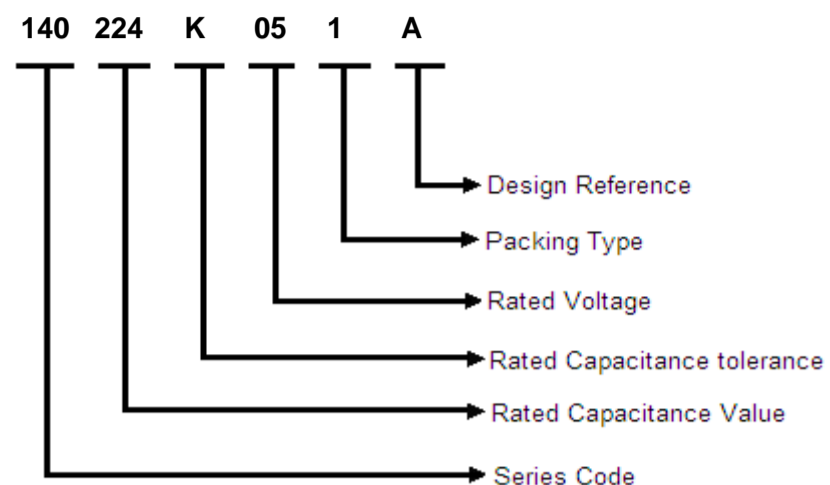


Film Capacitors

Series/Type: Metallized polypropylene film Capacitor MPP-AC
Round Axial Type
Series code: 140

140 Metallized polypropylene film Capacitor MPP-AC Round Axial Type

Part Number Description



Rated Capacitance

Three-digit (224) indicate rated capacitance in Pico Farad (First two digits indicate value & third digit indicates number of zeroes to be suffixed to first two digits).

For example:

| | | | | | |
|-----|--------|-----------------|---------------|------------|----------|
| 103 | = 10 × | 10 ³ | = 10000 pF | = 10 nF | =0.01 μF |
| 104 | = 10 × | 10 ⁴ | = 100000 pF | = 100 nF | =0.1 μF |
| 105 | = 10 × | 10 ⁵ | = 1000000 pF | = 1000 nF | =1 μF |
| 106 | = 10 × | 10 ⁶ | = 10000000 pF | = 10000 nF | =10 μF |

Capacitance Tolerance

In 3rd group of the part number-

F = ±1%, G = ±2%, H = ±2.5%, I = ±3.5%, J = ±5%, K = ±10%, L = ±15%, M = ±20%, N=±40%

Rated Voltage

In 4th group of the part number, one numeric digit and one letter (Ex.-2A) indicate DC voltage rating while two Numeric digits (Ex.03) indicate AC voltage rating.

Rated Voltage Codification

| For DC Rated Voltage | | | | | | | | | | | | | |
|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|---------|---------|---------|
| A | | B | | C | | D | | E | | F | | G | |
| 1A | 10 | 1B | 12.5 | 1C | 16 | 1D | 20 | 1E | 25 | 1F | 30 | 1G | 40 |
| 2A | 100 | 2B | 125 | 2C | 160 | 2D | 200 | 2E | 250 | 2F | 300 | 2G | 400 |
| 3A | 1000 | 3B | 1250 | 3C | 1600 | 3D | 2000 | 3E | 2500 | 3F | 3000 | 3G | 4000 |
| H | | I | | J | | K | | L | | M | | N | |
| 1H | 50 | 1I | 45 | 1J | 63 | 1K | 70 | 1L | 80 | 1M | 85 | 1N | 90 |
| 2H | 500 | 2I | 450 | 2J | 630 | 2K | 700 | 2L | 800 | 2M | 850 | 2N | 900 |
| 3H | 5000 | 3I | 4500 | 3J | 6300 | 3K | 7000 | 3L | 8000 | 3M | 8500 | 3N | 9000 |
| O | | P | | Q | | R | | S | | U | | V | |
| 1O | 110 | 1P | 120 | 1Q | 57.5 | 1R | 15 | 1S | 17 | 1U | 130 | 1V | 60 |
| 2O | 1100 | 2P | 1200 | 2Q | 575 | 2R | 150 | 2S | 170 | 2U | 1300 | 2V | 600 |
| 3O | 11000 | 3P | 12000 | 3Q | 5750 | 3R | 1500 | 3S | 1700 | 3U | 13000 | 3V | 6000 |
| For AC Rated Voltage | | | | | | | | | | | | | |
| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 15 |
| 190 VAC | 250 VAC | 275 VAC | 305 VAC | 310 VAC | 440 VAC | 500 VAC | 600 VAC | 700 VAC | 63 VAC | 230 VAC | 330 VAC | 400 VAC | 350 VAC |


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*Packing Type details:

- Bulk packing (original pitch)
- 2: Bulk packing (after forming & cutting)
- 3: Ammo packing (after forming & taping)
- 4: Bulk packing (after forming in original pitch without cut)
- 5: Bulk packing (after formed & without cut)
- 6: Ammo packing (Straight lead)
- 7: Bulk packing (Straight lead cut)
- 8: Reel packing (Straight lead)

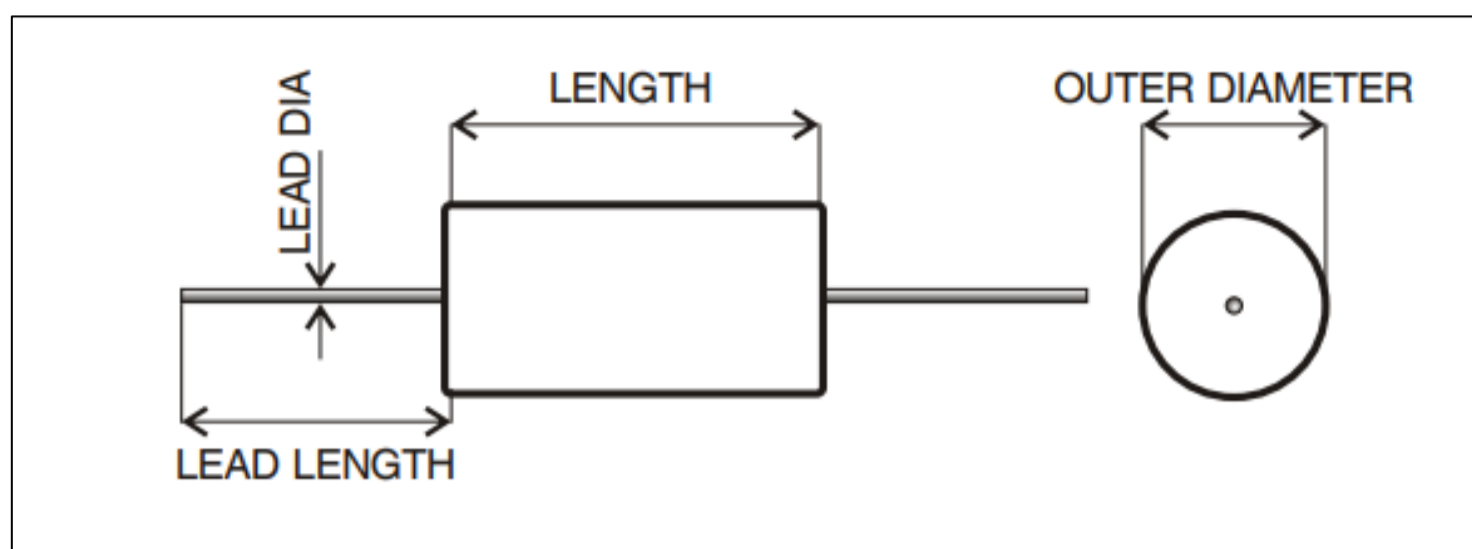
Reference Data

| | |
|---|--|
| Capacitance | 0.15 μ F to 0.32 μ F |
| Capacitance tolerance | \pm 2.5% to \pm 10% |
| Rated AC Voltage | 275Vac to 440Vac |
| Climatic testing class according to IEC 60068-1 | 40/100/56 |
| Maximum application temperature | 100°C |
| Rated temperature | 85°C |
| Reference standards | IEC 60384-17 |
| Dielectric | Polypropylene |
| Electrodes | Metallized |
| Construction | Mono |
| Encapsulation | Wrapped with polyester tape filled by resin. |
| Leads | Tinned wire |
| Marking on capacitor body | Type of capacitor, rated capacitance, rated tolerance, rated voltage and traceability code will be available on each and every capacitor. Example- D473K5 9HAP023, or MPP-AC D105K310V 902231234 |
| Compatibility to RoHS |  |

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140 Metallized polypropylene film Capacitor MPP-AC Round Axial Type

Dimensions Description



| Rated Voltage | Rated | Dimensions (mm) | | | | Item Code |
|---------------|-------------------|-----------------|---------------|----------------|-------------|------------------|
| | Capacitance | Diameter | Length | Lead dia | Lead length | |
| | (μF) | (± 0.5) | (± 0.5) | (± 0.05) | Max | |
| 250VAC | 0.32 | 11.5 | 14.5 | 0.6 | 30.0 | 140 324 K 02 1 A |
| 440VAC | 0.15 | 14.0 | 15.0 | 0.6 | 30.0 | 140 154 K 06 1 B |

Specific Data

| Description | Value | | | |
|---|---|----------------------------|--|-----------------------|
| Maximum tangent of loss angle (Tan δ) | Frequency | $C_R \leq 0.1 \mu\text{F}$ | $0.1 \mu\text{F} < C_R \leq 1 \mu\text{F}$ | $C_R > 1 \mu\text{F}$ |
| | 1 kHz | 0.0008 | 0.0008 | 0.001 |
| | 10 kHz | 0.0015 | 0.0030 | - |
| | 100 kHz | 0.0050 | - | - |
| Voltage proof test between leads | 1200Vdc for rated voltage $\leq 310\text{Vac}$; and 1250Vdc for rated voltage $> 310\text{Vac}$, for 2 second | | | |
| Insulation Resistance (R_{IS}) | $C_R \leq 0.33 \mu\text{F}$ | $C_R > 0.33 \mu\text{F}$ | | |
| (or) time constant $T = C_R \times R_{IS}$ | $\geq 100000\text{M}\Omega$ | $\geq 30000 \text{ s}$ | | |
| at 25° C, relative humidity $\leq 70\%$ | | | | |

Endurance Test

Loaded at 1.1 times of rated voltage at 85°C or 1.1 times of the category voltage at 100°C for 1000 hours. Category voltage is 80% of the rated voltage.

After The Test

$\Delta C/C$: $\leq 10\%$ of initial value.

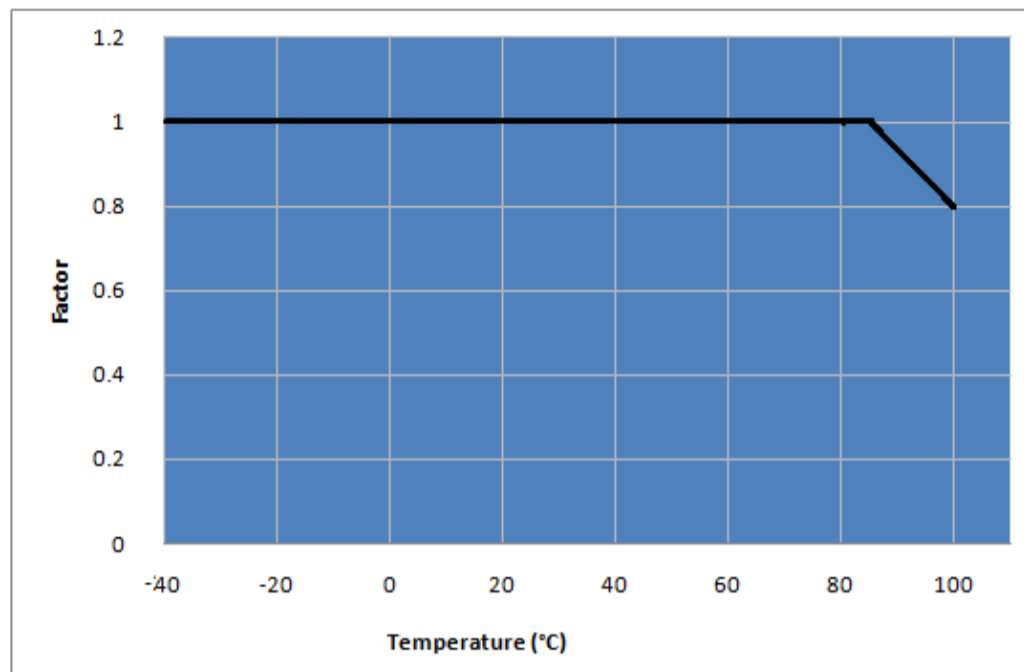
Increase of Tan δ : ≤ 0.005 at 1 kHz

Insulation resistance : $\geq 50\%$ of the value mentioned in specific data.

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Temperature Derating Graph

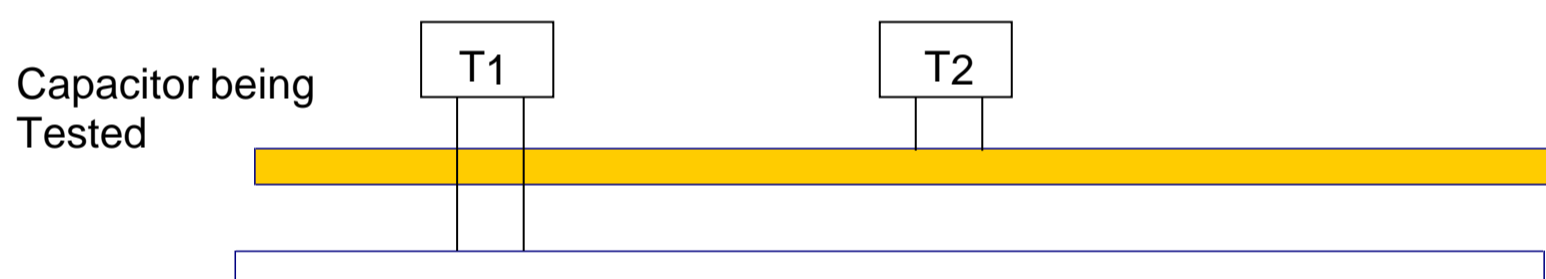
For temperature between 85°C and 100°C a derating factor of 1.25% per °C on the rated voltage VR has to be applied.



Power Dissipation and Maximum Component Temperature Rise

After applying the A.C voltage to the capacitor with certain frequency, we can measure the hot spot temperature of the capacitor. From that we can calculate ΔT .

ΔT = hot spot temperature – ambient temperature



T1 is the capacitor under test (Connected in the circuit)

T2 is capacitor which has no connection

Distance between T1 and T2 should be about 50mm and 100mm from other components. To avoid radiation or convection, the capacitor should be tested in a wind-free box. The capacitor under test is separated by polystyrene.

$$\Delta T_{\max} = T1 - T2$$

at one frequency level the ΔT_{\max} reach 10°C. That is the frequency which we have to start frequency derating.

Storage Conditions

Avoid storing the capacitors in places where the environmental conditions differ from the following:

- Storage time: ≤ 24 months from the date marked on the label glued to the package.
 - Temperature: -40 to 80°C
 - Humidity:

- Average per year: $\leq 70\%$
- For 30 full days randomly distributed throughout the year: $\leq 85\%$
- Dew: absent

After a longer period of storage or use, the tolerance can increase; but, according to standard specification,

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it may never exceed twice the value measured at the time of delivery.

Disclaimer

All our capacitors are designed, manufactured and tested to specifications. We strictly adhere to standards in procurement of materials, in the laid down manufacturing processes and consistently apply stringent process controls and testing parameters. This ensures that our capacitors always perform to the offered specifications.

Appropriateness of use in a specific circuit and fitness to a particular application however needs to be verified and its reliability through expected lifetime is required to be validated by the customer. Deki's responsibility is limited to ensuring that the capacitor performs as claimed in the specification/ data sheets provided by Deki. Deki specifically disclaims any implied warranties of fitness for any particular purpose. Liability, in any case is limited to the price paid for the capacitors.

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