flex Power Modules

DESIGN NOTE 001

Design for Sustainability

Abstract

In this Design Note we will describe our design for environment policy, which is applicable for all products which we develop and manufacture.

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Introduction

Since the year 2000 Flex Power Modules has applied a design for environment (DfE) policy in all product development projects, including removal of hazardous substances according to the RoHS and REACH directives and a continuous development of designs and solutions for lower power consumption and lowest possible total cost of ownership for the end-user.

This includes restriction of hazardous substances, with a special focus on lead-free components, lead-free manufacturing processes, components and products that meet the requirements in customers lead-free manufacturing processes. Products and processes also comply with Flex's lists of banned and restricted substances, which include the six restricted substances in the RoHS directive but also an extensive list of other substances that are either banned, restricted or under observation due to environmental regulations or concerns.

RoHS directive

The RoHS directive (2011/65/EU) requires that electrical and electronic equipment (EEE) put on the market does not contain more than the permitted levels of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE). The directive applies to the final end-user products e.g. IT and telecommunications equipment, that fall within the scope of the directive. From a legal point of view, components and sub-assemblies, e.g. DC/DC power modules, are not covered by the directive but are required by the equipment manufacturers to meet the requirements in the RoHS directive. DC/DC power modules meet the requirements if the concentration values of hazardous substances 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.

Flex Power Modules' products are compatible with the relevant clauses and requirements in the RoHS directive. Furthermore, Flex Power Modules' products do not contain any of the substances (DEHP, BBP, DBP, DIBP) restricted as of 22nd July 2019 according to EU Commission Delegated Directive 2015/863 amending the RoHS Directive 2011/65/EU.

A Statement of Compliance (SoC) for the RoHS directive can be found **HERE**

Products intended for surface mount assembly will also comply with high-temperature lead-free reflow soldering processes according to IPC/JEDEC J STD 020C and products intended for through-hole mount assembly will comply with lead-free wave soldering or manual soldering processes.

RoHS directive (2011/65/EU) states that all exemptions without an explicit expiry date will be terminated by 21 July 2016 if no renewal has been applied for.

Figure 1: RoHs

A renewal application that is rejected will mean that the exemption expires 12-18 months after the rejection decision. The Flex general stand-point is that use of exemptions shall be avoided where possible. Suppliers are requested to introduce alternative design solutions when technically and economically feasible. Suppliers shall phase out the use of an exemption at latest 12 months before it is expired. Flex is communicating with its suppliers as well as cooperating within industry organizations and closely following the EU Commission process to ensure that our products are in compliance with the RoHS directive.

REACH regulations

Regulation (EC) No 1907/2006 of the European parliament and of the council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) entered into force on 1 June 2007 and was fully implemented in 2018.

Flex Power Modules is affected in two ways:

- As a manufacturer using substances on their own and in preparations in the manufacturing process
- As a supplier of finished products, i.e. subject to requirements on substances in articles.

Flex Power Modules fulfills and will continuously fulfill all its obligations under REACH as they enter into force. Flex has also a register of substances and preparations used in the manufacturing processes to manage related REACH obligations.

Flex is communicating with its suppliers and expects that they (as manufacturers or importers of substances, preparations or articles) ensure the continued supply to Flex by fulfilling their obligations according to the REACH regulation, e.g. pre-registration and registration. Supplier compliance is assured through the normal sourcing agreement process. Flex expectations on suppliers regarding REACH are available **HERE.**

Figure 1: REACH compliant

Generally the preferred way of handling REACH matters is by using or referring to the Flex REACH compliance information to customers and other external stakeholders which is available on the Corporate Sustainability web site.

The following information is according to Flex:

Substances that are intended to be released shall be registered (products shall not be registered). It is the manufacturer/importer of such substance that is required to register the substance (not Flex)

If a product contains more than 0.1% of a SVHC ("substance of very high concern") Flex must inform the customer, e.g. a materials declaration, and if the annual content used in a product exceeds 1 metric ton it should be authorized/registered.

Duty to communicate information on substances in articles

On 10 September 2015 the EU Court of Justice ruled that each of the articles incorporated as a component of a complex product is covered by the duty to provide information when they contain a substance of very high concern in a concentration above 0.1% of their mass.
Flex recognizes the judgment of the EU Court of Justice and will act accordingly.

According to the REACH regulations (Article 33), producers of articles containing substances of very high concern (SVHC) included on the candidate list in a concentration above 0.1% weight by weight shall provide the recipient of the article with sufficient information, available to the supplier, to allow safe use of the article including, as a minimum, the name of that substance.

The latest SoC for REACH regulations from Flex Power Modules can be found **HERE**.

Efficiency and energy consumption

Efficiency and energy consumption are two of the most important environmental factors in the end-user equipment. In recent years the industry has learned that energy consumption in the operation of Information and Communication Technology equipment is the most critical factor relating to environmental impact and total cost of ownership. Flex Power Modules' DfE policy drives the design and development of highly efficient DC/DC power modules that will decrease the energy consumption of the end-user equipment resulting in lower environmental impact and life cycle cost. This does not only affect the energy bill but also the design, dimensioning and cost of other parts of the complete installation, such as cooling fans and air conditioning, heat sinks, real estate requirements, power supplies and battery back-up capacity, etc. Higher efficiency in the DC/DC power modules will contribute to lower total cost of ownership for the end-user and a more resource efficient society.

Please contact your local Flex Power Modules sales office if you require Materials declarations or any further information on high efficiency and RoHS compatible DC/DC power modules.

Power Modules

Flex Power Modules, a business line of Flex, is a leading manufacturer and solution provider of scalable DC/DC power converters primarily serving the data processing, communications, industrial and transportation markets. Offering a wide range of both isolated and non-isolated solutions, its digitally-enabled DC/DC converters include PMBus compatibility supported by the powerful Flex Power Designer.

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