



Inductors for power circuits

Multilayer ferrite

MLD series (for automotive)

MLD2012 type

MLD2012

2012 [0805 inch]*

* Dimensions Code JIS[EIA]

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.
- Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).
- 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.
- 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.
- 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.
- Carefully lay out the coil for the circuit board design of the non-magnetic shield type.
A malfunction may occur due to magnetic interference.
- Use a wrist band to discharge static electricity in your body through the grounding wire.
- Do not expose the products to magnets or magnetic fields.
- 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.

Inductors for power circuits

Multilayer ferrite

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

Overview of MLD2012 series

FEATURES

- Being achieving high reliability by material application that was suitable for Automotive application and products design.
- In complete monolithic structure with multilayer cluster, be reducing flux leakage.

APPLICATION

ADAS, car multimedia (telematics), various ECUs, various modules

PART NUMBER CONSTRUCTION

MLD	2012		S		R47		T		T		D25
Series name	L x W dimensions (mm)		Characteristic type		Inductance (μH)		Height (mm max.)		Packaging style		Internal code
	2012	2.0x1.25	S	STD product	R47	0.47	T	0.55	T	Taping	
					1R0	1.0					

OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT


Type	Temperature ranges		Package quantity (pieces/reel)	Individual weight (mg)
	Operating temperature* (°C)	Storage temperature** (°C)		
MLD2012	-40 to +125	-40 to +125	4000	7

* The operating temperature range includes self-temperature rise.

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

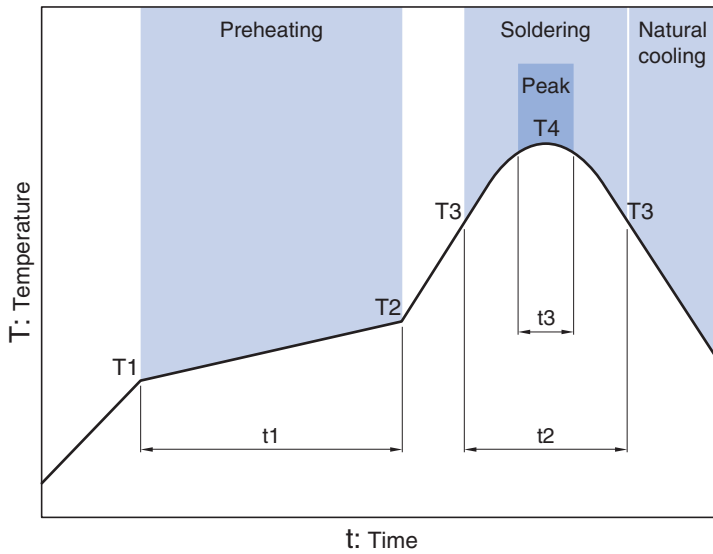
○ RoHS Directive Compliant Product: See the following for more details. <https://product.tdk.com/info/en/environment/rohs/index.html>

○ 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.

MLD2012 type

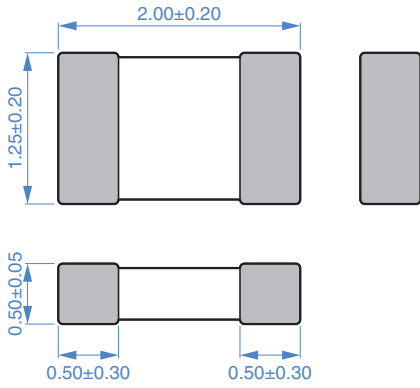
RECOMMENDED REFLOW PROFILE



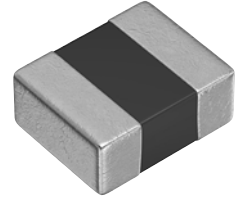
Preheating			Soldering		Peak	
Temp.	Temp.	Time	Temp.	Time	Temp.	Time
T1	T2	t1	T3	t2	T4	t3
150°C	180°C	60 to 120s	230°C	30 to 60s	250 to 260°C	10s max.

MLD2012 type

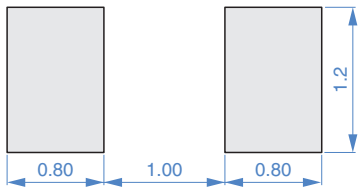
SHAPE & DIMENSIONS



Dimensions in mm



RECOMMENDED LAND PATTERN



Dimensions in mm

⚠ 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.

MLD2012 type

ELECTRICAL CHARACTERISTICS

CHARACTERISTICS SPECIFICATION TABLES

Thickness	L	Measuring frequency		DC resistance	Rated current*	Part No.
T (mm)max.	(μ H)	Tolerance	(MHz)	(Ω)	I _{temp} (mA)max.	
0.55	0.47	$\pm 20\%$	2	0.120 $\pm 30\%$	1200	MLD2012SR47TTD25

*Rated current(I_{temp}): current assumed when temperature has risen to 40°C max.

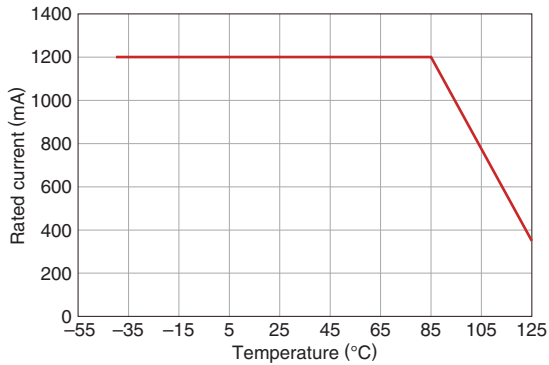
*Please refer to the graph of rated current vs. temperature characteristics (derating) about the rating current at 85°C or more in temperature of the product.

Measurement equipment

Measurement item	Product No.	Manufacturer
L	4294A	Keysight Technologies
DC resistance	Digital Milliohm Meter	
Rated current I _{sat}	4285A+42841A+42842C	Keysight Technologies

* Equivalent measurement equipment may be used.

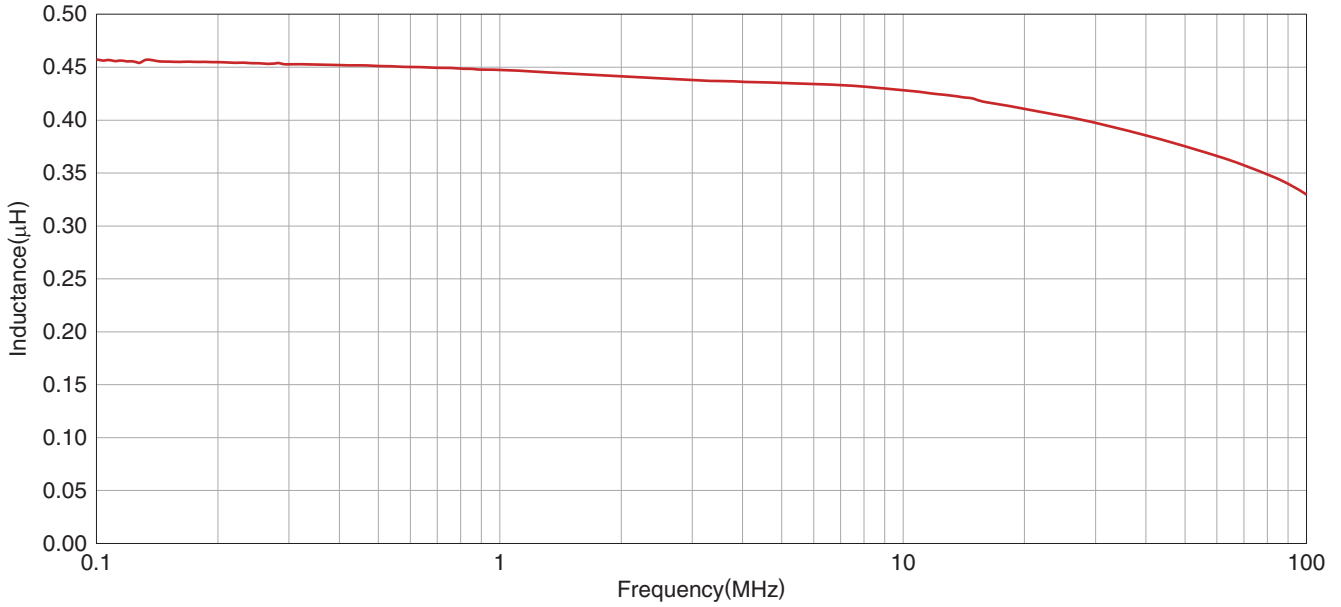
Rated current vs. temperature characteristics (derating)



MLD2012 type

ELECTRICAL CHARACTERISTICS


L FREQUENCY CHARACTERISTICS GRAPH



○ Measurement equipment

Product No.	Manufacturer
4294A	Keysight Technologies

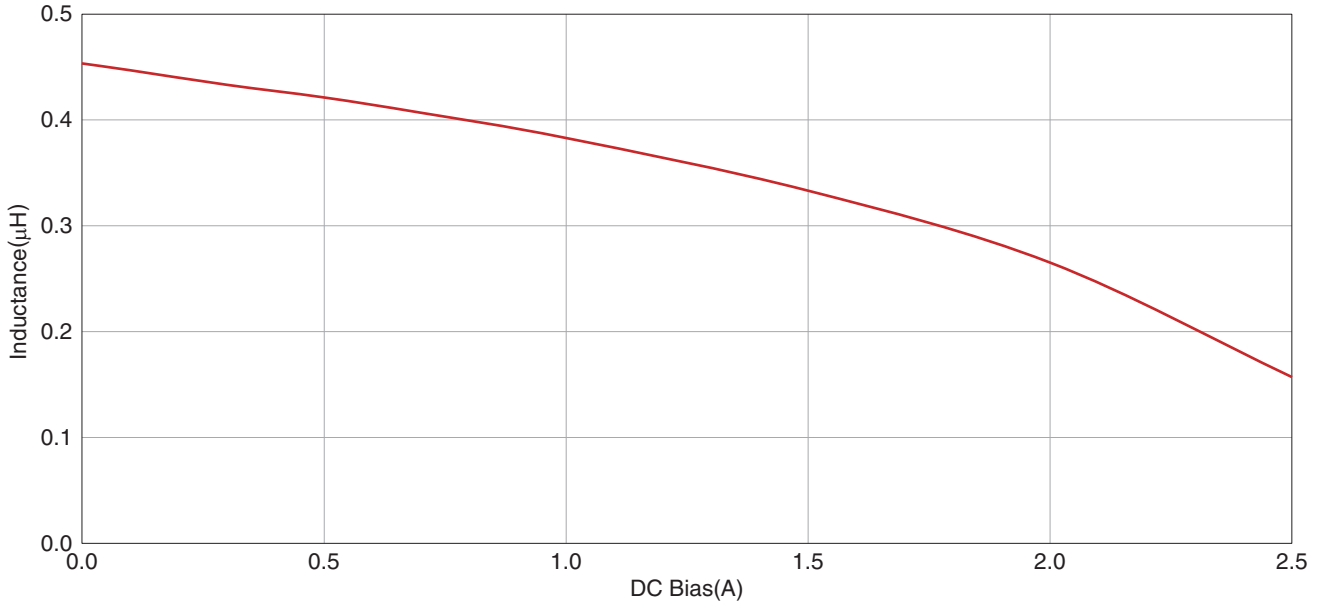
* Equivalent measurement equipment may be used.

 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.

MLD2012 type

ELECTRICAL CHARACTERISTICS


INDUCTANCE VS. DC BIAS CHARACTERISTICS



○ Measurement equipment

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

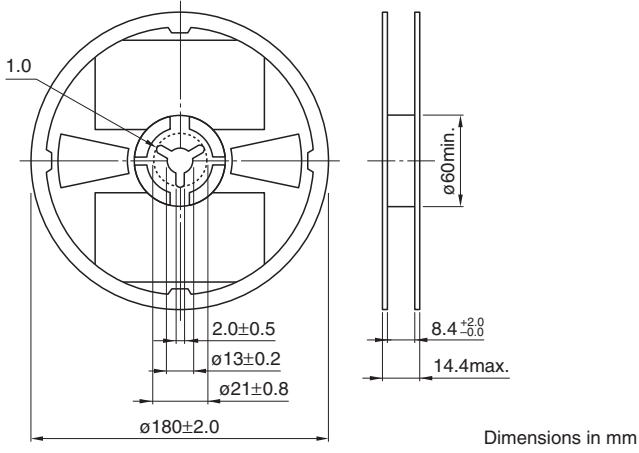
* Equivalent measurement equipment may be used.

 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.

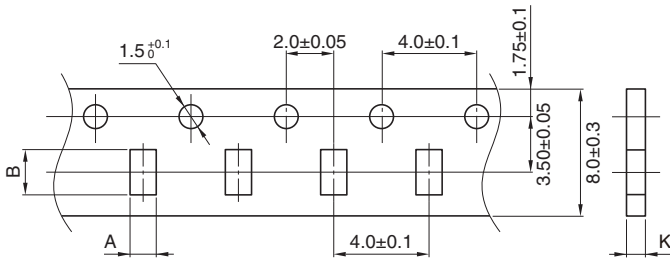
MLD2012 type

PACKAGING STYLE

REEL DIMENSIONS

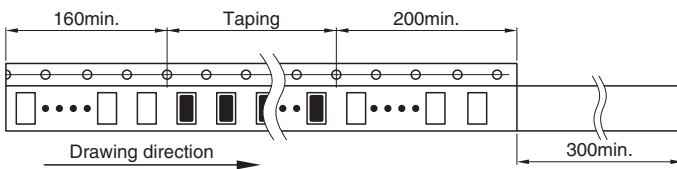


TAPE DIMENSIONS




Type	A	B	K
MLD2012	1.60±0.10	2.40±0.10	0.75±0.10

Carrier tape material: Polystyrene
 Cover tape material: Polystyrene



Dimensions in mm

 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.