

Ericsson Power Modules

RoHS Directive and Design for Environment

Driving Forces

Environmental Regulations

- European Union (EU) directives came into force 13 February 2003
 - Directive 2002/95/EC Restriction of Hazardous Substances (RoHS)
 - Directive 2002/96/EC Waste Electric and Electronic Equipment (WEEE)
- EU Legislation
 - RoHS compliance required 1 July 2006
 - WEEE compliance required 13 August 2005
- Similar regulations and market requirements will come into force in all major markets, i.e. China, Japan and North America

Legal Considerations

Ericsson Power Modules position

- RoHS refers to Directive 2002/95/EC of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) and compliance is required for certain EEE categories by 1 July 2006
- On-board DC/DC power modules are not defined as EEE, and are therefore not covered by the RoHS regulation, but they must be compatible with the requirements due to customer requirements on RoHS compliance for EEE
- The Directive 2002/96/EC on waste electrical and electronic equipment (WEEE) covers consumer products and other end-user products and is not applicable to on-board DC/DC power modules

RoHS Compatibility

Facts and Definitions

- DC/DC power modules are compatible with the RoHS directive if the concentration values do not exceed 0.1% by weight in homogeneous materials for lead, mercury, hexavalent chromium, PBB and PBDE and 0.01% by weight in homogeneous materials for cadmium
- The term Homogeneous materials is understood as "of uniform composition throughout" e.g. individual types of plastics, ceramics, glass, metals, coatings, etc.
 - A semiconductor package contains many homogeneous materials including plastic moulding material, tin-electroplating coatings on the lead frame, the lead frame alloy and bonding wires
 - The solder in a product is considered to be a homogeneous material and the term "solder" also includes all materials that become part of the final solder joint, including solder finishes on components or printed circuit boards

RoHS Compatibility

Facts and Definitions

- The term "RoHS-5" is sometimes used for RoHS compliant products that meet the maximum concentration values for five of the six restricted substances and use the exemption for lead in solder
 - It means that the concentration values are less than 0.1% by weight in homogeneous material for lead in other applications other than solder, mercury, hexavalent chromium, PBB and PBDE and of 0.01% by weight in homogeneous material for cadmium
 - Lead in solder for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunication is exempted from the requirements of the RoHS directive
 - It is also applicable to DC/DC power modules used in the above mentioned end-user equipment

Design for Environment

Power Modules Strategy and Actions

- Restriction of hazardous substances, with special focus on
 - Lead-free components
 - Lead-free manufacturing processes
 - Products that meet the requirements in customers lead-free manufacturing processes
 - Halogen-free printed circuit boards and components
- Comply with the requirements in Ericsson lists of banned and restricted substances
- Since year 2000 applied a DfE policy in all product development projects, including removal of hazardous substances according to the RoHS directive
- Increase efficiency and minimize power consumption
 - Most important environmental impact
 - Large impact on customer cost for operation
 - Lower power consumption has positive impact on reliability
 - Impact on design & dimensioning of other parts of the equipment

Statement of Compliance (SoC)

RoHS Compatible Products

- Power Modules' products are compatible with the relevant clauses and requirements of the RoHS directive
- The statement is based on materials declarations on homogeneous materials level and maximum concentration values according to the RoHS directive
- A SoC document will be issued upon customer request. Please contact Your local Ericsson Power Modules sales office

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