Where Capacitors Impact

SATCOM LEO & GEO Systems



Evans GROUP

Power.
Precision.
Mission Life.

Technology Key

Evans: Hybrid Wet Tantalum

Paktron: Multilayer Polymer Film (stacked)

UTC: High-reliability Ceramic

Eulex: RF & High-frequency Ceramic

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For illustrative purposes only. System configurations and applications vary. Subsystem locations shown are representative and may vary by platform configuration. Product placement identifies potential areas of applicability and does not imply that Evans Group supplies, is qualified on, or is installed on every platform or subsystem shown.

1. Solar Array and Primary Power

CAPACITOR FUNCTIONS

- Solar-array input filtering
- MPPT converter decoupling
- Primary-bus ripple suppression
- Switching-transient control
- Array-deployment pulse support



BEST FIT TECHNOLOGIES

Evans: High energy density burst-power support for array deployment and control

Paktron: Low-ESR input/output filtering and snubbing for solar converters

UTC: Point-of-load decoupling and high-frequency converter filtering

2. Power Conditioning and Distribution

CAPACITOR FUNCTIONS

- DC/DC converter filtering
- Primary/secondary bus decoupling
- Point-of-load stabilization
- Load-step transient support
- EMI/RFI filtering



BEST FIT TECHNOLOGIES

Evans: Compact bulk energy storage for critical spacecraft buses

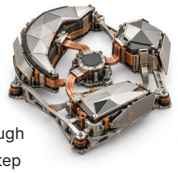
Paktron: DC-link filtering, ripple-current handling, and snubbing

UTC: Low-ESL decoupling, bypass, and high-frequency filtering

3. Energy Storage and Eclipse Hold-Up

CAPACITOR FUNCTIONS

- Peak-power support
- Eclipse-transition hold-up
- Battery-bus stabilization
- Safe-state and payload ride-through
- Inrush and load-step support



BEST FIT TECHNOLOGIES

Evans: Compact power hold-up / ride-through support for critical SATCOM loads

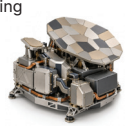
Paktron: Low-ESR filtering and transient suppression at storage interfaces

UTC: High-reliability decoupling and local pulse support

4. Communications Payload and Beamforming

CAPACITOR FUNCTIONS

- RF DC blocking and coupling
- Beamformer/ T-R rail decoupling
- PA bias and bypass filtering
- LNA/front-end stabilization
- Burst-load and pulse support



BEST FIT TECHNOLOGIES

Evans: High current pulse support for RF payloads and beam control electronics

Paktron: Filtering/snubbing, DC-Block

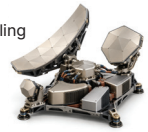
UTC: Low-ESL decoupling for beamformer control, PA bias, and converters

Eulex: Low-loss matching, coupling, DC blocking, and RF bypass

5. User Feeder and TT&C Links

CAPACITOR FUNCTIONS

- RF matching and tuning
- User/feeder-link DC blocking
- Transceiver power filtering
- Modem and TT&C decoupling
- Data-link hold-up



BEST FIT TECHNOLOGIES

Evans: Hold-up support for user, feeder-link, and TT&C electronics

Paktron: Filtering/EMI reduction in power stage, high thermal stability for timing

UTC: Low-ESL decoupling for transceivers, modems, and control processors

Eulex: Low-loss matching, coupling, DC blocking, and RF filtering

6. Onboard Processing Routing and Timing

CAPACITOR FUNCTIONS

- Processor/FPGA decoupling
- Clock and reference stability
- ADC/DAC rail filtering
- Memory and safe-state hold-up
- High-speed I/O noise control



BEST FIT TECHNOLOGIES

Evans: Compact backup and hold-up for routing, memory, and safe-state control

Paktron: High stability for timing circuits, filtering for power delivery

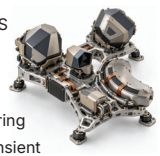
UTC: Low-ESL decoupling and precision filtering for processors and timing

Eulex: High-frequency bypass and clock/signal coupling

7. Attitude Orbit and Thermal Control

CAPACITOR FUNCTIONS

- Reaction-wheel drive filtering
- Star-tracker/GNSS decoupling
- Pump and heater switching control
- Control-loop filtering
- Regenerative-transient control



BEST FIT TECHNOLOGIES

Evans: Peak-power and hold-up support for actuator and thermal-control loads

Paktron: DC link and BLDC drive applications

UTC: Low-ESL decoupling for navigation sensors and control electronics

8. Propulsion and Station Keeping

CAPACITOR FUNCTIONS

- Thruster power-processing filtering
- High-voltage DC-link support
- Valve and actuator drive filtering
- Startup and burst-load support
- Transient and ripple suppression



BEST FIT TECHNOLOGIES

Evans: Low ESR energy storage for thruster and orbit control electronics

Paktron: High-voltage ripple filtering and snubbing in power processors

UTC: High-voltage filtering, decoupling, and pulse support

THE EVANS GROUP ADVANTAGE

LEO & GEO Power Density
Compact stored energy and hold-up for mass- and volume-constrained spacecraft.

Power Integrity
Low-ESR and high-ripple current ratings support stable conversion and distribution.

SATCOM RF Performance
Low-ESL matching, coupling, DC blocking, and filtering across RF paths.

Mission Life
Rugged capacitor technologies for launch, radiation, thermal cycling, and long service.