

DC-DC converters Alcatel SPACE product portfolio

◆ INTRODUCTION

- ❑ Alcatel Space Denmark (ASD) products transfer to ASP TOULOUSE now completed with 400 DC-DC products dedicated to RF equipment (ex ASD products) manufactured in TOULOUSE and delivered to customers (internal and export) in 2004
- ❑ Alcatel Space VALENCE products transfer to ASP TOULOUSE now completed:
 - ➔ responsibility of the products (boards and hybrids) in TOULOUSE
 - ➔ definition, manufacturing and test of the products(boards) in TOULOUSE, with 100 boards delivered in 2004
 - ➔ hybrids lay out, manufacturing activities in VALENCE with long term agreement between ASP and VALENCE industrial entity.
- ❑ Alcatel Space TOULOUSE team capacity in line with 2004 product rate.

◆ ASP DC-DC portfolio

□ complete range of products covering:

- ➔ DC-DC converters for RF equipment (high accuracy, low noise and sequencing at switching ON)
- ➔ EPC for SSPA (up to 160W output power) with high efficiency
- ➔ DC-DC for non RF equipment:
 - dedicated boards for platform equipment, observation instrument equipment...
 - standard modules (HC1 and CVSxxy hybrids)
 - low output voltage switching post regulator to be implemented in the user board (design in progress)

□ several packaging technologies available

- ➔ SMT solution for flexible products (products needing adaptation depending on customer and needing optimisation)
- ➔ hybrids for standard DC-DC modules in co-operation with VALENCE plant.

DC-DC for RF applications

◆ CV LNA

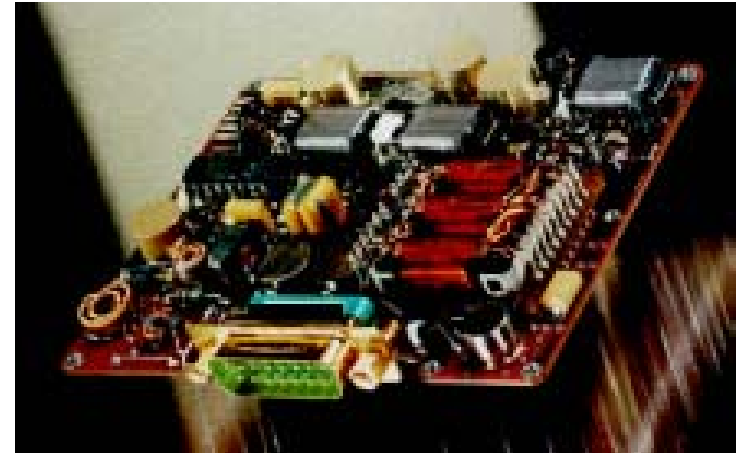
- ❑ input voltage: 20V to 102V, TM/TC interface multiplatform
- ❑ Outputs : up to 3, accuracy +/-6%
- ❑ Output power up to 5 W
- ❑ Efficiency at Pout max >70%
- ❑ Flexible product
- ❑ Dimensions : 94*60*23 mm³
- ❑ Mass : <100g with housing



DC-DC for RF applications

◆ FLEX1

- ❑ input voltage: 20V to 102V, TM/TC interface multiplatform
- ❑ Outputs : 3, accuracy +/-1.5%, low noise with sequencing
- ❑ Output power up to 11 W
- ❑ Efficiency at Pout max >65%
- ❑ Flexible product
- ❑ Dimensions : 100*80*17 mm³
- ❑ Mass : <130g (board)



DC-DC for RF applications

◆ FLEX2

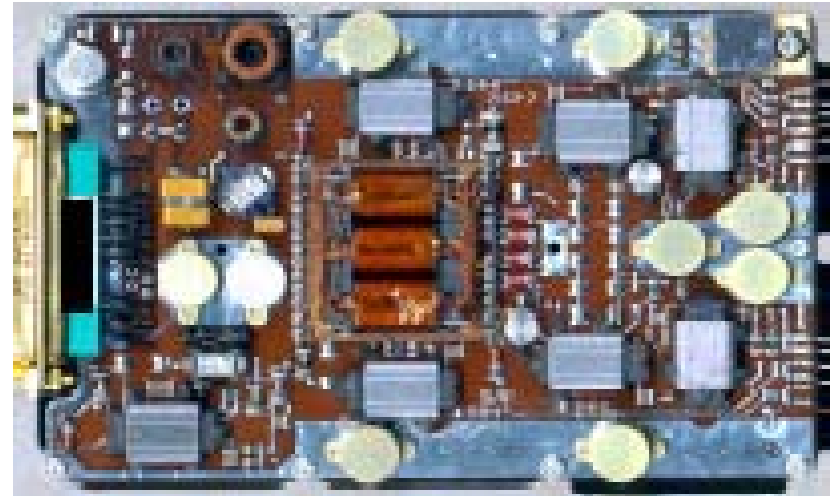
- ❑ input voltage: 20V to 102V, TM/TC interface multiplatform
- ❑ Outputs : 3, accuracy +/-1.5%, very low noise with sequencing
- ❑ Output power up to 17 W
- ❑ Efficiency at Pout max >65%
- ❑ Flexible product
- ❑ Dimensions : 130*65*20 mm³
- ❑ Mass : <140g (board)



DC-DC for RF applications

◆ 6 output

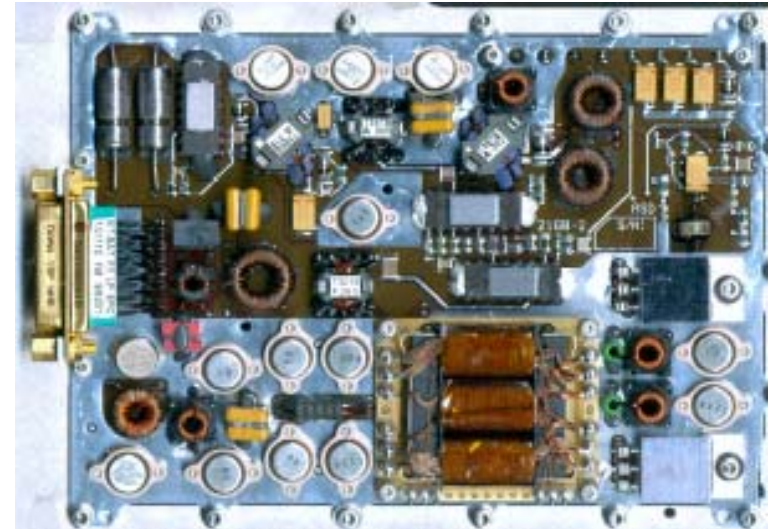
- ❑ input voltage: 20V to 102V, TM/TC interface multiplatform
- ❑ Outputs : up to 6, accuracy +/- 1.5%, low noise with sequencing
- ❑ Output power up to 13 W
- ❑ Efficiency at Pout max >65%
- ❑ Flexible product
- ❑ Dimensions : 133*87*21 mm³
- ❑ Mass : <190g (board)



EPC for SSPA

◆ EPC for SSPA : complete range

- ❑ input voltage: 20V to 102V, TM/TC interface multiplatform
- ❑ Outputs : 2 low power+ 1 high power, accuracy +/-1%, low noise with sequencing
- ❑ Output power 50W,80W,160W
- ❑ Efficiency at Pout nom >90%
- ❑ Flexible products



DC-DC for non RF equipment

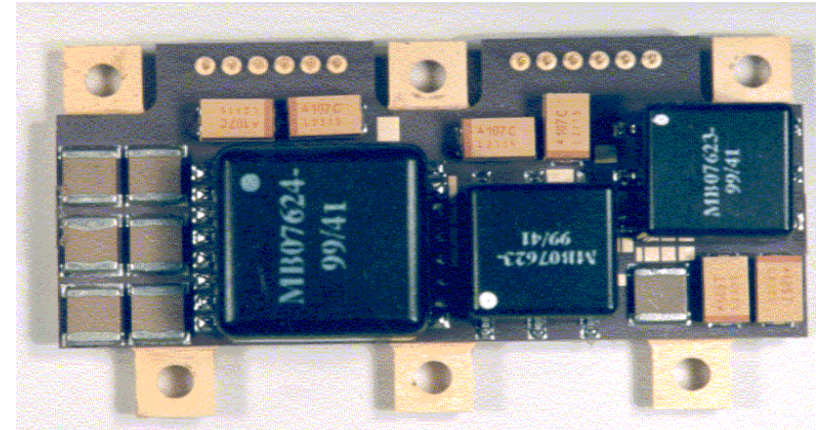
◆ Dedicated boards for equipment

- ☐ input voltage: 20V to 102V,
TM/TC interface multiplatform
- ☐ Outputs : 4 to 20 outputs depending on the equipment supplied
- ☐ Accurate output voltages (1%) with full protection
- ☐ Output power 10W up to 250W
- ☐ Products dedicated to the supplied equipment (electrical architecture and dimensions defined by equipment)

DC-DC for non RF equipment

◆ Standard modules HC1

- ❑ input voltage: 27.4V to 28.6V
- ❑ Outputs : 4 outputs(+/-5V,+/-15V)
- ❑ Accuracy +/-3.5% for +/-5V and +/-10% for +/-15V
- ❑ Output power 11W max
- ❑ Efficiency at Pout nom >80%
- ❑ Standard products with board plug in capacity
- ❑ Dimensions : 72*40*18 mm³
- ❑ Mass : <65g



DC-DC for non RF equipment

◆ Standard modules CVSQ40

- input voltage: 20.5V to 56V
- Outputs : 4 outputs(+5V,+/-15V,+32V)
- Accuracy +/-1% for 5V and +/-5% for others
- Output power 41W max, with full range from 0 to max on each output
- Efficiency at Pout nom >87%
- Standard products with board plug in capacity
- Dimensions : 96.5*81*20.5 mm3
- Mass : <210g

◆ CVST15 with 3 outputs and 15W max (135g)

◆ ASP NEED:

- for science and low duration mission (specific equipment) need of standard low cost DC-DC modules plug in PCB.

- For telecom and hirel applications, large range of existing products covering the need with cost reduction objectives leading to:
 - ➔ need of cheaper **rad tolerant(15 krads, heavy ions)** European parts (MOS, MOS drivers, PWM , linear regulators)
 - ➔ need of low cost SMT transformers and inductances
 - ➔ need of just necessary general applicable documents(radiation, quality requirements: quality level, worst case hypotheses).