TDK

July 2016

Common Mode Filters

For ultra high-speed differential signal line
(HDMI, DVI, DisplayPort, USB3.0, etc.)

ACM-D Series

ACM2012D Type

ACM2012D	**[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 these products.

⚠ REMINDERS

- The storage period is less than 6 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 (cars, 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.

Common Mode Filters

Product compatible with RoHS directive
Compatible with lead-free solders

For ultra high-speed differential signal line (HDMI, DVI, DisplayPort, USB3.0, etc.)

Overview of ACM2012D Type

FEATURES

- Broadband common mode filter that was developed for Gbps-level high-speed differential signal interfaces such as DVI and HDMI™.
- Differential mode cutoff frequency is 3.5GHz, so they do not negatively influence high-speed differential signals.
- Characteristics impedance is matched for 100Ω, which is set for many differential interfaces, and can suppress unnecessary reflection components.

APPLICATION

- EMI measure for HDMI™, which is an interface for digital video devices:
  ACM2012H is ideal for senders (Sources) such as Digital TVs, DVD recorders, and liquid crystal projectors, while ACM2012D is ideal for receivers (Sink).
- EMI measure for high-speed differential signal interfaces for digital video signal interfaces such as DVI, Display port, and Serial ATA used for PCs, etc.

PART NUMBER CONSTRUCTION

ACM	2012	D	-	900	-	2P	-	T	00
Series name	L×W×H Dimensions (mm)	Product internal code		Impedance (Ω)at 100MHz		Number of lines		Packaging style	Internal code
	2012: 2.0×1.2×1.3	D		900: 90		2P: 2 lines		T: ø180mm reel	00

OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

Type	Temperature range		Reel diameter	Package quantity	Individual weight
	Operating temperature (°C)	Storage temperature* (°C)	(mm)	(pieces/reel)	(mg)
ACM2012D	–40 to +85	–40 to +85	ø180	2,000	10

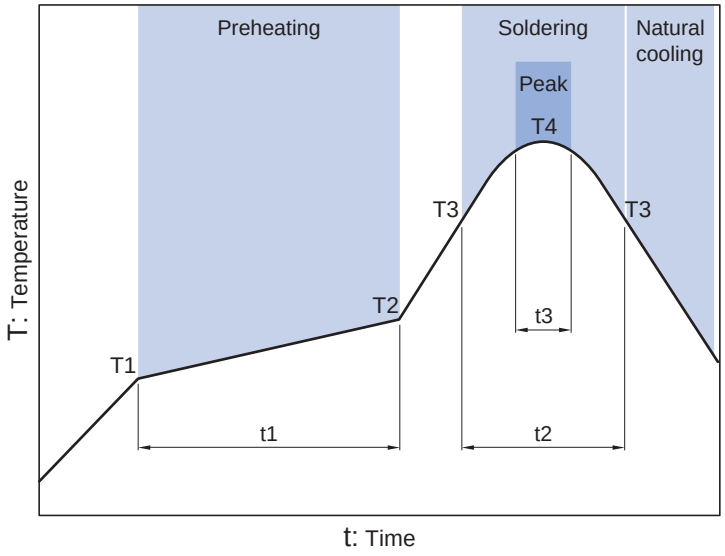
* The Storage temperature range is for after the circuit board is mounted.

- 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.

ACM2012D Type

RECOMMENDED REFLOW PROFILE

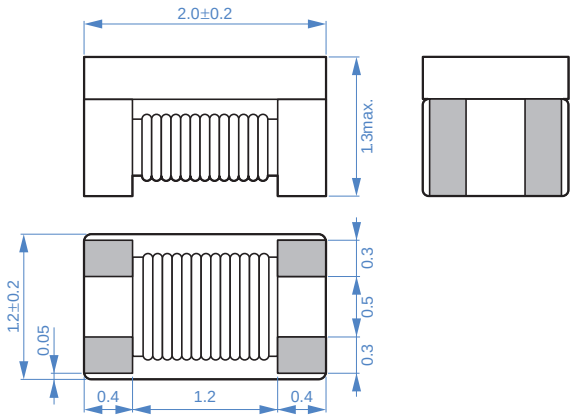


Preheating			Soldering		Peak	
Temp.		Time	Temp.	Time	Temp.	Time
T1	T2	t1	T3	t2	T4	t3
150°C	180°C	60 to 120s	230°C	10 to 30s	245°C	5s max.

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ACM2012D Type

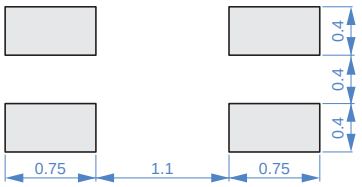
SHAPE & DIMENSIONS





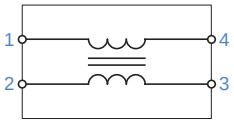
Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

CIRCUIT DIAGRAM



• No polarity

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ACM2012D Type

ELECTRICAL CHARACTERISTICS

CHARACTERISTICS SPECIFICATION TABLE

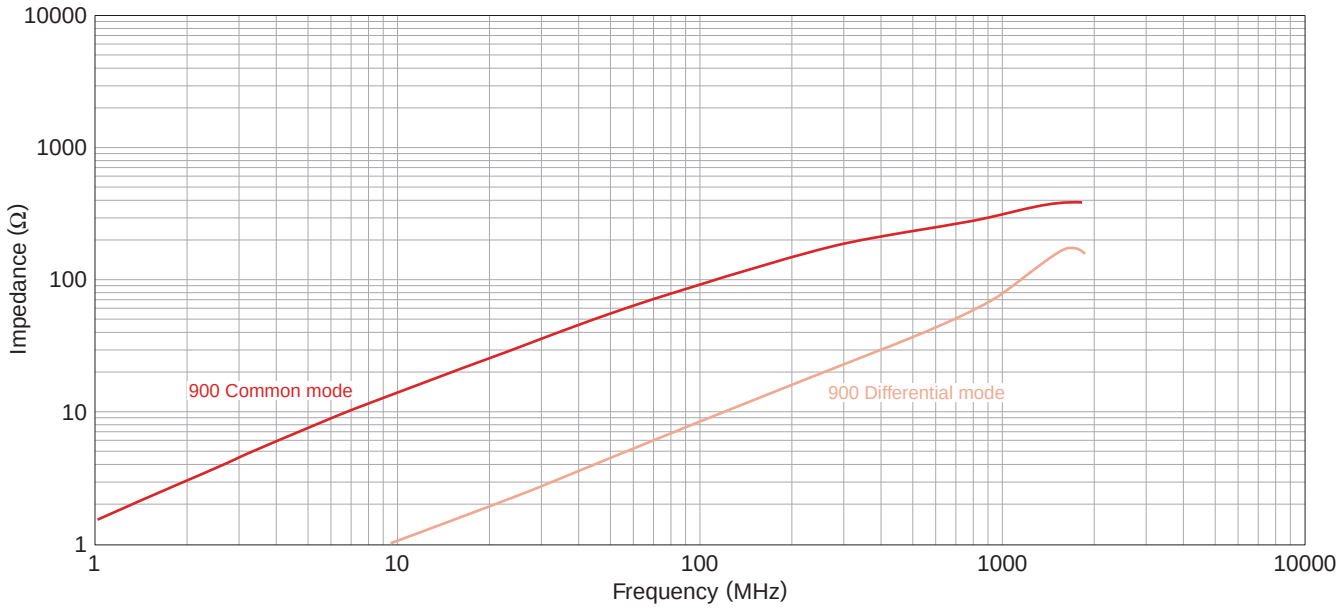
Common mode impedance [at 100MHz] (Ω)min.	(Ω)typ.	DC resistance [1 line] (Ω)max.	Rated current (mA)max.	Rated voltage (V)max.	Insulation resistance (MΩ)min.	Cutoff frequency (GHz)typ.	Characteristic impedance (Ω)typ.	Part No.
65	90	0.30	300	20	10	3.5	100	ACM2012D-900-2P-T00

○ Measurement equipment

Measurement item	Product No.	Manufacturer
Common mode impedance	4991A	Keysight Technologies
DC resistance	4338A	Keysight Technologies
Insulation resistance	4339A	Keysight Technologies

＊ Equivalent measurement equipment may be used.

IMPEDANCE VS. FREQUENCY CHARACTERISTICS



○ Measurement equipment

Product No.	Manufacturer
4991A	Keysight Technologies

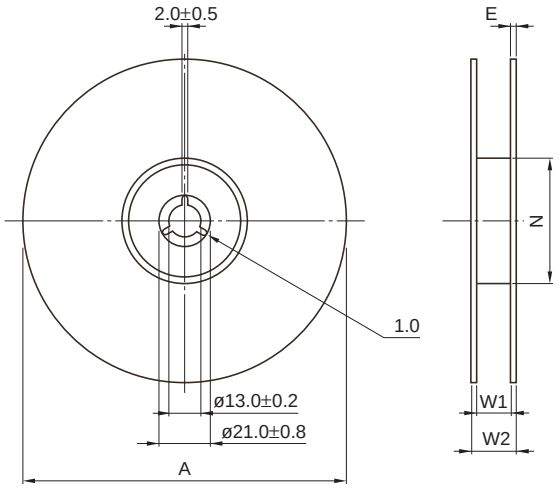
＊ Equivalent measurement equipment may be used.

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ACM2012D Type

PACKAGING STYLE

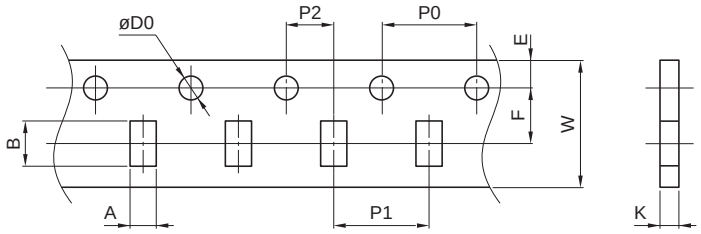
REEL DIMENSIONS



Type	A	W1	W2	N	E
ACM2012D	ø180±3	9+1/–0	13±1	60+1/–0	2 typ.

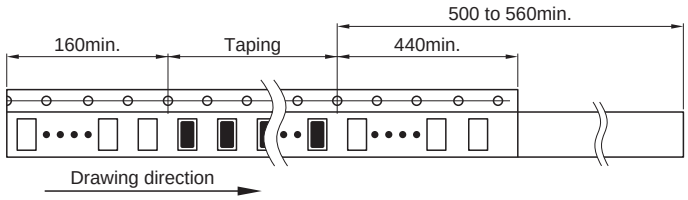
Dimensions in mm

TAPE DIMENSIONS



Dimensions in mm

Type	A	B	øD0	E	F	P0	P1	P2	W	K	t
ACM2012D	1.4±0.1	2.25±0.1	1.5+0.1/0	1.75±0.1	3.5±0.1	4.0±0.1	4.0±0.1	2.0±0.1	8.0±0.2	1.4±0.1	0.25±0.05



Dimensions in mm

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