ASTEROID ESPA GRANDE CLASS SMALL SPACECRAFT BUS



ASTEROID is an ESPA Grande Class Small Spacecraft Bus product family used for a variety of missions in LEO (<600 km). ASTEROID is ideal for telescope-based missions leveraging its Ø36" x 54" hollow internal volume. ASTEROID leverages the same core avionics from Moog's Space Vehicle family that have been demonstrated in missions from LEO to the Moon. Agile platform with no deployables reduces any





jitter. The simple and robust all aluminum structure provides stiffness, radiation shielding, and stable thermal environment.

KEY FEATURES

- Avionics leveraging Moog's BRE440[™] Rad-Hard CPU
- LEO up to 600 km with 3-5 year life
- Flexible flight software is payload and mission configurable
- 3-Axis stabilized platform with reaction wheels and torque rods
- Single string but layered GNC sensor suite provides resiliency
- Ideal for ESPA Grande rideshare launches





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Moog Space and Defense	@MoogSDG	@MoogSDG	@MoogSDG	@MoogInc

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CharacteristicPerformance / interfacesOrbitUp to 600 kmMission Life3-5 yearsRadiation25.5 kRad total dose with 0.200" Al shieldingRadiation EffectsAvailability due to SEU of >99% over 1 yearExample Payload Power (Orbit and Mission Dependent)25 W OAP Payload PowerBus Mass150 kg Bus Dry MassBus Volume42" x 46" x 56" height (or radial direction if on ESPA)Orbital Position Knowledge<5 mAttitude Knowledge Telemetry Accuracy<10 arc-sec (1 sigma)Pointing Accuracy<10 arc-sec (1 sigma)Attitude (Pointing) Stability/JitterJitter < 1 arc-secVelocity Accuracy0.1 m/sMaximum Slew Rate>1 deg/secDelta-VNone – No PropulsionPayload Interfaces (Data)2 x SpaceWire, 4xDiscretes, 1 x GPS 1PPS (via LVDS)Payload Interfaces (Mechanical)Ø36" x 54" internally mounted to BusPayload Interfaces (Mechanical)Ø36" x 54" internally mounted to BusPayload Mass100-150 kg	SPECIFICATIONS			
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Orbital Position Knowledge<5 mAttitude Knowledge Telemetry Accuracy<10 arc-sec (1 sigma)	Bus Volume	42" x 46" x 56" height (or radial direction if on ESPA)		
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	Payload Mass	100-150 kg		





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