





HEV/EV CAPACITORS

GENERAL DESCRIPTION

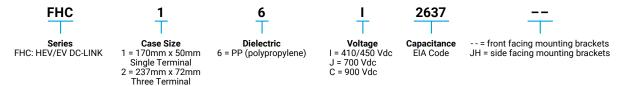




CHARACTERISTICS

- · Voltage: 410VDC to 900Vdc (standard) / 300VDC to 1400Vdc (custom)
- Capacitance Value: 300µF 900µF (standard) / 100µF 1.5mF (custom)
- Working Temperature: -40°C to 105°C hot spot temperature; up to 115°C hot spot for low duration

HOW TO ORDER



DC FILTERING

The series uses a dry-wound (non-oil-filled) segmented metallized polypropylene, which features the controlled self-healing process, specially treated to have a very high dielectric strength in operating conditions up to 115°C. For more information on how segmented metallized films and controlled self-healing works see a complete presentation.

PACKAGING

FHC Series capacitors are enclosed in an unpainted, rectangular, resin filled plastic case. Aluminium cases are available upon request.

CONSTRUCTION

The internal construction of the FHC Series is based on several elementary wound bobbins soldered by reinforced solder point on specific bus bar offering, the benefits of which include: flexibility in internal design, current capability and repartition, reduction of thermal expansion constraints, high winding productivity, modularity in three dimensions.

APPLICATIONS IN ELECTRIC VEHICLES (EV)

The FHC series capacitors are specifically designed to prevent ripple currents from reaching back to the power source, and to smooth out DC bus voltage variations. Capacitors are also used to protect semiconductors originally thyristors, but now IGBTs.

LIFETIME EXPECTANCY

One unique feature of the segmented metallized technology is how the capacitor acts at the end of its lifetime. Unlike electrolytic capacitors, which are a short circuit failure mode, film capacitors only experience a parametric loss of capacitance with no catastrophic failure mode. The capacitor gradually loses capacitance over its lifetime and eventually becomes an open circuit.

Lifetime, therefore, as it is defined here, is a function of several elements:

- Decrease in capacitance limit 2-5% or to meet customer needs
- Average Applied Voltage (expressed as a ratio vs nominal rated voltage)
- Average hot spot temperature
- By changing any of these parameters we can change the defined "lifetime" of the capacitor. The capacitor will continue to function even beyond the pre-established limit for capacitance decrease.

STANDARDS

IEC 61071-1, IEC 61071-2: Power electronic capacitors AECQ 200: with specific deviation for power capacitors

The FHC1 & FHC2 range capacitor have been specially design to be use in conjunction with Hybrid & Electric vehicles IGBT modules.





HEV/EV CAPACITORS PRODUCT SELECTION GUIDE

FHC1





RATINGS AND PART NUMBERS

| Part Number | Capacitance (µF) | UN (Vdc) | Imax (A) | L Parasitic Inductance nH (**) | Rs (mΩ) | Rth Hot Spot/ Bottom (°C/W) | Tanδ 100Hz | Dimension LxWxH (mm) | Lifetime Expectancy Curve |
|---------------|---------------------|----------|----------|-----------------------------------|---------|--------------------------------|----------------------|-------------------------|---------------------------------|
| FHC16I0307Kxx | 300 | 450 | 120 | 18 | 0.69 | 4.4 | 5 x 10 ⁻⁴ | 140 x 72 x 50 | Α |
| FHC16I0517Kxx | 510 | 410 | 150 | 18 | 0.51 | 3.7 | 5 x 10 ⁻⁴ | 140 x 72 x 50 | В |
| FHC16J0267Kxx | 260 | 700 | 80 | 18 | 1.57 | 4 | 5 x 10 ⁻⁴ | 140 x 72 x 50 | С |
| FHC16C0147Kxx | 140 | 900 | 70 | 18 | 2.09 | 4 | 5 x 10 ⁻⁴ | 140 x 72 x 50 | D |

FHC2





RATINGS AND PART NUMBERS

| Part Number | Capacitance (µF) | UN (Vdc) | Imax (A) | L Parasitic Inductance nH (**) | Rs (mΩ) | Rth Hot Spot/ Bottom (°C/W) | Tanδ 100Hz | Dimension LxWxH (mm) | Lifetime Expectancy Curve |
|---------------|---------------------|----------|----------|-----------------------------------|---------|--------------------------------|----------------------|-------------------------|---------------------------------|
| FHC26I0507Kxx | 500 | 450 | 170 | 15 | 0.45 | 2.6 | 5 x 10 ⁻⁴ | 237 X 72 X 50 | Α |
| FHC26I0707Kxx | 700 | 450 | 190 | 15 | 0.38 | 2.4 | 5 x 10 ⁻⁴ | 237 X 72 X 50 | Α |
| FHC26I0907Kxx | 900 | 410 | 190 | 15 | 0.33 | 2.1 | 5 x 10 ⁻⁴ | 237 X 72 X 50 | В |
| FHC26J0507Kxx | 500 | 700 | 160 | 15 | 0.87 | 2.1 | 5 x 10 ⁻⁴ | 237 X 72 X 50 | С |
| FHC26C0267Kxx | 260 | 900 | 140 | 18 | 1.17 | 2.1 | 5 x 10 ⁻⁴ | 237 X 72 X 50 | D |

^(*) Imax Max hot spot 105°C

Nb: Upon request FHC are available equiped with thermocouple for thermal measurement Other value or bus bar design please contact your local KYOCERA AVX representative



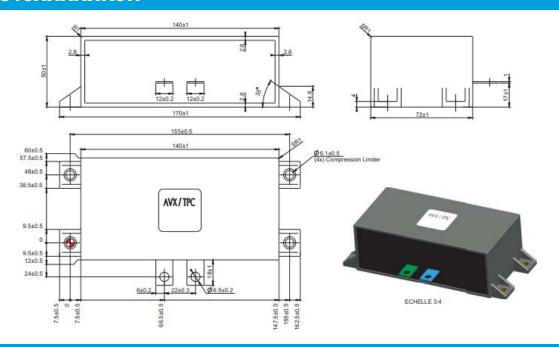
^(**) Measurement at 1MHz

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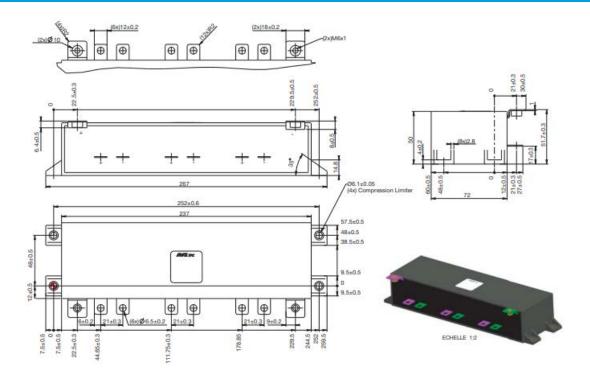
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FHC16XXXXXKJH



FHC26XXXXXKJH

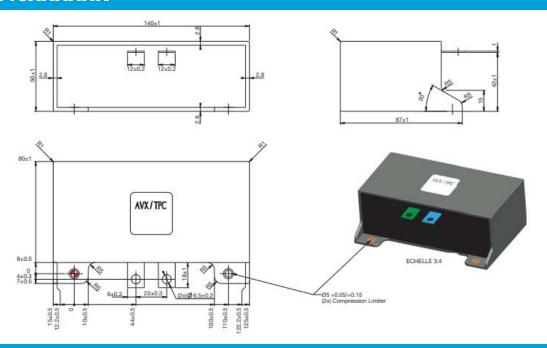




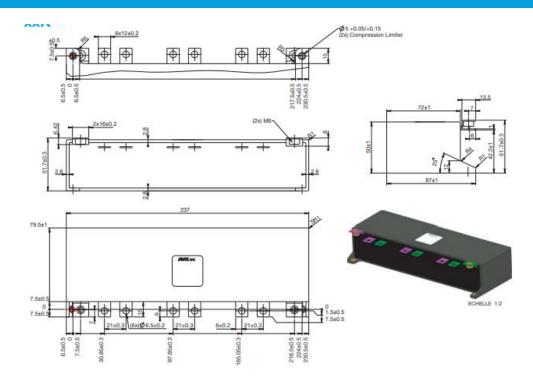
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FHC16XXXXXK--



FHC26XXXXXK--







ABOUT KYOCERA AVX

KYOCERA AVX is a worldwide leading supplier of passive electronic components, connectors, passive and active antennas, sensors and control units. KYOCERAAVX offers a wide range of components manufactured to the highest quality and reliability standards.

Our products include ceramic, solid electrolytic and film capacitors, pulse supercapacitors, varistors, thermistors, filters, inductors, diodes, antennas, connectors, sensors and control units. Our worldwide manufacturing capability includes facilities located in seventeen countries on four continents, allowing us to continue meeting customer needs on a global basis.

KYOCERA AVX is committed to supporting the needs of its customers for applications today and in the future. Together with continuous quality improvement process, KYOCERA AVX components provide reliable solutions for consumer application needs.

As a technology leader, KYOCERA AVX will continue to add to its product portfolio on a regular basis. Details of new devices being offered and their specifications will be shown on the KYOCERA AVX website: www.kyocera-avx.com.



