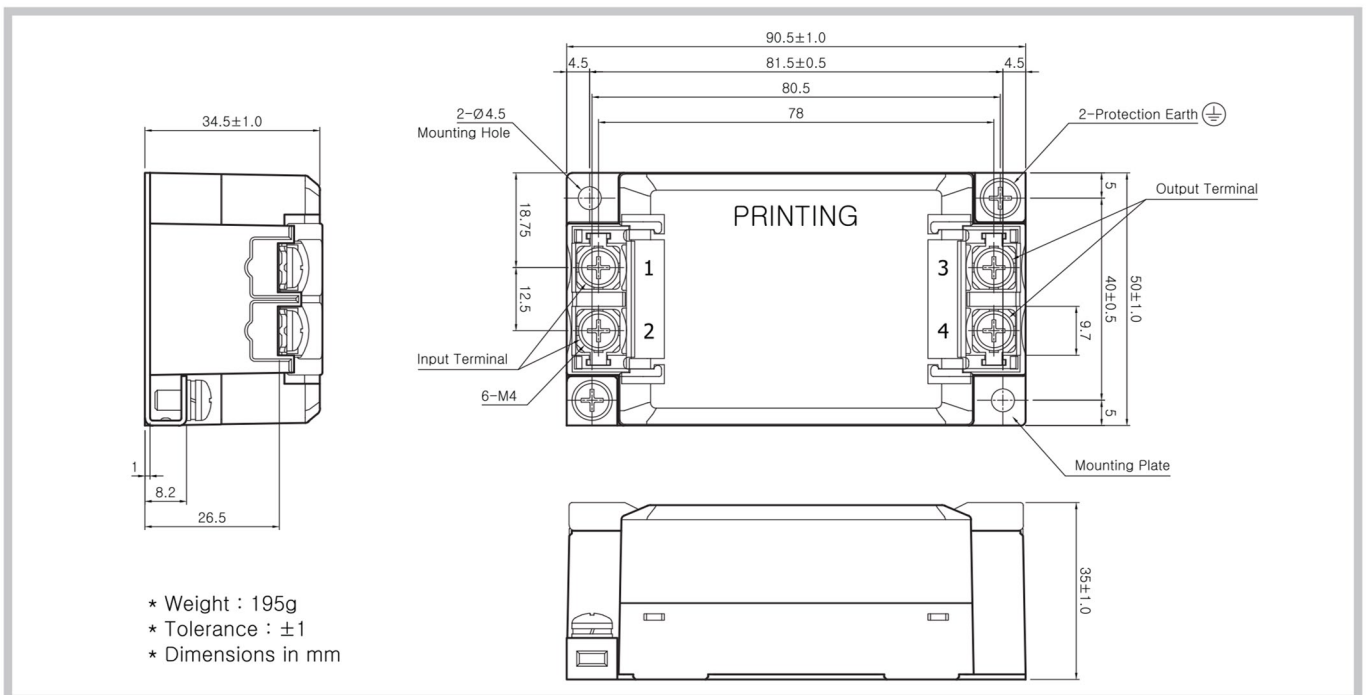


# RNS-Series\_Single Phase Noise Filter



## Feature

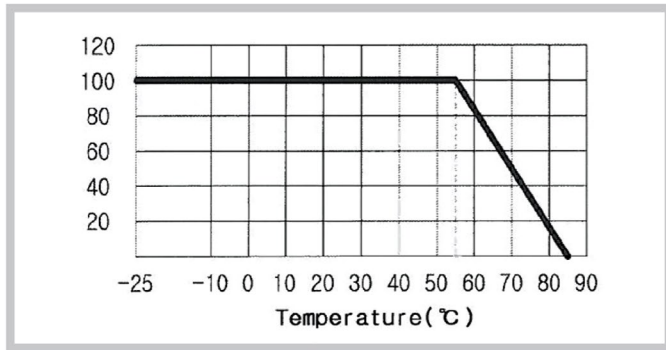
- Single Phase
- High Attenuation Characteristics (150KHz ~ 1MHz)
- 1-Stage Filter
- Low Leakage / Safety Cover
- Easy Push-Down Terminal Block
- Din Rail Mountable (Option)



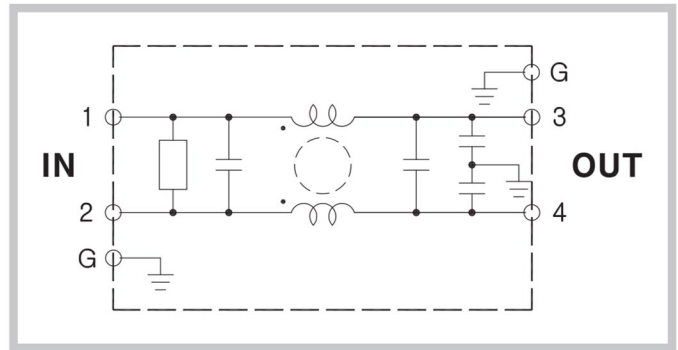
MODEL	Rated Voltage (AC/DC)	Rated Current	Laekage Current (60Hz)	Naximum Air Temperrature	Operating Temperature
RNS-2006(-DIN)	250V MAX	6A	1.0mA Max	55°C Max	-25°C ~+85°C
RNS-2010(-DIN)	250V MAX	10A	1.0mA Max	55°C Max	-25°C ~+85°C
RNS-2016(-DIN)	250V MAX	16A	1.0mA Max	55°C Max	-25°C ~+85°C
RNS-2020(-DIN)	250V MAX	20A	1.0mA Max	55°C Max	-25°C ~+85°C
RNS-2030(-DIN)	250V MAX	30A	1.0mA Max	55°C Max	-25°C ~+85°C

# RNS-Series

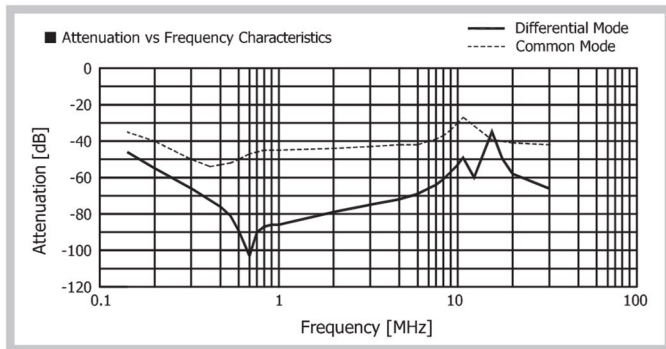
## RNS-Series Derating Curve



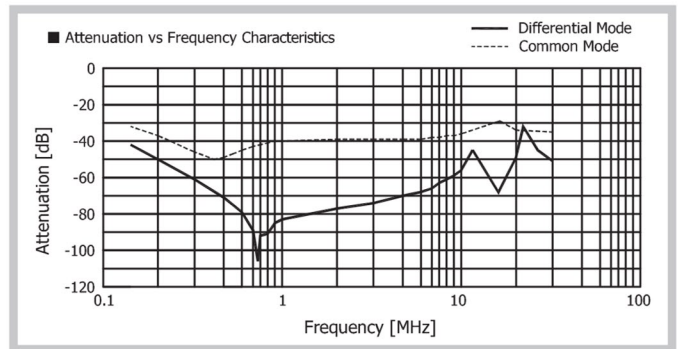
## RNS-Series Circuit Diagram



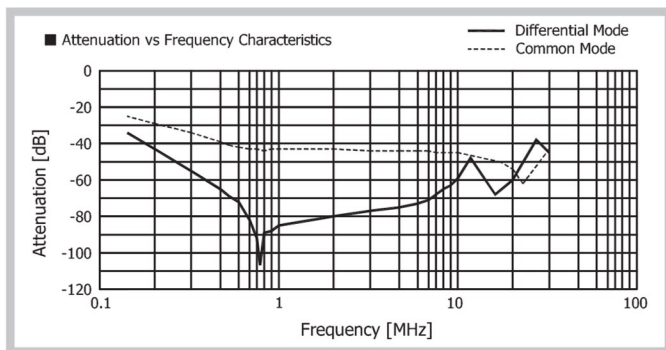
## RNS-2006 Attenuation Characteristics



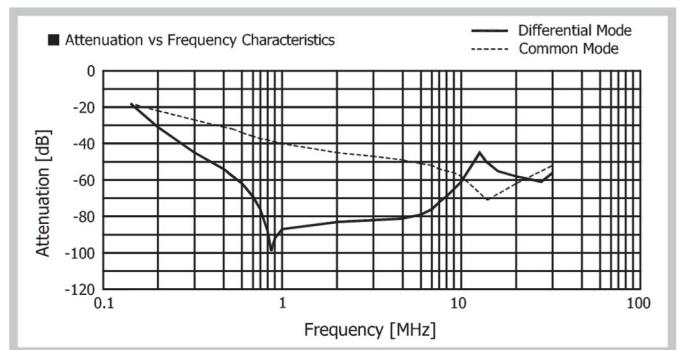
## RNS-2010 Attenuation Characteristics



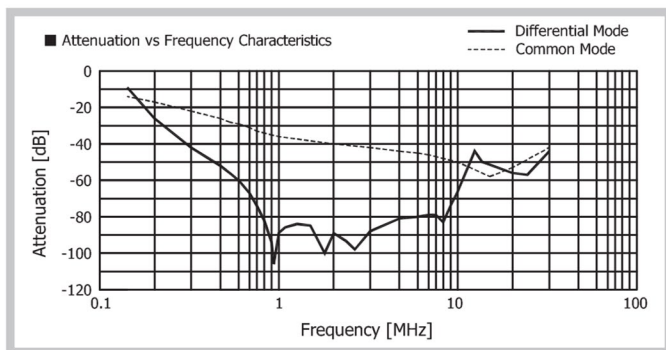
## RNS-2016 Attenuation Characteristics



## RNS-2020 Attenuation Characteristics



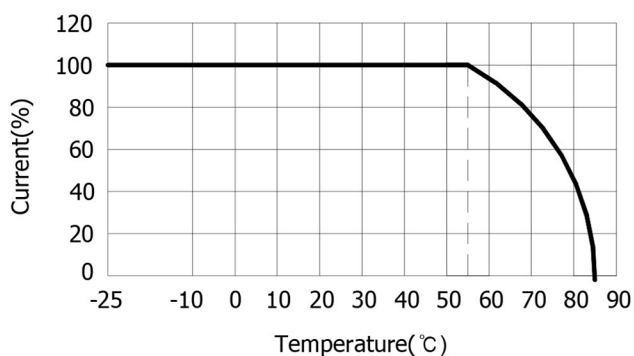
## RNS-2030 Attenuation Characteristics



## Specifications

MODEL		Unit.	RNS- 2006	RNS- 2010	RNS- 2016	RNS- 2020	RNS- 2030
			RNS- 2006- DIN	RNS- 2010- DIN	RNS- 2016- DIN	RNS- 2020- DIN	RNS- 2030- DIN
<b>INPUT</b>	Voltage	[V]	1Φ, AC 250 or DC 250				
	Frequency	[Hz]	50 / 60				
	Rated Current *1)	[A]	6	10	16	20	30
Voltage Drop		[V]	0.3V Max				
Test voltage		[V]	2,500VAC (at cut off current 20mA / 1Min)				
Isolation Resistance		[MΩ]	100MΩ Min (500VDC / 1Min)				
Leakage Current (60Hz)	125V	[mA]	0.5mA Max				
	250V	[mA]	1.0mA Max				
DC Resistance (Max)		[mΩ]	120	50	20	14	6
Maximum Air Temperature		[°C]	55°C Max				
<b>Environment</b>	Operating temp. & Humidity	-	-25 ~ +85°C, 20 ~ 95% RH (Refer to Derating Curve)				
	Storage temp. & Humidity	-	-40 ~ +85°C, 20 ~ 95% RH (Non Condensing)				
	Vibration	-	10~55Hz at 2G 3minutes period, 1hour each X,Y and Z				
<b>Dimension</b>	Size(WxHxD)	[mm]	90.5 x 34.5 x 50 (without projection)				
<b>Weight(Typ)</b>	Normal Type	[g]	240g				
	Din- Rail Type		250g				
<b>Safety Standards</b>		-	Approved by standard UL1283, CSA C22.2 No.8(C-UL), IEC/EN60939-22				

- Derating Curve

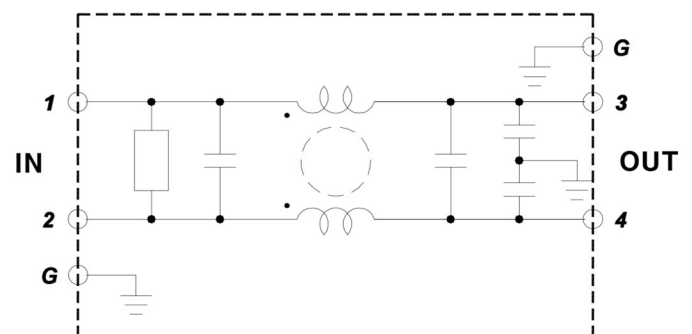


= NOTES =

\*1. Value for Ta less than 55°C

For Ta more than 55°C, According to the derating curve as above

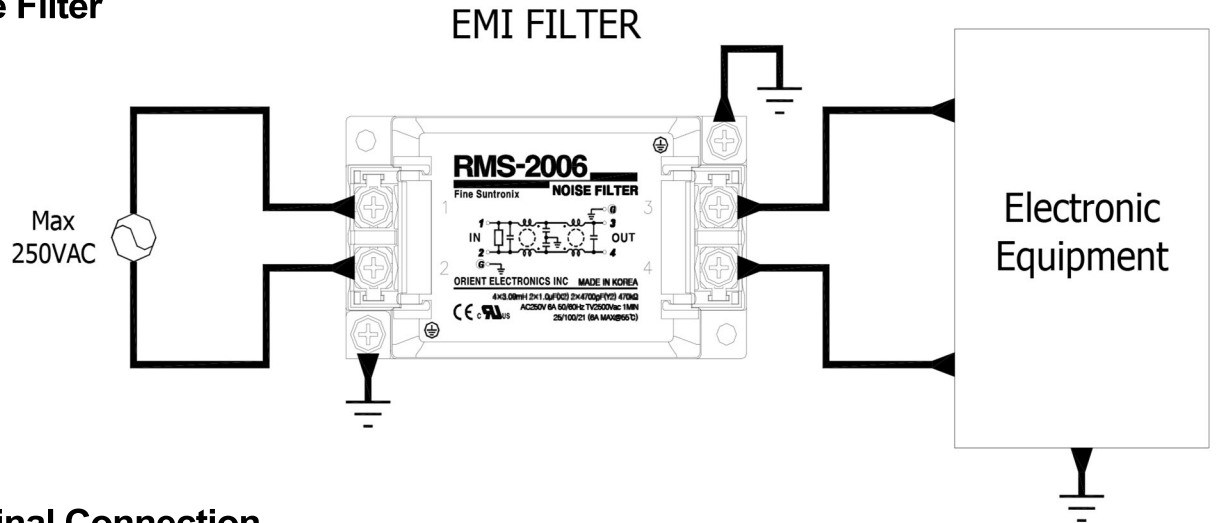
- Circuit Diagram



## User Guide

### 1. Installation Condition

#### 1-1. Noise Filter



#### 1-2. Terminal Connection

Marking	Pin Connection		Function
1	INPUT	AC L Phase	Noise Filter AC Input Terminal
2		AC N Phase	
3	OUTPUT	AC L Phase	Noise Filter AC Output Terminal
4		AC N Phase	
G	Flame ground		CASE (Grounding)

#### 1-3. Applicable Electric Cable

Permissible current (A)	Minimum diameter	
	Cross-sectional area (mm <sup>2</sup> )	AWG SIZE
6	0.75	18
10	1.0	16
16	1.5	14
20	2.5	12
30	4.0	10

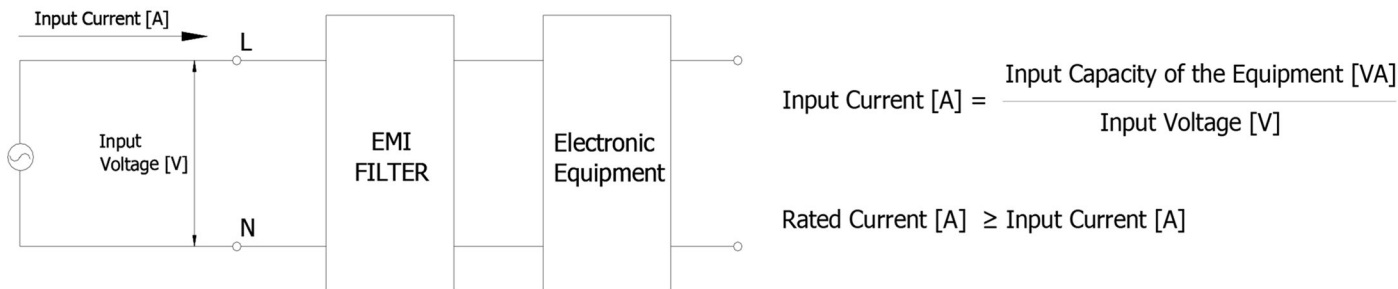
#### 1-4. Recommended Clamping Torque

Screw	Torque	Remark
M4	1.27N·m	
M5	2.50N·m	

## 2. Electrical Characteristics

**2-1- Rated Voltage :** Single phase, 250VAC

**2-2- Rated Current :**



### 2-3. Withstand Voltage Test

The insulation voltage between AC input, output and ground is less than 20mA for 1 minute at AC 2500V

### 2-4. Isolation Resistance Test

The insulation resistance between AC input/output and ground is 100MΩ or more at DC 500V for 1 minute.

### 2-5. Leakage Current Test

Input Voltage	Leakage Current	Note
0 ~ 250VAC	1.0mA Max	When input voltage is applied, the maximum leakage current between LINE and GND

## 3. Environment Condition

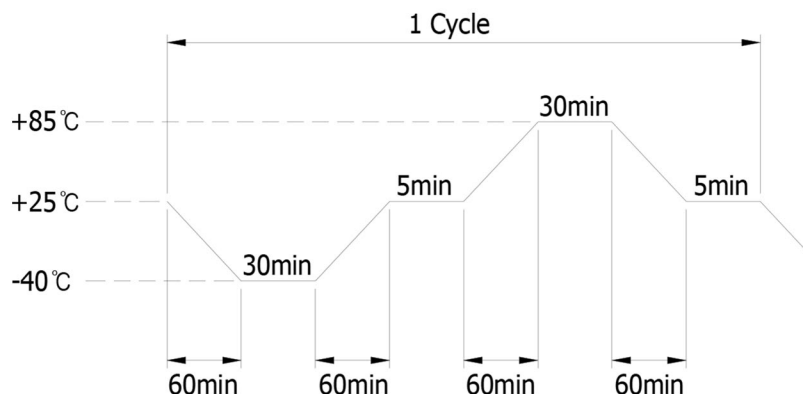
### 3-1. Operating Temperature Test

Must satisfy all electrical and mechanical characteristics in an 8-hour operation test at the rated input/output state at the temperature and humidity below.

- (1) Temperature: -25°C ~ +85°C
- (2) Relative humidity: 20 ~ 90% RH

### 3-2. Heat Cycle Test

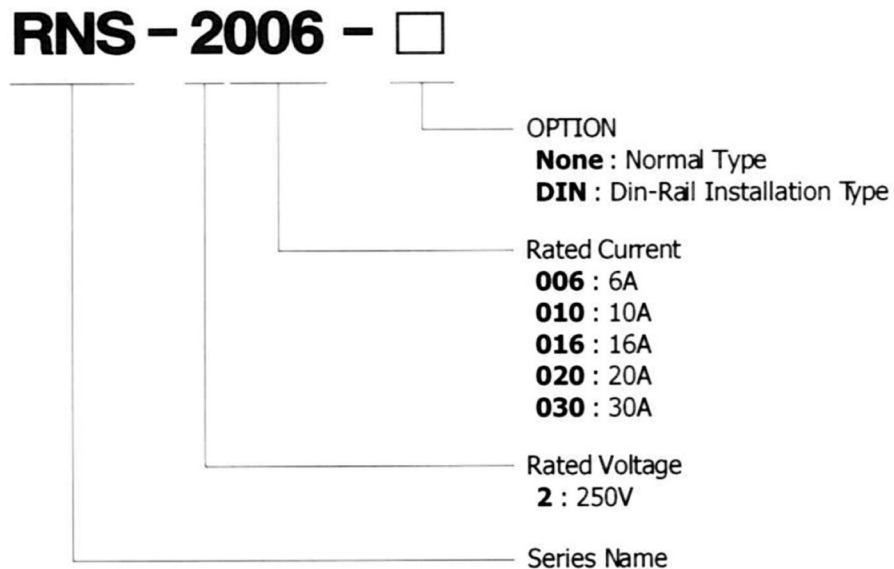
At an ambient temperature of -40°C ~ +85°C, after 50 cycles based on the cycle below, all electrical characteristics and mechanical characteristics must be satisfied.



### 3-3. Vibration Test :

- (1) Vibration Frequency : 10 ~ 55 hZ, 2G
- (2) Vibration Peroid : 3 minutes

## 4. Ordering Information



## 5. Precautions for use

- 5-1. Use in accordance with the allowable voltage, allowable current, and operating temperature conditions specified on the product.
- 5-2. The terminals and cables connecting to the product use voltage/current that exceeds the product's allowable voltage/current.
- 5-3. When grounding, use the cable as thick and short as possible.
- 5-4. When connecting the input/output terminals of the product, be careful not to damage them by applying excessive force.
- 5-5. When installing and using the product, be careful not to cause a short circuit between phases.
- 5-6. Be careful not to touch the terminals with your hands or other body parts while the power is on.

## 6. Quality Quality Assurance

- 6-1. The contractor may test and inspect all performances and characteristics specified in this specification, unless otherwise specified in the contract, using the testing facilities of its own or an authorized testing agency.
- 6-2. In addition to the verification tests for the requirements specified in this specification, other tests may be conducted to confirm the quality of the product.

## 7. Note

Anything not specified in this specification is permitted only to the extent that it does not affect the reliability, compatibility, and performance of this product.

## Attenuation Characteristics

### 1. METHOD OF MEASURING ATTENUATION

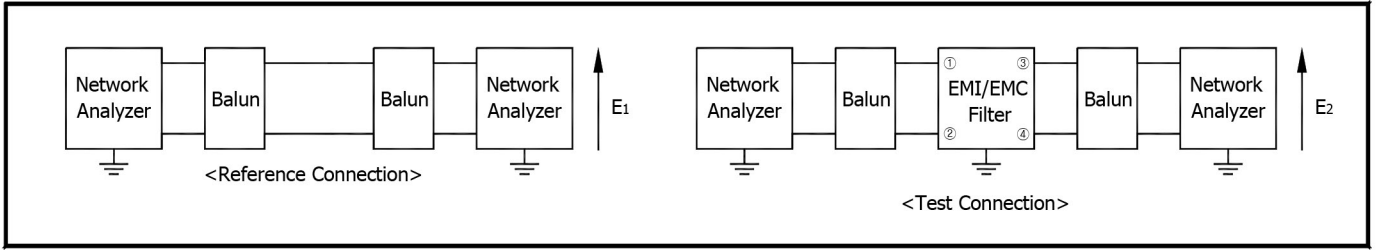


Fig.3.1 Differential Mode Attenuation Measurement Diagram

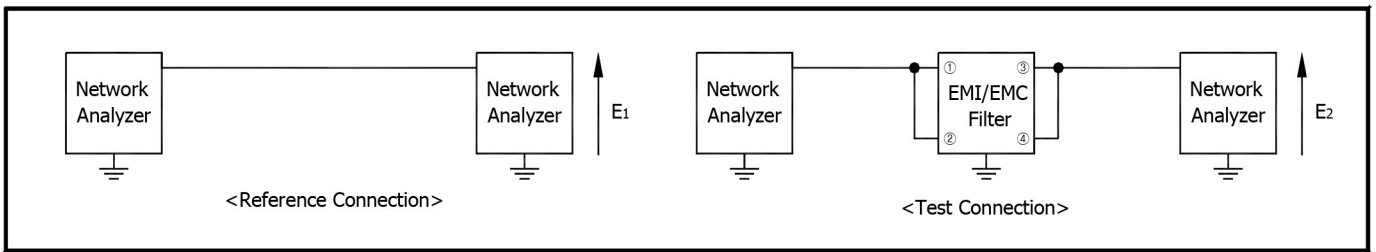
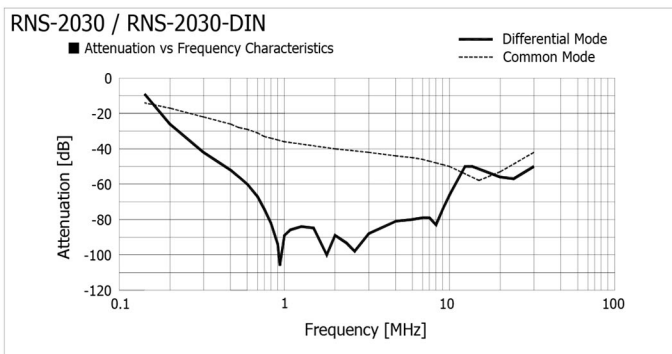
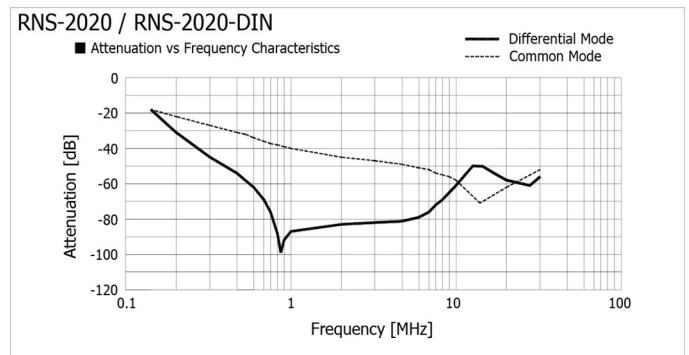
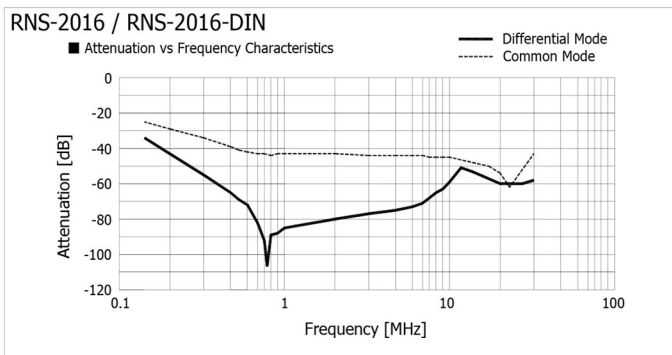
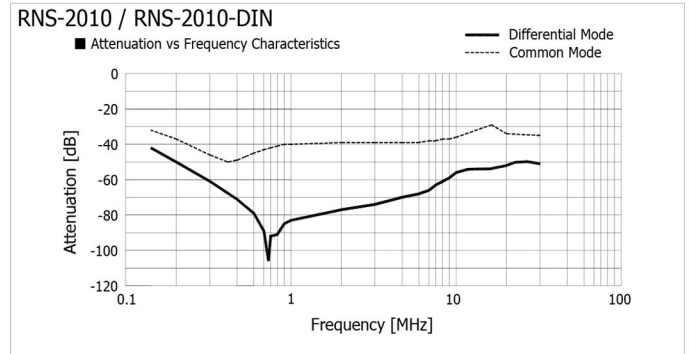
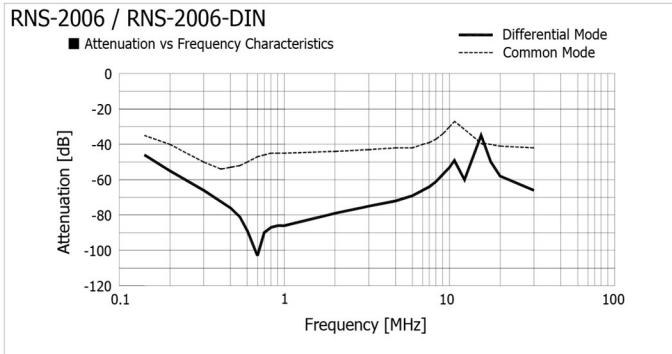


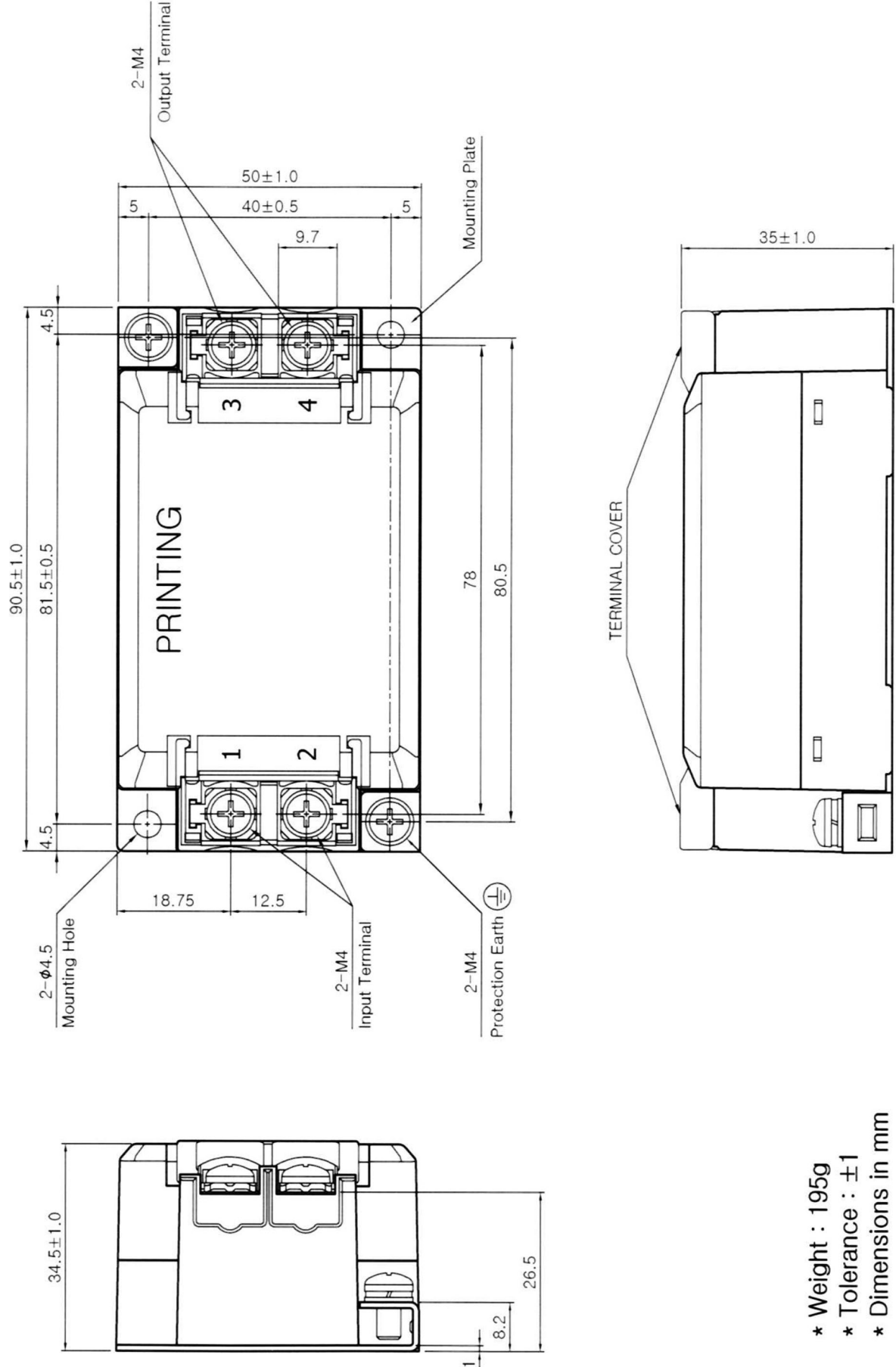
Fig.3.2 Common Mode Attenuation Measurement Diagram

### 2. ATTENUATION CHARACTERISTICS



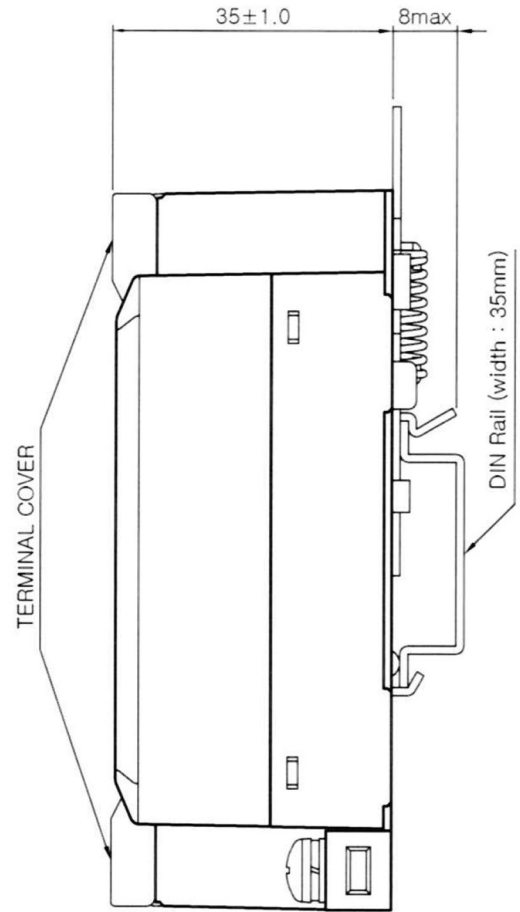
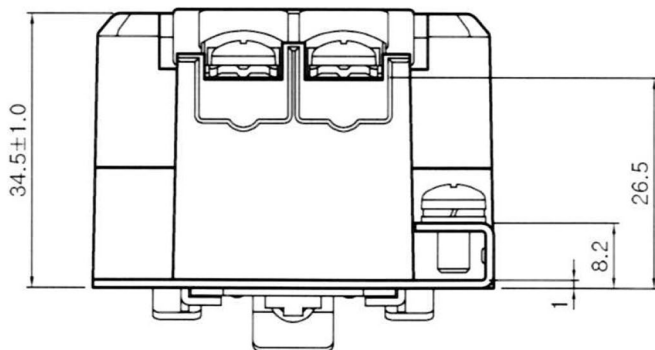
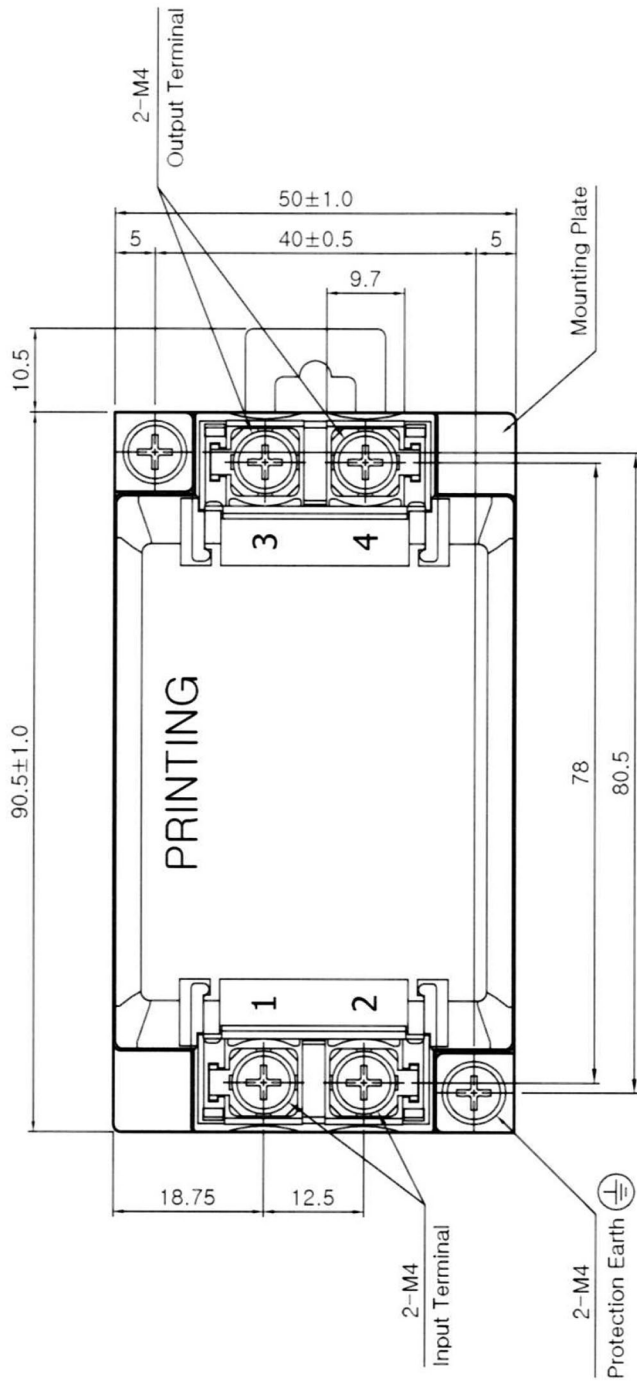
■  $\text{Attenuation [dB]} = -20 \log(E_1/E_2)$

E1 = Voltage in state without filter  
E2 = Voltage in state with filters



- \* Weight : 195g
- \* Tolerance :  $\pm 1$
- \* Dimensions in mm





- \* Weight : 205g
- \* Tolerance : ±1
- \* Dimensions in mm