



January 2018

# Inductors for power circuits

Wound metal

**SPM-HZ series (for automotive)**

# SPM6530-HZ type

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**SPM6530-HZ**

## 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	(8) Public information-processing equipment
(2) Transportation equipment (electric trains, ships, etc.)	(9) Military equipment
(3) Medical equipment	(10) Electric heating apparatus, burning equipment
(4) Power-generation control equipment	(11) Disaster prevention/crime prevention equipment
(5) Atomic energy-related equipment	(12) Safety equipment
(6) Seabed equipment	(13) Other applications that are not considered general-purpose applications
(7) Transportation control equipment	

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.

## Inductors for power circuits

### Wound metal

Product compatible with RoHS directive  
Halogen-free  
Compatible with lead-free solders  
AEC-Q200

# Overview of SPM6530-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.

## ■ APPLICATION

Equipment used for automobiles (Car navigation, car audio, electronic power steering, headlights, other)

## ■ PART NUMBER CONSTRUCTION

SPM	6530	T	R47	M	Hz
Series name	LxWxH dimensions (mm)	Packaging style	Inductance (μH)	Inductance tolerance	Internal code
6530	7.1×6.5×3.0	T Taping	R47 0.47	M ±20%	
			1R0 1.0		
			100 10		

## ■ OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

Type	Temperature range		Package quantity (pieces/reel)	Individual weight (g)
	Operating temperature* (°C)	Storage temperature** (°C)		
SPM6530-HZ	-40 to +125	-40 to +125	1000	0.66

\* Operating temperature range includes self-temperature rise.

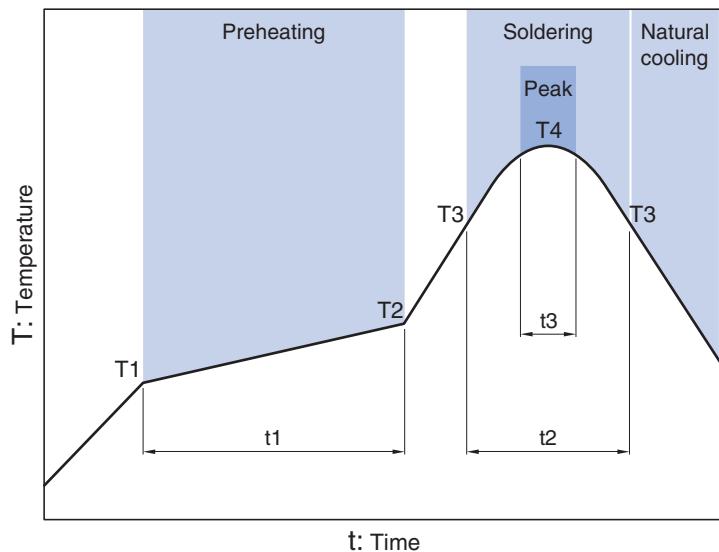
\*\* The storage temperature range is for after the circuit board is mounted.

- RoHS Directive Compliant Product: See the following for more details. <https://product.tdk.com/info/en/environment/rohs/index.html>
- Halogen-free: indicates that Cl content is less than 900ppm, Br content is less than 900ppm, and that the total Cl and Br content is less than 1500ppm.

**⚠** Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.  
Please note that the contents may change without any prior notice due to reasons such as upgrading.

# SPM6530-HZ type

## ■ RECOMMENDED REFLOW PROFILE

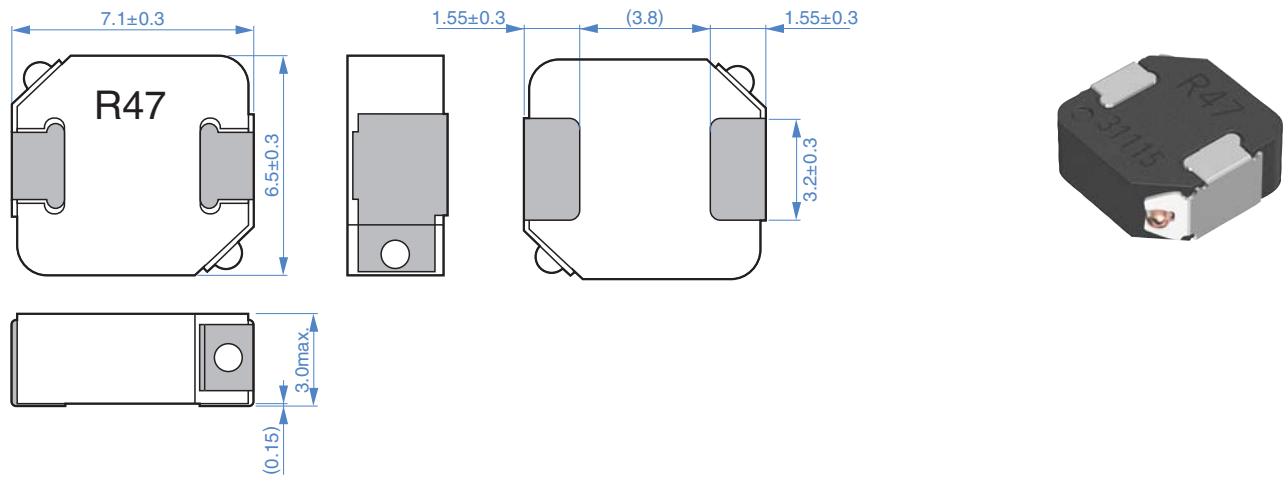


Preheating			Soldering		Peak	
Temp.	Time		Temp.	Time	Temp.	Time
T1 150°C	T2 180°C	t1 120s	T3 230°C	t2 30s	T4 260°C	t3 10s max.

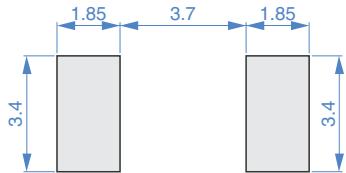
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# SPM6530-HZ type

## ■ SHAPE & DIMENSIONS



## ■ RECOMMENDED LAND PATTERN



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# SPM6530-HZ type

## ■ ELECTRICAL CHARACTERISTICS

### □ CHARACTERISTICS SPECIFICATION TABLE

L ( $\mu$ H)	Measuring frequency (kHz)	DC resistance		Rated current*		Part No.		
		(m $\Omega$ )max.	(m $\Omega$ )typ.	Isat (A)max.	Isat (A)typ.	Itemp (A)typ.	Itemp (A)typ.	
0.47	$\pm 20\%$	100	3.63	3.3	14.7	19.7	20.5	SPM6530T-R47M-HZ
0.68	$\pm 20\%$	100	5.39	4.9	12.5	16.6	16.0	SPM6530T-R68M-HZ
1.0	$\pm 20\%$	100	7.81	7.1	9.9	13.2	14.4	SPM6530T-1R0M-HZ
1.5	$\pm 20\%$	100	10.67	9.7	7.0	9.4	11.6	SPM6530T-1R5M-HZ
2.2	$\pm 20\%$	100	19.03	17.3	6.3	8.4	8.4	SPM6530T-2R2M-HZ
3.3	$\pm 20\%$	100	29.70	27.0	4.8	6.4	6.9	SPM6530T-3R3M-HZ
4.7	$\pm 20\%$	100	39.38	35.8	4.6	6.2	5.6	SPM6530T-4R7M-HZ
5.6	$\pm 20\%$	100	41.25	37.5	4.0	5.4	5.4	SPM6530T-5R6M-HZ
6.8	$\pm 20\%$	100	59.95	54.5	3.6	4.8	4.8	SPM6530T-6R8M-HZ
10.0	$\pm 20\%$	100	86.35	78.5	2.9	3.9	4.2	SPM6530T-100M-HZ
15.0	$\pm 20\%$	100	119.90	109.0	2.2	3.0	3.3	SPM6530T-150M-HZ
22.0	$\pm 20\%$	100	200.20	182.0	1.7	2.3	2.6	SPM6530T-220M-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

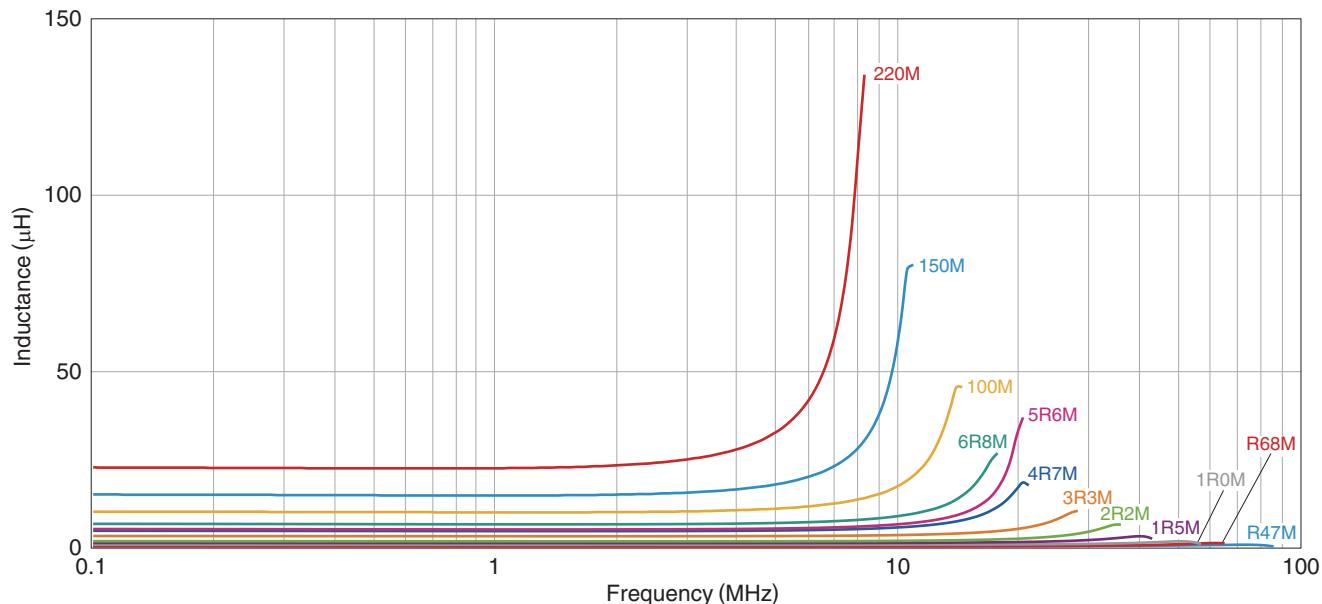
Measurement item	Product No.	Manufacturer
L	4284A	Keysight Technologies
DC resistance	AX-111A	ADEX
Rated current Isat	4284A+42841A+42842C	Keysight Technologies

\* Equivalent measurement equipment may be used.

# SPM6530-HZ type

## ■ ELECTRICAL CHARACTERISTICS

### □ L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

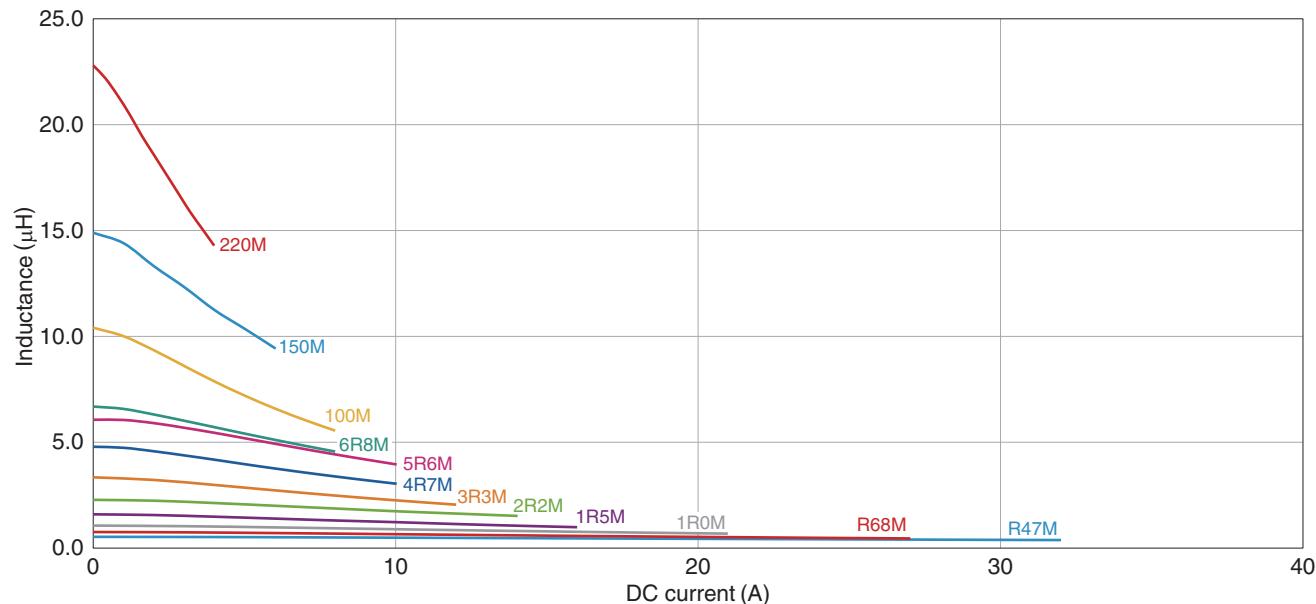
Product No.	Manufacturer
4294A	Keysight Technologies

\* Equivalent measurement equipment may be used.

# SPM6530-HZ type

## ■ ELECTRICAL CHARACTERISTICS

### □ INDUCTANCE VS. DC BIAS CHARACTERISTICS GRAPH



○ Measurement equipment

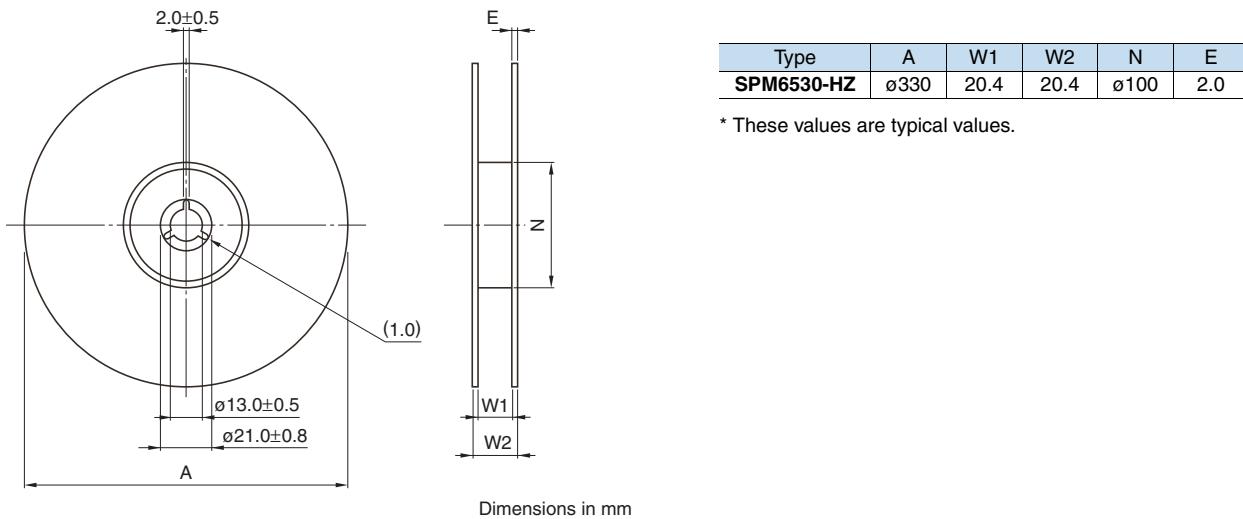
Product No.	Manufacturer
4284A+42841A+42842C	Keysight Technologies

\* Equivalent measurement equipment may be used.

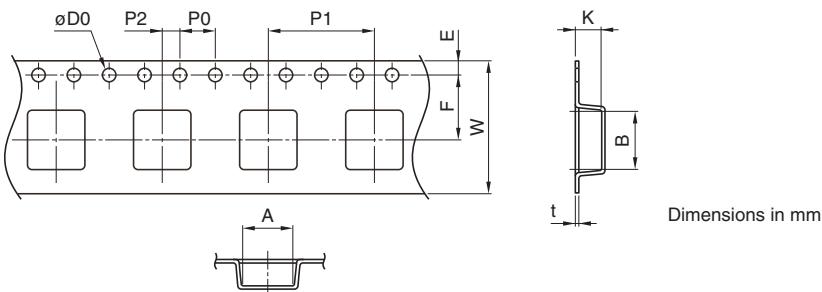
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## ■ PACKAGING STYLE

### □ REEL DIMENSIONS



### □ TAPE DIMENSIONS



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