

# THB

Class X2 EMI/RFI Boxed Metallized polypropylene film capacitors for high humidity environments



## Features

- Metallized polypropylene
- Safety agency approved
- Small size
- Low self inductance
- Low ESR
- **85% R.H. operating humidity range**

## Applications

- EMI Filter
- Line by pass
- **Outdoor applications**
- Across the line
- Antenna coupling
- Power meters

## Specifications

|  |  |   |   |             |
|--|--|---|---|-------------|
| Operating Temperature Range  | -40°C to +110°C  |   |   |             |
| Capacitance Tolerance  | ±10% at 1 kHz, 20°C  |   |   |             |
| AC voltage<br>(50/60 Hz)   | CSA  | ENEC  | CQC                                       | UL          |
|  | 250/310 VAC  | 305 VAC   | 275 VAC                                   | 250/310 VAC |
| Dissipation Factor<br>at 1 kHz and 20°C                                    | Tan δ  |   |   |             |
|  | .1% Max  |   |   |             |
| Insulation Resistance<br>@20°C (<70% RH) for 1 minute at<br>100VDC applied | Capacitance  | Terminal to Terminal  | Terminal to Case                          |             |
|  | ≤0.33uF  | 15000 MΩ  | >30000 MΩ at 100VDC<br>>5000 MΩ at 500VDC |             |
|  | >0.33uF  | 5000 MΩxuF  | >30000 MΩ at 100VDC<br>>5000 MΩ at 500VDC |             |
| Self Inductance  | ≤1 nano-Henry per mm of lead spacing and lead length                         |   |   |             |
| Dielectric Strength  | Terminal to Terminal   | C≤.0068uF, 1500 VAC or 2121 VDC applied for 60 Seconds<br>C>.0068uF, 1000 VAC or 1768 VDC applied for 60 seconds<br>Cut-off current: 2A ac or 10mAdc<br>Current limiting resistance: 1Ω/V |   |             |
|  | Terminal to case   | 2050VDC applied between the terminals and case for 60 Seconds and 20°C  |   |             |
| Humidity test  | <b>1000 Hours at 85% RH, 85°C and 240VAC applied.</b>                        |   |   |             |
|  | Capacitance change   | ≤10% of initially measured value  |   |             |
|  | Dissipation Factor change  | ≤1.0% at 1kHz   |   |             |
|  | Insulation resistance change   | >50% of initially specified value (T-T)   |   |             |
| Capacitance temperature coefficient  | -200ppm/°C, ±100ppm/°C   |   |   |             |
| Construction   | Metallized Polypropylene film  |   |   |             |
| Electrodes   | Vacuum deposited Metal layers  |   |   |             |
| Coating  | Flame retardant Solvent resistant plastic case with epoxy end fill (UL94V-0) |   |   |             |
| Lead terminations  | Lead free tinned copper leads  |   |   |             |

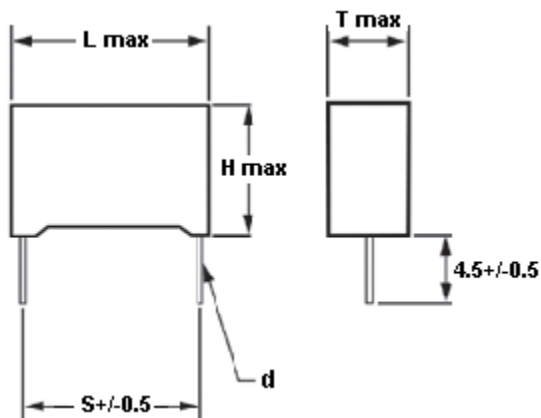
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Class X2 metalized polypropylene film capacitors for high humidity environments

Standard part listing

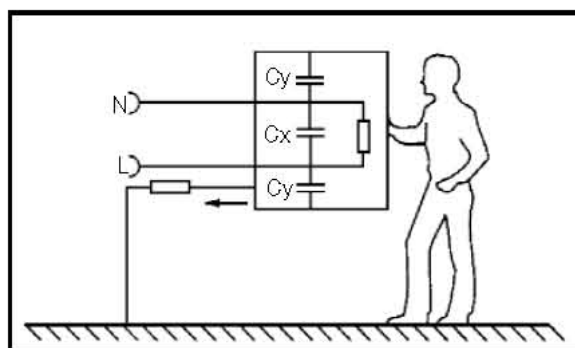
| Capacitance (µF) | IC PART NUMBER | dv/dt (V/µs) | LxHxT (mm)  | S Lead Spacing (mm) | d Lead Wire Diameter (mm) |
|------------------|----------------|--------------|-------------|---------------------|---------------------------|
| 0.047            | 473THB305KE    | 300          | 18x12x6     | 15                  | 0.8                       |
| 0.068            | 683THB305KE    | 300          | 18x13x7     | 15                  | 0.8                       |
| 0.1              | 104THB305KE    | 300          | 18x13.5x7.5 | 15                  | 0.8                       |
| 0.15             | 154THB305KE    | 300          | 18x13.5x7.5 | 15                  | 0.8                       |
| 0.15             | 154THB305KG    | 180          | 26x14.5x6   | 22.5                | 0.8                       |
| 0.22             | 224THB305KE    | 300          | 18x15x9     | 15                  | 0.8                       |
| 0.22             | 224THB305KG    | 180          | 26x15x7.5   | 22.5                | 0.8                       |
| 0.33             | 334THB305KE    | 300          | 18x18x10    | 15                  | 0.8                       |
| 0.33             | 334THB305KG    | 180          | 26x17x8     | 22.5                | 0.8                       |
| 0.47             | 474THB305KE    | 300          | 18x19x12.5  | 15                  | 0.8                       |
| 0.47             | 474THB305KG    | 180          | 26x19x10    | 22.5                | 0.8                       |

| Capacitance (µF) | IC PART NUMBER | dv/dt (V/µs) | LxHxT (mm) | S Lead Spacing (mm) | d Lead Wire Diameter (mm) |
|------------------|----------------|--------------|------------|---------------------|---------------------------|
| 0.47             | 474THB305KH    | 120          | 31x18x9    | 27.5                | 0.8                       |
| 0.56             | 564THB305KG    | 180          | 26x20x10   | 22.5                | 0.8                       |
| 0.56             | 564THB305KH    | 120          | 31x20x10   | 27.5                | 0.8                       |
| 0.68             | 684THB305KG    | 180          | 26x20x11.5 | 22.5                | 0.8                       |
| 0.68             | 684THB305KH    | 120          | 31x20x10   | 27.5                | 0.8                       |
| 0.82             | 824THB305KG    | 180          | 26x22x12   | 22.5                | 0.8                       |
| 0.82             | 824THB305KH    | 120          | 31x21x11   | 27.5                | 0.8                       |
| 1                | 105THB305KG    | 120          | 26x24x13.5 | 22.5                | 0.8                       |
| 1                | 105THB305KH    | 120          | 31x22x13   | 27.5                | 0.8                       |
| 1.5              | 155THB305KH    | 120          | 31x24.5x15 | 27.5                | 0.8                       |
| 2.2              | 225THB305KH    | 120          | 31x28x18   | 27.5                | 0.8                       |



All dimensions in (mm)

**17mm Minimum lead length available upon request**



X capacitors are used to suppress electrical noise by reducing the input impedance of the device incorporating the capacitor.

X capacitors are connected across the supply line where failure of the capacitor will not result in personal exposure to electrical shock.

X2 capacitors are to be used in applications where the peak voltage is  $\leq 1200V$ .

| Safety agency | Standard                           | Voltage           | Class                 | Certificate number  |        |
|---------------|------------------------------------|-------------------|-----------------------|---|--------|
| UL            | UL 1414 (.0047 to 1uF)             | 250               | FOWX2*                | E317135   |        |
|               | UL 1283 (.0047 to 2.2uF)           | 310               | FOKY2^<br>FOKY8^      | E317132   |        |
| CSA           | C22.2 class 2221 01                | (.001 to 0.68uF)  | 250                   | Antenna coupling, Line isolation, Across the line                 | 241565 |
|               |                                    | (.0047 to 1.0 uF) | 250                   | Antenna coupling, Line isolation, Across the line, Line to Ground |        |
|               | Class 2221 02 (.0047 to 10uF)      | 310               | EMI                   |   |        |
|               | Class 2221 51 (.0047 to 1.0uF)     | 250               | Audio/video equipment |   |        |
| ENEC (SEMKO)  | EN-132400/IEC 60384-14/ SE/0252-2A | 305               | X2                    | SE/07119  |        |
| CQC           | GB/T14472-1998                     | 275               | X2                    | CQC07001021654<br>CQC07001021577                                  |        |

\*Antenna coupling, Line bypass, across the line

^Electromagnetic interference filter

