



# Mag Layers USA, INC

## Specification Sheet

P/N : **MCI-2012H-SERIES-RU**

### Products:

[Molded Power Chokes](#)

[Multilayer Chip Inductors](#)

[Lan Transformer](#)

[RF Passive / Antennas](#)

[Automotive](#)

### Certifications:

[ISO9001](#)

[IATF16949](#)

[ISO14001](#)

[QC080000](#)

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## I . SCOPE :

This specification applies to the Pb Free Common mode filters  
for MCI-2012H-SERIES-□□

### PRODUCT IDENTIFICATION

**MCI- 2012 H - 900 -□□-RU**

① ② ③ ④ ⑤

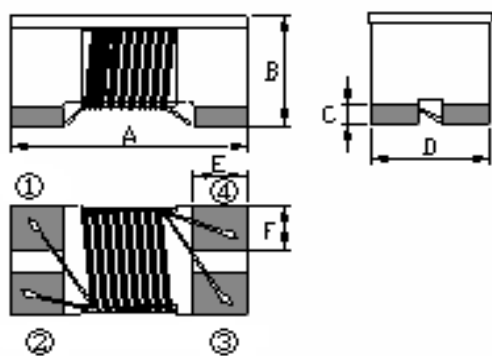
- ① Product Code
- ② Dimensions Code
- ③ HDMI Type
- ④ Impedance Code
- ⑤ Inner Control Code

## II . INDEX :

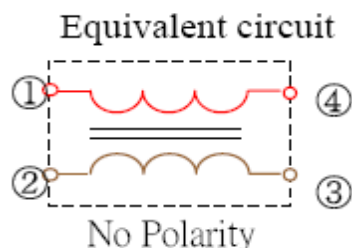
LISTED ITEM	ATTACHEMENT & TABLES	PAGE
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8. ATTENTION IN CASE OF USING	Please see (7)	8/8
<b>9.STANDARD TEST CONDITIONS</b> Unless otherwise specified, test condition should be Temp. = 20±5℃, Humidity = 35~85% But if needed, then test condition should be Temp. = 20±2℃, Humidity = 65±5%		
<b>10.SHELF LIFE</b> Storage Condition: The temperature should be within -40℃ ~105℃ and humidity should be less than 75%RH. The product should be used within 12 months from the time of delivery. <b>In addition, suggest to use product within 6 months from the time of delivery.</b>		



## (1) SHAPES AND DIMENSIONS



A:	2.0±0.20	mm
B:	1.2±0.20	mm
C:	0.17 Typ.	mm
D:	1.2±0.20	mm
E:	0.45 Typ.	mm
F:	0.40 Typ.	mm



## (2) ELECTRICAL SPECIFICATIONS

### SEE TABLE 1

#### TEST INSTRUMENTS

Z : HP 4291B IMPEDANCE ANALYZER (or equivalent)

RDC : CHROMA MODEL 16502 MILLIOHMMETER (or equivalent)

I.R : CHROMA MODEL 19073 AC/DC/1R HIPOT TESTER (or equivalent)

## (3) CHARACTERISTICS

(3)-1 Operate temperature range ..... -40°C ~ +125°C

(Including self temp. rise)

(3)-2 Storage temperature range ..... -40°C ~ +125°C

### MATERIALS

NO.	ITEM	DESCRIPTION & TYPE
1	CORE	Ferrite
2	WIRE	Copper wire
3	ADHESIVE	Epoxy Resin
4	SOLDER	Sn/Ni



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**TABLE 1**

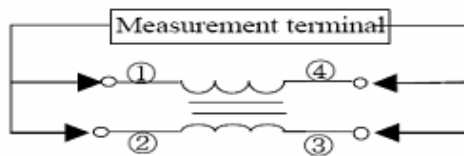
MAGLAYERS PT/NO.	Impedance Z( $\Omega$ ) @ 100MHz/0.5V	RDC ( $\Omega$ ) Max.	Rated Voltage Vdc(V)Max.	Idc Max.(mA)	Cut-off Frequency GHz(Typ.)	Insulation Resistance (M $\Omega$ )Min.
MCI-2012H-670-□□-RU	67 $\pm$ 25%	0.30	20	300	6.0	10
MCI-2012H-900-□□-RU	65 Min. (90 Typ.)	0.30	20	300	6.0	10

IDC:Based on temperature rise( $\Delta T=20^{\circ}\text{C}$  Typ.)

**TEST EQUIPMENT**

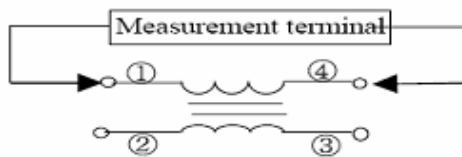
1. Impedance

Measured by using HP 4291B RF Impedance Analyzer.



2. DC Resistance

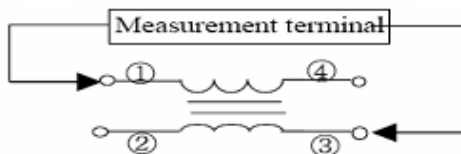
Measured by using Chroma 16502 mill ohm meter



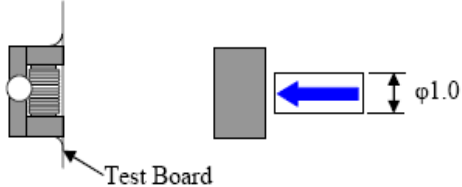
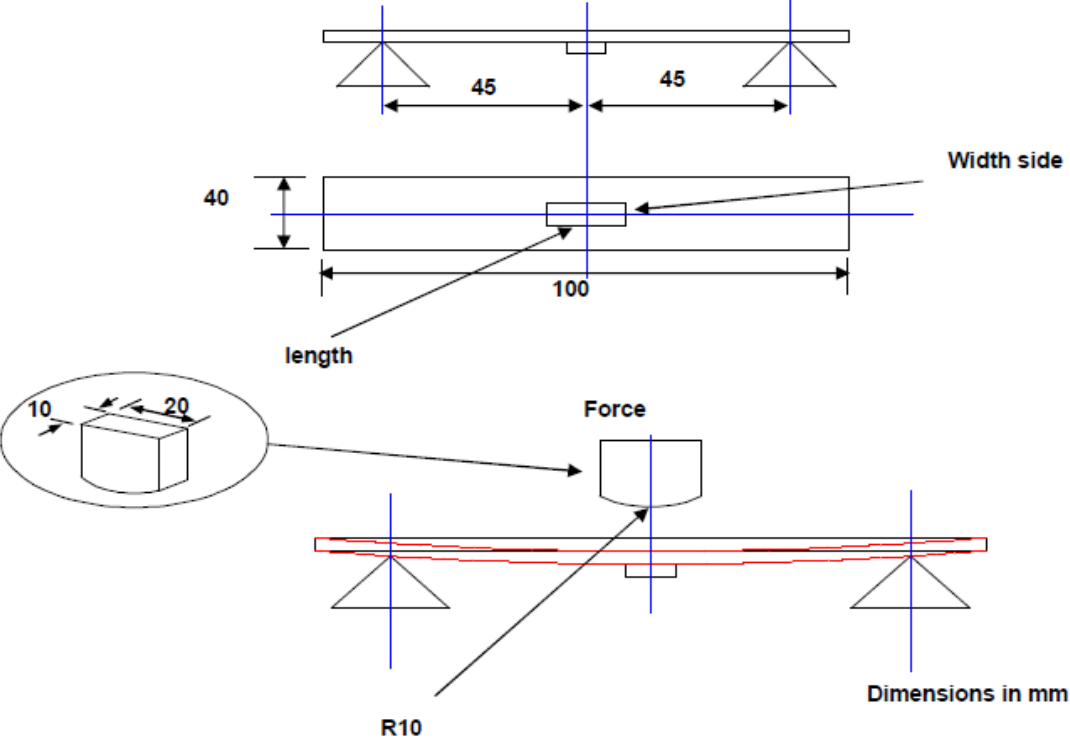
3. Insulation Resistance

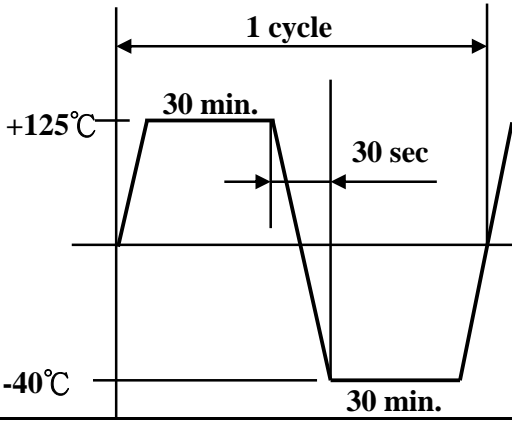
Measured by using Chroma 19073

Measurement voltage: 50v, Measurement time: 60 sec.



## (4) RELIABILITY TEST METHOD

Item	Specifications	Test conditions
Solder ability	It can be connected on the Recommendation soldering condition.	Apply cream solder to the test circuit board . It is mounted on the recommendation soldering condition. Dip pads in flux and dip in solder pot ( 96.5 Sn/3.5 Ag solder) at 260°C ±5°C.
Terminal strength	The terminal electrode and the ferrite must not be damaged.	Solder a chip to test substrate , and then laterally apply a load 0.5Kg in the arrow direction. 
Strength on pc board bending	The terminal electrode and the ferrite must not be damaged.	Soldering a chip to a test substrate , bend the substrate by 2mm and then return.  Test board : Glass base epoxy multiplayer board pc board pattern. PC board pattern : Recommended PC board pattern.

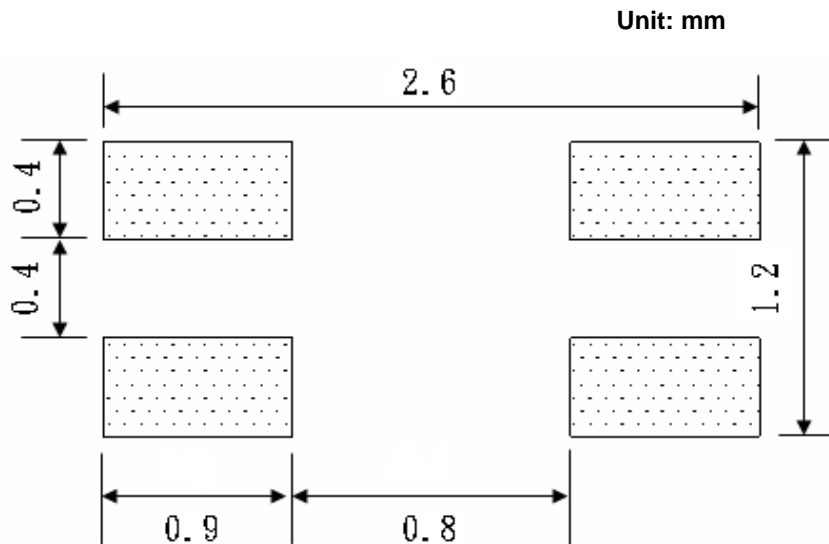
Item	Specifications	Test conditions
High temperature	<p>Appearance : Ferrite shall not be damaged.</p> <p>Impedance: Within <math>\pm 20\%</math> of the initial value.</p> <p>insulation resistance: <math>&gt;10(M\Omega)</math></p> <p>DC resistance : standard value inside.</p>	<p>Temperature : <math>+125\pm 2^{\circ}C</math></p> <p>Applied voltage : Rated voltage</p> <p>Applied current : Rated current</p> <p>Testing time : <math>500\pm 12</math> hours</p> <p>Measurement : After placing for 24 hours min.</p>
Humidity resistance		<p>Temperature : <math>+85\pm 2^{\circ}C</math></p> <p>Humidity : 90 to 95%RH</p> <p>Applied current : Rated current</p> <p>Applied voltage : Rated voltage</p> <p>Testing time : <math>500\pm 12</math> hours</p> <p>Measurement : After placing for 24 hours min.</p>
Thermal shock		<p>Temperature : <math>-40^{\circ}C, +125^{\circ}C</math></p> <p>kept stabilized for 30 minutes each.</p> <p>Cycle : 100 cycle</p> <p>Measurement : After placing for 24 hours min.</p> 
Low temperature Storage		<p>Temperature : <math>-40\pm 2^{\circ}C</math></p> <p>Testing time : <math>500\pm 12</math> hours</p> <p>Measurement : After placing for 24 hours min.</p>
Vibration		<p>Appearance : Ferrite shall not be damaged.</p>



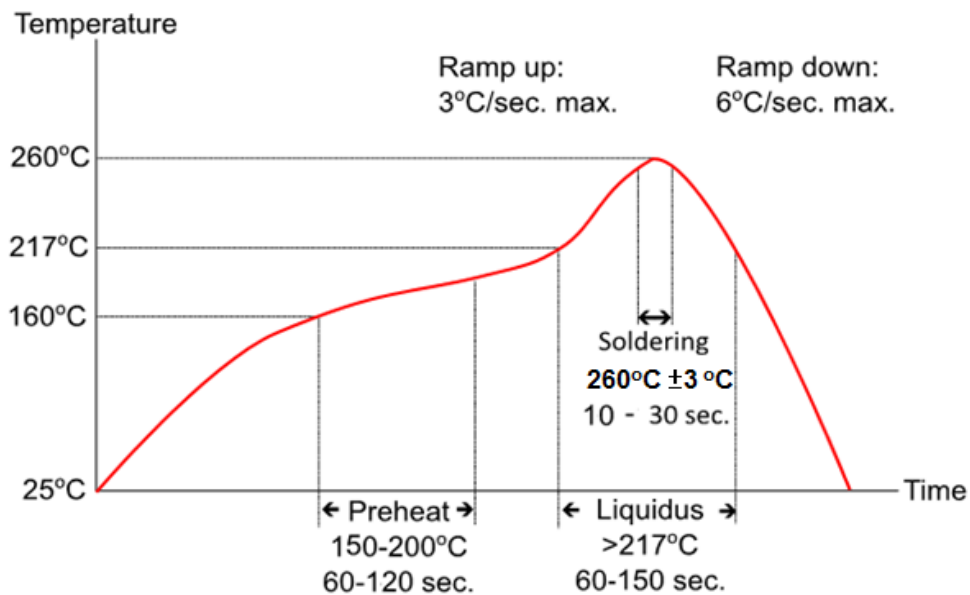
## (5) RECOMMENDED SOLDERING CONDITIONS

(Please use this product by reflow soldering)

### (5)-1 RECOMMENDED FOOTPRINT



### (5)-2 RECOMMENDED REFLOW PATTERN



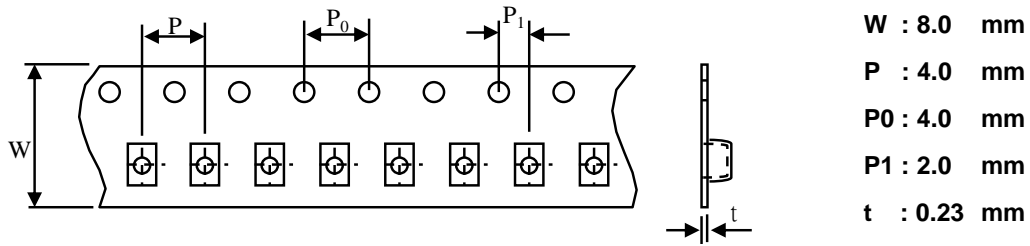
### (5)-3 IRON SOLDERING

Use a solder iron of less than 30W when soldering ,do not allow the soldering iron tip directly touch the Ceramic body outside of terminal electrode.  
3 seconds max. at 260°C.



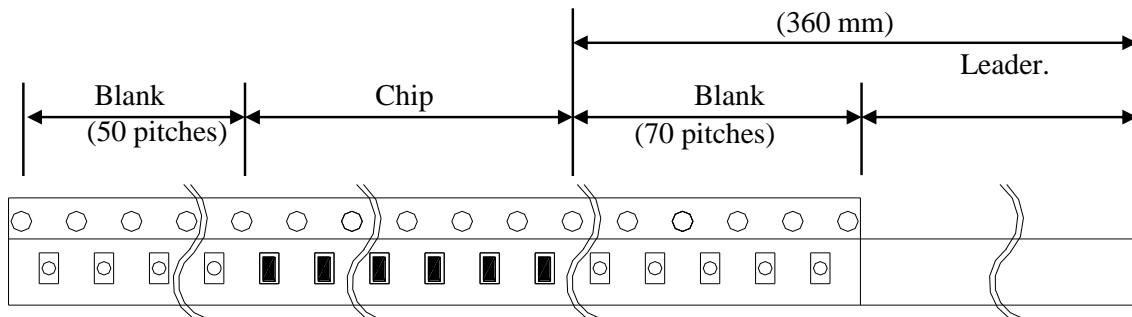
## (6) PACKAGING

### (6)-1 CARRIER TAPE DIMENSIONS (mm)

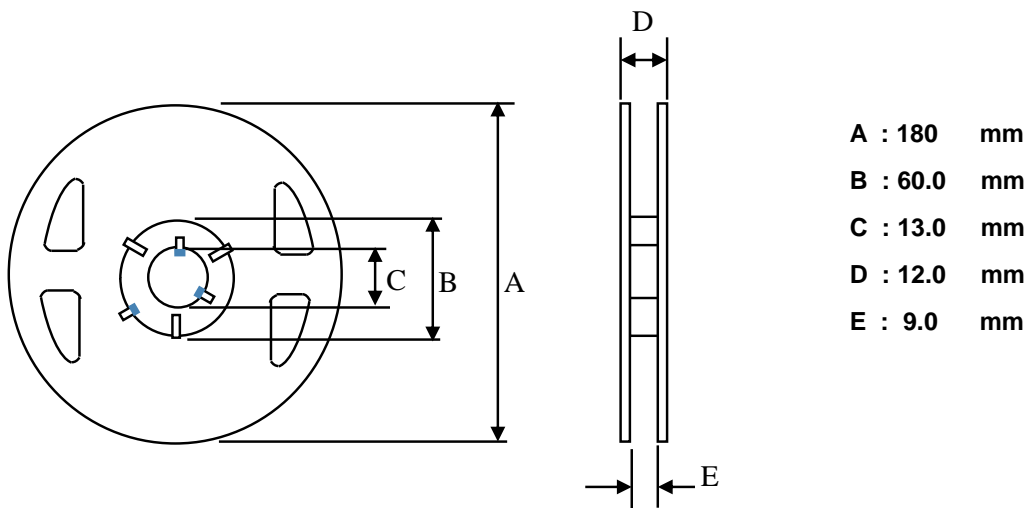


### (6)-2 TAPING DIMENSIONS (mm)

There shall not continuation more than two vacancies of the product.



### (6)-3 REEL DIMENSIONS



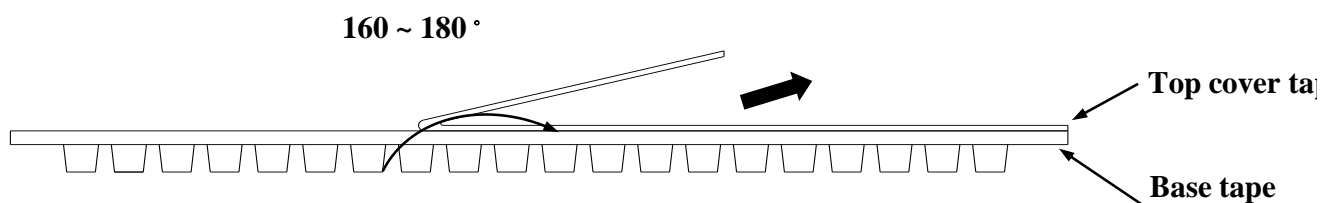
## (6)-4 TOP TAPE PEEL STRENGTH

The force for tearing off cover tape is 0.1~0.6(N) in the arrow direction at the following conditions:

Temperature : 5 ~ 35°C

Humidity : 45 ~ 85%

Atmospheric pressure : 860 ~ 1060 hpa



## (6)-5 QUANTITY

2000 pcs/Reel

(6)-6 The products are packaged so that no damage will be sustained.

## (7) ATTENTION IN CASE OF USING

In case of using product ,please avoid following matters:

Splashing water or salt water

Dew condenses

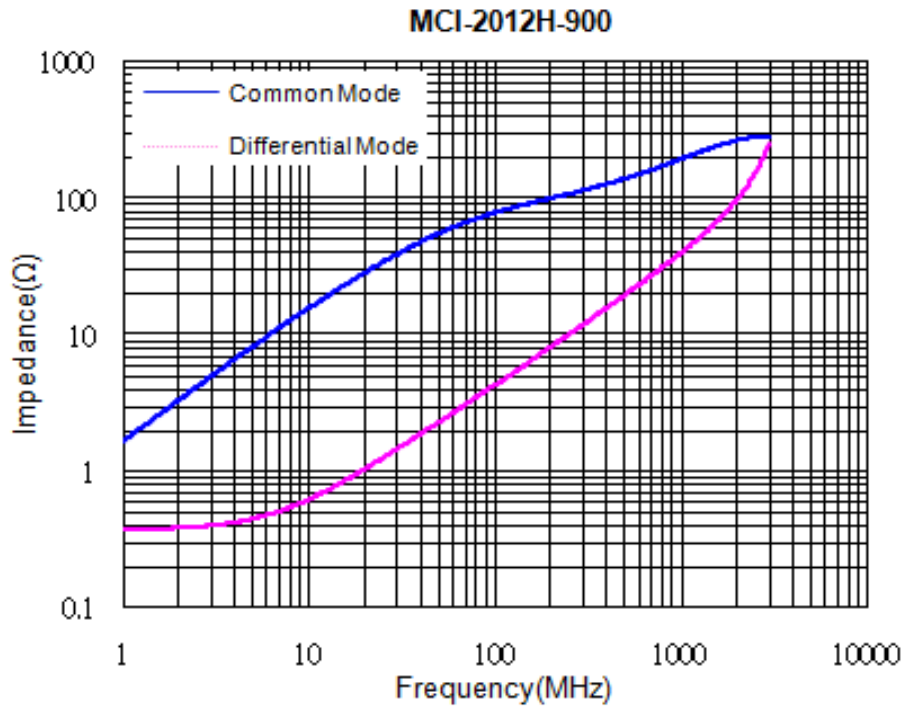
Toxic gas (Hydrogen sulfide, Sulfurous acid ,Chlorine, Ammonia)

Vibrations or shocks which exceed the specified condition

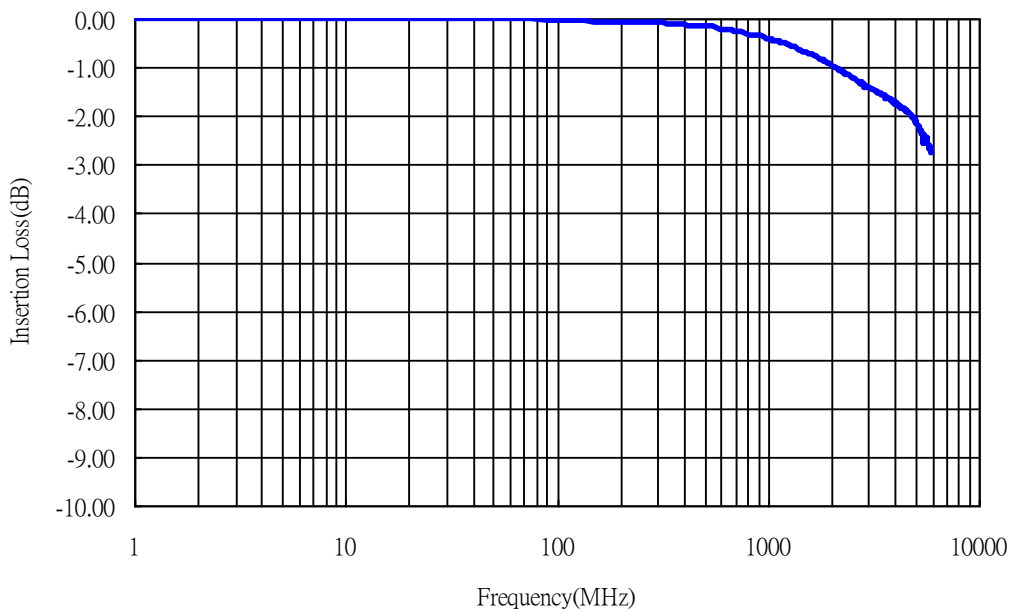
Please be careful for the stress to this product by board flexure or something after the mounting.

# TYPICAL ELECTRIC CHARACTERISTICS

## Characteristics (Reference)

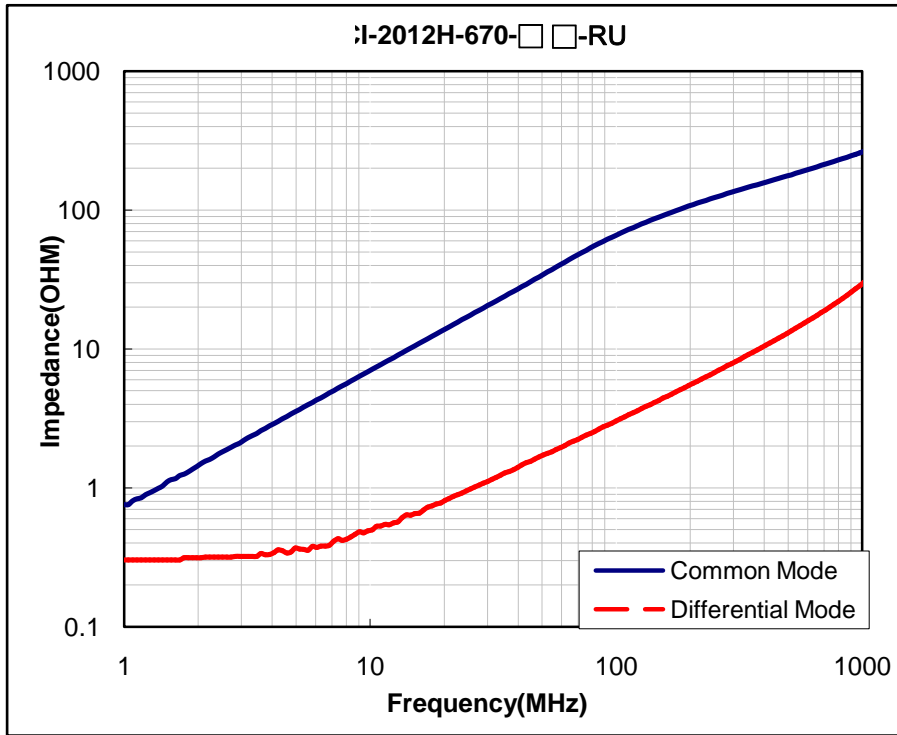


## Insertion Loss Characteristics (Reference)



# TYPICAL ELECTRICAT CHARACTERISTICS

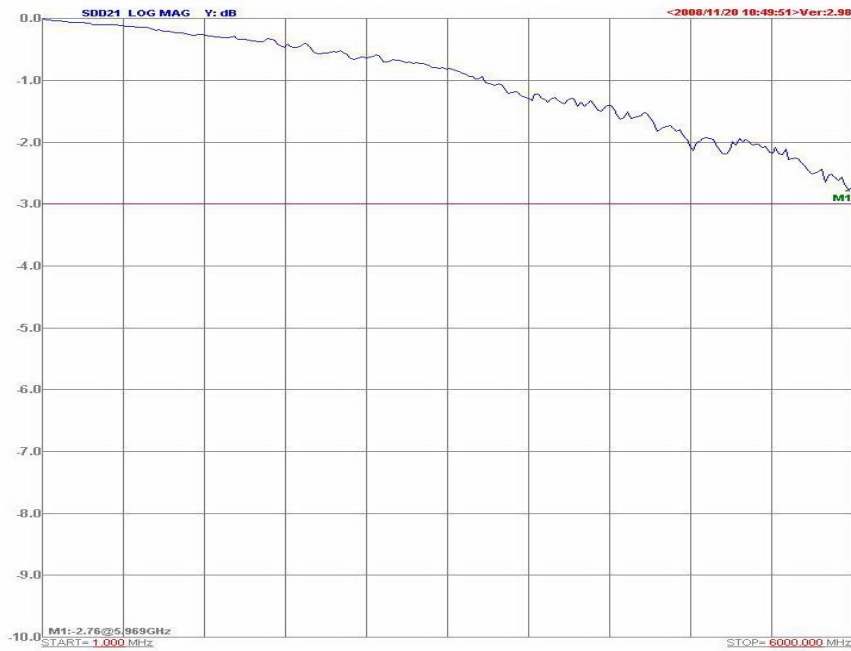
## Characteristics (Reference)



## Cut off Frequency (Reference)

HDMI TDR Method Insertion Loss Graphic result

HDMI TDR Method Insertion Loss choke



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