

Common mode filters

Ultra high-speed differential signal line

TCM-U series



TCM06U type



FEATURES

- This product is a thin-film common mode filter with a wide frequency range that can be used for ultra high-speed differential signal interfaces such as USB4.0 (Data speed : 20Gbps).
- In improved common mode attenuation of 10GHz (or 2.4GHz, 5.0GHz), produces a sufficient anti effect to common mode noise of high-frequency. Also, to realizing remarkable band differential mode transmission(13 to 20GHz), do not have an impact almost to transmission speed difference differential line signal.
- Operating temperature range: -25 to +85°C

APPLICATION

- Noise countermeasure for ultra-high-speed differential interfaces (USB4.0, USB3.2/3.1/3.0, HDMI, Display Port etc.) for Note PC, Set top box and general consumer products such as smartphone and tablet device.

PART NUMBER CONSTRUCTION

TCM	06	UX	-	020	-	2P	-	T	201
Series name	L×W×T dimensions 0.65×0.5×0.3 mm	Product identification code		Impedance (Ω) at 100MHz		Number of lines		Packaging style	Internal code

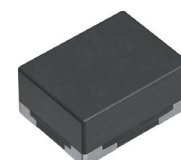
CHARACTERISTICS SPECIFICATION TABLE

Common mode attenuation (dB)	Cutoff frequency (GHz)typ.	DC resistance [1 line] (Ω)	Rated current (A)max.	Rated voltage (V)max.	Insulation resistance (MΩ)min.	Part No.
25min. @10.0GHz 18min. @9.0 to 11.0GHz	20.0 over	0.5±30%	0.1	10	10	TCM06UX-020-2P-T201
30min. @5.0GHz 18min. @4.0 to 6.0GHz	20.0 over	0.9±30%	0.1	10	10	TCM06U5-050-2P-T201
30min. @2.4GHz 18min. @1.9 to 3.3GHz	13.0	2.5±30%	0.1	10	10	TCM06U2-150-2P-T201

Measurement equipment

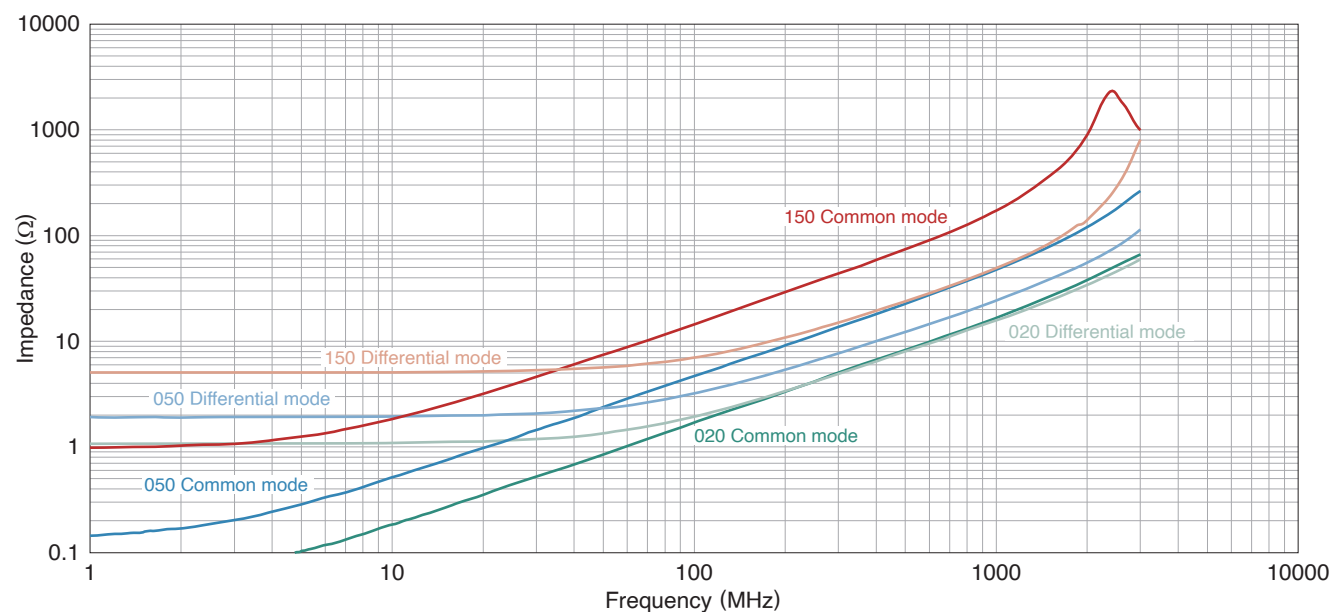
Measurement item	Product No.	Manufacturer
Common mode impedance	4291A	Keysight Technologies
DC resistance	4338A	Keysight Technologies
Insulation resistance	4339A	Keysight Technologies

* Equivalent measurement equipment may be used.



TCM06U type

IMPEDANCE VS. FREQUENCY CHARACTERISTICS

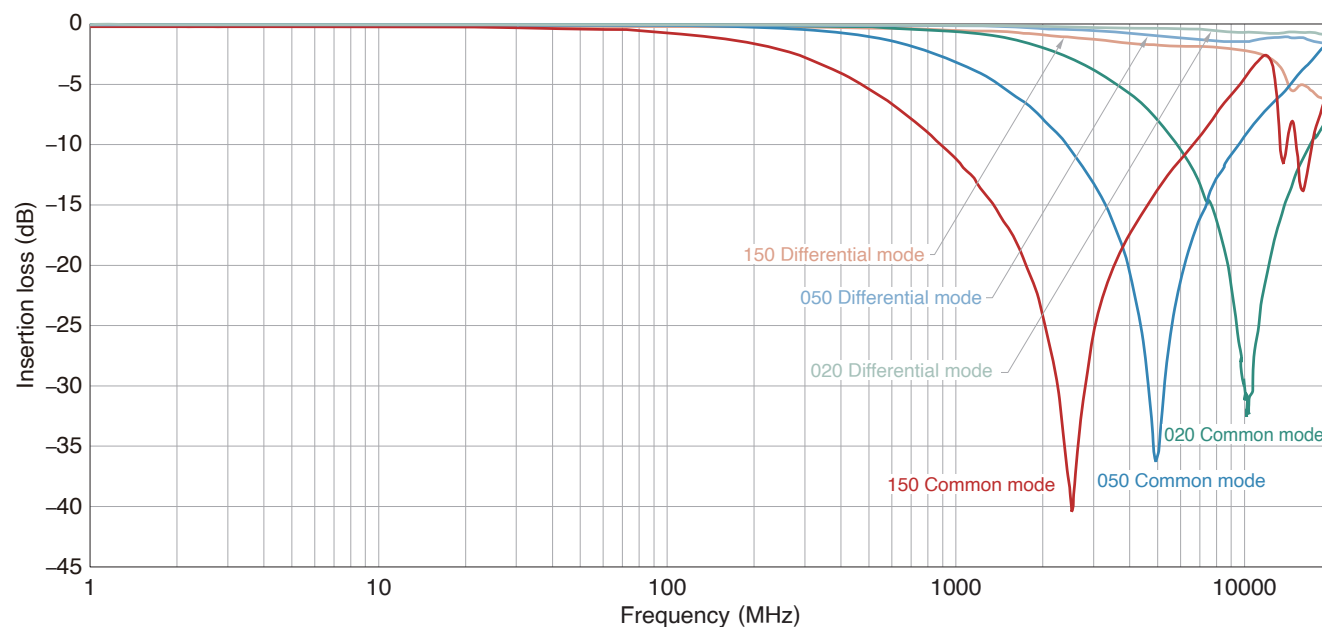


Measurement equipment

Product No.	Manufacturer
4991A	Keysight Technologies

* Equivalent measurement equipment may be used.

INSERTION LOSS VS. FREQUENCY CHARACTERISTICS



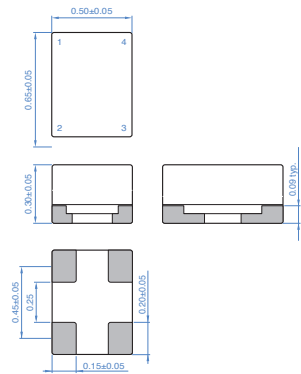
Measurement equipment

Product No.	Manufacturer
E5071B	Keysight Technologies

* Equivalent measurement equipment may be used.

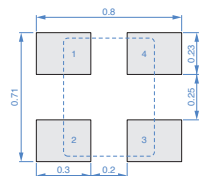
TCM06U type

SHAPE & DIMENSIONS



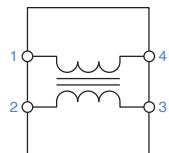
Dimensions in mm

RECOMMENDED LAND PATTERN



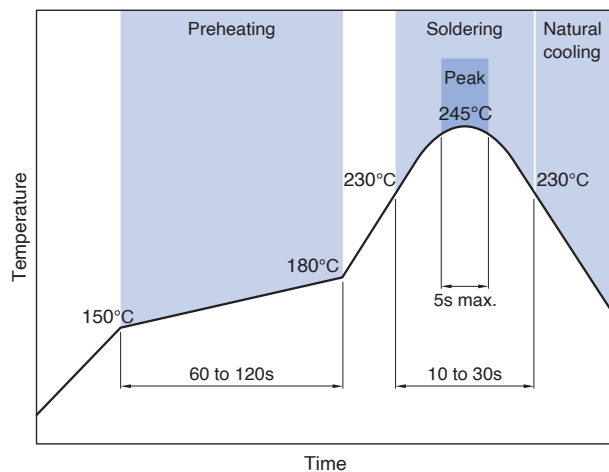
Dimensions in mm

CIRCUIT DIAGRAM



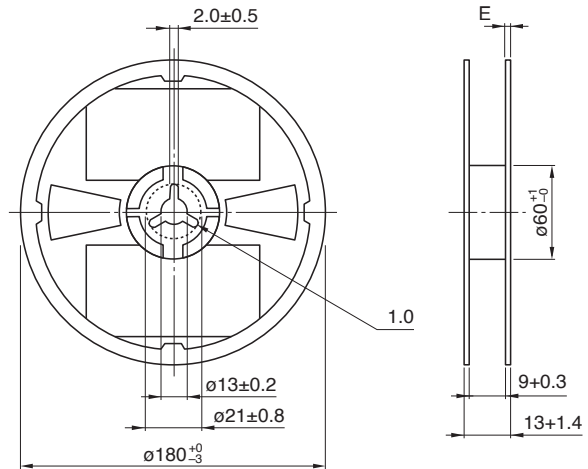
• No polarity

RECOMMENDED REFLOW PROFILE



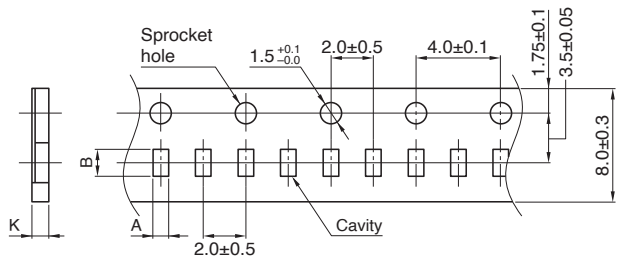
PACKAGING STYLE

REEL DIMENSIONS



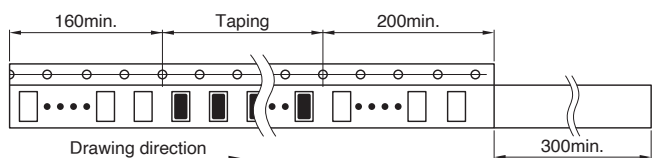
Dimensions in mm

TAPE DIMENSIONS



Dimensions in mm

Type	A	B	K
TCM06U	0.63	0.77	0.35



Dimensions in mm

PACKAGE QUANTITY

Package quantity	10,000 pcs/reel
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TEMPERATURE RANGE, INDIVIDUAL WEIGHT

Operating temperature range	Storage temperature range *	Individual weight
-25 to +85 °C	-25 to +85 °C	0.5 mg

* The storage temperature range is for after the assembly.

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 70% 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.).
- 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 | (7) Transportation control equipment |
| (2) Transportation equipment (cars, electric trains, ships, etc.) | (8) Public information-processing equipment |
| (3) Medical equipment | (9) Military equipment |
| (4) Power-generation control equipment | (10) Electric heating apparatus, burning equipment |
| (5) Atomic energy-related equipment | (11) Disaster prevention/crime prevention equipment |
| (6) Seabed 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.