

## FEATURES

- Winding type realizes small size and low profile.
- Excellent solderability .
- Prevention of common mode noise at high frequency.
- Operating Temperature: -40℃~+85℃ .
- RoHS, Halogen Free and REACH Compliance.



## APPLICATIONS

- USB2.0 of PC, peripheral equipment's, small digital AV equipment's, etc.
- LVDS lines of Note PC, LCD ,Audio lines.

## PART NUMBERING

|       |             |                     |   |                   |                     |       |           |             |
|-------|-------------|---------------------|---|-------------------|---------------------|-------|-----------|-------------|
| AP    | CW          | 2012                | - | 900               | P                   | 2     | T         | □□          |
| ①     | ②           | ③                   |   | ④                 | ⑤                   | ⑥     | ⑦         | ⑧           |
| Grade | Series Name | External Dimensions |   | Nominal Impedance | Impedance Tolerance | Lines | Packaging | Design Code |

| ① Grade |            |
|---------|------------|
| AP      | Grade Code |

| ② Series Name |                                     |
|---------------|-------------------------------------|
| CW            | Winding Type Common Mode Choke Coil |

| ③ External Dimensions |             |
|-----------------------|-------------|
|                       | 2012 [0805] |
|                       | 3216 [1206] |
|                       | 3225 [1210] |
|                       | 4532[1812]  |

| ⑥ Number of Lines |   |
|-------------------|---|
|                   | 2 |

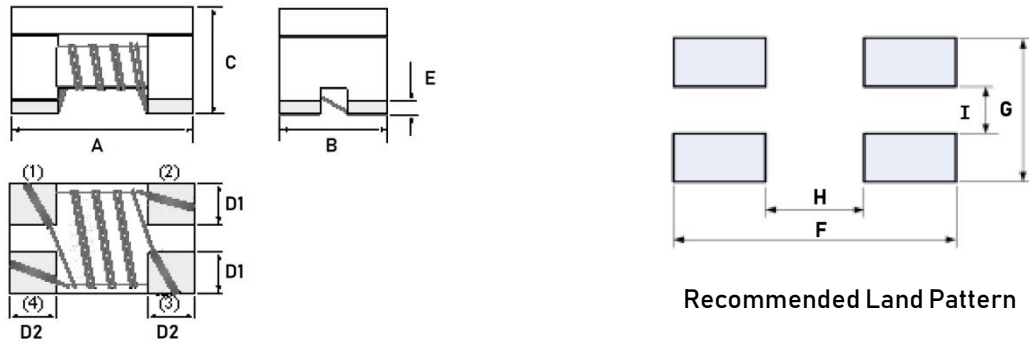
| ④ Nominal Impedance |                                |
|---------------------|--------------------------------|
| Code (example)      | Nominal Impedance [ $\Omega$ ] |
| 900                 | 90                             |
| 121                 | 120                            |
| 102                 | 1000                           |

| ⑦ Packaging |             |
|-------------|-------------|
| T           | Tape & Reel |

| ⑤ Impedance Tolerance |                     |
|-----------------------|---------------------|
| Code (example)        | Impedance Tolerance |
| P                     | ±25%                |
| N                     | ±30%                |

| ⑧ Design Code |                           |
|---------------|---------------------------|
| □□            | Standard product is blank |

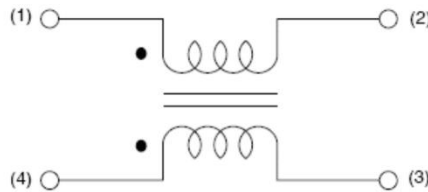
**DIMENSIONS & RECOMMENDED LAND PATTERN**



Unit: mm

| Series   | Dimensions |         |         |         |         |         | Recommended Land Pattern |        |        |        |
|----------|------------|---------|---------|---------|---------|---------|--------------------------|--------|--------|--------|
|          | A          | B       | C       | E       | D1 Typ. | D2 Typ. | F Typ.                   | G Typ. | I Typ. | H Typ. |
| APCW2012 | 2.0±0.2    | 1.2±0.2 | 1.2±0.2 | 0.2±0.1 | 0.55    | 0.46    | 2.6                      | 1.25   | 0.4    | 0.8    |
| APCW3216 | 3.2±0.2    | 1.6±0.2 | 1.9±0.2 | 0.2±0.1 | 0.7     | 0.6     | 3.5                      | 1.6    | 0.4    | 1.9    |
| APCW3225 | 3.2±0.2    | 2.5±0.2 | 2.1±0.2 | 0.2±0.1 | 0.8     | 0.9     | 4                        | 2.5    | 0.9    | 2.2    |
| APCW4532 | 4.5±0.2    | 3.2±0.2 | 2.8±0.2 | 0.2±0.1 | 1       | 1.2     | 5.10                     | 3.6    | 1.05   | 3.4    |

**EQUIVALENT CIRCUIT**



**ELECTRICAL CHARACTERISTICS**

● APCW2012 Series

| Part Number     | Impedance | Rated Voltage | Test Freq. | Heat Rating Current Max. | DC Resistance Max. | Insulation Resistance Min. |
|-----------------|-----------|---------------|------------|--------------------------|--------------------|----------------------------|
| Units           | Ω         | Volts         | MHz        | mA                       | Ω                  | MΩ                         |
| Symbol          | Z         | VDC           | Freq.      | I <sub>rms</sub>         | DCR                | IR                         |
| APCW2012-500P2T | 50        | 50            | 100        | 400                      | 0.25               | 10                         |
| APCW2012-670P2T | 67        | 50            | 100        | 400                      | 0.25               | 10                         |
| APCW2012-900P2T | 90        | 50            | 100        | 330                      | 0.35               | 10                         |
| APCW2012-121P2T | 120       | 50            | 100        | 370                      | 0.3                | 10                         |
| APCW2012-181P2T | 180       | 50            | 100        | 330                      | 0.35               | 10                         |
| APCW2012-221P2T | 220       | 50            | 100        | 300                      | 0.4                | 10                         |
| APCW2012-261P2T | 260       | 50            | 100        | 300                      | 0.4                | 10                         |
| APCW2012-361P2T | 360       | 50            | 100        | 280                      | 0.55               | 10                         |
| APCW2012-601P2T | 600       | 50            | 100        | 220                      | 0.6                | 10                         |
| APCW2012-801P2T | 800       | 50            | 100        | 300                      | 0.88               | 10                         |
| APCW2012-901P2T | 900       | 50            | 100        | 150                      | 0.9                | 10                         |
| APCW2012-102P2T | 1000      | 50            | 100        | 150                      | 1.3                | 10                         |

**ELECTRICAL CHARACTERISTICS**

## ● APCW3216 Series

| Part Number     | Impedance | Rated Voltage | Test Freq. | Heat Rating Current Max. | DC Resistance Max. | Insulation Resistance Min. |
|-----------------|-----------|---------------|------------|--------------------------|--------------------|----------------------------|
| Units           | $\Omega$  | Volts         | MHz        | mA                       | $\Omega$           | M $\Omega$                 |
| Symbol          | Z         | VDC           | Freq.      | Irms                     | DCR                | IR                         |
| APCW3216-900P2T | 90        | 50            | 100        | 370                      | 0.3                | 10                         |
| APCW3216-121P2T | 120       | 50            | 100        | 350                      | 0.3                | 10                         |
| APCW3216-161P2T | 160       | 50            | 100        | 340                      | 0.4                | 10                         |
| APCW3216-221P2T | 220       | 50            | 100        | 300                      | 0.45               | 10                         |
| APCW3216-261P2T | 260       | 50            | 100        | 310                      | 0.5                | 10                         |
| APCW3216-361P2T | 360       | 50            | 100        | 300                      | 0.6                | 10                         |
| APCW3216-601P2T | 600       | 50            | 100        | 260                      | 0.8                | 10                         |
| APCW3216-801P2T | 800       | 50            | 100        | 240                      | 0.9                | 10                         |
| APCW3216-102P2T | 1000      | 50            | 100        | 230                      | 1                  | 10                         |
| APCW3216-142P2T | 1400      | 50            | 100        | 220                      | 1                  | 10                         |
| APCW3216-202P2T | 2000      | 50            | 100        | 200                      | 1.2                | 10                         |
| APCW3216-222P2T | 2200      | 50            | 100        | 200                      | 1.2                | 10                         |

## ● APCW3225 Series

| Part Number     | Impedance | Rated Voltage | Test Freq. | Heat Rating Current Max. | DC Resistance Max. | Insulation Resistance Min. |
|-----------------|-----------|---------------|------------|--------------------------|--------------------|----------------------------|
| Units           | $\Omega$  | Volts         | MHz        | mA                       | $\Omega$           | M $\Omega$                 |
| Symbol          | Z         | VDC           | Freq.      | Irms                     | DCR                | IR                         |
| APCW3225-800P2T | 80        | 50            | 100        | 640                      | 0.12               | 10                         |
| APCW3225-161P2T | 160       | 50            | 100        | 480                      | 0.15               | 10                         |
| APCW3225-271P2T | 270       | 50            | 100        | 450                      | 0.25               | 10                         |
| APCW3225-501P2T | 500       | 50            | 100        | 1000                     | 0.3                | 10                         |
| APCW3225-601P2T | 600       | 50            | 100        | 1000                     | 0.2                | 10                         |
| APCW3225-801P2T | 800       | 50            | 100        | 350                      | 0.35               | 10                         |
| APCW3225-102P2T | 1000      | 50            | 100        | 480                      | 0.35               | 10                         |

## ● APCW4532 Series

| Part Number     | Impedance | Rated Voltage | Test Freq. | Heat Rating Current Max. | DC Resistance Max. | Insulation Resistance Min. |
|-----------------|-----------|---------------|------------|--------------------------|--------------------|----------------------------|
| Units           | $\Omega$  | Volts         | MHz        | mA                       | $\Omega$           | M $\Omega$                 |
| Symbol          | Z         | VDC           | Freq.      | Irms                     | DCR                | IR                         |
| APCW4532-800P2T | 80        | 50            | 100        | 3000                     | 0.05               | 10                         |
| APCW4532-900P2T | 90        | 50            | 100        | 3000                     | 0.09               | 10                         |
| APCW4532-121P2T | 120       | 50            | 100        | 3000                     | 0.1                | 10                         |
| APCW4532-201P2T | 200       | 50            | 100        | 1500                     | 0.1                | 10                         |
| APCW4532-221P2T | 220       | 50            | 100        | 1300                     | 0.1                | 10                         |
| APCW4532-331P2T | 330       | 50            | 100        | 1100                     | 0.11               | 10                         |
| APCW4532-601P2T | 600       | 50            | 100        | 1000                     | 0.12               | 10                         |
| APCW4532-701P2T | 700       | 50            | 100        | 1500                     | 0.12               | 10                         |
| APCW4532-801P2T | 800       | 50            | 100        | 900                      | 0.16               | 10                         |

## ELECTRICAL CHARACTERISTICS

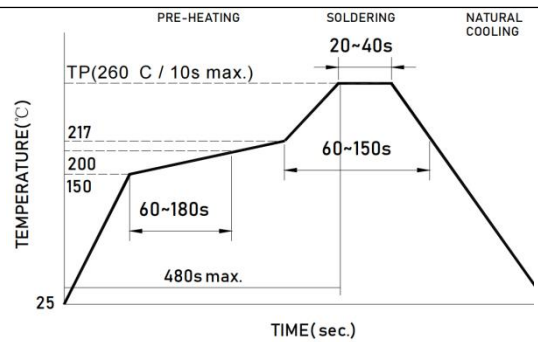
### ● APCW4532 Series

| Part Number     | Impedance | Rated Voltage | Test Freq. | Heat Rating Current Max. | DC Resistance Max. | Insulation Resistance Min. |
|-----------------|-----------|---------------|------------|--------------------------|--------------------|----------------------------|
| Units           | $\Omega$  | Volts         | MHz        | mA                       | $\Omega$           | M $\Omega$                 |
| Symbol          | Z         | VDC           | Freq.      | I <sub>rms</sub>         | DCR                | IR                         |
| APCW4532-901P2T | 900       | 50            | 100        | 1000                     | 0.17               | 10                         |
| APCW4532-102P2T | 1000      | 50            | 100        | 800                      | 0.18               | 10                         |
| APCW4532-142P2T | 1400      | 50            | 100        | 700                      | 0.2                | 10                         |

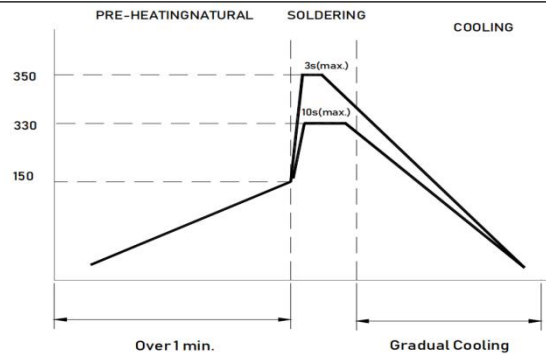
- Rating DC current: Temperature rise ( $\Delta T$ ) is 40 °C approximately at I<sub>rms</sub>.

## SOLDERING CONDITIONS

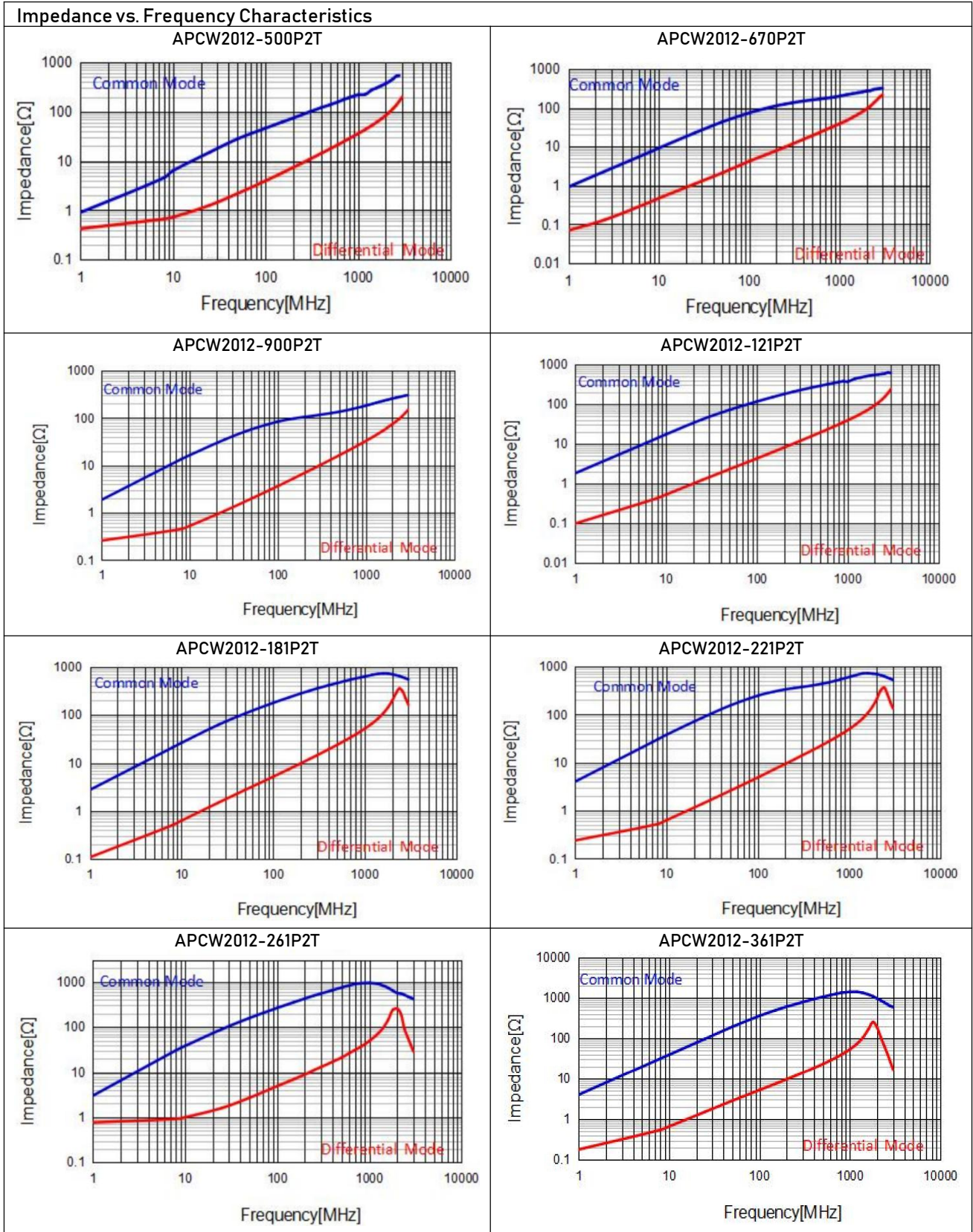
- Preheat circuit and products to 150 °C
- 260 °C tip temperature (max)
- Reflow times: no more than 2 times
- Solder paste thickness: the best 0.08mm is, but max is 0.1mm



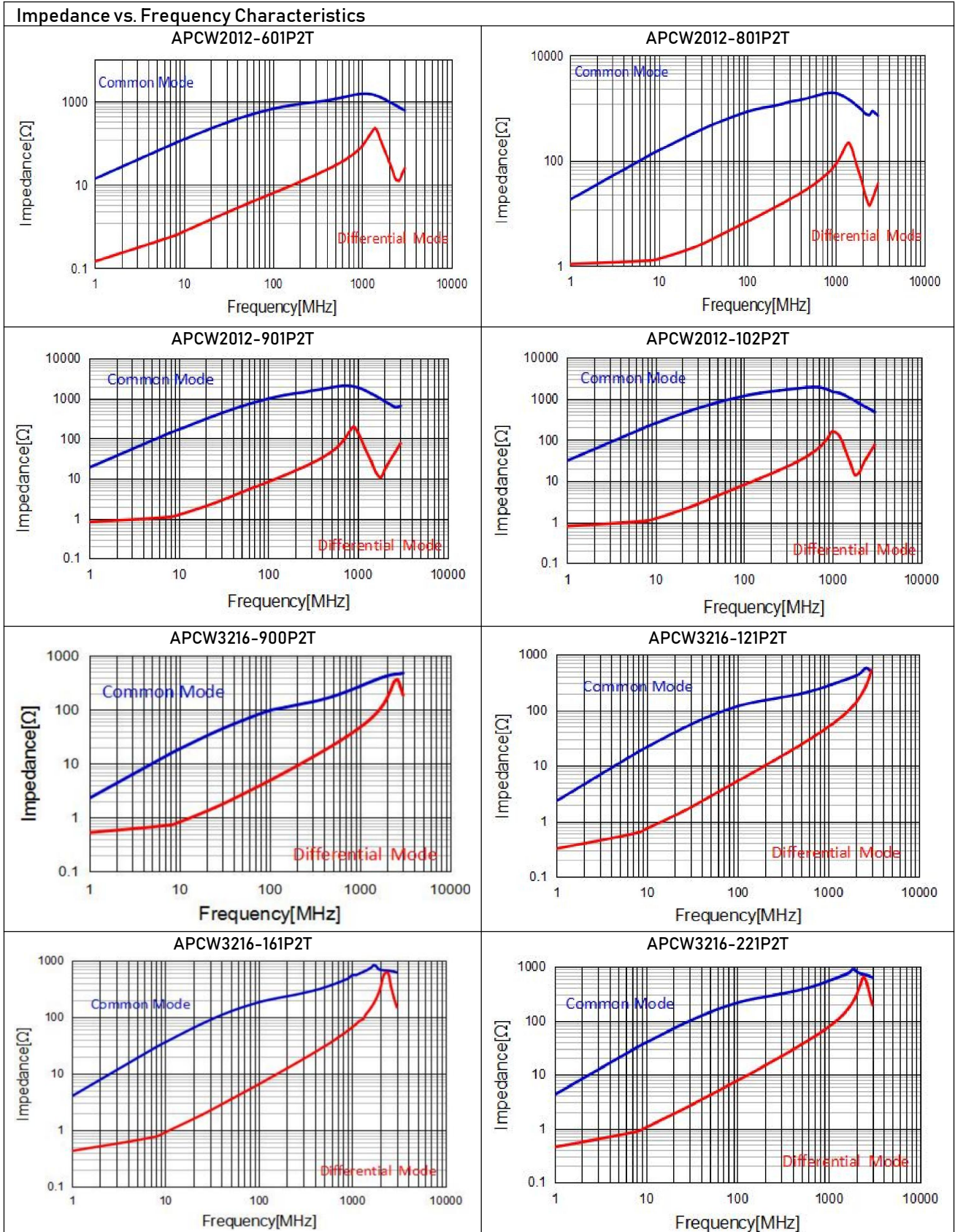
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- Limit soldering time to 3 sec.



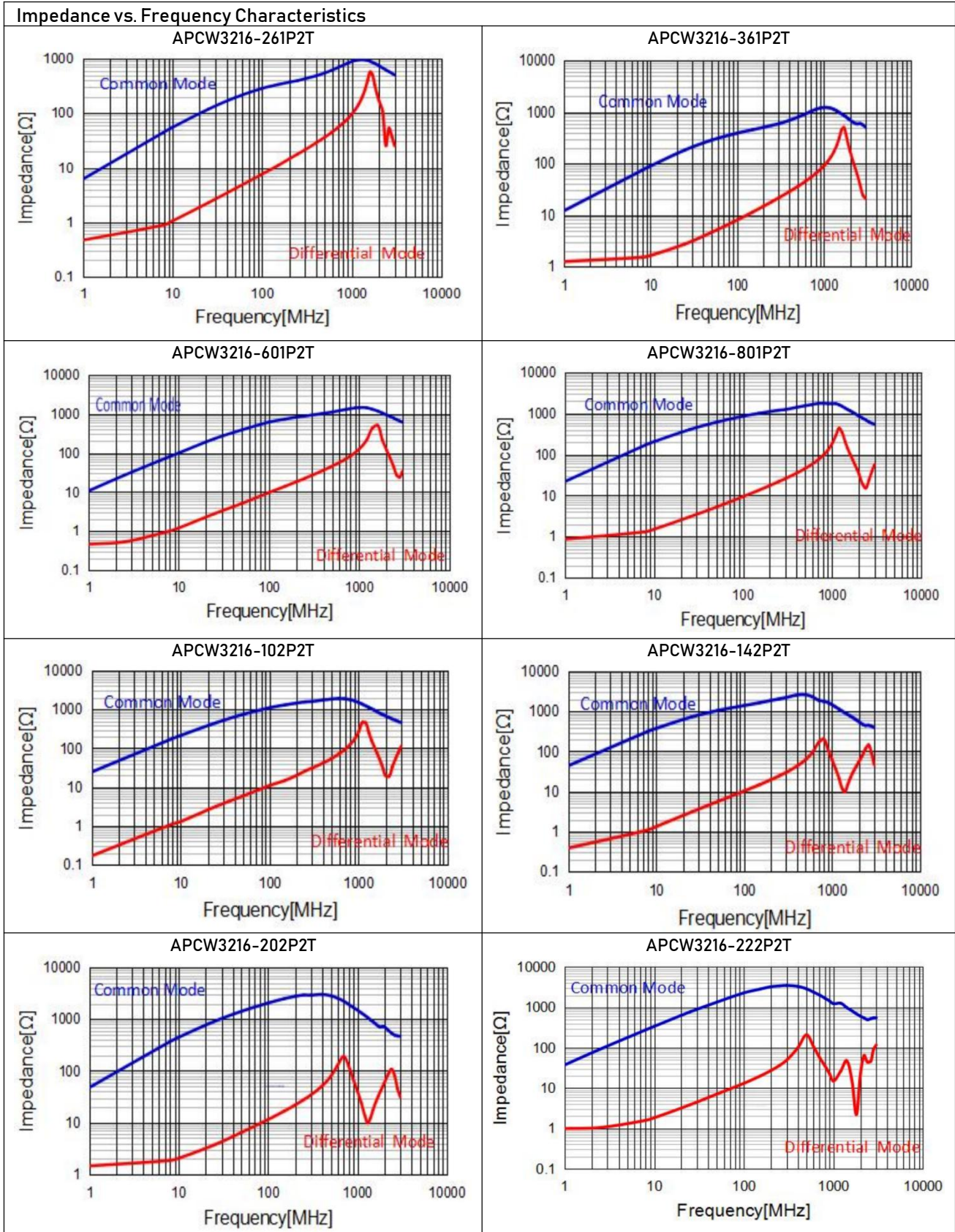
TYPICAL ELECTRICAL CHARACTERISTICS



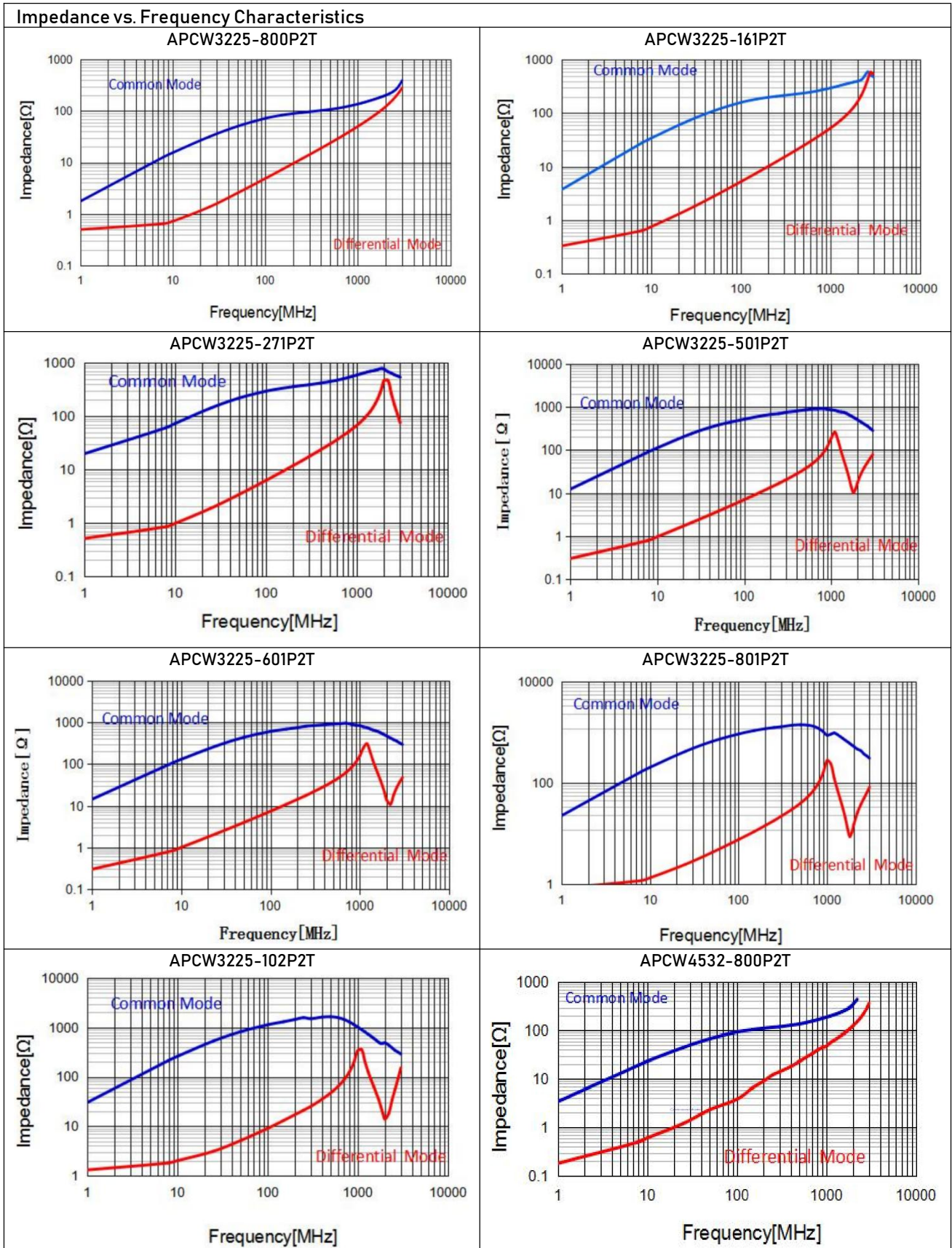
TYPICAL ELECTRICAL CHARACTERISTICS



TYPICAL ELECTRICAL CHARACTERISTICS

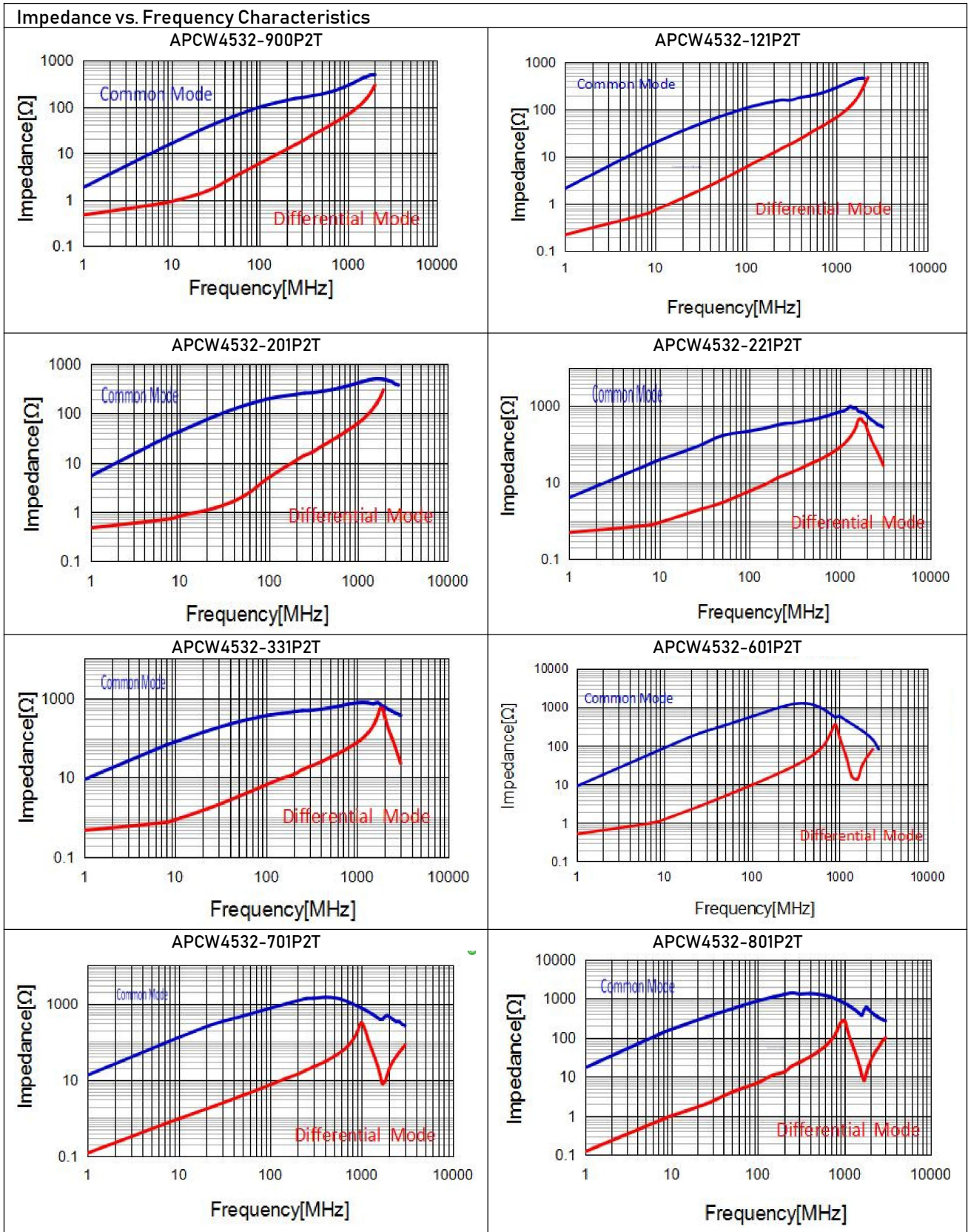


TYPICAL ELECTRICAL CHARACTERISTICS

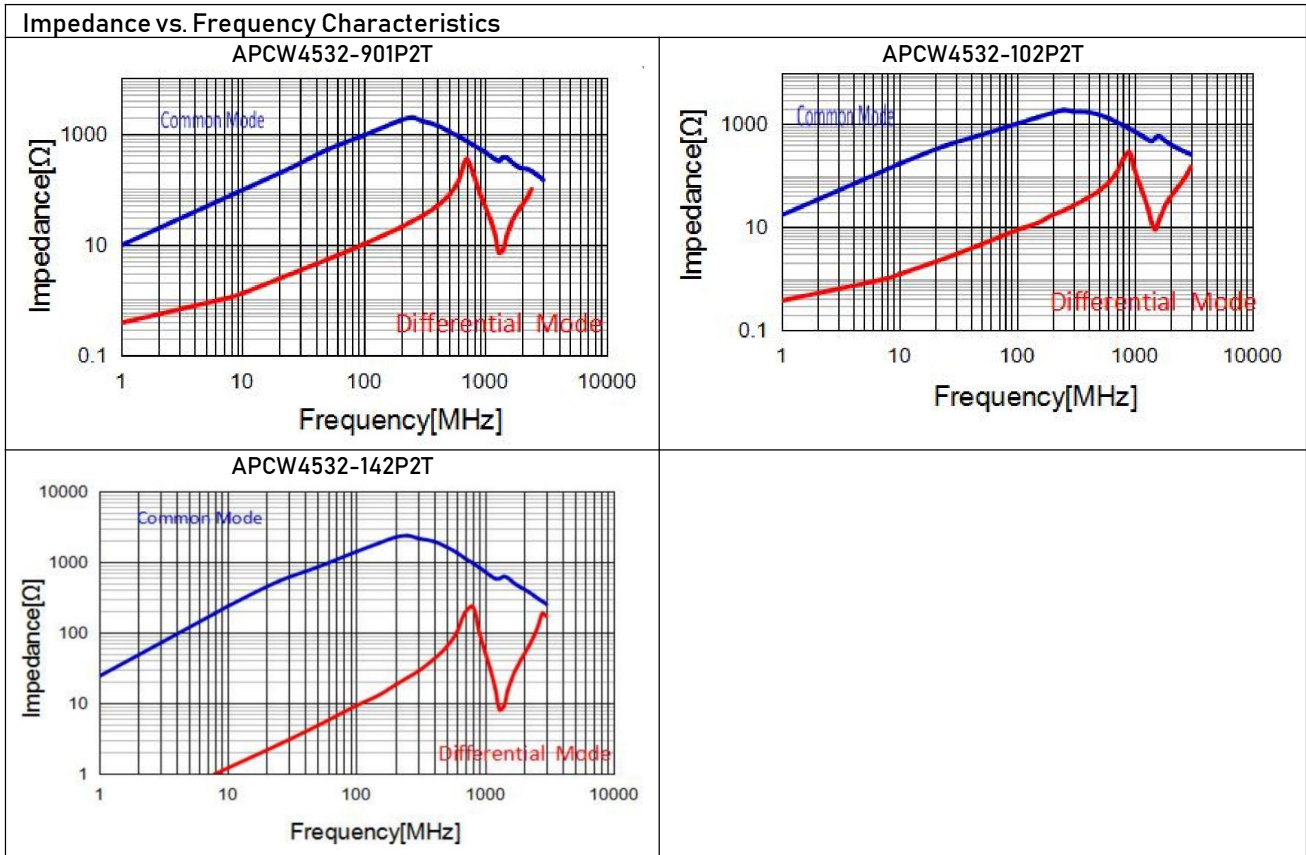




TYPICAL ELECTRICAL CHARACTERISTICS



TYPICAL ELECTRICAL CHARACTERISTICS



Note:

This series product is not applies in automotive or related products. Otherwise, we will shall not bear than the resulting all the problems of quality and responsibility.

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