

### AACM Series

#### Features

- Qualified to AEC-Q200.
- High common mode impedance at high frequency effects excellent noise suppression performance.
- AACM series realizes small size and low profile.
- The products contain no lead and also support lead- free soldering.

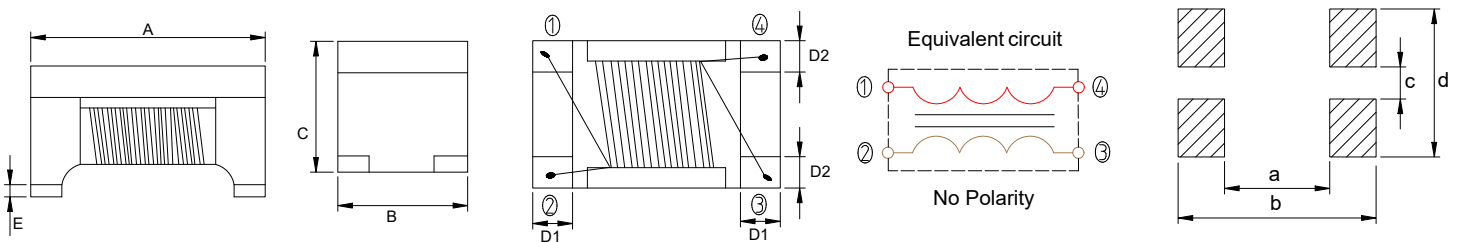
#### Applications

- The AACM Series is effective in high frequency noise suppression and suitable for suppression of radiation noise in signal cables.
- The common mode choke coil structure enables noise suppression without degrading the signal.
- AACM series can be used as a common mode filter for LVDS, USB2.0 and IEEE1394.

#### Test Conditions

- All test data is referenced to 25°C ambient.
  - Operating temperature range -40°C to +125°C.
  - The part temperature(ambient + temp rise)should not exceed 125°C under worst case operating conditions.
- Circuit design,component placement, PCB trace size and thickness,airflow and other cooling provisions all affect the part temperature,part temperature should be verified in the end application.

#### External dimensions (Unit:mm)



| Type       | A       | B       | C       | D1 Typ. | D2 Typ. | E Typ. | a    | b    | c    | d   | Q'Ty/Reel |
|------------|---------|---------|---------|---------|---------|--------|------|------|------|-----|-----------|
| AACM121009 | 1.2±0.2 | 1.0±0.2 | 0.9±0.2 | 0.35    | 0.35    | 0.03   | 0.65 | 1.55 | 0.3  | 1.1 | 3000      |
| AACM201212 | 2.0±0.2 | 1.2±0.2 | 1.2±0.2 | 0.5     | 0.51    | 0.15   | 1.25 | 2.6  | 0.45 | 1.4 | 2000      |
| AACM321619 | 3.2±0.2 | 1.6±0.2 | 2.0±0.2 | 0.5     | 0.5     | 0.15   | 1.9  | 3.7  | 0.4  | 1.6 | 2000      |
| AACM322522 | 3.2±0.2 | 2.5±0.2 | 2.2±0.2 | 0.8     | 0.9     | 0.15   | 1.6  | 4.4  | 0.6  | 3.5 | 2000      |
| AACM453228 | 4.5±0.2 | 3.2±0.2 | 2.8±0.2 | 1.0     | 1.2     | 0.15   | 2.5  | 4.8  | 0.7  | 3.8 | 500       |

#### Part Number Code

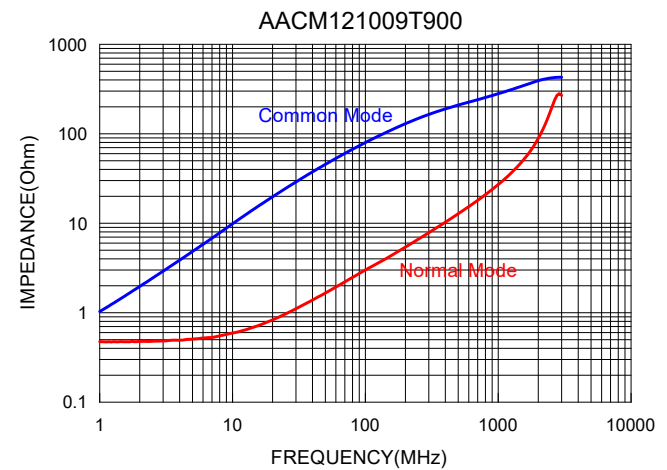
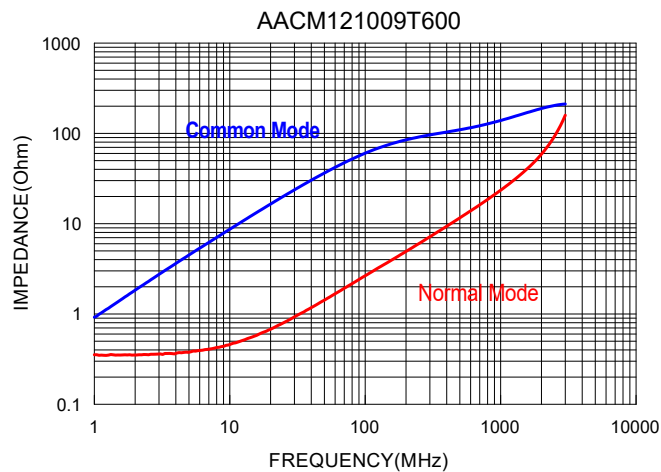
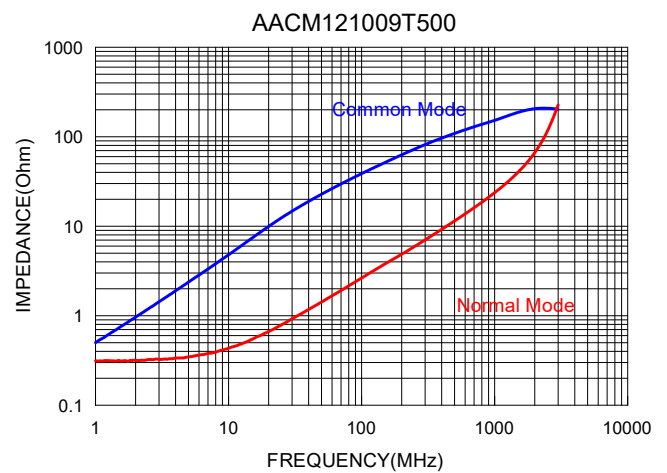
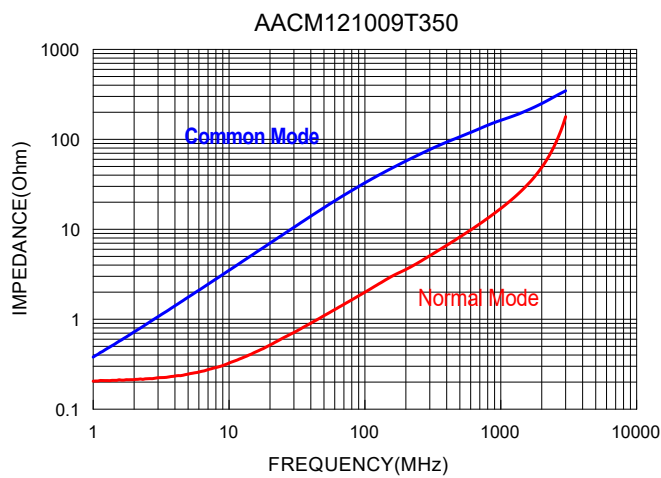
AACM   121009   T   350  
 1            2            3            4

- |                   |                     |
|-------------------|---------------------|
| 1) Series Name    | Common Mode Chokes  |
| 2) Dimensions(mm) | 121009: 1.2x1.0x0.9 |
| 3) Tolerance      | T: ±25%             |
| 4) Impedance      | 350: 35 Ω           |

### Electrical Characteristics

| Part Number    | Common Mode Impedance Z( $\Omega$ ) @100MHz | DC Resistance ( $\Omega$ ) Max. | Rated Current IDC(mA) Max. | Rated Voltage Vdc(V) | Withstanding Voltage Vode(V) | Insulation Resistance ( $\Omega$ )Min. |
|----------------|---|---------------------------------|----------------------------|----------------------|------------------------------|--|
| AACM121009T350 | 35.0  | 0.3                             | 200.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM121009T500 | 50.0  | 0.3                             | 250.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM121009T600 | 60.0  | 0.3                             | 250.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM121009T900 | 90.0  | 0.4                             | 200.0                      | 50.0                 | 125.0                        | 10M                                    |

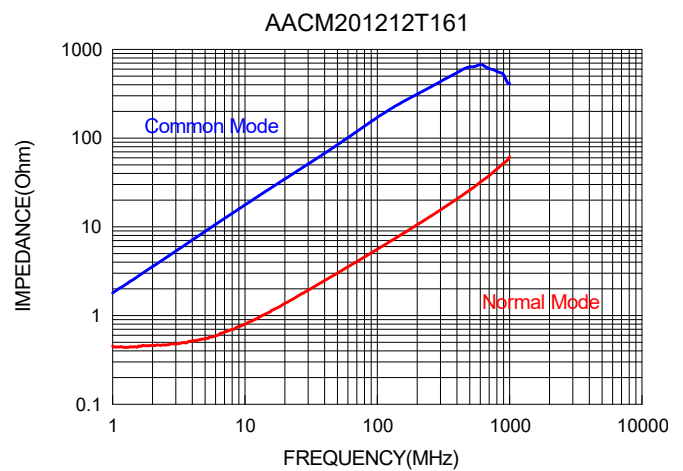
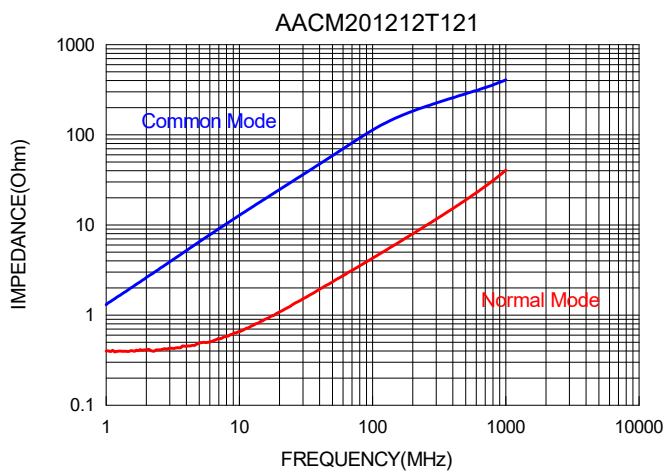
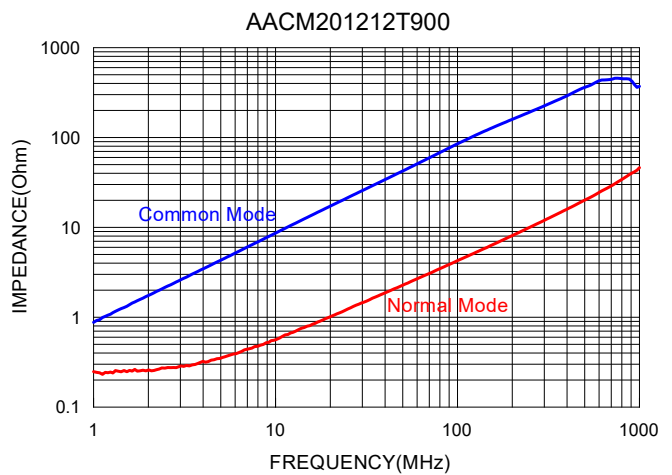
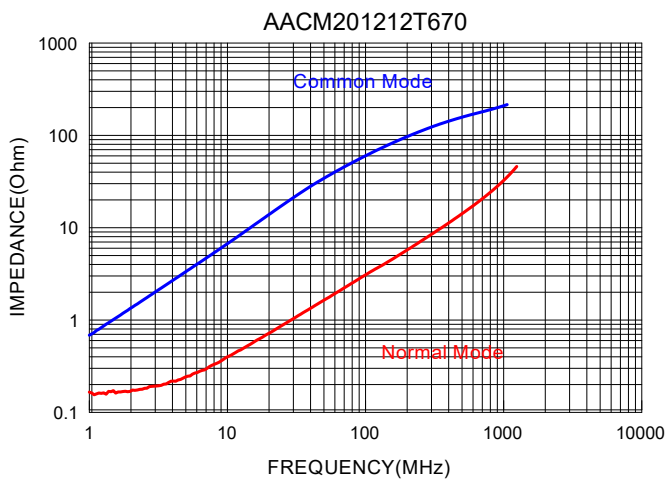
### Characteristics(Reference)

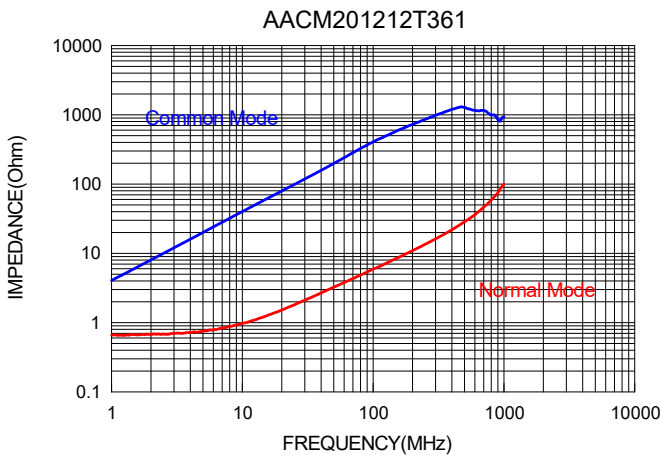
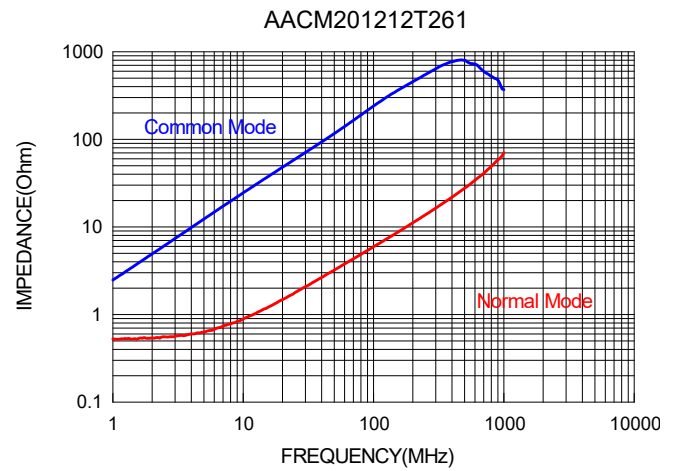
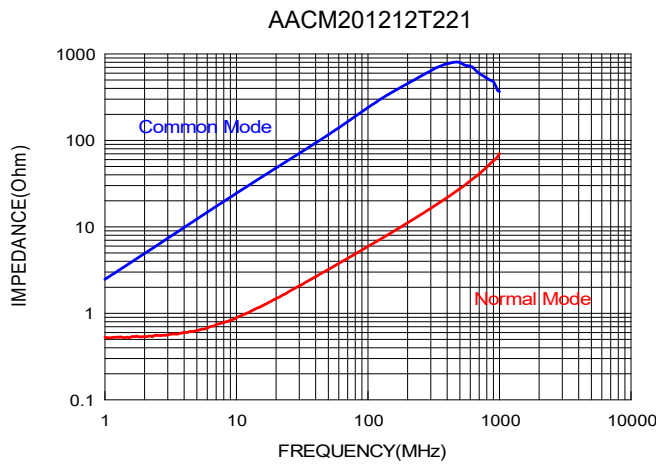
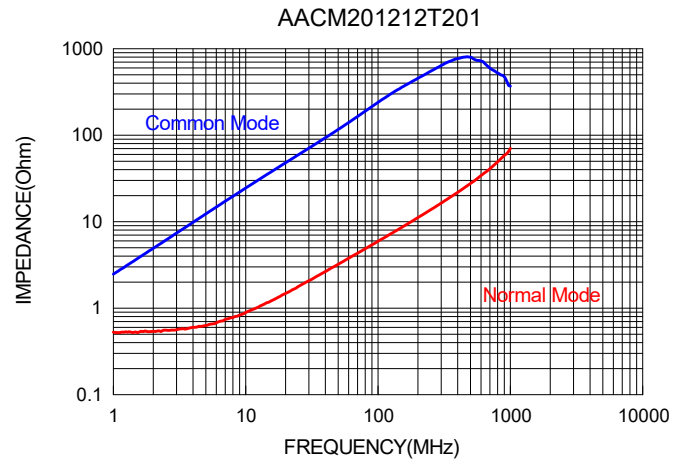
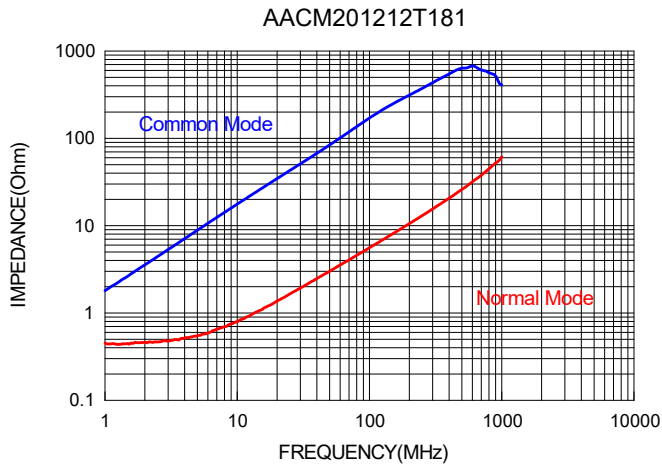


### Electrical Characteristics

| Part Number    | Common Mode Impedance Z( $\Omega$ ) @100MHz | DC Resistance ( $\Omega$ ) Max. | Rated Current IDC(mA) Max. | Rated Voltage Vdc(V) | Withstanding Voltage Vode(V) | Insulation Resistance ( $\Omega$ )Min. |
|----------------|---|---------------------------------|----------------------------|----------------------|------------------------------|--|
| AACM201212T670 | 67.0  | 0.25                            | 400.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM201212T900 | 90.0  | 0.3                             | 400.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM201212T121 | 120.0                                       | 0.3                             | 400.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM201212T161 | 160.0                                       | 0.35                            | 350.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM201212T181 | 180.0                                       | 0.35                            | 350.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM201212T201 | 200.0                                       | 0.4                             | 300.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM201212T221 | 220.0                                       | 0.4                             | 300.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM201212T261 | 260.0                                       | 0.4                             | 300.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM201212T361 | 360.0                                       | 0.5                             | 300.0                      | 50.0                 | 125.0                        | 10M                                    |

### Characteristics(Reference)



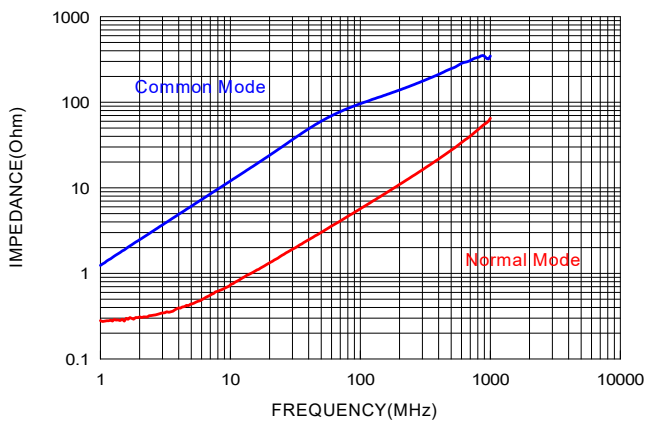


### Electrical Characteristics

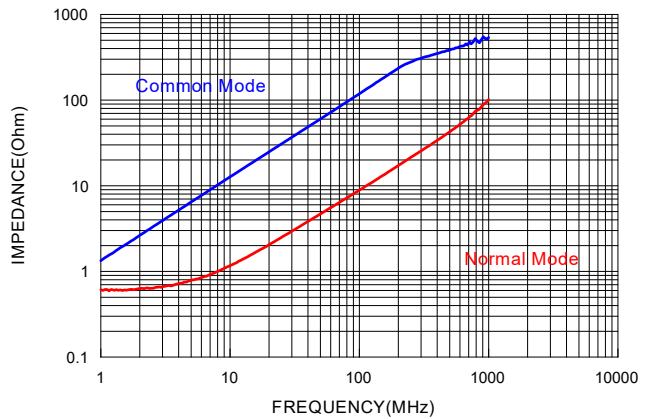
| Part Number    | Common Mode Impedance Z( $\Omega$ ) @100MHz | DC Resistance ( $\Omega$ ) Max. | Rated Current IDC(mA) Max. | Rated Voltage Vdc(V) | Withstanding Voltage Vode(V) | Insulation Resistance ( $\Omega$ )Min. |
|----------------|---|---------------------------------|----------------------------|----------------------|------------------------------|--|
| AACM321619T900 | 90.0  | 0.3                             | 400.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM321619T121 | 120.0                                       | 0.3                             | 350.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM321619T161 | 160.0                                       | 0.4                             | 350.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM321619T221 | 220.0                                       | 0.45                            | 300.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM321619T261 | 260.0                                       | 0.5                             | 300.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM321619T361 | 360.0                                       | 0.6                             | 300.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM321619T601 | 600.0                                       | 0.8                             | 300.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM321619T102 | 1000.0                                      | 1.0                             | 200.0                      | 50.0                 | 125.0                        | 10M                                    |
| AACM321619T222 | 2200.0                                      | 1.2                             | 200.0                      | 50.0                 | 125.0                        | 10M                                    |

### Characteristics(Reference)

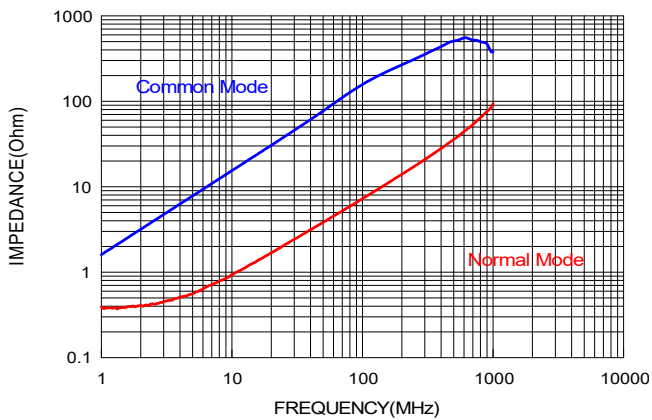
AACM321619T900



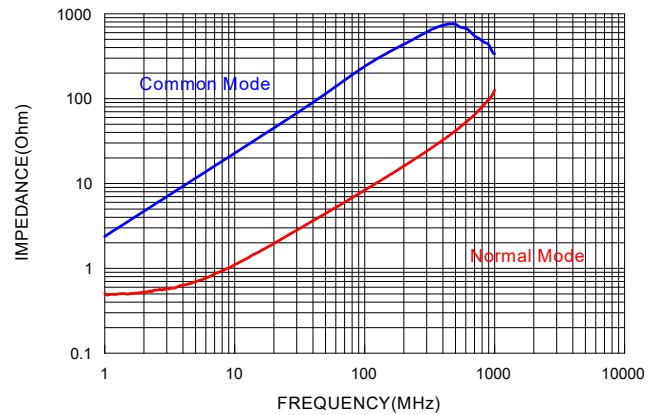
AACM321619T121

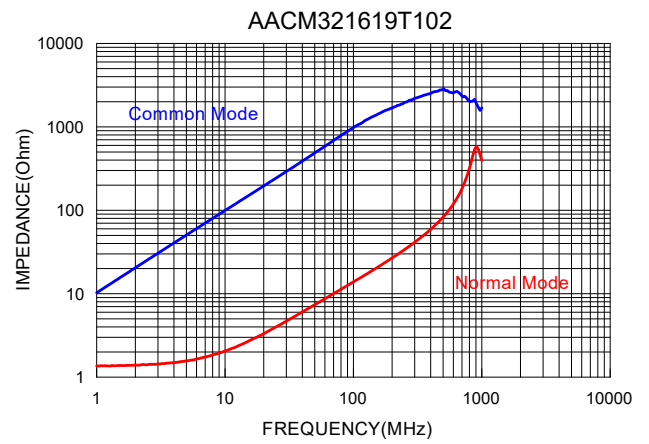
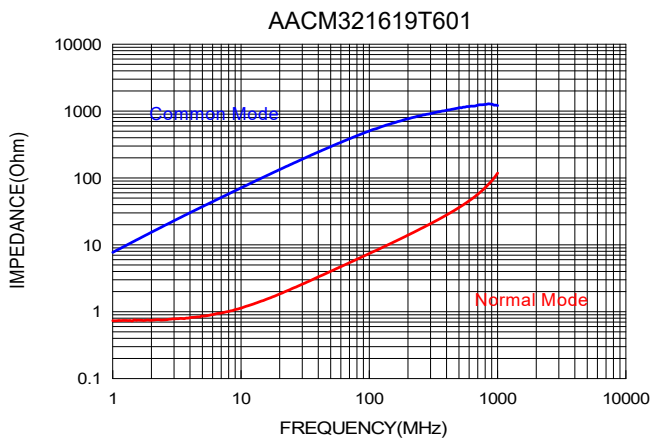
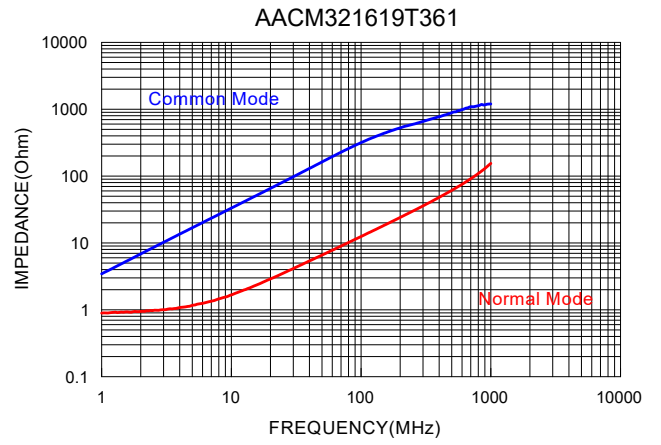
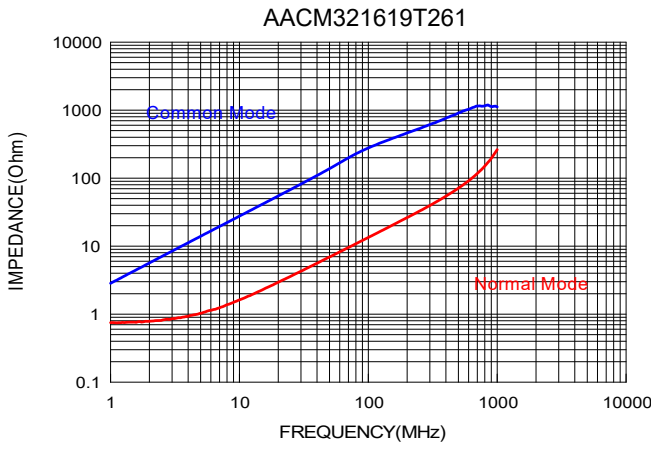


AACM321619T161



AACM321619T221

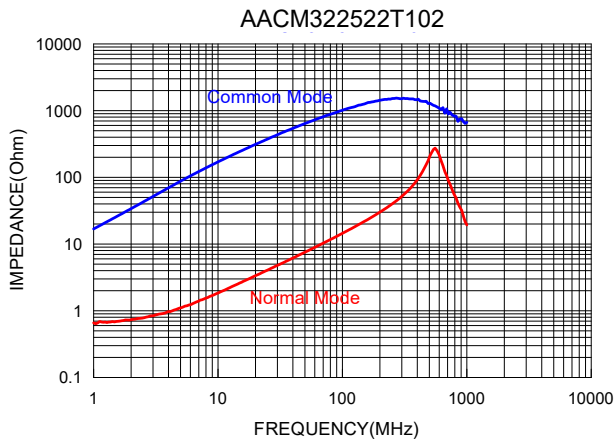
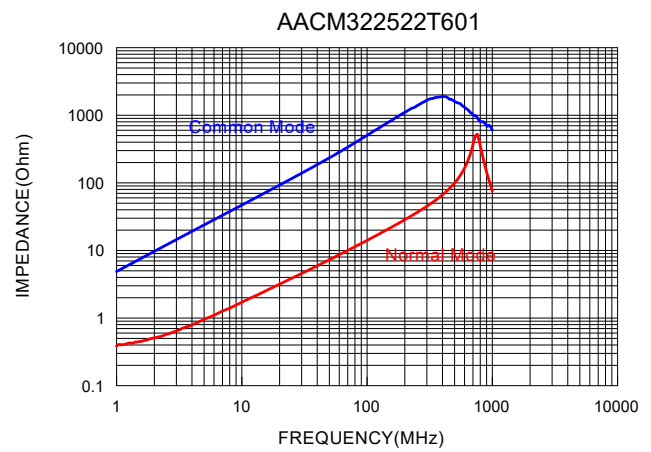
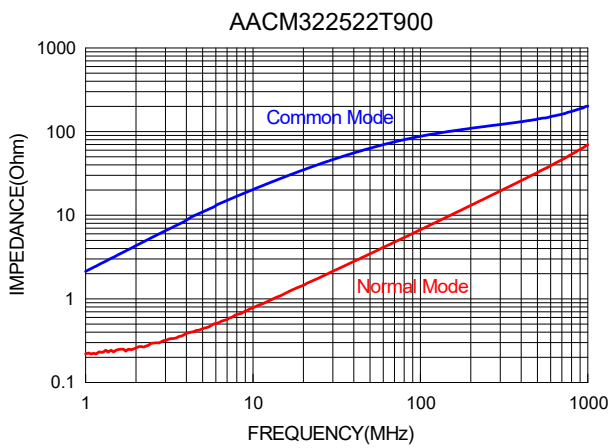




### Electrical Characteristics

| Part Number     | Common Mode Impedance Z( $\Omega$ ) @100MHz | DC Resistance ( $\Omega$ ) Max. | Rated Current IDC(mA) Max. | Rated Voltage Vdc(V) | Withstanding Voltage Vode(V) | Insulation Resistance ( $\Omega$ )Min. |
|-----------------|---|---------------------------------|----------------------------|----------------------|------------------------------|--|
| AACM322522T900  | 90.0  | 0.05                            | 1000.0                     | 50.0                 | 125.0                        | 10M                                    |
| AACM322522T601  | 600.0                                       | 0.2                             | 1000.0                     | 50.0                 | 125.0                        | 10M                                    |
| AACM322522T102B | 1000.0                                      | 0.3                             | 400.0                      | 50.0                 | 125.0                        | 10M                                    |

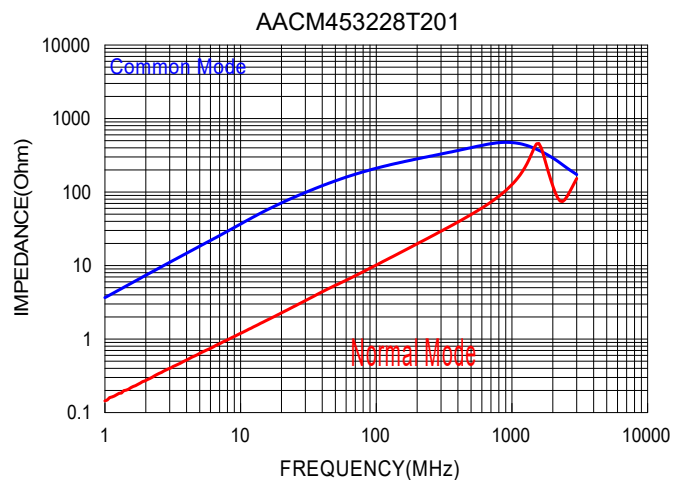
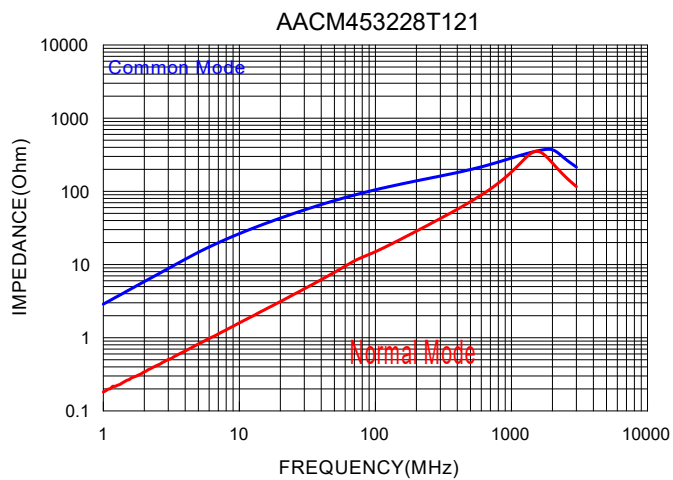
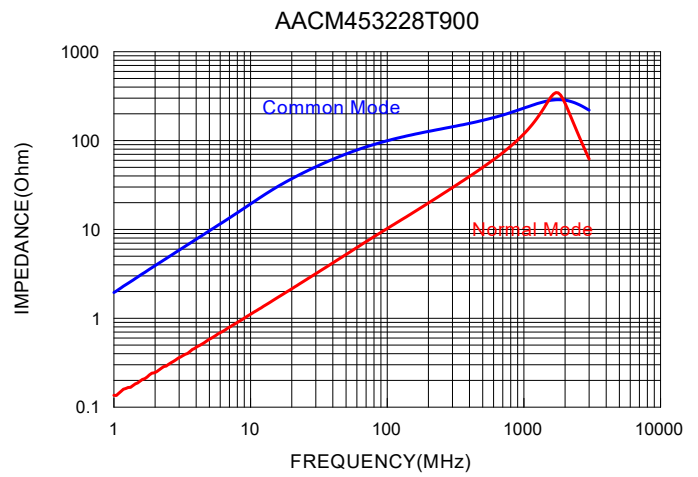
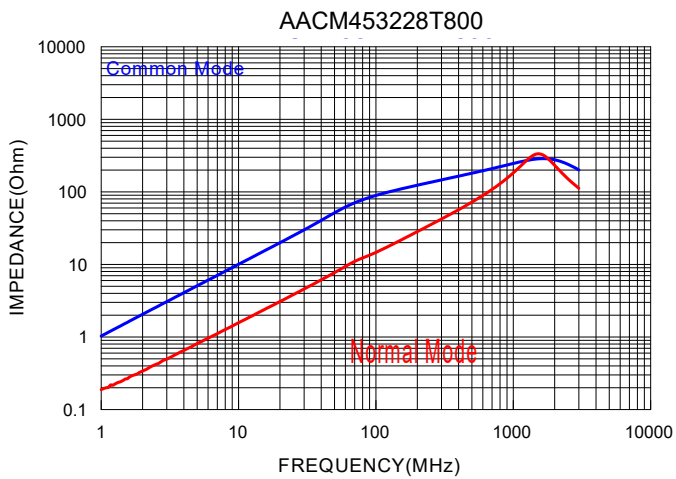
### Characteristics(Reference)



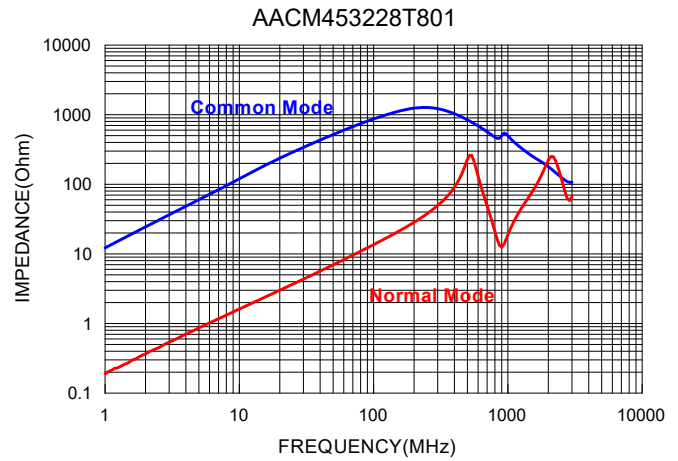
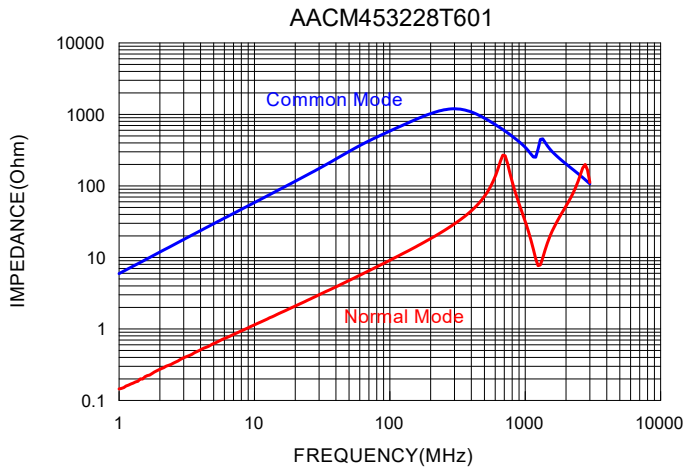
### Electrical Characteristics

| Part Number    | Common Mode Impedance Z( $\Omega$ ) @100MHz | DC Resistance ( $\Omega$ ) Max. | Rated Current IDC(mA) Max. | Rated Voltage Vdc(V) | Withstanding Voltage Vode(V) | Insulation Resistance ( $\Omega$ )Min. |
|----------------|---|---------------------------------|----------------------------|----------------------|------------------------------|--|
| AACM453228T800 | 80.0  | 0.05                            | 3000.0                     | 50.0                 | 125.0                        | 10M                                    |
| AACM453228T900 | 90.0  | 0.05                            | 3000.0                     | 50.0                 | 125.0                        | 10M                                    |
| AACM453228T121 | 120.0                                       | 0.05                            | 3000.0                     | 50.0                 | 125.0                        | 10M                                    |
| AACM453228T201 | 200.0                                       | 0.1                             | 1500.0                     | 50.0                 | 125.0                        | 10M                                    |
| AACM453228T601 | 600.0                                       | 0.24                            | 1500.0                     | 50.0                 | 125.0                        | 10M                                    |
| AACM453228T801 | 800.0                                       | 0.24                            | 1000.0                     | 50.0                 | 125.0                        | 10M                                    |

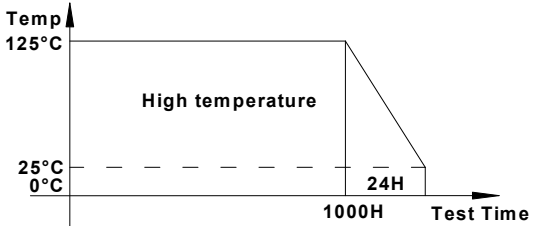
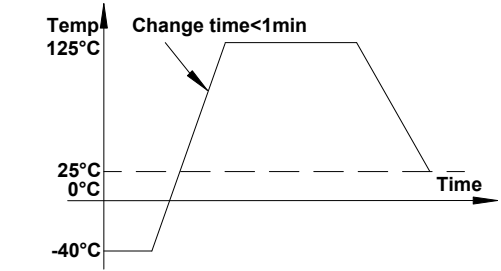
### Characteristics(Reference)

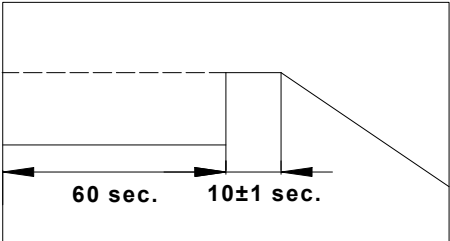
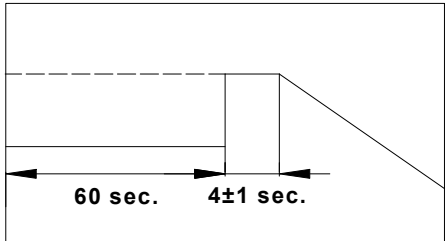




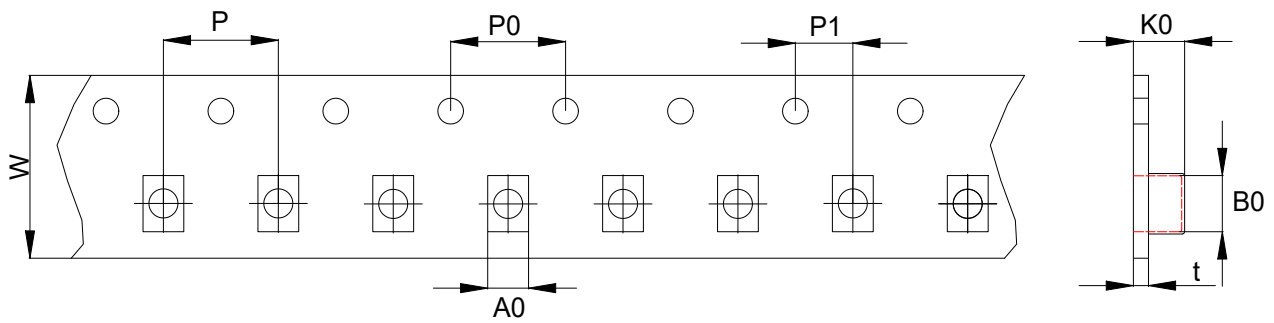


### Reliability Test

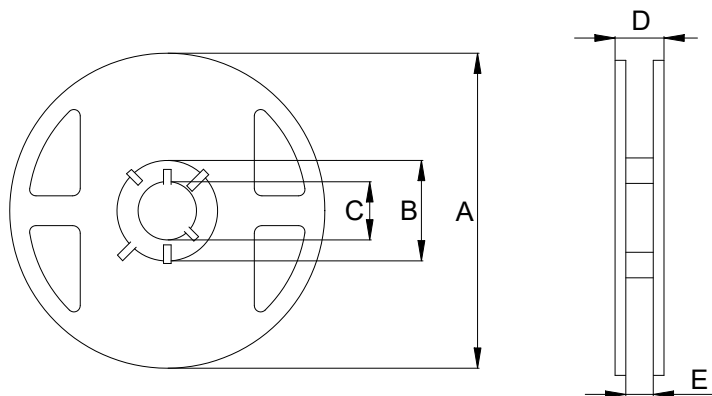
| Item                          | Specifications   | Test conditions   |
|-------------------------------|--|---|
| High temperature storage test | No visible mechanical damage.<br>Impedance change: Within $\pm 15\%$ . | Temperature: $125 \pm 2^\circ\text{C}$ .<br>Duration: 1000hrs.<br>Measured at room temperature after placing for $24 \pm 4$ hrs.<br>   |
| Temperature cycling test      | No visible mechanical damage.<br>Impedance change: Within $\pm 15\%$ . | Condition for 1 cycle.<br>Step1: $-40 \pm 2^\circ\text{C}$ 30min Min.<br>Step2: $125 \pm 2^\circ\text{C}$ , transition time 1min Max.<br>Step3: $125 \pm 2^\circ\text{C}$ 30min Min.<br>Step4: Low temp, transition time 1min Max.<br>Number of cycles: 1000.<br>Measured at room temperature after placing for $24 \pm 4$ hrs.<br> |
| Biased humidity test          | No visible mechanical damage.<br>Impedance change: Within $\pm 15\%$ . | Humidity: $85\% \pm 3\text{ RH}$ .<br>Temperature: $85^\circ\text{C} \pm 2^\circ\text{C}$ .<br>Duration: 1000hrs.<br>Measured at room temperature after placing for $24 \pm 4$ hrs.   |
| Operational life test         | No visible mechanical damage.<br>Impedance change: Within $\pm 15\%$ . | Temperature: $105 \pm 2^\circ\text{C}$ .<br>Duration: 1000hrs.<br>Measured at room temperature after placing for $24 \pm 4$ hrs.  |

| Item                              | Specifications   | Test conditions   |
|-----------------------------------|--|---|
| Resistance to solvent test        | No visible mechanical damage.<br>Impedance change: Within $\pm 15\%$ . | Add aqueous wash chemical - OKEM clean or equivalent.   |
| Vibration test                    | No visible mechanical damage.<br>Impedance change: Within $\pm 15\%$ . | Oscillation Frequency: 10~2K~10Hz for 20 minute.<br>Total Amplitude: 1.52mm $\pm 10\%$ .<br>Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations).  |
| Resistance to soldering heat test | No visible mechanical damage.<br>Impedance change: Within $\pm 15\%$ . | Temperature ( $^{\circ}\text{C}$ ): 260 $\pm 5$ (solder temp).<br>Time (s): 10 $\pm 1$ .<br>ramp/immersion and emersion rate:<br>25mm/s $\pm 6$ mm/s.<br>Number of heat cycles:1.   |
| Solderability test                | More than 95% of the terminal electrode should be covered with solder. | Steam Aging: 8 hours $\pm 15$ min.<br>Preheat: 150 $^{\circ}\text{C}$ , 60sec.<br>Solder: Sn99.5%-Cu0.5%.<br>Temperature: 245 $\pm 5^{\circ}\text{C}$ .<br>Flux for lead free: Rosin. 9.5%.<br>Dip time: 4 $\pm 1$ sec.<br>Depth: completely cover the termination.   |
| Terminal strength (SMD) test      | No visible mechanical damage.  | With the component mounted on a PCB with the device to be tested, apply a 17.7 N (1.8 Kg) force to the side of a device (1210/1812) being tested. This force shall be applied for 60 +1 seconds. Apply a 10 N (1 Kg) force to the side of a device (0504/0805/1206) being tested. This force shall be applied for 30 seconds. Also the force shall be applied radually as not to apply a shock to the component being tested. |

### Packaging(Unit:mm)



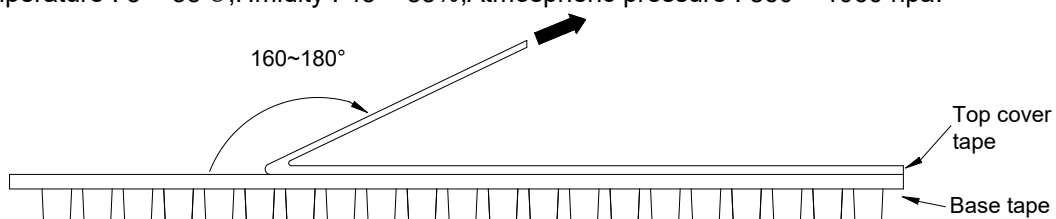
| Type       | W    | P   | P0  | P1  | A0   | B0   | K0   | t    |
|------------|------|-----|-----|-----|------|------|------|------|
| AACM121009 | 8.0  | 4.0 | 4.0 | 2.0 | 1.12 | 1.4  | 1.05 | 0.22 |
| AACM201212 | 8.0  | 4.0 | 4.0 | 2.0 | 1.5  | 2.35 | 1.45 | 0.28 |
| AACM321619 | 8.0  | 4.0 | 4.0 | 2.0 | 1.88 | 3.5  | 2.2  | 0.26 |
| AACM322522 | 8.0  | 4.0 | 4.0 | 2.0 | 2.88 | 3.72 | 2.5  | 0.26 |
| AACM453228 | 12.0 | 8.0 | 4.0 | 2.0 | 3.6  | 4.9  | 3.0  | 0.26 |



| Type       | A         | B        | C        | D        | E        |
|------------|-----------|----------|----------|----------|----------|
| AACM121009 | 178.0±2.0 | 60.0±2.0 | 13.5±2.0 | 13.0±2.0 | 9.0±2.0  |
| AACM201212 | 178.0±2.0 | 60.0±2.0 | 13.5±2.0 | 13.0±2.0 | 9.0±2.0  |
| AACM321619 | 178.0±2.0 | 60.0±2.0 | 13.5±2.0 | 13.0±2.0 | 9.0±2.0  |
| AACM322522 | 178.0±2.0 | 60.0±2.0 | 13.5±2.0 | 13.0±2.0 | 9.0±2.0  |
| AACM453228 | 178.0±2.0 | 60.0±2.0 | 13.5±2.0 | 17.0±2.0 | 13.0±2.0 |

### Cover Tape Peel Strength

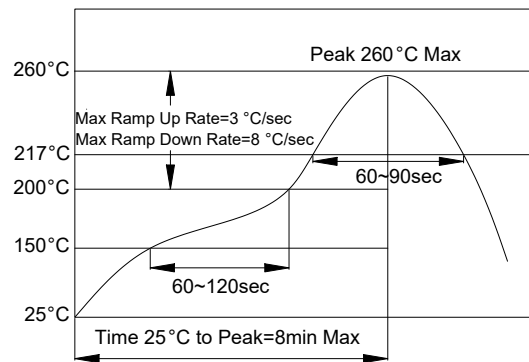
The force for tearing off cover tape is 15~80(g) in the arrow direction at the following conditions,  
 Temperature : 5 ~ 35°C, Humidity : 45 ~ 85%, Atmospheric pressure : 860 ~ 1060 hpa.



### Recommended Soldering Technologies

#### Re-flowing Profile:

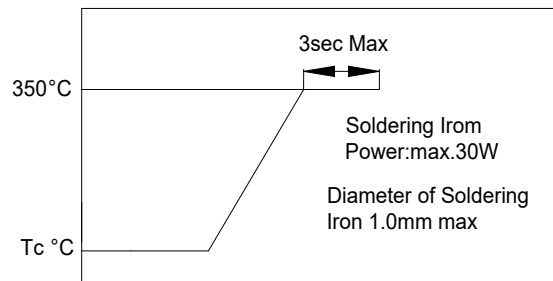
- △ Preheat condition: 150~200°C/60~120sec.
- △ Allowed time above 217°C: 60~90sec.
- △ Max temp: 260°C
- △ Max time at max temp: 5sec.
- △ Solder paste: Sn/3.0Ag/0.5Cu
- △ Allowed Reflow time: 2x max



#### Iron Soldering Profile:

- △ Iron soldering power: Max.30W
- △ Pre-heating: 150°C/60sec.
- △ Soldering Tip temperature: 350°CMax.
- △ Soldering time: 3sec Max.
- △ Solder paste: Sn/3.0Ag/0.5Cu
- △ Max.1 times for iron soldering

[Note: Take care not to apply the tip of the soldering iron to the]



### Attention in Case of Using

In case of using product ,please avoid following matters:

Sokasgubg water ir 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 aftee the mounting.