

Inductors for power circuits

Wound metal

SPM-HZ series (for automotive)



AEC-Q200

SPM5030-HZ type



FEATURES

- Magnetic shield type wound inductor for power circuits using a metallic magnetic material.
- Compared to ferrite wound type inductors, it is possible to achieve large current, low Rdc, and compactness.
- Low inductance variance in high-temperature environments with good DC superimposition characteristics. -40 to 125°C (including self-temperature rise)
- Metallic magnetic material is used, and the structure has an integrated molded coil, so hum noise is lower than with ferrite core adhesive coils.
- Compliant with AEC-Q200

APPLICATION

- Automotive-related equipment (Car navigation, car audio, electronic power steering, headlights, other)
- Application guides: [Automotive \(xEV\)](#), [Car Infotainment](#)

PART NUMBER CONSTRUCTION

| | | | | | |
|-------------|------------------------------------|-----------------|--------------------------|-------------------------|---------------|
| SPM | 5030 | T | R47 | M | HZ |
| Series name | LxWxH dimensions 5.2x5.0x3.0 mm | Packaging style | Inductance (μ H) | Inductance tolerance | Internal code |

CHARACTERISTICS SPECIFICATION TABLE

| L (μ H) | Measuring frequency (kHz) | DC resistance ($m\Omega$)max. ($m\Omega$)typ. | Rated current* | | Part No. | |
|-----------------|---------------------------------|---|-----------------|------------------|----------|----------------------------------|
| | | | Isat (A)typ. | Itemp (A)typ. | | |
| 0.47 | 100 | 5.39 | 4.90 | 11.0 | 14.0 | SPM5030T-R47M-HZ |
| 0.68 | 100 | 7.37 | 6.70 | 8.9 | 13.6 | SPM5030T-R68M-HZ |
| 1.0 | 100 | 11.5 | 10.4 | 8.0 | 10.4 | SPM5030T-1R0M-HZ |
| 1.5 | 100 | 18.5 | 16.8 | 6.8 | 9.2 | SPM5030T-1R5M-HZ |
| 2.2 | 100 | 21.3 | 19.3 | 4.8 | 8.5 | SPM5030T-2R2M-HZ |
| 3.3 | 100 | 29.5 | 26.8 | 4.3 | 6.5 | SPM5030T-3R3M-HZ |
| 4.7 | 100 | 49.5 | 45.0 | 4.0 | 4.7 | SPM5030T-4R7M-HZ |
| 5.6 | 100 | 73.9 | 67.1 | 3.6 | 4.5 | SPM5030T-5R6M-HZ |
| 6.8 | 100 | 82.0 | 74.5 | 3.4 | 4.2 | SPM5030T-6R8M-HZ |
| 10.0 | 100 | 159.0 | 144.5 | 2.6 | 2.9 | SPM5030T-100M-HZ |

* Rated current: smaller value of either Isat or Itemp.

Isat: When based on the inductance change rate (20% below the initial value)

Itemp: When based on the temperature increase (temperature increase of 40°C by self heating)

Measurement equipment

| Measurement item | Product No. | Manufacturer |
|--------------------|---------------------|-----------------------|
| L | 4284A | Keysight Technologies |
| DC resistance | AX-111A | ADEX |
| Rated current Isat | 4284A+42841A+42842C | Keysight Technologies |

* Equivalent measurement equipment may be used.

TEMPERATURE RANGE, INDIVIDUAL WEIGHT

| Operating temperature range* | Storage temperature range** | Individual weight |
|------------------------------|-----------------------------|-------------------|
| -40 to +125 °C | -40 to +125 °C | 0.38 g |

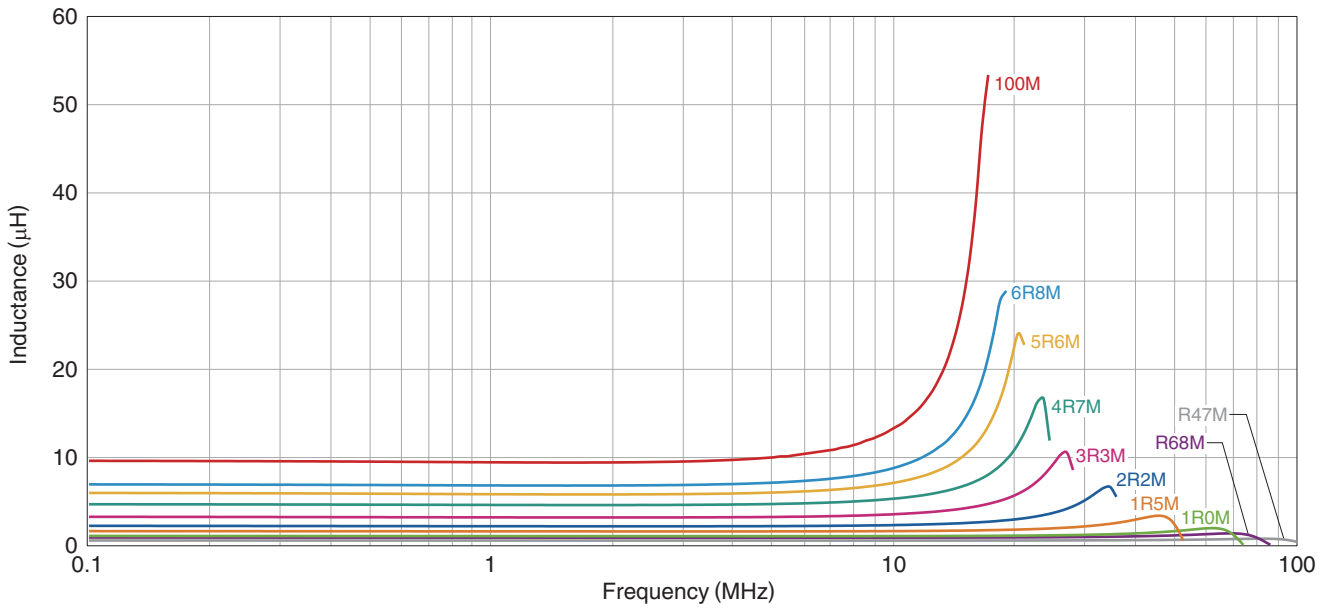
* Operating temperature range includes self-temperature rise.

** The storage temperature range is for after the assembly.



SPM5030-HZ type

L FREQUENCY CHARACTERISTICS

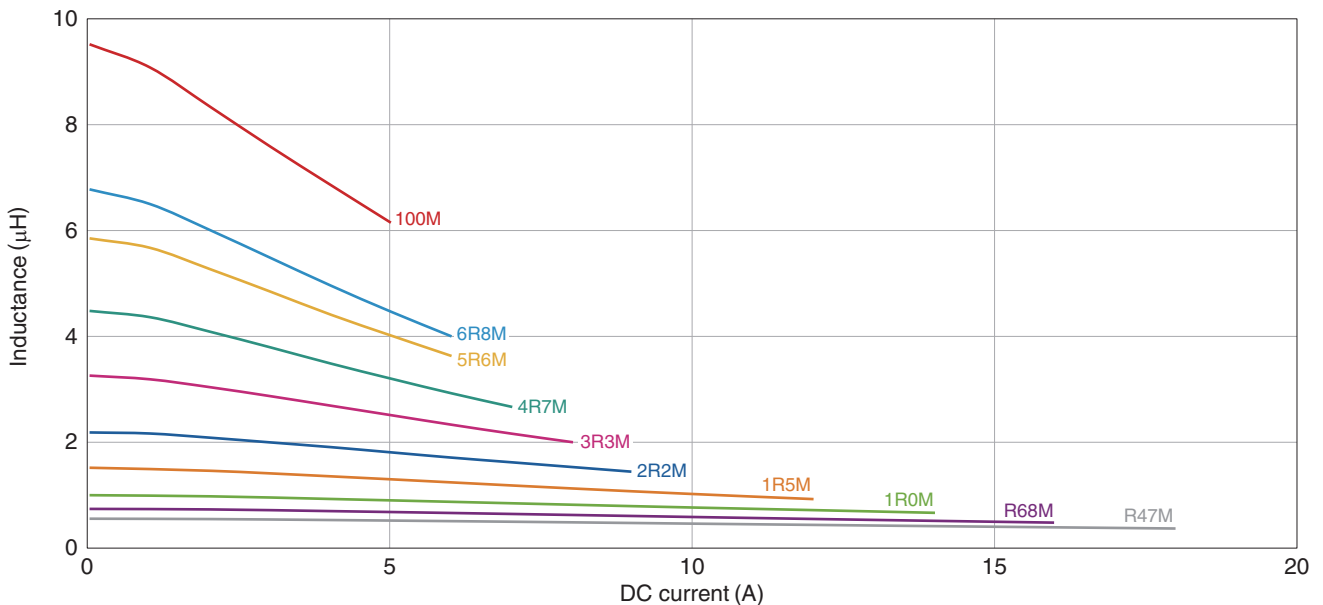


Measurement equipment

| Product No. | Manufacturer |
|-------------|-----------------------|
| 4294A | Keysight Technologies |

* Equivalent measurement equipment may be used.

INDUCTANCE VS. DC BIAS CHARACTERISTICS



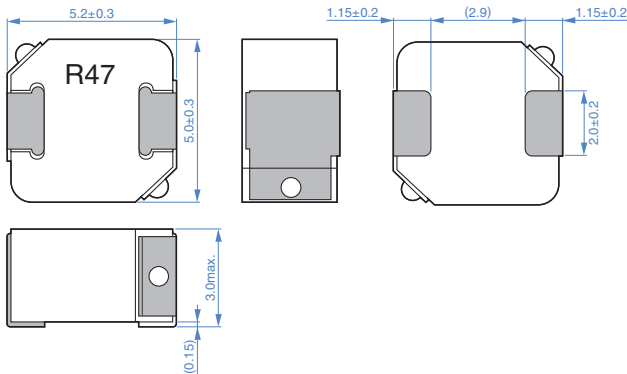
Measurement equipment

| Product No. | Manufacturer |
|---------------------|-----------------------|
| 4284A+42841A+42842C | Keysight Technologies |

* Equivalent measurement equipment may be used.

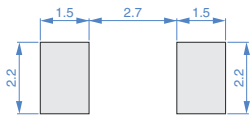
SPM5030-HZ type

SHAPE & DIMENSIONS



Dimensions in mm

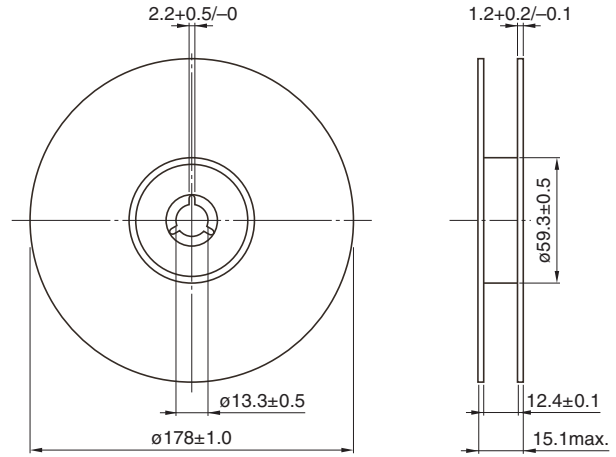
RECOMMENDED LAND PATTERN



Dimensions in mm

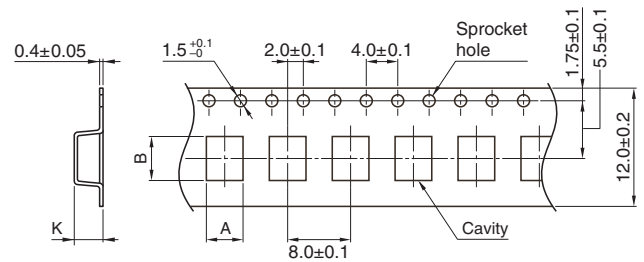
PACKAGING STYLE

REEL DIMENSIONS



Dimensions in mm

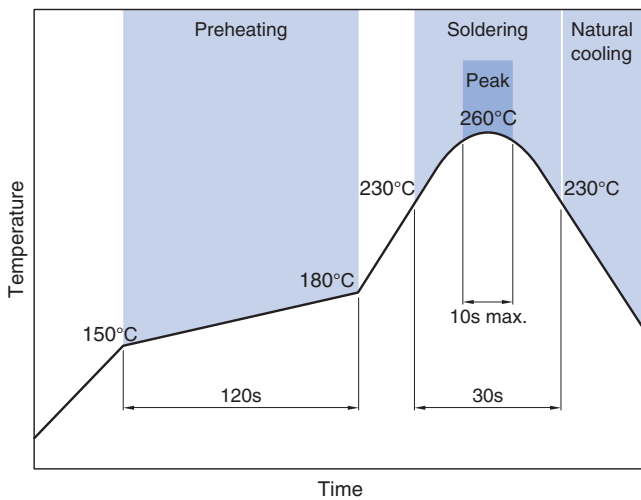
TAPE DIMENSIONS



Dimensions in mm

| Type | A | B | K |
|------------|---------------|---------------|---------------|
| SPM5030-HZ | 5.3 ± 0.1 | 5.5 ± 0.1 | 3.3 ± 0.1 |

RECOMMENDED REFLOW PROFILE



PACKAGE QUANTITY

| | |
|------------------|--------------|
| Package quantity | 500 pcs/reel |
|------------------|--------------|

REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using this products.

REMINDERS

- The storage period is less than 12 months. Be sure to follow the storage conditions (temperature: 5 to 40°C, humidity: 10 to 75% RH or less).
If the storage period elapses, the soldering of the terminal electrodes may deteriorate.
- Soldering corrections after mounting should be within the range of the conditions determined in the specifications.
If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.
- Do not use products that have received any excessive mechanical shock such as by being dropped.
- When embedding a printed circuit board where a chip is mounted to a set, be sure that residual stress is not given to the chip due to the overall distortion of the printed circuit board and partial distortion such as at screw tightening portions.
- Self heating (temperature increase) occurs when the power is turned ON, so the tolerance should be sufficient for the set thermal design.
- Do not expose the products to magnets or magnetic fields.
- The performance of the product may deteriorate if coating materials are used, thus please assess the situation beforehand by taking this factor into consideration.
- Do not use for a purpose outside of the contents regulated in the delivery specifications.
- The products listed on this catalog are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.
The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.
If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.

- (1) Aerospace/aviation equipment
- (2) Transportation equipment (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.