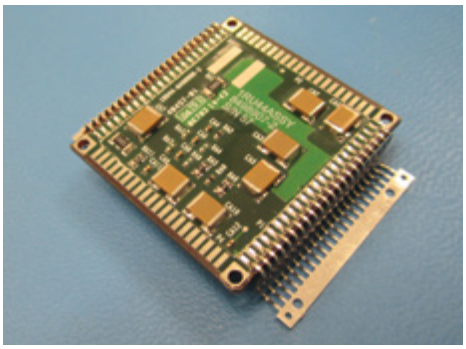
BAE SYSTEMS

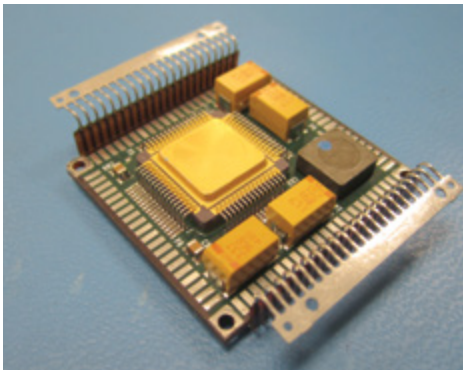
RAD® POLX-14P/S
point of load DC/DC converters

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

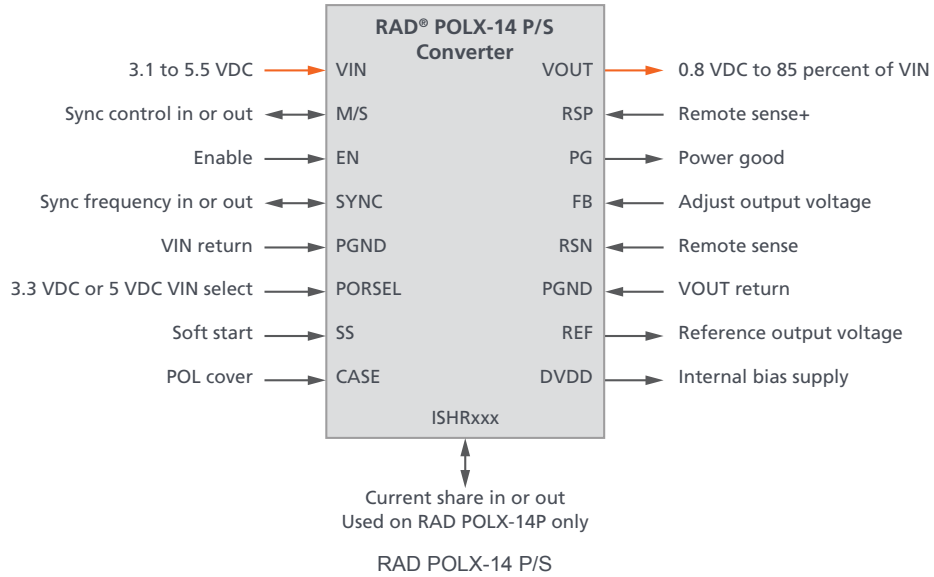
They minimize non-recurring engineering and maximize space and routing channels for other electronic devices on the hosting motherboard module. These products enable efficient processing to meet the onboard requirements of the spacecraft environment.

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





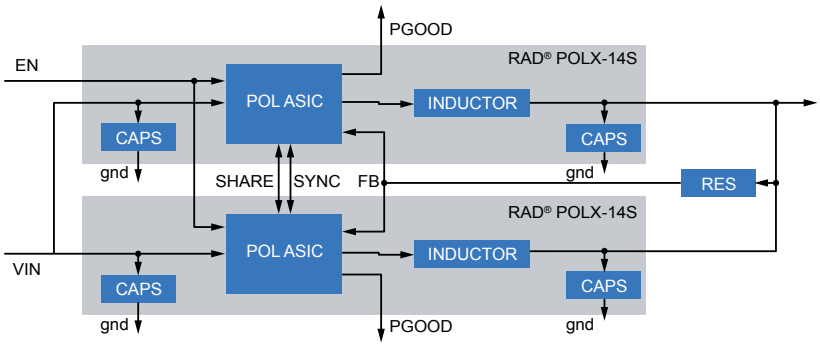
Hardware block diagram



RAD POLX-14 P/S

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® POLX-14S POLs

Specifications

Input voltage range: 3.1 to 5.5 VCDC
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 ≤2 percent
Output voltage ripple
≤40m Vpp or 1percent 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: 86.4MeV/mg/cm^2
Single event transient linear energy transfer: 86.4MeV/mg/cm^2
Single event functional interrupt: 43MeV/mg/cm^2
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

For more information contact:
BAE Systems
9300 Wellington Road
Manassas , Virginia 20110-4122
T: 571 364 7777
E: space.contact@baesystems.com
W: baesystems.com

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