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 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.

Common Mode Filters

For automotive power line

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

Overview of the ACM-V Series

FEATURES

- Exclusive square type closed magnetic core designed as an exclusive core is used, so it can be small while maintaining the same features.
- Low profile design makes it optimal for surface mounting.
- Excellent impedance characteristics, making it great for suppressing common mode noise.
- Series includes large current products up to 8A, making them compatible with various DC power lines.
- Covers a wide operating temperature range from –40 to +125°C.

APPLICATION

- Common mode noise countermeasure for electronic controller DC power lines and power supply lines for car multi-media equipment and various electronic devices.

PART NUMBER CONSTRUCTION

ACM 90V - 701 - 2PL - TL - □□□

Series name	L×W×H Dimensions (mm)	
	4520V	4.7×4.5×2.0
	70V	7.0×6.0×3.5
	90V	9.0×7.0×4.5
	12V	12.0×11.0×6.0

Impedance (Ω) at 100MHz	
701	700

Number of lines	
2P	2 lines
2PL	2 lines

Packaging style	
T	ø180mm reel
TL	ø330mm reel

Internal code

OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

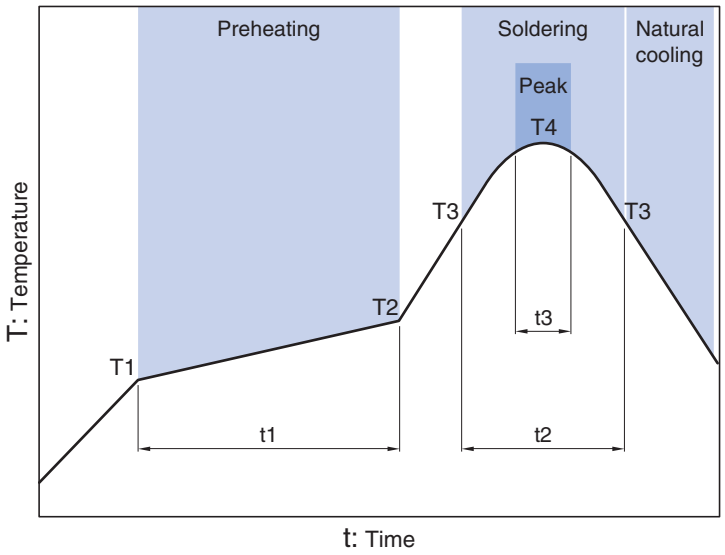
Type	Temperature range		Reel diameter	Package quantity	Individual weight
	Operating temperature	Storage temperature*			
	(°C)	(°C)	(mm)	(pieces/reel)	(g)
ACM4520V	–40 to +125	–40 to +125	ø180	800	0.15
			ø330	2,500	
ACM70V	–40 to +125	–40 to +125	ø330	1,500	0.35
ACM90V	–40 to +125	–40 to +125	ø330	800	0.82
ACM12V	–40 to +125	–40 to +125	ø330	500	2.3

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

- RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. http://product.tdk.com/en/environment/rohs/
- 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.

Overview of the ACM-V Series

RECOMMENDED REFLOW PROFILE

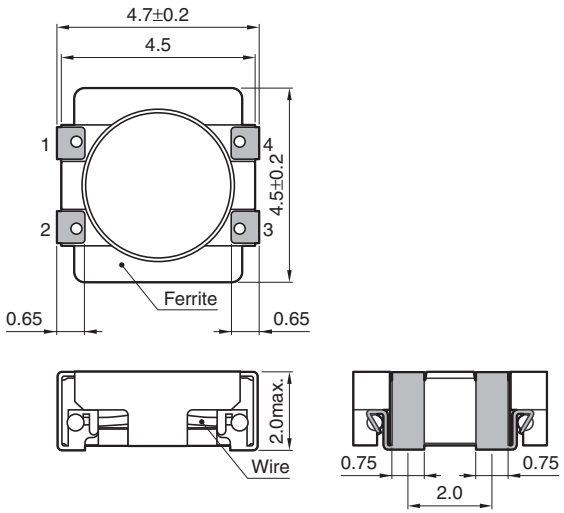


Preheating			Soldering		Peak	
Temp.		Time	Temp.	Time	Temp.	Time
T1	T2	t1	T3	t2	T4	t3
150°C	180°C	60 to 120s	230°C	10 to 30s	245°C	5s

ACM-V series

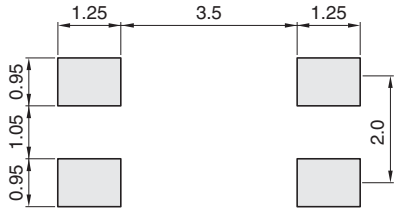
ACM4520V Type

SHAPE & DIMENSIONS



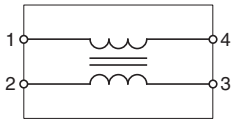
Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

CIRCUIT DIAGRAM



• No polarity

• All specifications are subject to change without notice.

ACM-V series ACM4520V Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

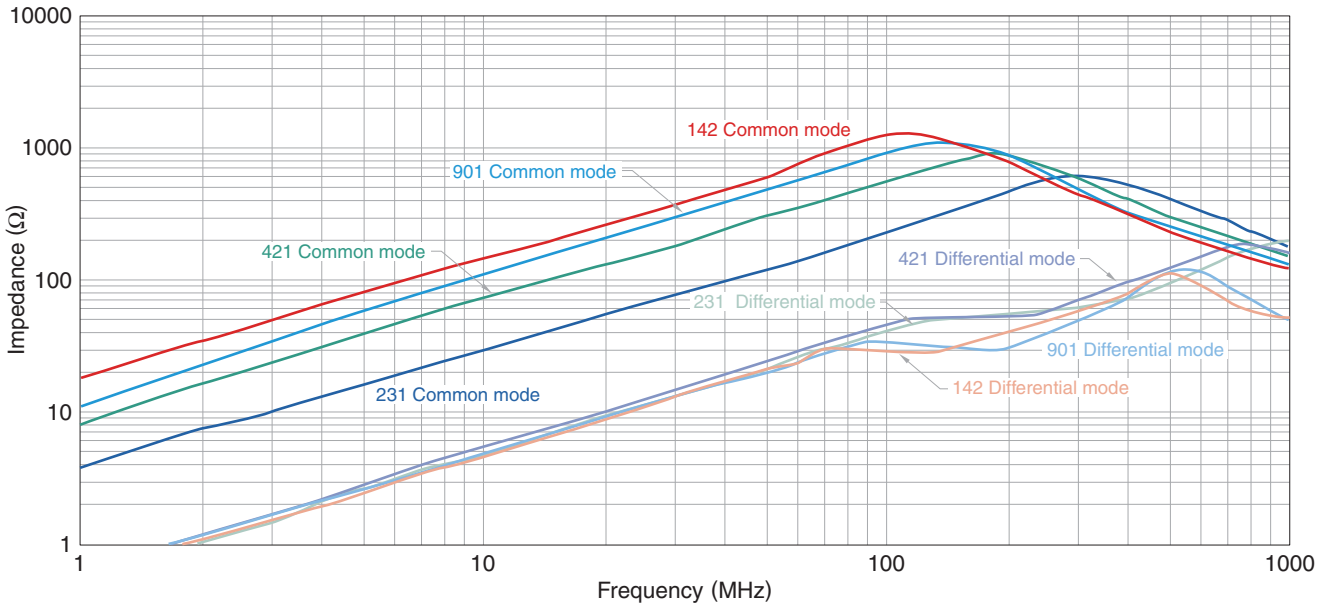
Common mode impedance (Ω) [at 100MHz]		DC resistance (Ω)max.	Rated current (A)max.	Rated voltage (V)max.	Insulation resistance (MΩ)min.	Part No.
min.	typ.	[1 line]	125°C			
180	230	0.05	1.5	50	10	ACM4520V-231-2P-TL□□□
300	420	0.055	1.4	50	10	ACM4520V-421-2P-TL□□□
650	900	0.06	1.2	50	10	ACM4520V-901-2P-TL□□□
1000	1400	0.08	1.0	50	10	ACM4520V-142-2P-TL□□□

○ Measurement equipment

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

＊ Equivalent measurement equipment may be used.

□IMPEDANCE VS. FREQUENCY CHARACTERISTICS



○ Measurement equipment

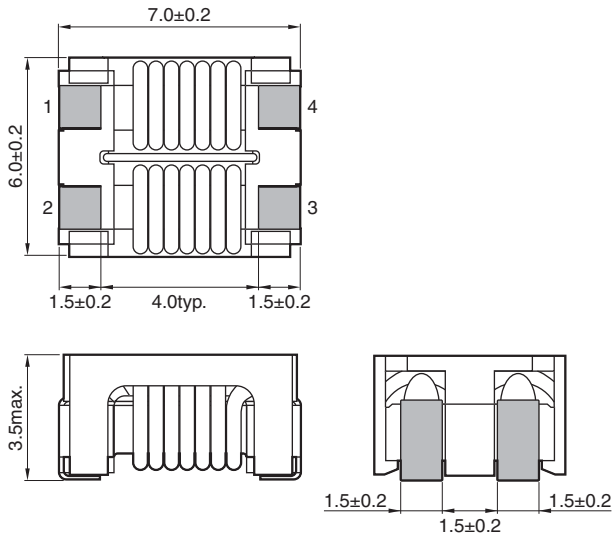
Product No.	Manufacturer
4991A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

ACM-V series

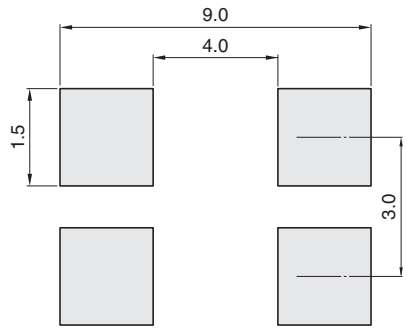
ACM70V Type

SHAPE & DIMENSIONS



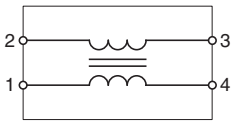
Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

CIRCUIT DIAGRAM



• No polarity

ACM-V series ACM70V Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

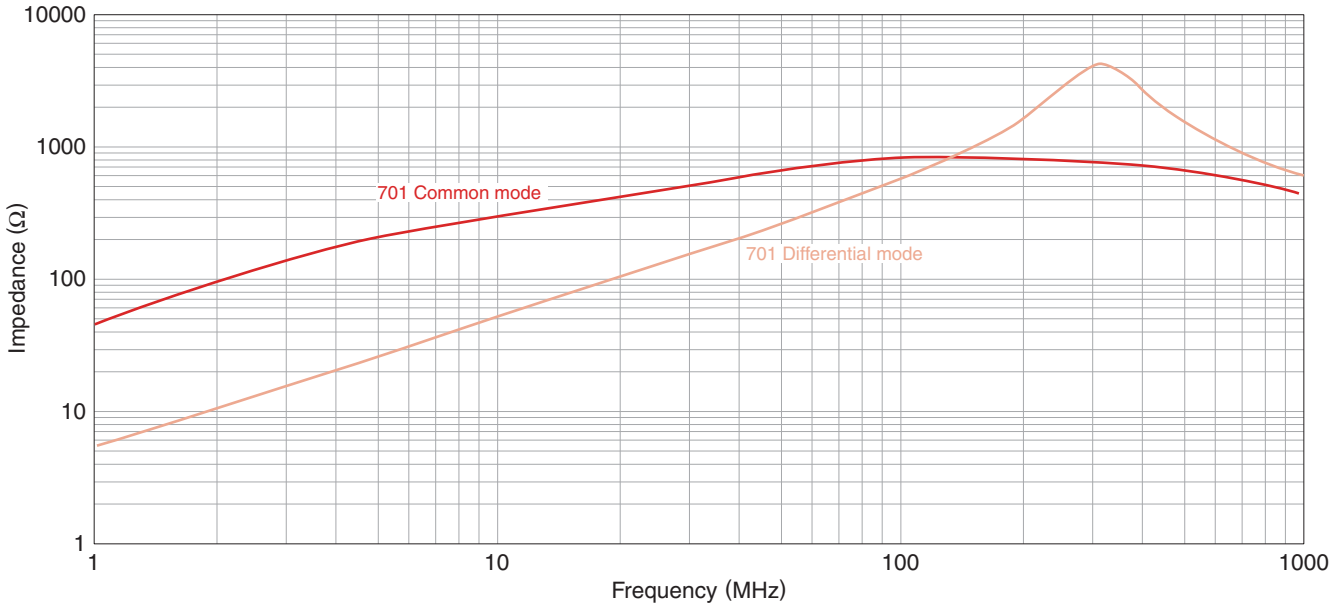
Common mode impedance (Ω) [at 100MHz]		DC resistance (mΩ)max.	Rated current (A)max.	Rated voltage (V)max.	Insulation resistance (MΩ)min.	Part No.
min.	typ.					
500	700	15	4.0	80	10	ACM70V-701-2PL-TL00

○ Measurement equipment

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

＊ Equivalent measurement equipment may be used.

□IMPEDANCE VS. FREQUENCY CHARACTERISTICS



○ Measurement equipment

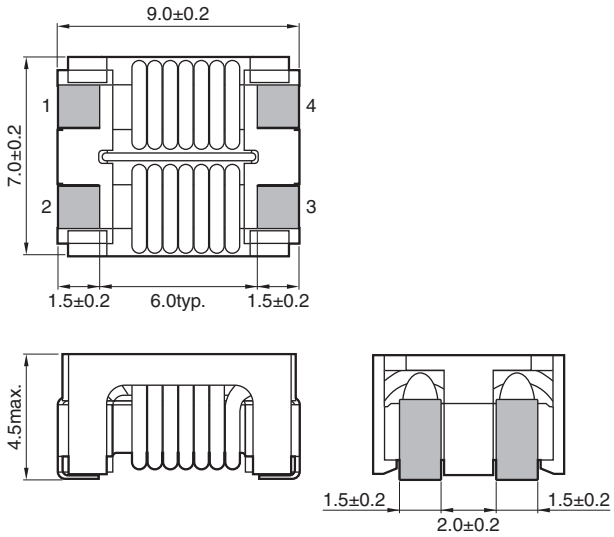
Product No.	Manufacturer
4991A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

ACM-V series

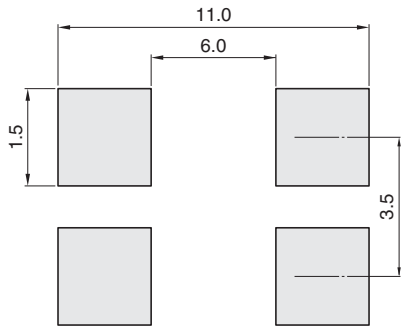
ACM90V Type

SHAPE & DIMENSIONS



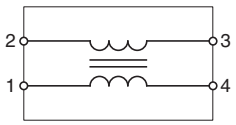
Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

CIRCUIT DIAGRAM



• No polarity

• All specifications are subject to change without notice.

ACM-V series ACM90V Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

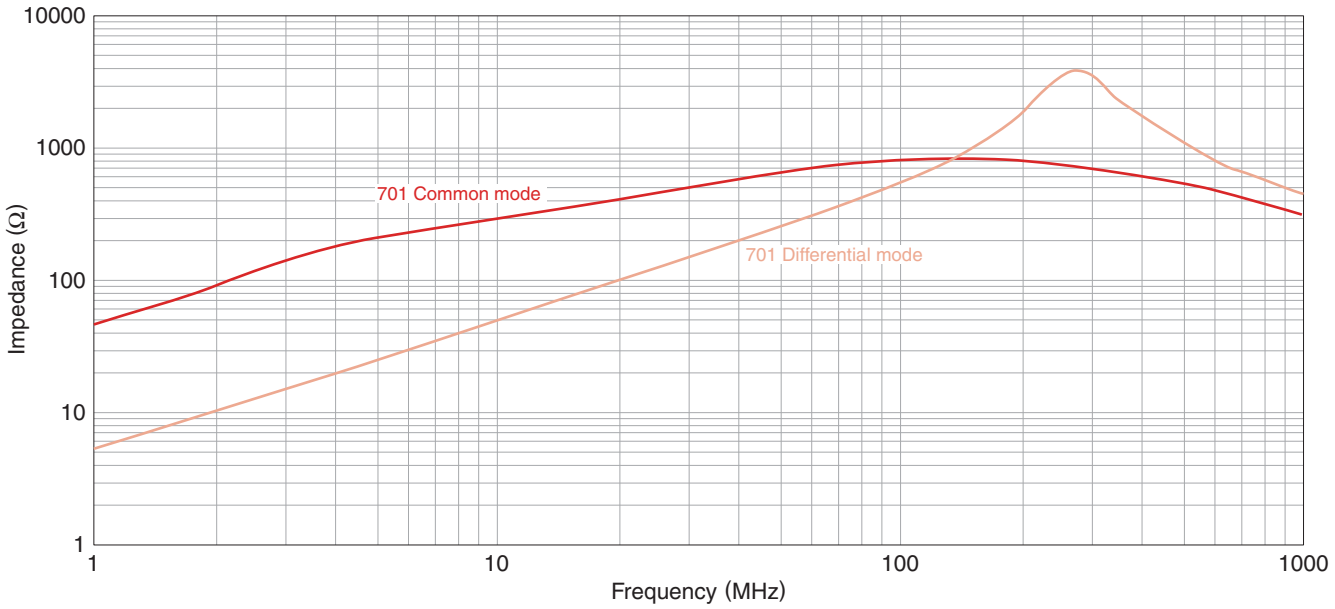
Common mode impedance (Ω) [at 100MHz]		DC resistance (mΩ)max.	Rated current (A)max.	Rated voltage (V)max.	Insulation resistance (MΩ)min.	Part No.
min.	typ.					
500	700	10	5.0	80	10	ACM90V-701-2PL-TL00

○ Measurement equipment

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

＊ Equivalent measurement equipment may be used.

□IMPEDANCE VS. FREQUENCY CHARACTERISTICS



○ Measurement equipment

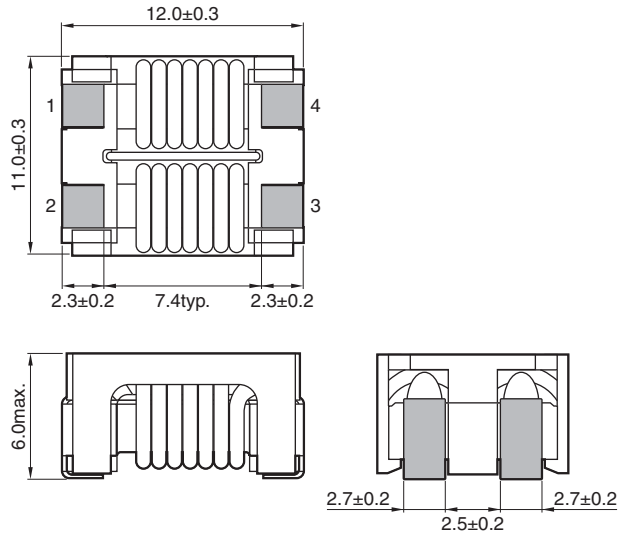
Product No.	Manufacturer
4991A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

ACM-V series

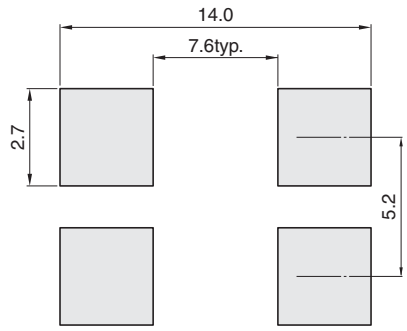
ACM12V Type

SHAPE & DIMENSIONS



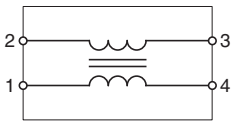
Dimensions in mm

RECOMMENDED LAND PATTERN



Dimensions in mm

CIRCUIT DIAGRAM



• No polarity

• All specifications are subject to change without notice.

ACM-V series ACM12V Type

■ELECTRICAL CHARACTERISTICS

□CHARACTERISTICS SPECIFICATION TABLE

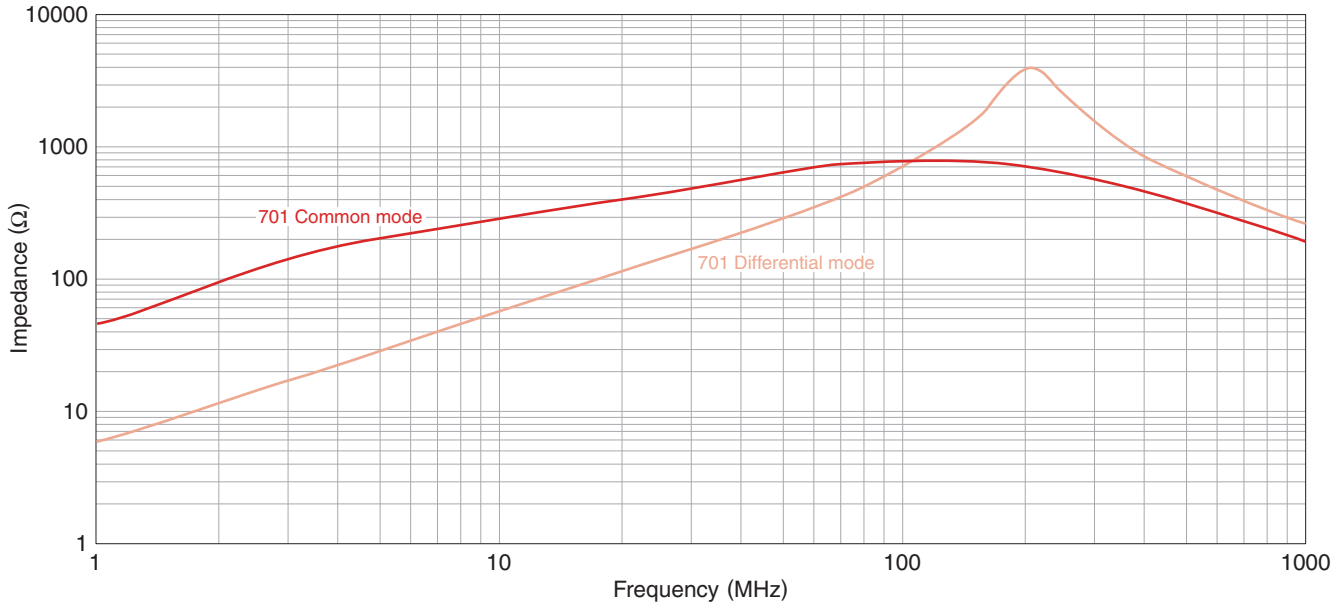
Common mode impedance (Ω) [at 100MHz]		DC resistance (mΩ)max.	Rated current (A)max.	Rated voltage (V)max.	Insulation resistance (MΩ)min.	Part No.
min.	typ.					
500	700	6	8.0	80	10	ACM12V-701-2PL-TL00

○ Measurement equipment

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

＊ Equivalent measurement equipment may be used.

□IMPEDANCE VS. FREQUENCY CHARACTERISTICS



○ Measurement equipment

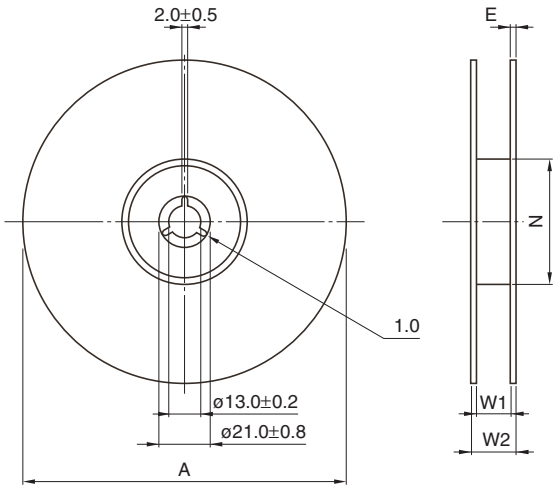
Product No.	Manufacturer
4991A	Agilent Technologies

＊ Equivalent measurement equipment may be used.

ACM-V series

Packaging style

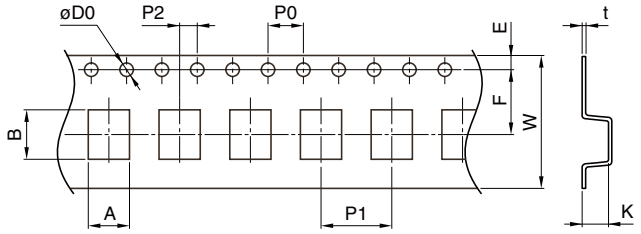
REEL DIMENSIONS



Type	A	W1	W2	N	E
ACM4520V	ø330±2	13.5±0.5	17.5±1	100±1	2 typ.
	ø180±3	13±0.3	17±1.4	60+1/–0	2 typ.
ACM70V	ø330±2	16.4+2/–0	20.4 typ.	100±1	2 typ.
ACM90V	ø330±2	16.4+2/–0	20.4 typ.	100±1	2 typ.
ACM12V	ø330±2	24.4+2/–0	28.4 typ.	100±1	2 typ.

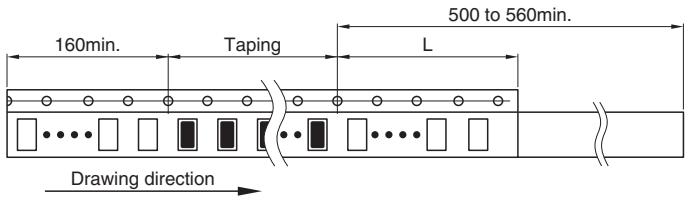
Dimensions in mm

TAPE DIMENSIONS



Dimensions in mm

Type	A	B	øD0	E	F	P0	P1	P2	W	K	t
ACM4520V	4.75±0.1	5.05±0.1	1.55+0.1/0	1.75±0.1	5.5±0.05	4.0±0.1	8.0±0.1	2.0±0.05	12.0±0.2	2.05±0.05	0.3±0.1
ACM70V	6.6±0.1	7.6±0.1	1.5+0.1/0	1.75±0.1	7.5±0.1	4.0±0.1	8.0±0.1	2.0±0.1	16.0±0.3	3.6±0.1	0.4±0.05
ACM90V	8.6±0.1	9.6±0.1	1.5+0.1/0	1.75±0.1	7.5±0.1	4.0±0.1	12.0±0.1	2.0±0.1	16.0±0.3	4.6±0.1	0.4±0.05
ACM12V	13.2±0.1	13.5±0.1	1.5+0.1/0	1.75±0.1	11.5±0.1	4.0±0.1	16.0±0.1	2.0±0.1	24.0±0.3	6.4±0.1	0.5±0.05



Dimensions in mm

Type	L
ACM4520V	100 to 200
ACM70V	440min.
ACM90V	440min.
ACM12V	440min.