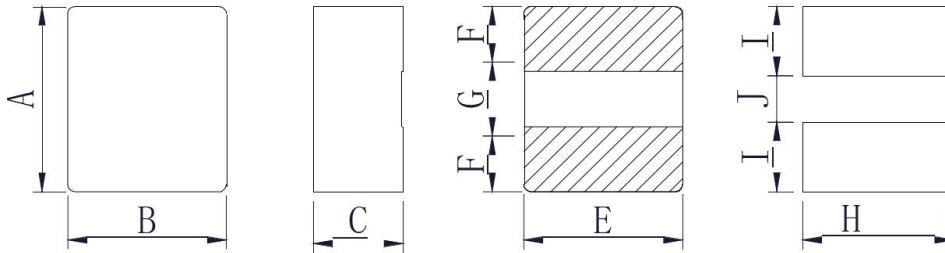
| ③ Feature Type | |
|----------------|----------|
| T | Standard |

| ⑤ Inductance tolerance | |
|------------------------|----------------------|
| Code (example) | Inductance tolerance |
| M | ±20% |

| ④ Nominal inductance | |
|----------------------|-------------------------|
| Code (example) | Nominal inductance [μH] |
| R47 | 0.47 |
| 2R2 | 2.2 |
| 4R7 | 4.7 |

| ⑥ Design Code | |
|---------------|---------------------------|
| □□ | Standard product is blank |

DIMENSIONS & RECOMMENDED LAND PATTERN



Recommended Land Pattern

Unit: mm

| Series | Dimensions | | | | | | Recommended Land Pattern | | |
|-----------|------------|---------|--------|--------|--------|--------|--------------------------|--------|--------|
| | A | B | C Max. | E Typ. | F Typ. | G Typ. | H Typ. | I Typ. | J Typ. |
| APH201208 | 2.0±0.2 | 1.2±0.2 | 0.80 | 1.2 | 0.8 | 0.5 | 1.4 | 0.9 | 0.5 |
| APH201610 | 2.0±0.2 | 1.6±0.2 | 1.00 | 1.6 | 0.7 | 0.6 | 1.8 | 0.9 | 0.5 |
| APH252010 | 2.5±0.2 | 2.0±0.2 | 1.00 | 2 | 0.9 | 0.7 | 2.1 | 1.0 | 0.6 |
| APH252012 | 2.5±0.2 | 2.0±0.2 | 1.20 | 2 | 0.9 | 0.7 | 2.1 | 1.0 | 0.6 |

ELECTRICAL CHARACTERISTICS

● APH201208 Series

| Part Number | Inductance | Inductance Tolerance | Saturation Current | Heat Rating Current | DC Resistance | |
|----------------|------------|----------------------|--------------------|---------------------|---------------|------|
| | @100kHz,1V | | Max. | Max. | Max. | Typ. |
| Units | μH | - | A | A | mΩ | |
| Symbol | L | - | Isat | Irms | DCR | |
| APH201208TR47M | 0.47 | ±20% | 4.60 | 2.70 | 50 | 34 |
| APH201208T1R0M | 1 | ±20% | 3.50 | 2.40 | 70 | 55 |
| APH201208T2R2M | 2.2 | ±20% | 2.30 | 1.50 | 185 | 160 |

● APH201610 Series

| Part Number | Inductance | Inductance Tolerance | Saturation Current | Heat Rating Current | DC Resistance | |
|----------------|------------|----------------------|--------------------|---------------------|---------------|------|
| | @100kHz,1V | | Max. | Max. | Max. | Typ. |
| Units | μH | - | A | A | mΩ | |
| Symbol | L | - | Isat | Irms | DCR | |
| APH201610TR22M | 0.22 | ±20% | 6.30 | 5.80 | 22 | 16 |
| APH201610TR24M | 0.24 | ±20% | 6.30 | 5.80 | 22 | 16 |
| APH201610TR33M | 0.33 | ±20% | 6.20 | 5.30 | 24 | 19 |
| APH201610TR47M | 0.47 | ±20% | 6.00 | 5.60 | 28 | 22 |
| APH201610TR68M | 0.68 | ±20% | 5.50 | 5.00 | 34 | 24 |
| APH201610T1R0M | 1 | ±20% | 4.20 | 4.10 | 43 | 38 |
| APH201610T1R5M | 1.5 | ±20% | 2.90 | 2.30 | 100 | 90 |
| APH201610T2R2M | 2.2 | ±20% | 2.80 | 2.10 | 150 | 135 |
| APH201610T3R3M | 3.3 | ±20% | 2.00 | 1.50 | 180 | 162 |
| APH201610T4R7M | 4.7 | ±20% | 1.50 | 1.15 | 250 | 229 |

ELECTRICAL CHARACTERISTICS

● APH252010 Series

| Part Number | Inductance | Inductance Tolerance | Saturation Current | Heat Rating Current | DC Resistance | |
|----------------|------------|----------------------|--------------------|---------------------|---------------|------|
| | @100kHz,1V | | Max. | Max. | Max. | Typ. |
| Units | μ H | - | A | A | m Ω | |
| Symbol | L | - | Isat | Irms | DCR | |
| APH252010TR24M | 0.24 | $\pm 20\%$ | 7.80 | 6.40 | 21 | 15.5 |
| APH252010TR33M | 0.33 | $\pm 20\%$ | 7.20 | 6.20 | 22 | 16 |
| APH252010TR47M | 0.47 | $\pm 20\%$ | 6.50 | 5.60 | 23 | 17 |
| APH252010TR68M | 0.68 | $\pm 20\%$ | 5.50 | 5.00 | 29 | 22 |
| APH252010T1R0M | 1 | $\pm 20\%$ | 4.80 | 4.10 | 33 | 25 |
| APH252010T1R5M | 1.5 | $\pm 20\%$ | 3.90 | 3.00 | 55 | 42 |
| APH252010T2R2M | 2.2 | $\pm 20\%$ | 3.00 | 2.10 | 70 | 62 |
| APH252010T3R3M | 3.3 | $\pm 20\%$ | 2.50 | 2.00 | 100 | 86 |
| APH252010T4R7M | 4.7 | $\pm 20\%$ | 2.00 | 1.60 | 160 | 145 |

● APH252012 Series

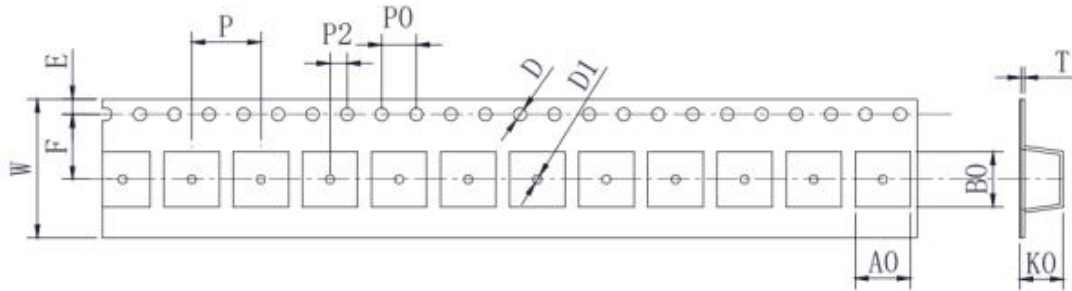
| Part Number | Inductance | Inductance Tolerance | Saturation Current | Heat Rating Current | DC Resistance | |
|----------------|------------|----------------------|--------------------|---------------------|---------------|------|
| | @100kHz,1V | | Max. | Max. | Max. | Typ. |
| Units | μ H | - | A | A | m Ω | |
| Symbol | L | - | Isat | Irms | DCR | |
| APH252012T1R0M | 1 | $\pm 20\%$ | 4.30 | 3.30 | 42 | 38 |
| APH252012T2R2M | 2.2 | $\pm 20\%$ | 3.30 | 2.20 | 75 | 64 |

RELIABILITY DATA

| Items | Requirements | Test Methods and Remarks |
|--------------------------------|---|---|
| Insulation Resistance | $\geq 100M\Omega$ | 100 V DC between inductor coil and The middle of the top surface of the body for 60 seconds. |
| Solderability | 90% or more of electrode area shall be coated by new solder. | Dip pads in flux and dip in solder pot (96.5Sn/3.0Ag/0.5Cu) at $(245\pm 5)^\circ\text{C}$ for (5 ± 1) seconds. |
| Resistance to Soldering Heat | No visible mechanical damage. Inductance change: Within $\pm 10\%$ | Dip pads in flux and dip in solder pot (96.5Sn/3.0Ag/0.5Cu) at $(260\pm 5)^\circ\text{C}$ for (10 ± 1) seconds. |
| Adhesion of terminal electrode | Strong bond between the pad and the core, without come off PC board. | Inductors shall be subjected to $(260\pm 5)^\circ\text{C}$ for (20 ± 5) s Soldering in the base whit 0.3mm solder. And then aplomb electrode way plus tax 10 N for (10 ± 1) seconds. |
| High temperature | No visible mechanical damage. Inductance change: Within $\pm 10\%$ | Temperature is $(+85\pm 2)^\circ\text{C}$ and keep (96 ± 2) hours. |
| Low temperature | No visible mechanical damage. Inductance change: Within $\pm 10\%$ | Temperature is $(-40\pm 2)^\circ\text{C}$ and keep (96 ± 2) hours. |
| Thermal shock | No visible mechanical damage. Inductance change: Within $\pm 10\%$ | The test sample shall be placed at $(-40\pm 3)^\circ\text{C}$ and $(125\pm 2)^\circ\text{C}$ for (30 ± 3) min, different temperature conversion time is 2~3 minutes. The temperature cycle shall be repeated 32 cycles. Placed at room temperature for 2 hours, within 48 hours of testing. |
| Temperature characteristic | Inductance change P_{c-b}, P_{c-d} : Within $\pm 20\%$ | a: $+20^\circ\text{C}$ (30~45) min \rightarrow b: -40°C (30~45) min \rightarrow c: $+20^\circ\text{C}$ (30~45) min \rightarrow d: $+125^\circ\text{C}$ (30~45) min \rightarrow e: $+20^\circ\text{C}$ (30~45) min $P_{c-b} = L_b - L_c \cdot 100\%$; $P_{c-d} = L_d - L_c \cdot 100\%$ Lc Lc |
| Static Humidity | No visible mechanical damage. Inductance change: Within $\pm 10\%$ | Inductors shall be subjected to $(93\pm 3)\%RH$. at $(60\pm 2)^\circ\text{C}$ for (96 ± 2) h . Placed at room temperature for 2 hours, within 48 hours of testing. |
| Life | No visible mechanical damage. Inductance change: Within $\pm 10\%$ | Inductors shall be store at $(85\pm 2)^\circ\text{C}$ for (1000 ± 24) hours with I_{rms} applied. Placed at room temperature for 2 hours, within 48 hours of testing. |

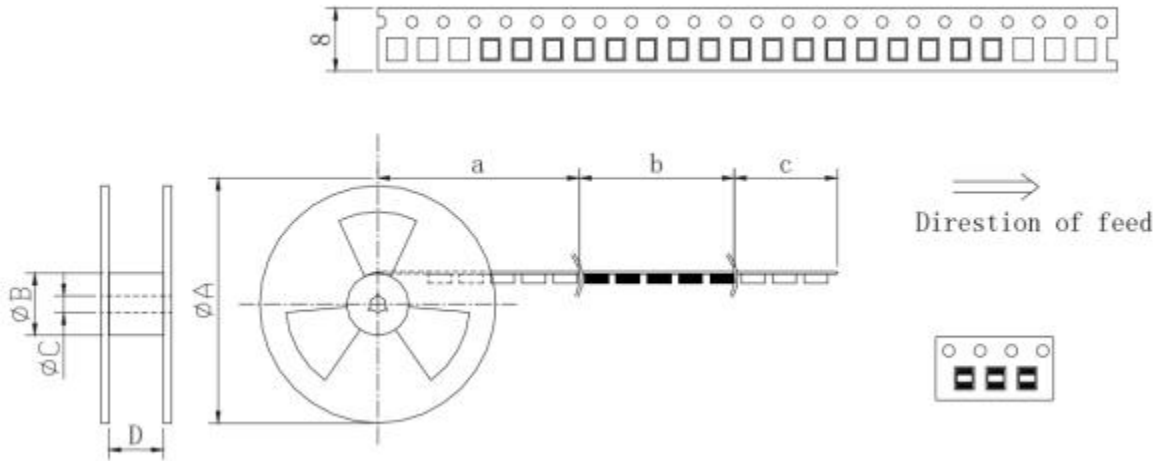
PACKAGE

Tape Dimension (Unit:mm)



| W | A0 | B0 | D | D1 | E | F | K0 | P0 | P2 | P | T |
|-------|---------|---------|---------|--------|----------|---------|----------|---------|---------|---------|-----------|
| 8±0.3 | 2.2±0.1 | 2.7±0.1 | 1.5±0.1 | 1.0MIN | 1.75±0.1 | 3.5±0.1 | 1.15±0.1 | 4.0±0.3 | 2.0±0.3 | 4.0±0.3 | 0.25±0.05 |

Direction of feed (Unit:mm)



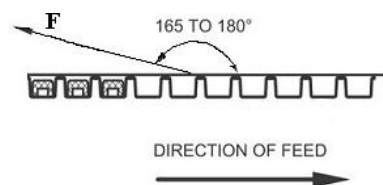
| A | B | C | D | a | b | c |
|-------------|------------|------------|-------------|-------------------|----------------|--------|
| 178 Typ. | 58 Typ. | 13 Typ. | 8.4 Typ. | Blank portions | Chip cavity | Leader |

Packing quantity

| Reel(PCS) | Box (PCS) | Carton (PCS) |
|-----------|-----------|--------------|
| 3000 | 15000 | 150000 |

Peeling required

- F force: 10~130g;
- Peeling speed: 300mm/min±10%;
- Peeling angle: 165°~180°.



RECOMMENDED SOLDERING PROFILE

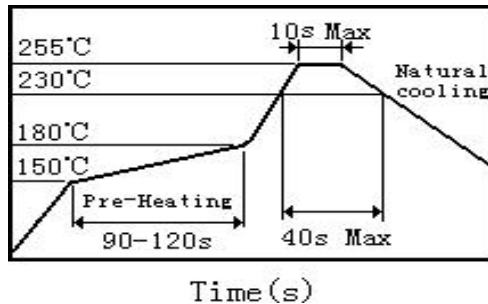
Applicable soldering process to the products is reflow soldering.

Soldering Materials

(1) Solder: Sn-3.0Ag-0.5Cu

(2) Flux: Use rosin-based flux, but not strongly acidic flux (with chlorine exceeding 0.2 wt%). Do not use water-soluble flux.

Soldering Profile



Soldering Iron

Reworking with electric soldering iron must preheating at 150°C for 1 minute is required, and do not directly touch the core with the tip of the soldering iron. The reworking soldering conditions are as follows:

- * Temperature of soldering iron tip: 350°C;
- * Soldering iron power output: ≤30W;
- * Diameter of soldering iron end: ≤1.0mm;
- * Soldering time: <3 s

CLEANING

***The following conditions should be observed when cleaning the products:**

*Cleaning Temperature: 60°C max. (40°C max. for alcohol cleaning agents)

Ultrasonic:

Output: 20 W/L max.

Duration: 5 min max.

Frequency: 28 to 40kHz

Avoid the resonance between PCB and mounted products when it is cleaning.

Storage Methods

Storage Period

To maintain the solderability of terminal electrodes and to keep the packing material in good condition, product should be used within 6 months from the time of delivery. And the solderability of products electrodes may decrease as time passes, so in case of storage over 6 months, solderability shall be checked before actual usage.

Storage Conditions

Store products in a warehouse in compliance with the following condition:

(Temperature): Inductors (product with taping) -10 to +40°C;
Inductors body -40 to +85°C.

(Humidity): 30~70%RH.

- *Do not subject products to rapid changes in temperature and humidity.
- *Do not store the products in chemical atmosphere such as one containing sulfurous acid gas or alkaline gas, that will causes poor solderability and corrosion of inductors.
- *Do not store products in bulk packaging to prevent collision among inductors which causes core chipping and wire breakage.
- *Store products on pallets to protect from humidity, dust, etc.
- *Avoid heat shock, vibration, direct sunlight, etc.

Precautions For Use

- *Our products are designed and promoted for use in general electronic devices such as audio-equipment, office automation equipment, household appliance and information service.
- *In case of using the product for the purpose other than general electronics devices, we shall not be held liable for any dysfunctions in or damage to the equipment with which the product is used.
- *Our specification limits the quality of the component as a single unit. Please ensure the component is thoroughly evaluated in your application circuit.
- *Do not apply excessive vibration or mechanical shock to products.
- *Donot touch wire with sharp objects such as tweezers to prevent wire breakage.
- *Do not apply excessive stress to products mounted on boards to prevent core breakage.

Note:

This series product is not applies in automotive or related products. Otherwise, we will shall not bear than the resulting all the problems of quality and responsibility.

Please be sure to request approval specifications that provide further details of the products. Kindly not that the content of these specifications are subject to change or may be discontinued without prior notice. This product may not be designed/used in medical or high risk applications without APV approval.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Fixed Inductors](#) category:

Click to view products by [APV](#) manufacturer:

Other Similar products are found below :

[CR32NP-100KC](#) [70F224AI](#) [MHQ1005P10NJ](#) [MHQ1005P1N0S](#) [MHQ1005P2N4S](#) [MHQ1005P3N6S](#) [MHQ1005P5N1S](#) [MHQ1005P8N2J](#)
[PE-53601NL](#) [PE-53602NL](#) [PG0936.113NLT](#) [9220-20](#) [9310-16](#) [PM06-2N7](#) [PM06-39NJ](#) [A01TK](#) [1206CS-471XJ](#) [HC2-R47-R](#) [HC8-1R2-R](#)
[HCF1305-3R3-R](#) [1206CS-151XG](#) [RCH664NP-4R7M](#) [RCP1317NP-391L](#) [DH2280-4R7M](#) [DS1608C-106](#) [B10TJ](#) [B82498B3101J000](#) [ELJ-](#)
[RE27NJF2](#) [1812CS-153XJ](#) [1812CS-183XJ](#) [1812CS-223XJ](#) [1812LS-104XJ](#) [1812LS-105XJ](#) [1812LS-124XJ](#) [1812LS-154XJ](#) [1812LS-223XJ](#)
[1812LS-224XJ](#) [1812LS-563XJ](#) [1812LS-683XJ](#) [1812LS-824XJ](#) [NIN-FB101JTR110F](#) [NIN-FB471JTR62F](#) [NIN-FC1R5JTR220F](#) [NIN-](#)
[HCR15JTRF](#) [NIN-HCR33JTRF](#) [NIN-HDR22JTRF](#) [NIN-HDR82JTRF](#) [NIN-HK2N7STRF](#) [NIN-PA150KTR370F](#) [NIN-PB100KTR550F](#)