FEATURES

- Shielded construction.
- Handles high transient current spikes without saturation.
- Ultra low buzz noise, due to composite construction.
- Encapsulated body offers improved environmental protection and moisture resistance.
- Corrosion resistant package.
- Operating Temp：-55℃~+125℃(Including self heating)



APPLICATIONS

- PDA,notebook,desktop,server applications.
- Low profile, high current power supplies. Battery powered devices.
- DC/DC converters in distributed power systems. DC/DC converter for Field Programmable Gate Array.

PART NUMBERING

APH	1260	T	100	M	P
①	②	③	④	⑤	⑥

① Series Name	
APH	Molded SMD Power Inductors

② External Dimensions[LxWxT mm]	
0840	8.8x8.2x3.8
0850	8.8x8.2x4.8
1240	13.45x12.8x3.8
1250	13.45x12.6x4.8
1260	13.45x12.6x5.8
1265	13.45x12.6x6.5

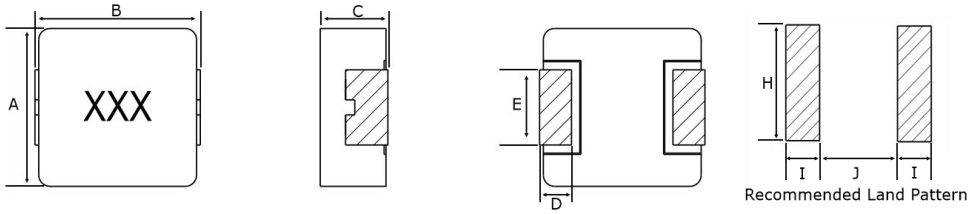
③ Feature Type	
T	Standard

④ Nominal Inductance	
Code (example)	Nominal Value［μH］
R47	0.47
1R0	1.0
100	10

⑤ Inductance Tolerance	
M	±20%

⑥ Internal Code
P

DIMENSIONS & RECOMMENDED LAND PATTERN



Unit: mm

Dimensions						Recommended Land Pattern		
Series	A	B	C	D	E	I	J	H
						Typ.		
APH0840-P	8.2±0.3	8.8±0.5	3.8±0.2	1.4±0.3	5.0±0.3	2.75	4.0	5.5
APH0850-P	8.2±0.3	8.8±0.5	4.8±0.2	1.4±0.3	5.0±0.3	2.80	4.0	5.5
APH1240-P	12.8±0.50	13.45±0.5	3.8±0.2	2.0±0.5	5.0±0.3	3.25	8.0	5.5
APH1250-P	12.6±0.50	13.45±0.5	4.8±0.2	2.0±0.5	5.0±0.3	3.25	8.0	5.5
APH1260-P	12.6±0.50	13.45±0.5	5.8±0.2	2.0±0.5	5.0±0.3	3.25	8.0	5.5
APH1265-P	12.6±0.50	13.45±0.5	6.5 Max.	2.0±0.5	5.0±0.3	3.25	8.0	5.5

ELECTRICAL CHARACTERISTICS

- APH0840-P Series

Part Number	Inductance	Inductance Tolerance	DC Resistance	Saturation Current		Heat Rating Current	
	@100KHz,1V		Max.	Max.	Typ.	Max.	Typ.
Unit	μH	-	mΩ	A		A	
Symbol	L	-	DCR	Isat		Irms	
APH0840TR15MP	0.15	±20%	1.65	65.00	70.00	33.00	39.00
APH0840TR22MP	0.22	±20%	1.8	55.00	60.00	30.00	36.00
APH0840TR33MP	0.33	±20%	2.4	40.00	45.00	25.00	30.00
APH0840TR47MP	0.47	±20%	2.8	36.00	42.00	25.00	28.00
APH0840TR56MP	0.56	±20%	3.2	23.00	26.00	22.00	24.00
APH0840TR68MP	0.68	±20%	3.8	22.00	24.00	21.00	23.00
APH0840TR82MP	0.82	±20%	4.4	19.00	21.00	19.00	21.00
APH0840T1R0MP	1.0	±20%	4.62	17.00	19.00	17.00	19.00
APH0840T1R5MP	1.5	±20%	7.6	15.00	17.00	15.00	17.00
APH0840T1R8MP	1.8	±20%	11	13.50	15.00	12.50	15.00
APH0840T2R2MP	2.2	±20%	11.4	12.00	14.00	12.00	14.00
APH0840T3R3MP	3.3	±20%	15	11.00	12.50	10.00	12.00
APH0840T4R7MP	4.7	±20%	26.5	10.50	11.50	8.50	9.50
APH0840T5R6MP	5.6	±20%	30	10.00	11.00	8.00	9.00
APH0840T6R8MP	6.8	±20%	36.8	8.00	9.00	7.00	8.00
APH0840T8R2MP	8.2	±20%	46	7.70	8.70	6.00	7.00
APH0840T100MP	10	±20%	59	7.00	8.00	5.50	6.50
APH0840T150MP	15	±20%	71	4.90	5.50	4.80	5.40
APH0840T220MP	22	±20%	113	4.50	5.00	4.20	4.80
APH0840T330MP	33	±20%	156	3.30	3.50	3.00	3.50
APH0840T470MP	47	±20%	225	2.90	3.10	2.50	2.90

ELECTRICAL CHARACTERISTICS

● APH0850-P Series

Part Number	Inductance	Inductance Tolerance	DC Resistance	Saturation Current		Heat Rating Current	
	@100KHz,1V		Max.	Max.	Typ.	Max.	Typ.
Unit	μH	-	mΩ	A		A	
Symbol	L	-	DCR	Isat		Irms	
APH0850TR50MP	0.5	±20%	2.4	30.00	40.50	25.00	28.10
APH0850T2R2MP	2.2	±20%	12	14.00	16.00	8.50	10.00
APH0850T3R3MP	3.3	±20%	15	11.50	13.00	8.00	9.00
APH0850T4R7MP	4.7	±20%	20	10.50	12.00	7.00	8.00
APH0850T100MP	10	±20%	45	7.00	8.00	4.80	5.50
APH0850T150MP	15	±20%	50	6.00	7.00	4.50	5.00
APH0850T220MP	22	±20%	88	4.80	5.50	3.50	4.00
APH0850T330MP	33	±20%	140	4.50	5.00	2.50	3.00
APH0850T470MP	47	±20%	195	3.00	3.50	2.20	2.50
APH0850T680MP	68	±20%	265	2.50	3.00	1.70	2.00
APH0850T101MP	100	±20%	326	2.00	2.50	1.30	1.50

● APH1240-P Series

Part Number	Inductance	Inductance Tolerance	DC Resistance	Saturation Current		Heat Rating Current	
	@100KHz,1V		Max.	Max.	Typ.	Max.	Typ.
Unit	μH	-	mΩ	A		A	
Symbol	L	-	DCR	Isat		Irms	
APH1240TR68MP	0.68	±20%	3.5	37.60	47.00	24.00	28.00
APH1240TR82MP	0.82	±20%	4.5	32.00	40.00	24.00	28.00
APH1240T1R0MP	1	±20%	7.5	28.00	35.00	20.00	24.00
APH1240T1R5MP	1.5	±20%	9.5	24.40	30.50	17.00	20.00
APH1240T2R2MP	2.2	±20%	11.5	20.80	26.00	15.00	18.00
APH1240T3R3MP	3.3	±20%	13	16.80	21.00	13.00	15.00
APH1240T4R7MP	4.7	±20%	14.5	14.40	18.00	11.00	13.00
APH1240T6R8MP	6.8	±20%	20	11.20	14.00	8.00	9.00
APH1240T100MP	10	±20%	25	8.00	10.00	7.00	8.00
APH1240T150MP	15	±20%	39	6.00	7.50	5.80	6.50
APH1240T220MP	22	±20%	51	4.80	6.00	3.80	4.50

ELECTRICAL CHARACTERISTICS

APH1250-P Series

Part Number	Inductance	Inductance Tolerance	DC Resistance	Saturation Current		Heat Rating Current	
	@100KHz,1V		Max.	Max.	Typ.	Max.	Typ.
Unit	μH	-	mΩ	A		A	
Symbol	L	-	DCR	Isat		Irms	
APH1250T3R3MP	3.3	±20%	7	17.60	22.00	12.00	14.00
APH1250T4R7MP	4.7	±20%	9	16.00	20.00	11.00	13.00
APH1250T6R8MP	6.8	±20%	18	12.80	16.00	10.00	12.00
APH1250T100MP	10	±20%	22	9.60	12.00	8.00	9.00
APH1250T150MP	15	±20%	30	8.00	10.00	7.00	8.00
APH1250T220MP	22	±20%	58	5.20	6.50	3.80	4.50
APH1250T330MP	33	±20%	84	4.80	6.00	2.80	3.50
APH1250T470MP	47	±20%	130	4.00	5.00	2.60	3.00

APH1260-P Series

Part Number	Inductance	Inductance Tolerance	DC Resistance	Saturation Current		Heat Rating Current	
	@100KHz,1V		Max.	Max.	Typ.	Max.	Typ.
Unit	μH	-	mΩ	A		A	
Symbol	L	-	DCR	Isat		Irms	
APH1260T3R3MP	3.3	±20%	6.8	21.00	25.00	14.00	17.00
APH1260T4R7MP	4.7	±20%	9	19.20	24.00	12.00	15.00
APH1260T5R6MP	5.6	±20%	11	18.00	22.50	11.00	13.00
APH1260T6R8MP	6.8	±20%	13.5	15.20	19.00	10.00	12.00
APH1260T8R2MP	8.2	±20%	16	10.80	13.50	9.00	11.00
APH1260T100MP	10	±20%	20.7	11.10	12.50	8.50	10.00
APH1260T120MP	12	±20%	23	8.00	10.00	7.80	9.00
APH1260T150MP	15	±20%	29	7.20	9.00	7.50	8.50
APH1260T180MP	18	±20%	35	6.40	8.00	6.50	7.50
APH1260T220MP	22	±20%	39.5	6.00	7.50	6.00	7.00
APH1260T270MP	27	±20%	56	5.20	6.50	5.00	6.00
APH1260T330MP	33	±20%	75	4.80	6.00	4.80	5.50
APH1260T470MP	47	±20%	90	4.40	5.50	4.20	5.00
APH1260T680MP	68	±20%	140	3.60	4.50	3.20	4.00
APH1260T101MP	100	±20%	200	2.80	3.50	2.50	3.00
APH1260T121MP	120	±20%	235	2.56	3.20	1.70	2.00
APH1260T151MP	150	±20%	350	2.16	2.70	1.20	1.50

ELECTRICAL CHARACTERISTICS

- APH1265-P Series

Part Number	Inductance	Inductance Tolerance	DC Resistance	Saturation Current		Heat Rating Current	
	@100KHz,1V		Max.	Max.	Typ.	Max.	Typ.
Unit	μH	-	mΩ	A		A	
Symbol	L	-	DCR	Isat		Irms	
APH1265T4R7MP	4.7	±20%	8.5	19.00	24.00	12.00	16.00
APH1265T5R6MP	5.6	±20%	10.5	18.00	22.50	10.00	14.00
APH1265T6R8MP	6.8	±20%	12	15.00	19.00	9.00	13.00
APH1265T8R2MP	8.2	±20%	14	13.00	16.00	8.50	12.00
APH1265T100MP	10	±20%	16.5	12.00	15.00	7.50	11.00
APH1265T150MP	15	±20%	26	9.00	11.00	6.50	9.50
APH1265T220MP	22	±20%	36	7.50	9.00	6.00	8.00
APH1265T330MP	33	±20%	65	7.00	8.00	4.50	6.50
APH1265T470MP	47	±20%	70	5.50	6.80	4.00	5.50
APH1265T680MP	68	±20%	120	4.00	5.20	3.40	4.80
APH1265T820MP	82	±20%	135	3.50	4.50	2.70	4.00
APH1265T101MP	100	±20%	170	3.20	4.00	1.80	3.50

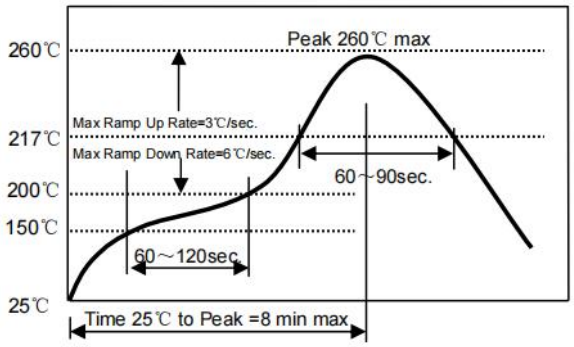
- All test data is referenced to 20℃ ambient.
- Rated current: Isat or Irms, whichever is smaller.
- Isat(Typ.) : DC current at which the inductance drops approximate 30% from its value without current.
- Irms(Typ.): DC current that causes the temperature rise (△T =40℃) from 20℃ ambient.
- The part temperature (ambient + temp rise) should not exceed 125'Cunder worst case operating conditions. Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions, all affect the part temperature. Part temperature should be verified in the end application.
- Absolute maximum voltage:DC 30V.

RELIABILITY TEST

Mechanical Reliability		
Item	Specification and Requirement	Test Method
Solderability	The surface of terminal immersed shall be minimum of 95% covered with a new coating of solder	Solder heat proof: 1.Preheating: 160 ± 10 ℃ 2.Retention time: 245 ± 5 ℃ for 2 ± 0.5 seconds
Vibration	Inductance change: Within ±10% Without mechanical damage such as break	1.Vibration frequency: (10 Hz to 55 Hz to 10Hz) in 60 seconds as a period . 2.Vibration time: Period cycled for 2 hours in each of 3 mutual perpendicular directions. 3.Amplitude: 1.5 mm max.
Shock	Inductance change: Within ±10% Without mechanical damage such as breaK	1.Peak value: 100 G 2.Duration of pulse: 11ms 3.3 times in each positive and negative direction of 3 mutual perpendicular directions
Insulating Resistance	Over 100MΩ	Over 100MΩ at 100V D.C. between coil and core
Endurance Reliability		
Item	Specification and Requirement	Test Method
Thermal Shock	Inductance change: Within ±10% Without distinct damage in appearance	1. Repeat 100 cycles as follow: (-55 ± 2 ℃; 30 ± 3 min) →(Room temp., 5 min) → (+125 ± 2 ℃, 30 ± 3 min) → (Room temp., 5 min) 2. Recovery: 48 + 4 / -0 hours of recovery under the standard condition after the test.
High Temperature Resistance	Inductance change: Within ±10% Without distinct damage in appearance	1.Environment condition: 85 ± 2℃ Applied Current: Rated current. 2.Duration: 1000 + 4 / -0 hours
Humidity Resistance	Inductance change: Within ±10% Without distinct damage in appearance	1.Environment condition: 85 ℃ Humidity: 85% Applied Current: Rated current 2.Duration: 1000 + 4 / -0 hours
Low Temperature Store	Inductance change: Within ±10% Without distinct damage in appearance	Store temperature: -55 ± 2℃,1000 + 4 / -0 hours
High Temperature Store	Inductance change: Within ±10% Without distinct damage in appearance	Store temperature: +125 ± 2℃,1000 + 4 / -0 hours

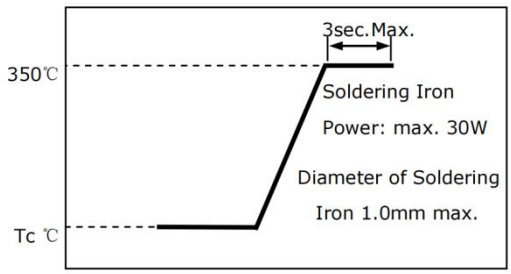
RECOMMENDED SOLDERING TECHNOLOGIES

- Reflowing Profile.
- ☆ Preheat condition: 150~200℃/60~120sec.
- ☆ Allowed time above 217℃: 60~90sec.
- ☆ Max temp: 260℃.
- ☆ Max time at max temp: 10sec.
- ☆ Solder paste: Sn/3.0Ag/0.5Cu.
- ☆ Allowed Reflow time: 2x max.



☆ Note: The reflow profile in the above table is only for qualification and is not meant to specify board assembly profiles. Actual board assembly profiles must be based on the customer's specific board design,solder paste and process, and should not exceed the parameters as the Reflow profile shows.

- Iron Soldering Profile.
- ☆ Iron soldering power: Max.30W
- ☆ Pre-heating: 150 ℃ / 60sec.
- ☆ Soldering Tip temperature: 350℃Max.
- ☆ Soldering time: 3sec Max.
- ☆ Solder paste: Sn/3.0Ag/0.5Cu.
- ☆ Max.1 times for iron soldering



☆ Note: Take care not to apply the tip of the soldering iron to the terminal electrodes.

PRECAUTIONS ON USE

- Precautions on Use.

☆ 1.Always wear static control bands to protect against ESD.
☆ 2.Any devices used with the products (soldering irons, measuring instruments) should be properly grounded.
☆ 3.Keep bare hands and metal conductors (i.e., metal desk) away from electrodes or conductive areas that lead to electrodes.
☆ 4.Preheat when soldering.
☆ 5.Don't apply current in excess of the rated current value. It may reduce the impedance or inductance,or cause damage to components due to over-current.
☆ 6.For magnetic products, keep clear of anything that may generate magnetic fields such as speakers and coils. Use non-magnetic tweezers when handing the chips.
☆ 7.When soldering, the electrical characteristics may be varied due to hot energy and mechanical stress.
☆ 8.When coating products with resin, the relatively high resin curing stress may change the electrical characteristics. For exterior coating, select resin carefully so that electrical and mechanical performance of the product is not affected. Before using, please evaluate reliability with the product mounted in your application set.
☆ 9.When mount chips with adhesive in preliminary assembly, do appropriate check before the soldering stage, i.e., the size of land pattern, type of adhesive, amount applied, hardening of the adhesive on proper usage and amounts of adhesive to use.
☆ 10.Mounting density: Add special attention to radiating heat of products when mounting other components nearby. The excessive heat by other products may cause deterioration at joint of this product with substrate.
☆ 11.Since some products are constructed like an open magnetic circuit, narrow spacing between components may cause magnetic coupling.
☆ 12.Please do not give the product any excessive mechanical shocks in transportation.
☆ 13.Please do not touch wires by sharp terminals such as tweezers to avoid causing any damage to wires.
☆ 14.Please do not add any shock and power to the soldered product to avoid causing any damage to chip body.
☆ 15.Please do not touch the electrodes by naked hand as the solderability of the external electrodes may deteriorate by grease or oil on the skin.
☆ 16.Avoid ultrasonic processing, which may cause component falling off and poor pad contact.
☆ 17.When using APV products, customers should record the production batch number for traceability.

SAFETY REMINDERS

SAFETY REMINDERS

● All products listed in this specification are developed, designed and intended for use in general electronics equipment. The products are not designed or Warranted to meet the requirements of the applications listed below, whose performance and/or quality require especially high reliability, or whose failure, malfunction or trouble might directly cause damage to society, person, or property. Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below. Please contact us for more details if you intend to use our products in the following applications.

☆ 1.Aerospace/aviation equipment

☆ 2.Transportation equipment (cars, electric trains, ships, etc.)

☆ 3.Medical equipment

☆ 4.Power-generation control equipment

☆ 5.Atomic energy-related equipment

☆ 6.Seabed equipment

☆ 7.Transportation control equipment

☆ 8.Public information-processing equipment

☆ 9.Military equipment

☆ 10.Electric heating apparatus, burning equipment

☆ 11.Disaster prevention/crime prevention equipment

☆ 12.Safety equipment

☆ 13.Other applications that are not considered general-purpose applications

● When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.