

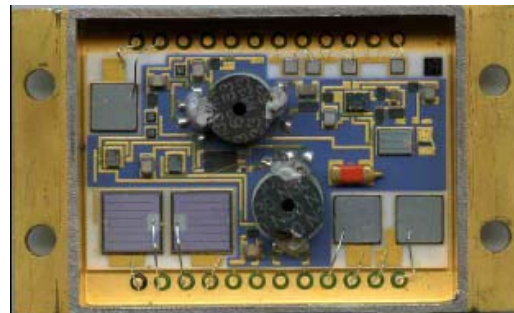
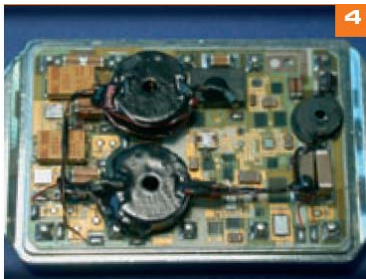
Introduction

Neohm Componenti is active in the space market since '90, and has designed and supplied Rad Hard circuits like DCDC, Control and Monitoring Circuits, Drivers, etc.

The main programs that are using our components are: Hot Bird V, Sicral, Sicral 1/bis, Cosmo/Skymed, GSTB, Galileo, AMS-01, AMS-02, Pamela, Microscope, CPPS, IPPM, Sampif, Integral, Rubin, end others.

Neohm Componenti has the know-how to design and the assembly lines to manufacture Space Grade components according to ESA PSS 01-608 or MIL-STD-34534 grade K.

The actual RFQ requires the design and manufacturing of several models of DCDC converter, starting from existing designs, supplied in form of hybrids and in form of PCB.



As you know, Neohm Componenti doesn't manufacture standard products, but rather custom products designed and built according to customer specifications: so you must be aware that the specified DCDCs are not taken from actual production but are designed to fit with the customer specifications, starting from existing designs and according to Neohm space experience.

The Custom approach, compared to Off-The-Shelf approach, is weigh by Non Recurring Costs, but leads to a better tailored solution, with possible savings in overall cost of ownership.

General

The DCDCs will be designed using isolated PWM, fixed frequency, in the range of 200 ÷ 400 kHz
The regulation tolerance (2%) requires post regulation circuits, so the required efficiency is hardly achievable, specially for low power circuits.

Temperature: -30°C ÷ +60°C

Technology

There will be used our Thick Film Technology in Power Metal cCases.

The processes involves are the Substrate Printing, Epoxy die attach, Indium-Lead die attach, wire bonding, hermetic sealing.

We will make use of high conductivity substrates, like Al₂O₃ (aluminium oxide) and AlN (Aluminum Nitride).

No use of BeO (Berillium Oxide) will be done.

Packages

In principle it is possible to use only one package style for all the specified DCDC, but this approach would lead to a waste of weight and room.

Due to the large spread of power and configurations, it is convenient use packages adapted to the power and characteristic of each DCDC converter.

All DCDC have metal hermetic package with assembly flanges.



Neohm Componenti

05.07.2010

DCDC converter

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Radiation

All the DCDC proposed are 100 kRad(Si) tolerant and SEU immune.

Total dose

The total dose is achieved partially with components selection, partially using shielding.

The critical components are chosen among those whose radiation susceptibility is well known and has been assessed.

There will be used preferably bipolar components rather than MOS components, magnetic coupling.

Where an Opto coupler, if any, it will be rad hard 100 kRad (Si).

Rad hard 100 kRad(Si) is a mix of choice of component and design practice that produce a little sensible design and shielding.