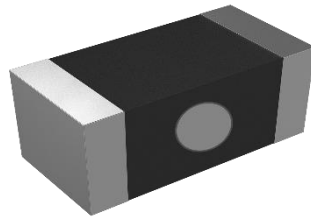


# Power Inductor for Smart Wear

## -MPHM160809 Series



### Overview

MPHM160809 series is a new product that developed on Sunlord's mature multilayer platform, the new MPHM series has the following features:

1. For high-density mounted circuits, MPHM series products show excellent anti-interference/anti-coupling, and low magnetic flux Leakage performance;
2. The product exterior is designed with mark, marking the direction of magnetic flux, which can ensure that the direction of the magnetic field is consistent after the mounting;
3. Excellent electrical properties such as high reliability, low DCR;
4. Meet the mainstream power requirements, providing customers with cost-effective products by adopting the multilayer technology platform;

### Background

In 2022, TWS headphone shipments have reached 287.7 million units, accounting for 68% of total personal audio shipments, TWS headphones has a huge demand for electronic components. In TWS headsets, in order to achieve a high-quality user experience of 'on-call', many functions are mostly in standby state when it is not used, and the standby state will continue to consume battery life, which shows that battery life is an important parameter for TWS headsets. In order to improve standby efficiency, a switching DC/DC power IC is required for power conversion, and the switching DC/DC power conversion IC needs to be equipped with a power inductor as an energy storage device. Therefore, according to the functional application of different products and the integration level of different main platforms, 2-4 pcs power inductors are required in a single earphone. Given the structure of TWS, the power inductor needs to be small size and 1.1A of rated current, and requires low inductor losses to achieve high conversion efficiency and strong endurance. The new MPHM series launched by Sunlord this time can not only meet the power inductor requirements of TWS headphones in terms of electrical properties, but also have a strong price competitiveness with its unique production process.

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## Features

- Low DCR, large current
- Mark identifies the direction of flux
- Full magnetic shielding
- Low magnetic flux leakage
- Monolithic structure

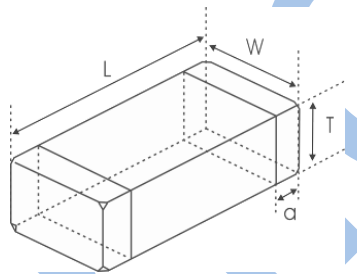
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## Applications

- TWS headphone
- Smart watches, electronic tags
- Smartphone
- Power supply module

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## Shape and Dimensions



Unit: mm [inch]

Type	L	W	T	a
160809	1.60±0.15 [.063±.006]	1.0±0.15 [.039±.006]	1.0±0.15 [.039±.006]	0.3±0.2 [.012±.008]

## Product Identification

<b>MPHM</b>	<b>160809</b>	<b>S</b>	<b>1R0</b>	<input type="checkbox"/>	<b>T</b>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>																		
①	②	③	④	⑤	⑥	⑦																		
①	<table border="1"> <tr><th colspan="2">Type</th></tr> <tr><td>MPHM</td><td>Chip Power Inductor</td></tr> </table>		Type		MPHM	Chip Power Inductor	<table border="1"> <tr><th colspan="2">Inductance Tolerance</th></tr> <tr><td>M</td><td>±20%</td></tr> <tr><td>N</td><td>±30%</td></tr> </table>		Inductance Tolerance		M	±20%	N	±30%	<table border="1"> <tr><th colspan="2">Nominal Inductance</th></tr> <tr><th>Example</th><th>Nominal Value</th></tr> <tr><td>1R0</td><td>1.0μH</td></tr> <tr><td>4R7</td><td>4.7μH</td></tr> </table>		Nominal Inductance		Example	Nominal Value	1R0	1.0μH	4R7	4.7μH
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## Main Specifications and Electrical Characteristics

### MPHM160809-Y01 TYPE

Part Number	Inductance	L Test Freq.	DC Resistance		Min. Self-resonant Frequency	Saturation Current		Heat Rating Current Max.	Thickness
Units	μH	MHz	Ω		MHz	mA		mA	mm [inch]
Symbol	L	Freq.	DCR		S.R.F	Isat		Irms	T
			Max.	Typ.		Max.	Typ.		
MPHM160809S1R0 <input type="checkbox"/> TY01	1.0	1	0.237	0.190	110	700	750	750	1.0±0.15 [.039±.006]
MPHM160809S2R2 <input type="checkbox"/> TY01	2.2	1	0.500	0.400	70	480	520	550	
MPHM160809S4R7 <input type="checkbox"/> TY01	4.7	1	0.750	0.600	55	320	360	450	
MPHM160809S6R8 <input type="checkbox"/> TY01	6.8	1	1.150	0.900	40	250	300	350	
MPHM160809S100 <input type="checkbox"/> TY01	10	1	1.500	1.200	30	220	240	280	

### MPHM160809-Y02 TYPE

Part Number	Inductance	L Test Freq.	DC Resistance		Min. Self-resonant Frequency	Saturation Current		Heat Rating Current Max.	Thickness
Units	μH	MHz	Ω		MHz	mA		mA	mm [inch]
Symbol	L	Freq.	DCR		S.R.F	Isat		Irms	T
			Max.	Typ.		Max.	Typ.		
MPHM160809S1R0 <input type="checkbox"/> TY02	1.0	1	0.190	0.170	110	750	950	1100	1.0±0.15 [.039±.006]
MPHM160809S2R2 <input type="checkbox"/> TY02	2.2	1	0.350	0.280	70	480	550	900	
MPHM160809S4R7 <input type="checkbox"/> TY02	4.7	1	0.420	0.525	55	320	360	700	

※ : Please specify the inductance tolerance code (M=±20%, N=±30%);

※ Rated current: Isat or Irms, whichever is smaller;

※ Isat: DC current at which the inductance drops approximate 30% from its value without current;

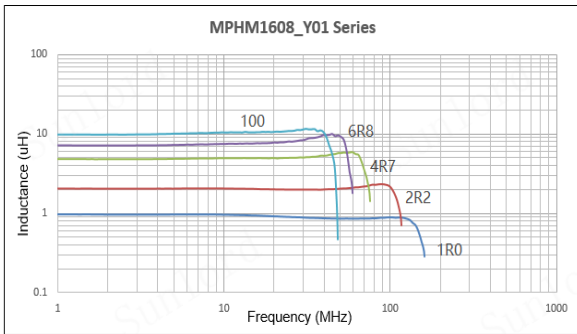
※ Irms: DC current that causes the temperature rise (ΔT =40°C) from 20°C ambient.

**Sunlord**

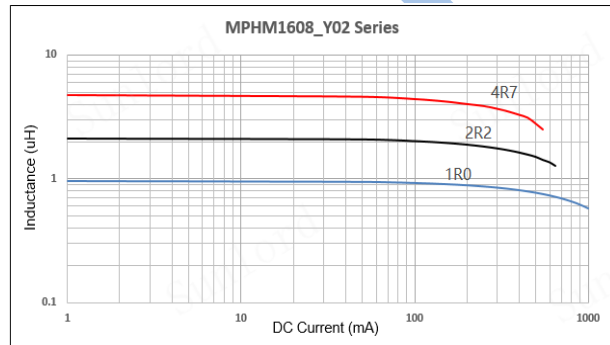
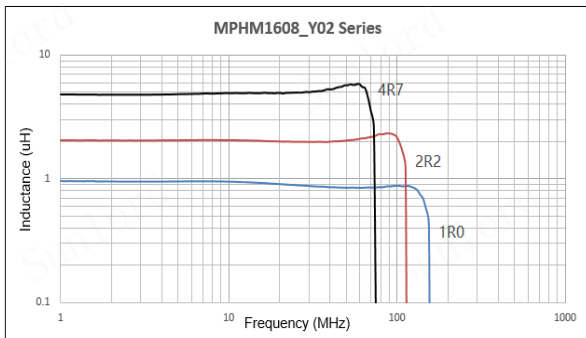
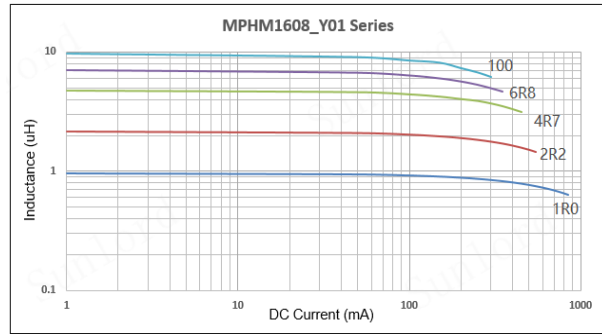
<http://www.sunlordinc.com>

## MPHM160809 Series

### Inductance vs. Frequency Characteristics



### Inductance vs. DC Current Characteristics



## Product Catalog

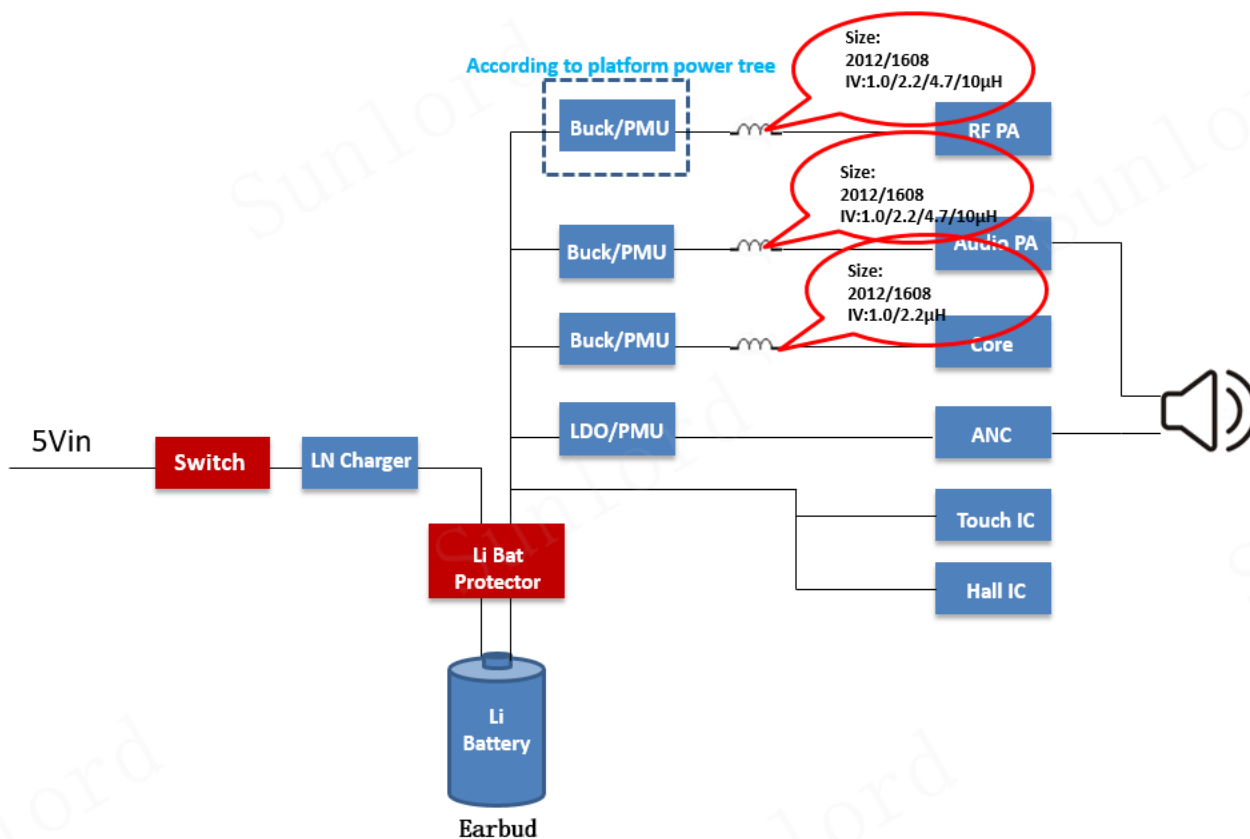
Please refer to related product information [MPHM Series](#)

## Production

Mass production

## Application Cases

The application of MPHM in TWS



Headphone application block diagram

Recommended models are as follows

MPHM160809-Y02 TYPE

Part Number	Inductance	L Test Freq.	DC Resistance		Min. Self-resonant Frequency	Saturation Current		Heat Rating Current Max.	Thickness
Units	µH	MHz	Ω		MHz	mA		mA	mm [inch]
Symbol	L	Freq.	DCR		S.R.F	Isat		Irms	T
			Max.	Typ.		Max.	Typ.		
MPHM160809S1R0MTY02	1.0	1	0.190	0.170	110	750	950	1100	1.0±0.15 [.039±.006]
MPHM160809S2R2MTY02	2.2	1	0.350	0.280	70	480	550	900	
MPHM160809S4R7MTY02	4.7	1	0.420	0.525	55	320	360	700	