

Inductors for power circuits Thin-film metal magnetic material **TMS-ALM** series









# TMS252012ALM type













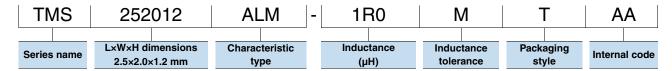
# **FEATURES**

- OBy using metal magnetic material with high Saturation magnetic flux density the excellent DC bias characteristics needed for inductors for power circuits can be achieved.
- With the same product shape and terminal structure as general chip parts it has excellent mounting stability characteristics and can also be mounted to general-purpose land patterns.
- O By using a closed magnetic circuit structure leakage flux is minimized.

#### APPLICATION

Olndustrial equipment, HDD, SSD, DVC, DSC, smart phones, mobile display panels, portable game devices, compact power supply

#### PART NUMBER CONSTRUCTION



### **CHARACTERISTICS SPECIFICATION TABLE**

L		L measuring frequency	DC resistance Rated current*		Rated voltage	Part No.				
					Isat		Itemp			
(µH)	Tolerance	(MHz)	(m $\Omega$ )max.	(m $\Omega$ )typ.	(A)max.	(A)typ.	(A)max.	(A)typ.	(V)max.	
1.0	±20%	1	42	35	4.2	4.7	3.7	4.1	20	TMS252012ALM-1R0MTAA
1.5	±20%	1	60	52	3.3	3.9	3.1	3.3	20	TMS252012ALM-1R5MTAA
2.2	±20%	1	84	75	2.8	3.3	2.6	2.8	20	TMS252012ALM-2R2MTAA
3.3	±20%	1	140	124	2.1	2.5	2.0	2.2	20	TMS252012ALM-3R3MTAA
4.7	±20%	1	200	180	1.9	2.2	1.6	1.8	20	TMS252012ALM-4R7MTAA

<sup>\*</sup> Rated current: smaller value of either Isat or Itemp.

Isat: When based on the inductance change rate (30% below the initial L value)

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

Please refer to the graph of Rated current vs. temperature characteristics (derating) about the rating current at 85°C or more in temperature of the product.

### Measurement equipment

Measurement item	Product No.	Manufacturer		
L	4294A	Keysight Technologies		
DC resistance	Digital Milliohm Meter			
Rated current Isat	4285A+42841A+42842C	Keysight Technologies		

<sup>\*</sup> 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	35 mg

<sup>\*</sup> Operating temperature range includes self-temperature rise.



A 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.

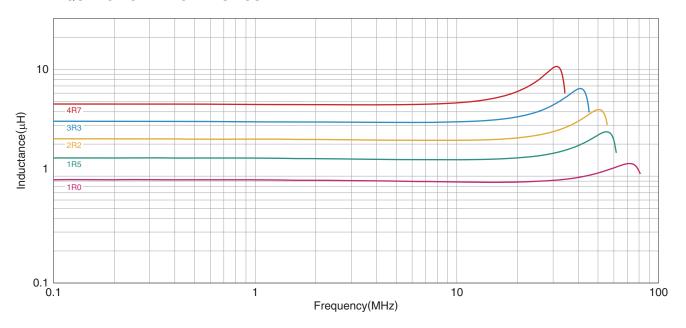
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<sup>\*\*</sup> The storage temperature range is for after the assembly.



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## L FREQUENCY CHARACTERISTICS

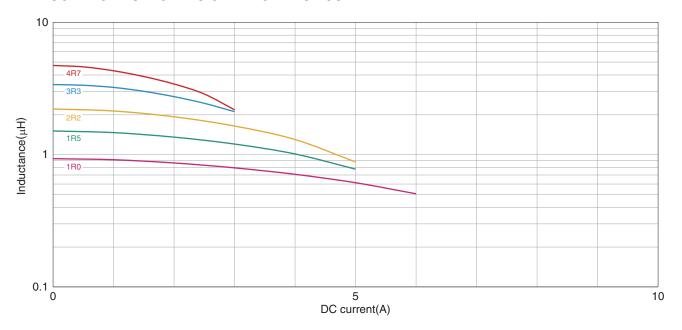


### Measurement equipment

Product No.	Manufacturer
4294A	Keysight Technologies

<sup>\*</sup> Equivalent measurement equipment may be used.

## ■INDUCTANCE VS. DC BIAS CHARACTERISTICS



### Measurement equipment

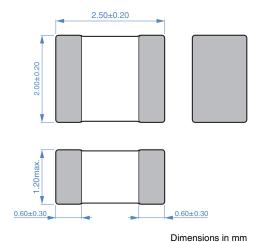
Product No.	Manufacturer
4285A+42841A+42842C	Keysight Technologies

<sup>\*</sup> Equivalent measurement equipment may be used.

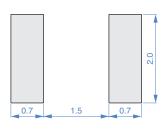


# TMS252012ALM type

## **SHAPE & DIMENSIONS**



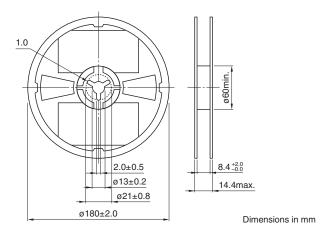
# ■ RECOMMENDED LAND PATTERN



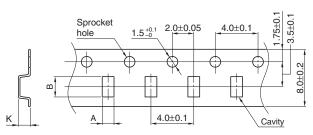
Dimensions in mm

### **■ PACKAGING STYLE**

#### □REEL DIMENSIONS



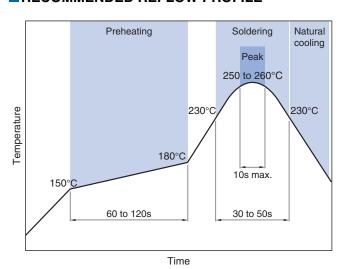
### **TAPE DIMENSIONS**

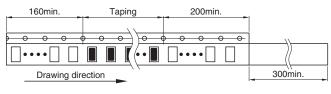


Dimensions in mm

Type	Α	В	K
TMS252012ALM	2.3	2.8	1.3

### ■ RECOMMENDED REFLOW PROFILE





Dimensions in mm

# **□PACKAGE QUANTITY**

Package quantity	3000 pcs/reel

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.

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# 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 within 6 months. Be sure to follow the storage conditions (temperature: 5 to 40°C, humidity: 20 to 75% RH of less).  If the storage period elapses, the soldering of the terminal electrodes may deteriorate.
<ul> <li>○ Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).</li> </ul>
Before soldering, be sure to preheat components.  The preheating temperature should be set so that the temperature difference between the solder temperature and chip temperature does not exceed 150°C.
<ul> <li>Soldering corrections after mounting should be within the range of the conditions determined in the specifications.</li> <li>If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.</li> </ul>
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 t 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 therma design.
<ul> <li>Carefully lay out the coil for the circuit board design of the non-magnetic shield type.</li> <li>A malfunction may occur due to magnetic interference.</li> </ul>
Use a wrist band to discharge static electricity in your body through the grounding wire.
On not expose the products to magnets or magnetic fields.
On on tuse 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 societ

- (1) Aerospace/aviation equipment
- (2) Transportation equipment (cars, electric trains, ships, etc.)
- (3) Medical equipment

person or property.

(4) Power-generation control equipment

set forth in the each catalog, please contact us.

- (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.

If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions