

**HIGH EFFICIENCY
HYBRID FORWARD CONVERTER
MODULE**

JPL

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Agenda

Module Concept

Module Capabilities

Block Diagram

Hybrid Layout

Efficiency

Module Concept

- o **Contains the entire converter power and signal switching circuits**
- o **Provides high efficiency and high packaging density**
- o **Offers flexibility in design and application**
- o **Concept can be applied to any converter topology**
- o **Requires only a knowledge of linear circuits and systems for design**
- o **Converter compensation equivalent to Op-Amp stabilization**
- o **Offers dual use technology, NASA and Commercial applications**
- o **Provides vehicle for JPL/industrial partnership**

Module Capabilities

Topology:

- Isolated low voltage single-output de-to-de converters
- Supports multiple outputs where other outputs are lower power

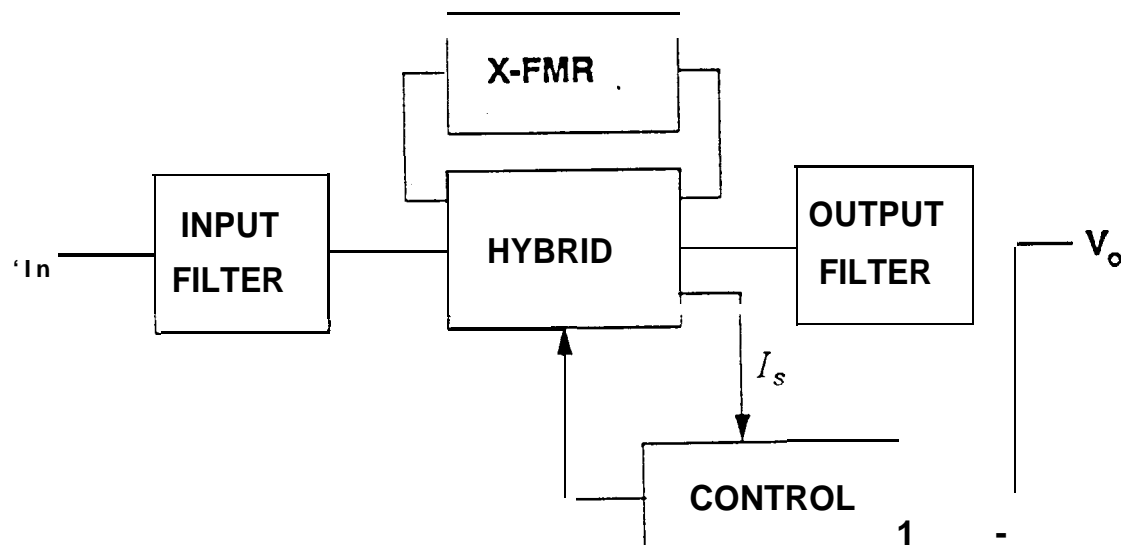
Applications:

- Input voltage range, 26 to 50 Vdc
- Output voltage range, 2.5 to 12 Vdc
- Output current, 0 to 10 Amperes up to 50 Watts
- Switching frequency 50 to 200kHz, Synchronized

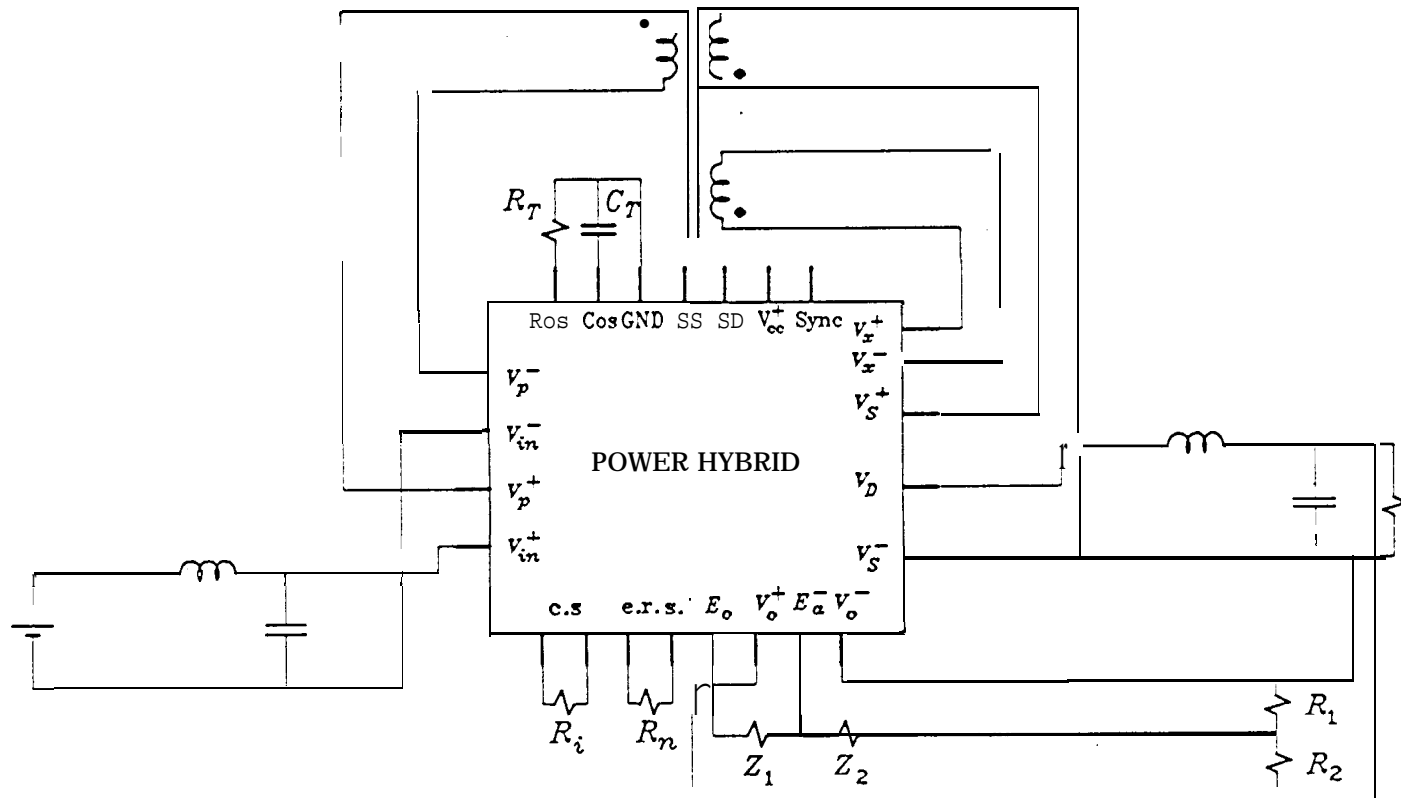
Efficiency:

- End-to-end converter > 90%, 8 to 30 Watts

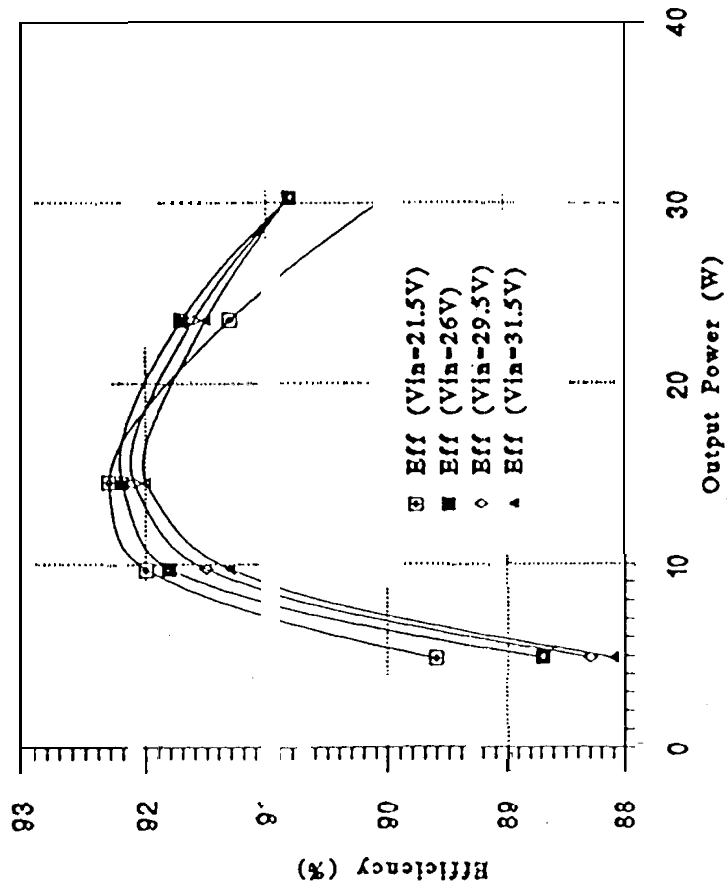
Block Diagram



Hybrid Layout



Efficiency Performance



Efficiency of a 5V output dc-to-dc converter