

# RAD<sup>®</sup> POLX-14P/S point of load DC/DC converters

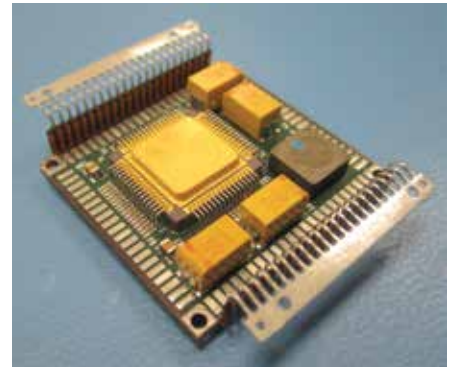
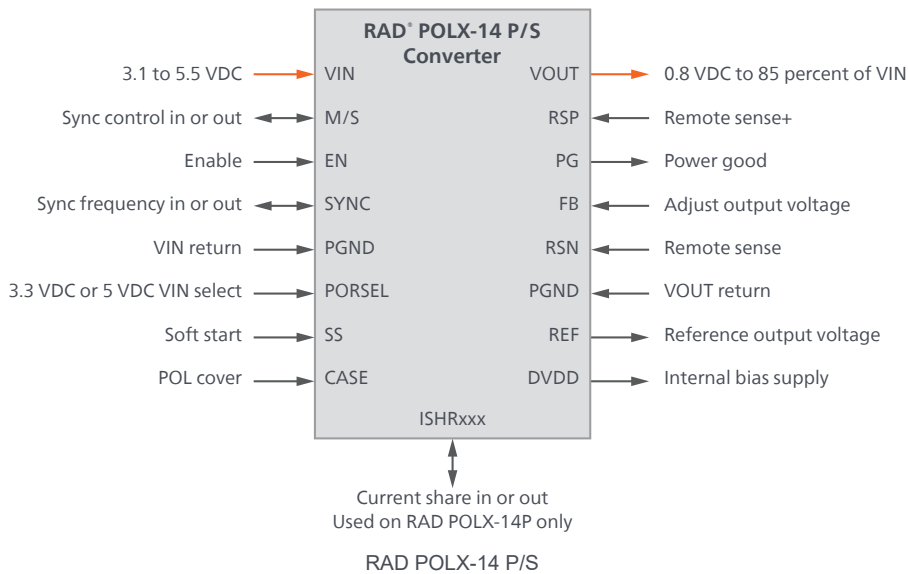
The RAD<sup>®</sup> POLX-14P and RAD<sup>®</sup> POLX-14S converters are fully integrated building blocks for today's digital space electronic modules.

They minimize non-recurring engineering and maximize space and routing channels for other electronic devices on the hosting motherboard module. These products enable efficient processing to meet the onboard requirements of the spacecraft environment.

The RAD-POLX-14P is designed for paralleling two POLs to increase current handling capacity up to 22A. The RAD-POLX-14S is for standalone applications and is physically smaller

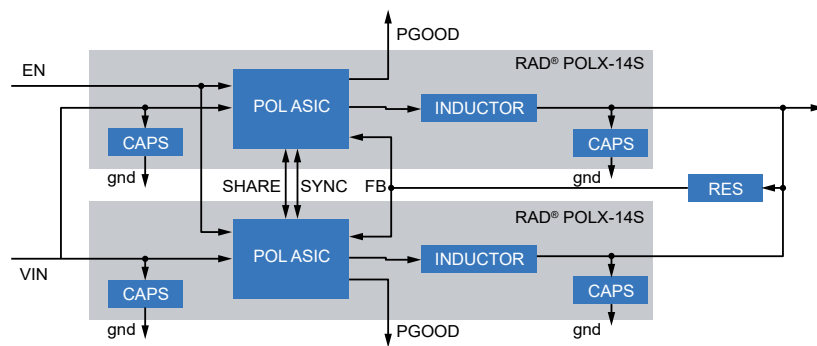


### Hardware block diagram



## Key features and benefits

- Converter is housed on eight-layer, two-ounce printed wiring board, minimizing voltage drop to maintain tight output voltage regulation
- Top and bottom thermal paths maximize efficiency for low power and thermal dissipation
- Acceptance test includes full functionality and temperature cycling, allowing worst case analysis and component stress analysis
- Input under-voltage lockout and over-current protection promotes efficient transient response
- Integrated power switches, magnetics, and stable power enables controlled circuitry
- Integrated space class 3a printed wiring board ensures ruggedness and quality construction
- With two paralleled POLs, up to 22A is available to provide support for high-current components



Typical current sharing application using two RAD<sup>®</sup> POLX-14S POLs

## Specifications

**Input voltage range:** 3.1 to 5.5 VDC

**Output voltage range**

0.8 VDC to 85 percent of input voltage up to 10A

0.8 VDC to 75 percent of input voltage up to 14A

**Output voltage regulation**

Static regulation  $\leq 2$  percent

**Output voltage ripple**

$\leq 40$  mVpp or 1 percent of output voltage

**Efficiency:** Up to 88 percent

**Temperature**

Operates at  $-55$  to  $+125$  degrees Celsius

**Radiation hardness**

High rate total ionizing dose: 50 krad (Si)

Enhanced low dose rate sensitivity: 50 krad (Si)

Single event latch up and single event burn out  
linear energy transfer: 86.4 MeV/mg/cm<sup>2</sup>

Single event transient linear energy transfer:  
86.4 MeV/mg/cm<sup>2</sup>

Single event functional interrupt:  
43 MeV/mg/cm<sup>2</sup>

**Configurations**

14 A standalone converter (-14S) – 44 pins

22A two parallel converters (-14P) – each 84 pins

Independent or phased/synchronized operation

Prototype or flight converters

**Power dissipation**

Standby power: 0.03 watts

Operational power: 0.5 watts to 10 watts at 85 degrees Celsius

**Package information**

Standalone daughter card (-14S)

44 pins on two sides

1.3 inches x 1.5 inches x 0.35 inches

0.58 ounces

Shareable daughter card (-14P)

84 pins on 4 sides

1.5 inches x 1.5 inches x 0.35 inches

0.59 ounces

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