Mag Layers USA, INC

Specification Sheet

P/N : MMD-10EE-1R0M-M1-RU

Products:

Molded Power Chokes

Multilayer Chip Inductors

Lan Transformer

RF Passive / Antennas

Automotive

Certifications:

ISO9001

IATF16949

ISO14001

QC080000

US Office

5406 Bolsa Ave.,
Huntington Beach, CA 92649
(714) 898-8377

Contact Us

www.maglayersusa.com
info@maglayersusa.com

Part number				Spec. number.	
MMD-10EE-1R0M-M1-RU				11245831	
Revision history					
Rev.	Date	Description	Approved by	Checked by	Author
01	2021/7/29	Final release	Mark	Andy	Irene

Application

DC to DC converter

Features

RoHS compliant & halogen free

Low resistance and high current rating

Magnetic core made by high performance magnetic metal powder

Product Identification

①	②	③	④	⑤	⑥
MMD -	10EE -	1R0	M -	M1 -	R U

① Product Code

② Dimensions

③ Inductance: 1R0 = 1.0 μH

④ Inductance Tolerance: M = ±20%

⑤ Series Type: M1 Type

⑥ Pattern code-RT, RU Blank

Note: Please refer to the “Product Dimension” for detail dimensions.

Electrical Performance

Part number	Inductance ±20%@0A (μH)	Rdc(mΩ)		Heat rating current (Idc)[1] DC amps (A)	Saturation current (Isat)[2] DC amps (A)
		Typ.	Max.		
MMD-10EE-1R0M-M1-RU	1.0	2.0	2.2	25.0	27.0

Test frequency: 100KHz, 0.25V.

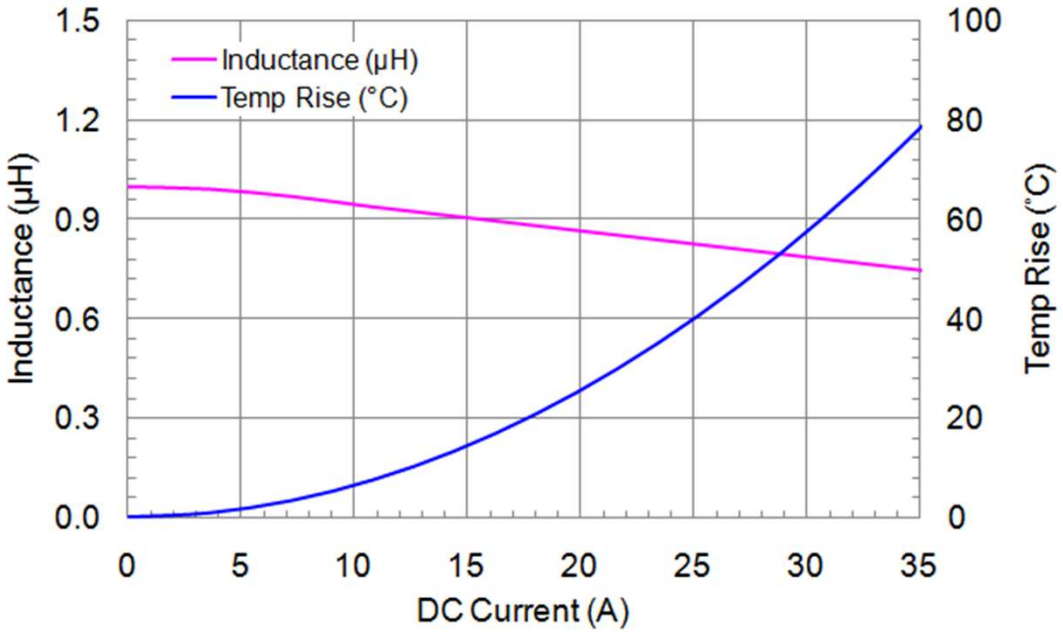
Test instruments: Inductance/saturation current: Keysight 4285A or equivalent.

Rdc: ADEX AX1152D or equivalent.

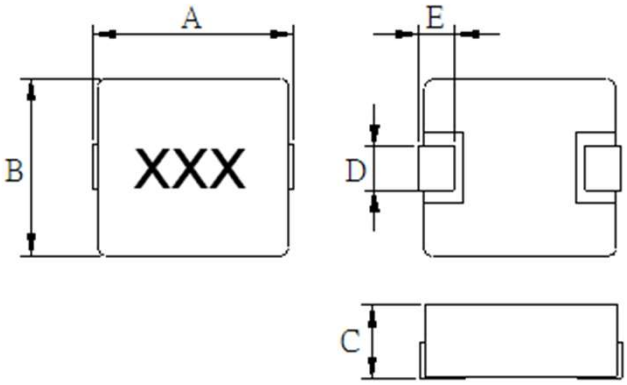
Notes:

1. The heat rating current (Idc) will cause temperature rise approximate 40°C.
2. The saturation current (Isat) will cause initial inductance drop approximate 20%.
3. All test data is referenced at 25°C ambient.
4. Operating temperature range -55°C to +125°C.
5. The part temperature (ambient + temp rise) should not exceed 125°C under the worst condition.
6. The temperature of component is affected by application conditions, e.g. circuit design, copper thickness of PCB and cooling conditions, the actual component temperature should be tested in the end application.
7. Withstand voltage: 25V DC. (Based on Maglayers test method, it may not the same under different application, it is recommended to verify first.)

Electrical Characteristics



Product Dimension

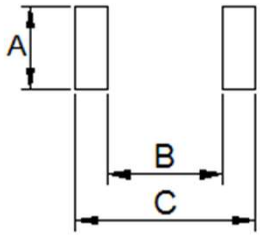


Code: XXX = 1R0 = 1.0 µH

Dimension / Part number	A	B	C	D	E
MMD-10EE-1R0M-M1-RU	11.5 Max	10 ± 0.3	5.5 Max	3.0 ± 0.5	2.0 ± 0.5

Unit: mm

Recommended PCB Layout



Type	10EE
A	4.1
B	5.4
C	13.6

Unit: mm

Safety precaution

1. Do not make any through holes and copper pattern in the dotted line area. Except a copper pattern to the electrode.
2. Don’t design/mount any components in contact with this product.

This power choke do not have any protective function in abnormal condition such as overload, short circuit, open conditions and etc, it shall be confirmed as the end product that there is no risk of smoking, fire, dielectric withstand voltage, insulation resistance etc. in abnormal conditions to provide protective devices and/or protection circuit in the end product.It is recommended the temperature rise of choke during operation is less than 50°C.

Reliability Test

Item	Specification	Test method
High Temperature Exposure (Storage)	Inductance variation within ±10 %	1,000hrs. at rated operating temperature. Unpowered. Measurement at 24±4 hours after test conclusion.
Temperature Cycling	Inductance variation within ±10 %	1,000 cycles (-55°C to +125°C). Measurement at 24± 4 hours after test conclusion. 30min maximum dwell time at each temperature extreme. 1 min. maximum transition time.
Biased Humidity	Inductance variation within ±10 %	1,000 hours 85°C/85%RH. Unpowered. Measurement at 24±4 hours after test conclusion.
Operational Life	Inductance variation within ±10 %	1,000 hrs. at rated operating temperature with DC current. Measurement 24±4 hours after test conclusion.
Resistance to Solvents	1. Marking resistance to solvent-No constitute failure (≤3X magnification) 2. Component protective coating, encapsulation material and sleeve material resistance- No damage or degradation that has occurred due to solvent (10X magnification)	Immersion 3+0.5/-0 minutes in Terpene defluxer. Brush 10 strokes (wet bristle) 2 to 3 oz. Rinse in water. Air blow dry.
Mechanical Shock	Inductance variation within ±10 %	Units are non-operating. Pulse shape: Half-sine waveform Impact acceleration: 100 g's Pulse duration: 6 ms Number of shocks: 18 shocks (3 shocks for each face)
Vibration	Inductance variation within ±10 %	5 g's for 20 minutes, 12 cycles each of 3 orientations. Test from 10-2,000Hz.

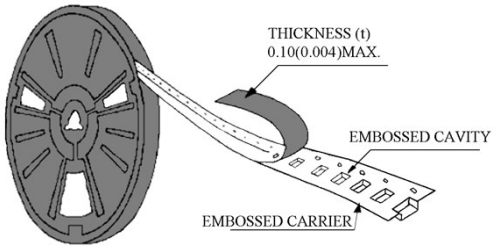
Item	Specification	Test method
Resistance to Soldering Heat	Inductance variation within ±10 %	Test condition B: Solder dip-260±5°C (solder temp.), time 10±1 sec, immersion rate 25mm/s ±6 mm/s, 2 heat cycles.
Solderability	New solder shall covered with 95 % minimum on the surface	For both Leaded & SMD. Electrical Test not required. Magnification 50X. Conditions: Leaded: Method A @ 235°C, category 3. SMD: a) Method B, 4 hrs @ 155°C dry heat @ 235°C b) Method B @ 215°C category 3. c) Method D category 3 @ 260°C.
Flammability	The marking and A side have no obvious broken, and the marking are clearly	V-0 or V-1 Acceptable
Board Flex	No crack	Bend the board (D) X =2mm, 60sec minimum holding time.
Terminal Strength (SMD)	No crack	With the component mounted on a PCB obtained from the Supplier with the device to be tested, apply a 17.7 N (1.8 Kg) force to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.

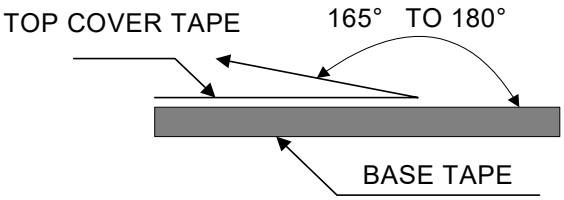
Note:

Storage condition: the temperature should be within -40°C~85°C and humidity should be less than 75%RH. The product should be used within 6 months from the time of delivery.

Packaging

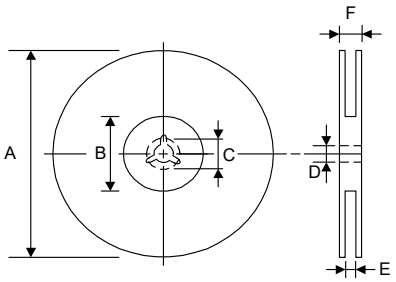
Peel-off force





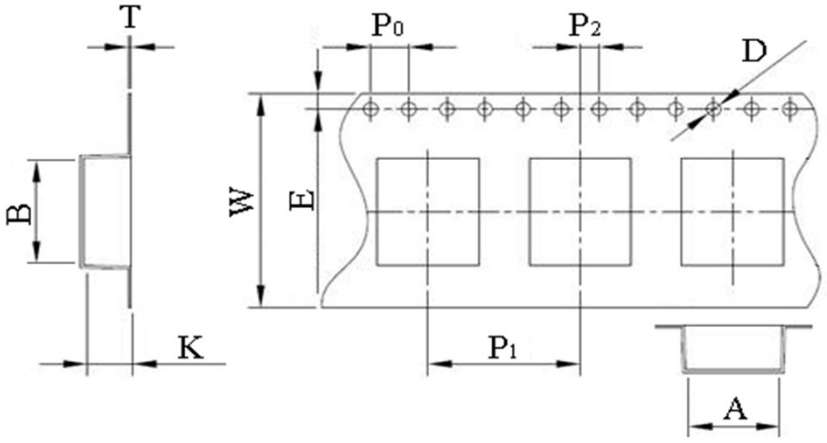
The peel off force of cover tape is 10 to 130 grams in the arrow direction.

Dimensions



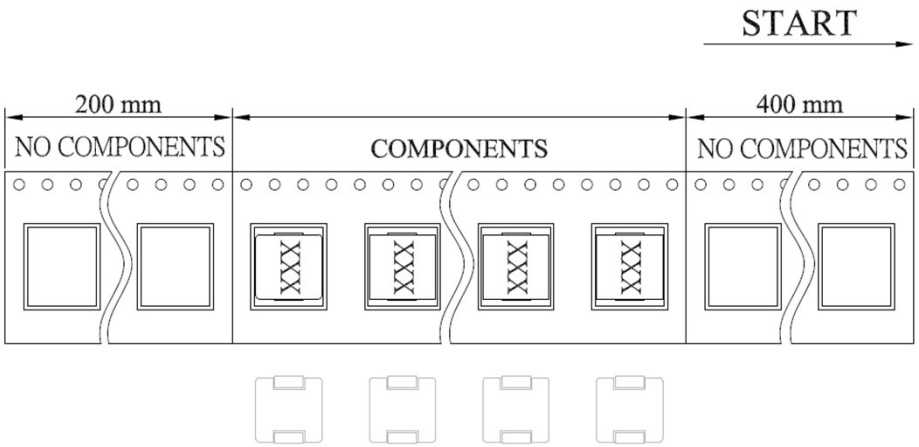
Type	A	B	C	D	E	F
330mm	330±2	100±1	21.5±0.5	13±1.0	24.2 +2.0/-0	29.2±2

Unit: mm



TYPE	SIZE	A	B	W	P_1	K
MMD	10EE	10.4±0.1	11.5±0.1	24.0±0.3	16.0±0.1	5.8±0.1
		P_0	P_2	D	E	T
		4.0±0.1	2.0±0.1	1.5±0.1	1.75±0.1	0.5±0.05

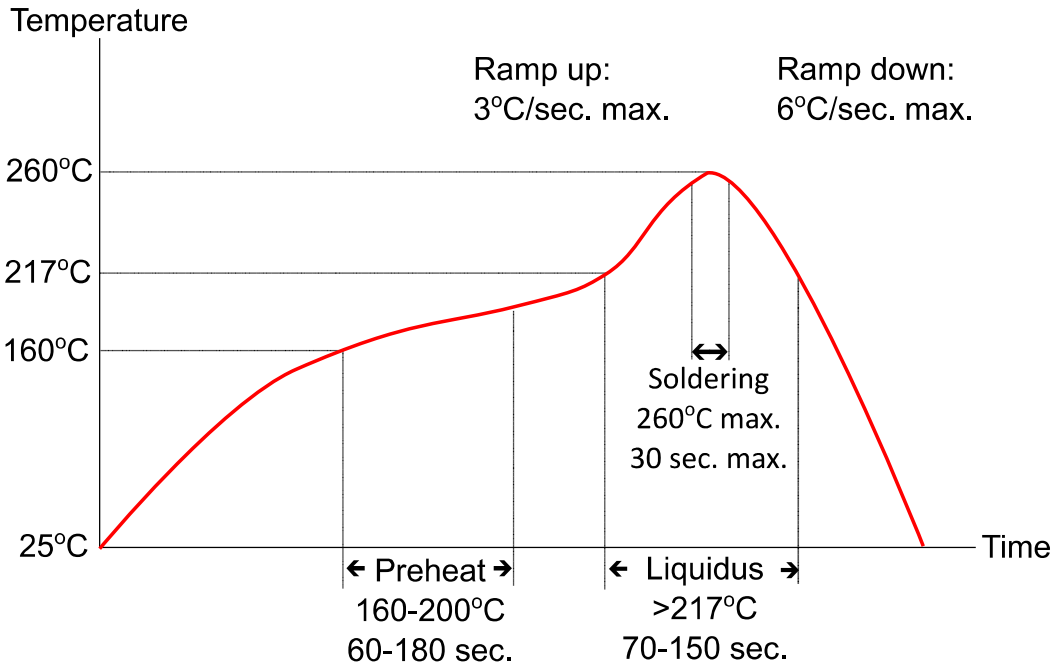
Unit: mm



Taping quantity

Series	10EE
PCS/Reel	500

Recommended Reflow Soldering Profile



1. **IR reflow soldering:**

   Ramp up rate: 3°C per second (max.)
   Ramp down rate: 6°C per second (max.)
   Preheat temperature: 160-200°C, 60-180 seconds
   Liquidus temperature: above 217°C, 70-150 seconds
   Peak temperature: 260°C (max.), 30 seconds (max.)

2. **Rework flow:**

   Component can withstand 3 IR reflow cycles with a cool down between each cycle.

Notes

The contents of this data sheet are subject to change without notice, please confirm the specifications and delivery conditions when placing your order.