

Metallized Polypropylene Film Capacitor

Related Document: IEC 60384-16, CECC 31 200

MAIN APPLICATIONS:

High voltage, high current and high pulse operations, deflection circuits in TV sets (S-correction and fly-back tuning). Protection circuits in SMPS's. Snubber and electronic ballast circuits. Input and output filtering in SPS designs, storage, timing and integrating circuits.

MARKING:

Manufacturer's logo/type/C-value/rated voltage/tolerance/date of manufacture

DIELECTRIC:

Polypropylene film

ELECTRODES:

Vacuum deposited aluminum

COATING:

Flame retardant plastic case (UL-class 94 V-0), blue, epoxy resin sealed

Flame class B according to IEC 60065 available on request

CONSTRUCTION:

Extended double-sided metallized polyester film, internal series connection (630 VDC/400 VAC to 2000 VDC), double-sided metallized polyester carrier film (refer to general information)

LEADS:

Tinned wire

IEC TEST CLASSIFICATION:

55/100/56, according to IEC 60068

OPERATING TEMPERATURE RANGE:

- 55°C to + 100°C

CAPACITANCE RANGE:

470pF to 6.8µF

CAPACITANCE TOLERANCES:

± 20% (M), ± 10% (K), ± 5% (J)

RATED VOLTAGES (U_R):

160 VDC, 250 VDC, 400 VDC, 630 VDC, 1000 VDC, 1600 VDC, 2000 VDC

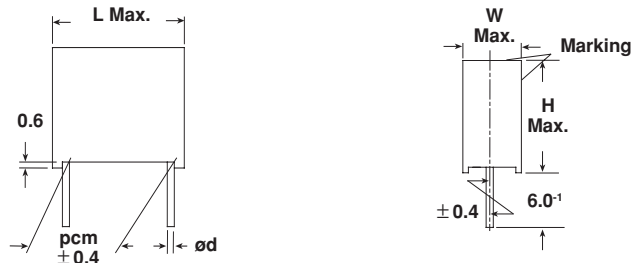
PERMISSIBLE AC VOLTAGES (RMS) UP TO 60Hz:

100 VAC, 160 VAC, 220 VAC, 250 VAC, 400 VAC, 600 VAC, 650 VAC, 700 VAC

TEST VOLTAGE (ELECTRODE/ELECTRODE)

1.6 x U_R for 2 s

Dimensions in millimeters



| PCM | W | Ø d |
|-----------|--------|-----|
| 7.5 | | 0.6 |
| 10 - 37.5 | < 16.0 | 0.8 |
| 10 - 37.5 | ≥ 16.0 | 1.0 |

INSULATION RESISTANCE:

Measured at 100 VDC after one minute

For C ≤ 0.33µF:

100,000 MΩ minimum value (150,000 MΩ typical value)

TIME CONSTANT:

Measured at 100 VDC after one minute

For C > 0.33µF:

30,000 s minimum value (50,000 s typical value)

TEMPERATURE COEFFICIENT:

- 250 x 10⁻⁶/°C (typical value)

CAPACITANCE DRIFT:

Up to + 40°C, ± 0.5% for a period of two years

DERATING FOR DC AND AC.

CATEGORY VOLTAGE U_C:

At + 85°C: U_C = 1.0 U_R

At + 100°C: U_C = 0.7 U_R

SELF INDUCTANCE:

~ 6 nH measured with 2mm long leads

PULL TEST ON LEADS:

≥ 30 N in direction of leads according to IEC 60068-2-21

RELIABILITY:

Operational life > 300,000 h

Failure rate < 2 FIT (40°C and 0.5 x U_R)

For further details, please refer to the general information provided in this catalog.

MAXIMUM PULSE RISE TIME

| PCM (mm) | Maximum pulse rise time d _v /d _t [V/µs] | | | | | | |
|-------------|---------------------------------------------------------------|---------|---------|---------|----------|----------|----------|
| | 160 VDC | 250 VDC | 400 VDC | 630 VDC | 1000 VDC | 1600 VDC | 2000 VDC |
| 7.5 | 1800 | 2200 | 3600 | 4500 | — | — | — |
| 10 | 820 | 1140 | 1840 | 2280 | — | — | — |
| 15 | 410 | 560 | 910 | 3430 | 6600 | 11,100 | 20,300 |
| 22.5 | 260 | 320 | 520 | 2120 | 2800 | 3800 | 6200 |
| 27.5 | 202 | 240 | 400 | 1524 | 2000 | 2680 | 4200 |
| 37.5 | 140 | 170 | 280 | 980 | 1280 | 1690 | 2600 |

If the maximum pulse voltage is less than the rated voltage higher d_v/d_t values can be permitted.



DISSIPATION FACTOR TAN δ

| MEASURED AT | C ≤ 0.1µF | 0.1µF < C ≤ 1.0µF | C > 1.0µF |
|---------------|------------------------|------------------------|------------------------|
| 1kHz | 0.3 x 10 ⁻³ | 0.3 x 10 ⁻³ | 0.3 x 10 ⁻³ |
| 10kHz | 0.4 x 10 ⁻³ | 0.5 x 10 ⁻³ | — |
| 100kHz | 1.5 x 10 ⁻³ | — | — |
| Maximum value | | | |

| CAPACITANCE | CAPACITANCE CODE | VOLTAGE CODE 16 160 VDC/ 100 VAC | | | | VOLTAGE CODE 25 250 VDC/ 160 VAC | | | | VOLTAGE CODE 40 400 VDC/ 220 VAC | | | | VOLTAGE CODE 63 630 VDC/ 250 VAC | | | |
|-------------|------------------|----------------------------------------|------|------|------|----------------------------------------|------|------|------|----------------------------------------|------|------|------|----------------------------------------|-----|------|-----|
| | | W | H | L | PCM | W | H | L | PCM | W | H | L | PCM | W | H | L | PCM |
| 470 pF | - 147 | — | — | — | — | — | — | — | — | — | — | — | — | 4.5 | 9.5 | 10.0 | 7.5 |
| 680 pF | - 168 | — | — | — | — | — | — | — | — | — | — | — | — | 3.0 | 8.5 | 10.0 | 7.5 |
| 1000 pF | - 210 | — | — | — | — | — | — | — | — | — | — | — | — | 3.0 | 8.5 | 10.0 | 7.5 |
| 1500 pF | - 215 | — | — | — | — | — | — | — | — | — | — | — | — | 3.0 | 8.5 | 10.0 | 7.5 |
| 2200 pF | - 222 | — | — | — | — | — | — | — | — | — | — | — | — | 3.0 | 8.5 | 10.0 | 7.5 |
| 3300 pF | - 233 | — | — | — | — | — | — | — | — | — | — | — | — | 4.0 | 9.0 | 10.0 | 7.5 |
| 4700 pF | - 247 | — | — | — | — | — | — | — | — | 4.5 | 9.5 | 10.0 | 7.5 | — | — | — | — |
| 6800 pF | - 268 | — | — | — | — | 4.0 | 9.0 | 10.0 | 7.5 | 5.0 | 10.5 | 10.3 | 7.5 | — | — | — | — |
| 0.01 µF | - 310 | 4.0 | 9.0 | 10.0 | 7.5 | 4.5 | 9.5 | 10.0 | 7.5 | 4.5 | 9.5 | 13.0 | 10 | — | — | — | — |
| 0.015 µF | - 315 | 5.0 | 10.5 | 10.3 | 7.5 | 4.5 | 9.5 | 10.0 | 7.5 | 5.5 | 10.5 | 13.0 | 10 | — | — | — | — |
| 0.022 µF | - 322 | 4.0 | 9.0 | 13.0 | 10 | 4.5 | 9.5 | 13.0 | 10 | 6.5 | 11.5 | 13.0 | 10 | — | — | — | — |
| 0.033 µF | - 333 | 4.5 | 9.5 | 13.0 | 10 | 5.5 | 10.5 | 13.0 | 10 | 5.5 | 10.5 | 18.0 | 15 | — | — | — | — |
| 0.047 µF | - 347 | 5.5 | 10.5 | 13.0 | 10 | 6.5 | 11.5 | 13.0 | 10 | 6.5 | 12.5 | 18.0 | 15 | — | — | — | — |
| 0.068 µF | - 368 | 6.5 | 11.5 | 13.0 | 10 | 5.5 | 10.5 | 18.0 | 15 | 7.5 | 13.5 | 18.0 | 15 | — | — | — | — |
| 0.10 µF | - 410 | 5.5 | 10.5 | 18.0 | 15 | 6.5 | 12.5 | 18.0 | 15 | 8.5 | 14.5 | 18.0 | 15 | — | — | — | — |
| 0.15 µF | - 415 | 6.5 | 12.5 | 18.0 | 15 | 7.5 | 13.5 | 18.0 | 15 | 8.5 | 16.5 | 26.5 | 22.5 | — | — | — | — |
| 0.22 µF | - 422 | 7.5 | 13.5 | 18.0 | 15 | 8.5 | 17.5 | 18.0 | 15 | 10.5 | 18.5 | 26.5 | 22.5 | — | — | — | — |
| 0.33 µF | - 433 | 8.5 | 17.5 | 18.0 | 15 | 8.5 | 16.5 | 26.5 | 22.5 | 11.0 | 21.0 | 26.5 | 22.5 | — | — | — | — |
| 0.47 µF | - 447 | 8.5 | 16.5 | 26.5 | 22.5 | 10.5 | 18.5 | 26.5 | 22.5 | 13.5 | 23.5 | 31.5 | 27.5 | — | — | — | — |
| 0.68 µF | - 468 | 9.0 | 17.0 | 26.5 | 22.5 | 11.0 | 21.0 | 26.5 | 22.5 | 15.0 | 24.5 | 31.5 | 27.5 | — | — | — | — |
| 1.0 µF | - 510 | 11.0 | 21.0 | 26.5 | 22.5 | 11.5 | 20.5 | 31.5 | 27.5 | 14.5 | 24.5 | 41.5 | 37.5 | — | — | — | — |
| 1.5 µF | - 515 | 13.5 | 23.5 | 31.5 | 27.5 | 15.0 | 24.5 | 31.5 | 27.5 | 18.0 | 32.5 | 41.5 | 37.5 | — | — | — | — |
| 2.2 µF | - 522 | 15.0 | 24.5 | 31.5 | 27.5 | 16.5 | 29.5 | 31.5 | 27.5 | 20.0 | 40.0 | 42.5 | 37.5 | — | — | — | — |
| 3.3 µF | - 533 | 18.0 | 33.0 | 31.5 | 27.5 | 20.0 | 35.0 | 31.5 | 27.5 | — | — | — | — | — | — | — | — |
| 4.7 µF | - 547 | 18.0 | 32.5 | 41.5 | 37.5 | 20.0 | 40.0 | 42.5 | 37.5 | — | — | — | — | — | — | — | — |
| 6.8 µF | - 568 | 20.0 | 40.0 | 42.5 | 37.5 | — | — | — | — | — | — | — | — | — | — | — | — |

Further C-values upon request

RECOMMENDED PACKAGING

| LETTER CODE | TYPE OF PACKAGING | HEIGHT (H) (mm) | REEL DIAMETER (mm) | ORDERING CODE EXAMPLE | PCM 7.5 - 10 | PCM 15 | PCM 22.5 - 27.5 | PCM 37.5 |
|-------------|-------------------|-----------------|--------------------|-----------------------|--------------|--------|-----------------|----------|
| D | AMMO | 16.5 | S* | MKP 1841-310-405-D | X | X | — | — |
| G | AMMO | 18.5 | S* | MKP 1841-310-405-G | X | X | — | — |
| F | REEL | 16.5 | 350 | MKP 1841-310-405-F | X | X | — | — |
| W | REEL | 18.5 | 350 | MKP 1841-310-405-W | X | X | — | — |
| V | REEL | 18.5 | 500 | MKP 1841-522-165-V | — | X | X | — |
| G | AMMO | 18.5 | L* | MKP 1841-522-165-G | — | — | X | — |
| — | BULK | — | — | MKP 1841-547-255 | X | X | X | X |

*S = box size 55 x 210 x 340mm (W x H x L)

*L = box size 60 x 510 x 360mm (W x H x L)

| CAPACITANCE | CAPACITANCE CODE | VOLTAGE CODE 63 630 VDC/ 400 VAC | | | | VOLTAGE CODE 10 1000 VDC/ 600VAC | | | | VOLTAGE CODE 13 1600 VDC/ 650 VAC | | | | VOLTAGE CODE 20 2000 VDC/ 700 VAC | | | |
|-------------|------------------|----------------------------------------|------|------|------|----------------------------------------|------|------|------|-----------------------------------------|------|------|------|-----------------------------------------|------|------|------|
| | | W | H | L | PCM | W | H | L | PCM | W | H | L | PCM | W | H | L | PCM |
| 470 pF | - 147 | — | — | — | — | — | — | — | — | — | — | — | — | 5.5 | 10.5 | 18.0 | 15 |
| 680 pF | - 168 | — | — | — | — | — | — | — | — | — | — | — | — | 5.5 | 10.5 | 18.0 | 15 |
| 1000 pF | - 210 | — | — | — | — | — | — | — | — | 5.5 | 10.5 | 18.0 | 15 | 6.5 | 14.5 | 26.5 | 22.5 |
| 1500 pF | - 215 | — | — | — | — | — | — | — | — | 5.5 | 10.5 | 18.0 | 15 | 6.5 | 14.5 | 26.5 | 22.5 |
| 2200 pF | - 222 | — | — | — | — | 5.5 | 10.5 | 18.0 | 15 | 5.5 | 10.5 | 18.0 | 15 | 6.5 | 14.5 | 26.5 | 22.5 |
| 3300 pF | - 233 | — | — | — | — | 5.5 | 10.5 | 18.0 | 15 | 6.5 | 14.5 | 26.5 | 22.5 | 6.5 | 14.5 | 26.5 | 22.5 |
| 4700 pF | - 247 | 5.5 | 10.5 | 18.0 | 15 | 5.5 | 10.5 | 18.0 | 15 | 6.5 | 14.5 | 26.5 | 22.5 | 6.5 | 14.5 | 26.5 | 22.5 |
| 6800 pF | - 268 | 5.5 | 10.5 | 18.0 | 15 | 7.5 | 13.5 | 18.0 | 15 | 6.5 | 14.5 | 26.5 | 22.5 | 7.5 | 15.5 | 26.5 | 22.5 |
| 0.010 μF | - 310 | 5.5 | 10.5 | 18.0 | 15 | 6.5 | 14.5 | 26.5 | 22.5 | 6.5 | 14.5 | 26.5 | 22.5 | 10.5 | 18.5 | 26.5 | 22.5 |
| 0.015 μF | - 315 | 6.5 | 12.5 | 18.0 | 15 | 6.5 | 14.5 | 26.5 | 22.5 | 7.5 | 15.5 | 26.5 | 22.5 | 9.0 | 18.5 | 31.5 | 27.5 |
| 0.022 μF | - 322 | 7.5 | 13.5 | 18.0 | 15 | 7.5 | 15.5 | 26.5 | 22.5 | 8.5 | 16.5 | 26.5 | 22.5 | 11.5 | 20.5 | 31.5 | 27.5 |
| 0.033 μF | - 333 | 7.5 | 15.5 | 26.5 | 22.5 | 10.5 | 18.5 | 26.5 | 22.5 | 9.0 | 18.5 | 31.5 | 27.5 | 13.5 | 23.5 | 31.5 | 27.5 |
| 0.047 μF | - 347 | 8.5 | 16.5 | 26.5 | 22.5 | 9.0 | 18.5 | 31.5 | 27.5 | 11.5 | 20.5 | 31.5 | 27.5 | 12.5 | 22.5 | 41.5 | 37.5 |
| 0.068 μF | - 368 | 10.5 | 18.5 | 26.5 | 22.5 | 11.5 | 20.5 | 31.5 | 27.5 | 12.5 | 22.5 | 41.5 | 37.5 | 14.5 | 24.5 | 41.5 | 37.5 |
| 0.10 μF | - 410 | 11.5 | 20.5 | 31.5 | 27.5 | 13.5 | 23.5 | 31.5 | 27.5 | 14.5 | 24.5 | 41.5 | 37.5 | 16.0 | 28.5 | 41.5 | 37.5 |
| 0.15 μF | - 415 | 13.5 | 23.5 | 31.5 | 27.5 | 12.5 | 22.5 | 41.5 | 37.5 | 16.0 | 28.5 | 41.5 | 37.5 | — | — | — | — |
| 0.22 μF | - 422 | 12.5 | 22.5 | 41.5 | 37.5 | 14.5 | 24.5 | 41.5 | 37.5 | 18.0 | 32.5 | 41.5 | 37.5 | — | — | — | — |
| 0.33 μF | - 433 | 14.5 | 24.5 | 41.5 | 37.5 | 16.0 | 28.5 | 41.5 | 37.5 | — | — | — | — | — | — | — | — |
| 0.47 μF | - 447 | 16.0 | 28.5 | 41.5 | 37.5 | 20.0 | 40.0 | 42.5 | 37.5 | — | — | — | — | — | — | — | — |
| 0.68 μF | - 468 | 20.0 | 40.0 | 42.5 | 37.5 | — | — | — | — | — | — | — | — | — | — | — | — |

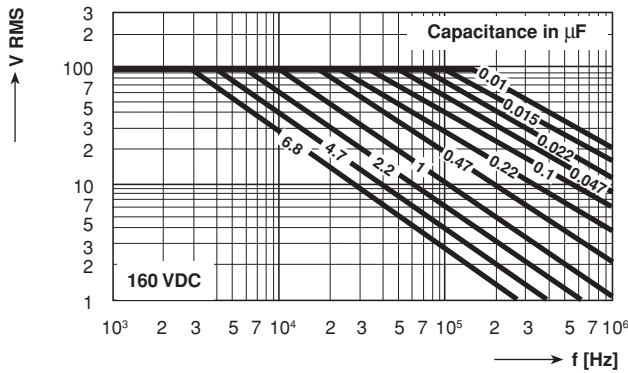
Further C-values upon request

RECOMMENDED PACKAGING

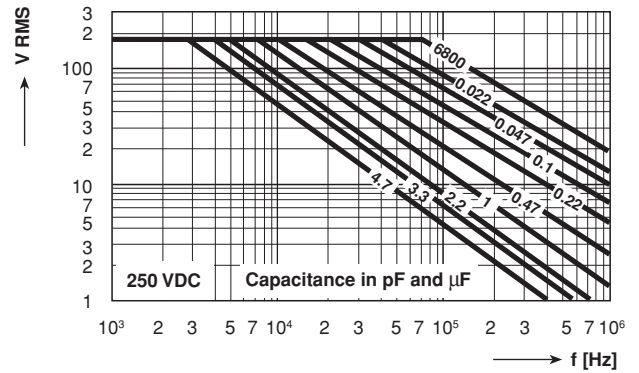
| LETTER CODE | TYPE OF PACKAGING | HEIGHT (H) (MM) | REEL DIAMETER (MM) | ORDERING CODE EXAMPLE | PCM 15 | PCM 22.5 - 27.5 | PCM 37.5 |
|-------------|-------------------|-----------------|--------------------|-----------------------|--------|-----------------|----------|
| D | AMMO | 16.5 | S* | MKP 1841-315/635-D | X | — | — |
| G | AMMO | 18.5 | S* | MKP 1841-315/635-G | X | — | — |
| F | REEL | 16.5 | 350 | MKP 1841-315/635-F | X | — | — |
| W | REEL | 18.5 | 350 | MKP 1841-315/635-W | X | — | — |
| V | REEL | 18.5 | 500 | MKP 1841-410/105-V | X | X | — |
| G | AMMO | 18.5 | L* | MKP 1841-410/105-G | — | X | — |
| — | BULK | — | — | MKP 1841-447/105 | X | X | X |

*S = box size 55 x 210 x 340mm (W x H x L)

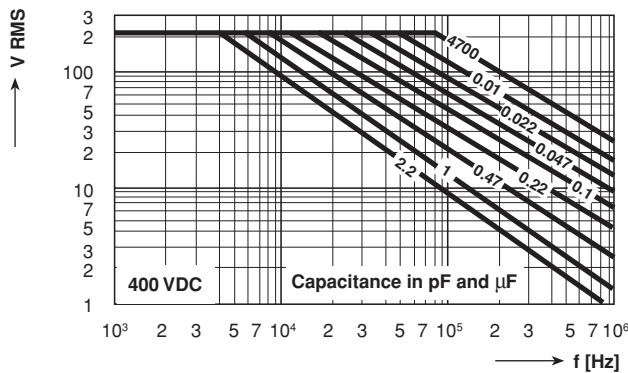
*L = box size 60 x 510 x 360mm (W x H x L)



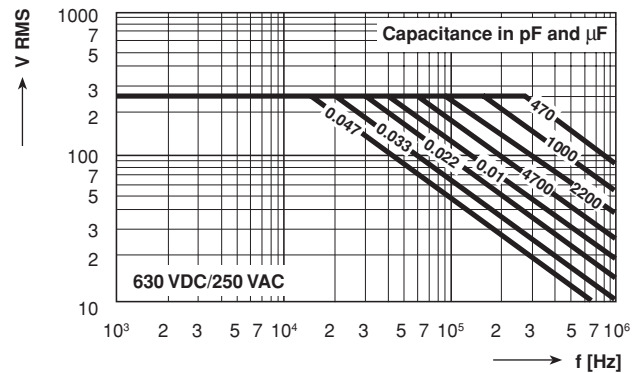
Permissible AC Voltage versus Frequency



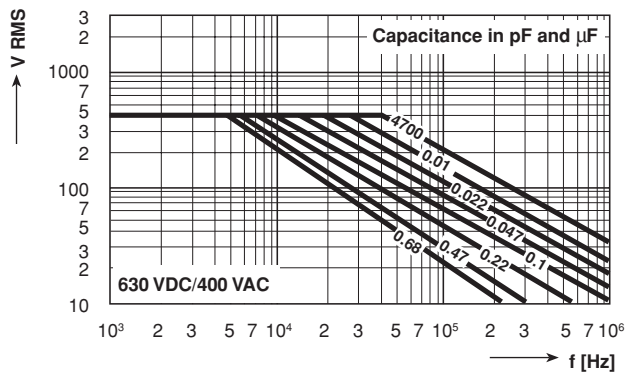
Permissible AC Voltage versus Frequency



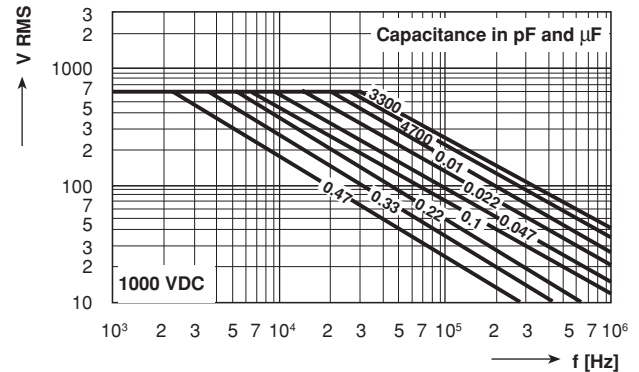
Permissible AC Voltage versus Frequency



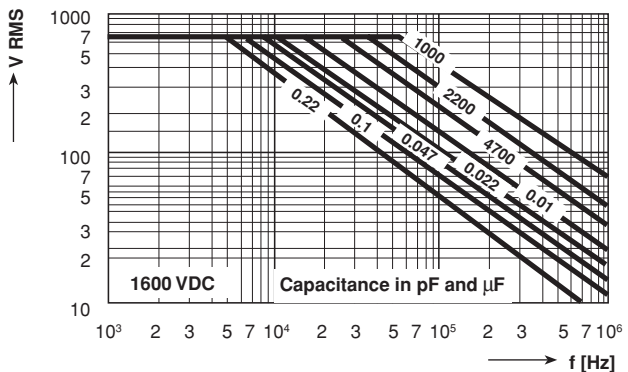
Permissible AC Voltage versus Frequency



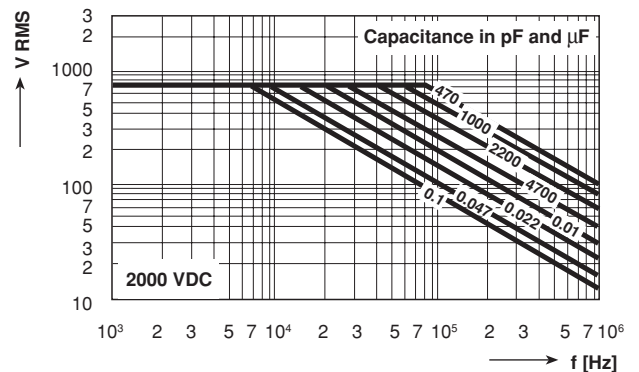
Permissible AC Voltage versus Frequency



Permissible AC Voltage versus Frequency



Permissible AC Voltage versus Frequency



Permissible AC Voltage versus Frequency