

electrocube RoHS Compliant & Pb-Free

Blanket Certification for Standard Film Capacitor Products

- Flat-Tab & Spade Terminations for Mechanical Installation / Connection

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RoHS & Pb-FREE REQUIREMENTS -

The requirements for RoHS Compliance are defined by:

EU Directive 2002/95/EC of 27 January 2003 (RoHS)

EU D-G Environment Guidance Document FAQ on RoHS & WEEE dated May 2005

EU Commission Decision 2005/618/EC of 18 August Amending Directive 2002/95/EC

EU Commission Decision 2005/717/EC of 13 October 2005 Amending Annex of 2002/95/EC

EU Commission Decision 2005/747/EC of 21 October 2005 Amending Annex of 2002/95/EC

The requirements for Pb-Free compliance are defined by:

JEDEC Standard JESD97 / IPC Standard IPC-1066

RoHS COMPLIANT / Pb-FREE PRODUCT DESCRIPTION -

Electrocube "standard" series of film Capacitor products (as listed) are epoxy-filled rectangular plastic box style components, having flat tab style termination features in various configurations with through-holes for clearance of threaded hardware, or using industry standard spade style quick-connect terminations. These products are typically mechanically secured and terminated using threaded hardware or a mating wire termination (not soldered).

Electrocube standard products (as listed), supplied to our Distributors and OEM Customers as of date code 0540 (YYWW) and subsequent, shall be considered RoHS Compliant and Pb-Free, unless specifically acceptable and contracted otherwise. RoHS Compliant and Pb-Free product is specifically identified as such (refer to following commentary). The Electrocube part numbers, for the RoHS Compliant and Pb-Free products, are identical to that of the pre-existing non-compliant product configurations.

Standard / Catalog Series Products:

247/248 Series Metallized Polyester Film Capacitors

970/971 Series Metallized Polypropylene Film Capacitors

The following standard product series IS NOT currently RoHS Compliant and Pb-Free, but may be provided as such, as required by specific customer requirement, and as negotiated at time of quotation and order placement.

Standard / Catalog Series Products:

926 Series Metallized Polypropylene Film Capacitors

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RoHS COMPLIANT CONTENT CERTIFICATION -

Electrocube confirms that the listed standard product series (less exceptions noted), of date code 0540 (YYWW) and subsequent, ARE COMPLIANT within the restrictions of the (current revision of) EU RoHS Directive 2002/95/EC and EU Commission Decisions / Amendments and EU D-G Environment Guidance documents, regarding content of PBB and PBDE flame retardants, and heavy metals Pb, Hg, Cd, and Cr⁺⁶. The materials and components, utilized in product construction, are understood to not intentionally contain the restricted flame retardant materials and heavy metals, and any un-intentional impurity-level content will be within restriction limitations of the (current revision of) EU RoHS Directive 2002/95/EC, and EU Commission Decisions / Amendments and EU D-G Environment Guidance documents.

<u>SUBSTANCE</u>	<u>LIMIT</u> (by weight in homogenous material)
Lead (Pb)	<=0.1%
Mercury (Hg)	<=0.1%
Cadmium (Cd)	<=0.01%
Hexavalent Chromium (Cr ⁺⁶)	<=0.1%
Polybrominated biphenyls (PBB)	<=0.1%
Polybrominated diphenyl ether (PBDE)	<=0.1%
Exemption, Annex Point 9a	no limit for DecaBDE in polymeric applications

Exemption per RoHS Directive 2002/95/EC Annex Point 9a, is exercised for content of specific PBDE flame retardant DecaBDE. The materials utilized in product construction are understood to intentionally contain specific flame retardant DecaBDE in-excess of the limitations imposed as a PBDE, but specifically exempted and acceptable by Commission Decision 2005/717/EC and Amendment to the Annex of the RoHS Directive. This exemption is primarily applicable to use of Electrocube Capacitors having tape-wrapped cases, and to insulating tape internal to the listed products. The affected product series can be certified to be RoHS Compliant. Exercise of the DecaBDE exemption by Electrocube will be for a limited time, as the applicable materials are replaced with materials fully compliant without exercise of exemption 9a.

NOTE: Full and unequivocal certification that the listed Electrocube standard product series will meet the flame retardant and heavy metal restrictions of EU RoHS Directive 2002/95/EC and EU Commission Decisions / Amendments, EU D-G Environment Guidance and any outstanding RoHS TAC Draft documents, is pending finalization of RoHS requirements.

Pb-FREE CONTENT CERTIFICATION -

Electrocube confirms that the listed standard product series (less exceptions noted) of date code 0540 (YYWW) and subsequent, ARE COMPLIANT within the industry accepted definition of Pb-Free, regarding content of heavy metal Lead (Pb). The materials and components, utilized in product construction, are understood to not intentionally contain the restricted heavy metal, and any un-intentional impurity-level content will be within restriction limitations of the definition of Pb-Free, per the (current revision of) Industry Standards JEDEC JESD97, and IPC-1066, and of the (current revision of) EU RoHS Directive 2002/95/EC, and EU Commission Decisions / Amendments and EU D-G Environment Guidance documents, excluding specific exemptions of the RoHS Directive for Pb content in excess of 0.1%.

<u>SUBSTANCE</u>	<u>LIMIT*</u>
Lead (Pb)	<=0.1%

*by weight in homogenous material / discrete raw materials, and total weight in end-product, RoHS Annex Exemption Points allowing >0.1% Pb content are excluded / not-applicable.

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RoHS COMPLIANT / Pb-FREE PRODUCT QUALIFICATION -

Electrocube certifies that the functional electrical performance and reliability characteristics of the RoHS Compliant and Pb-Free configurations of the applicable standard product series are equivalent to that of products previously / historically provided.

RoHS COMPLIANT / Pb-FREE PRODUCT IDENTIFICATION -

The listed Electrocube products are not directly marked to indicate RoHS Compliant or Pb-Free status. The lowest level of product packaging is marked with date code information by which compliance status may be primarily determined. Date code information may or may not be directly marked on product, based upon physical size and configuration of product, available marking capability and cost. The lowest level of product packaging, as well as shipping documentation (shipper / invoice & C of C) additionally includes specific marking or labeling to indicate product compliance status by way of appropriate RoHS Compliant and Pb-Free symbology and text, reference JEDEC JESD97.

Pb-FREE TERMINATION FINISH CATEGORY -

Electrocube provides RoHS Compliant and Pb-Free product having Tin (Sn) plated termination features, reference Category "e3" per JEDEC Standard JESD97.

PRODUCT MOISTURE SENSITIVITY CLASSIFICATION

Industry standards / requirements such as IPC/JEDEC Standards J-STD-020 & J-STD-033, and EIA/JEDEC Publication JEP113, for special classification, identification and packaging in regards to moisture sensitivity, are specifically applicable to surface mounted components exposed to higher temperature oven-reflow soldering processes, and not applicable to the listed Electrocube standard products, to be manually and mechanically installed and terminated.

Pb-FREE SOLDER PROCESS TEMPERATURE - DURATION CAPABILITY -

Electrocube's standard products (as listed), in pre-existing lead-containing, and in current lead-free configurations might be considered to be temperature sensitive in manufacturing processes based upon pre-existing limitations of basic plastic materials from which they are constructed, and not on the basis of a change to lead-free content.

Temperature and duration parameters for soldering processes should be considered not applicable to the listed Electrocube standard products, to be manually and mechanically installed and terminated. In manufacturing processes, temperature exposure shall not result in component body temperatures exceeding the limitations of the applicable dielectric materials (105 deg. C for polypropylene, and 125 deg. C for polyester).

Pb-FREE SOLDER PROCESS COMPATIBILITY-

Forward and backward solder process compatibility of the pre-existing lead-containing and tin-lead plated, and current lead-free and tin plated configurations of the listed Electrocube standard products should be considered not applicable to the listed Electrocube standard products, to be manually and mechanically installed and terminated.