



Astera Technologies Corporation

Executive Summary

January 2026

Overview

Astera Technologies is an advanced materials and photonics infrastructure company focused on the commercial production of crystalline, monolayer graphene substrates engineered for next-generation photonic computing, AI acceleration, and high-performance optical systems. The company's mission is to remove the material bottleneck preventing photonic computing from scaling into real-world deployment.

The Problem

Photonic computing promises step-function improvements in speed, energy efficiency, and thermal performance. However, commercialization remains constrained by the lack of scalable, defect-controlled, wafer-grade graphene substrates capable of supporting nonlinear optical effects, ultrafast switching, and stable photonic interfaces. Silicon and conventional materials are reaching fundamental limits.

The Solution

Astera has developed a proprietary, vertically integrated pathway to produce epitaxial-grade, crystalline monolayer graphene from low-cost carbon feedstocks using Flash Joule processing and MA-PECVD growth on engineered substrates such as boron nitride buffers on sapphire. This approach enables wafer-scale manufacturability, photonic foundry compatibility, and structurally lower costs.

Technology Advantage

Astera's materials-first strategy optimizes graphene specifically for photonic performance, enabling tunable nonlinear optical properties, ultrafast switching, superior thermal conductivity, and the stability required for commercial deployment.

Market Opportunity

Astera operates at the convergence of AI infrastructure, photonic computing, and advanced materials, addressing a multi-billion-dollar opportunity across photonic processors, AI data center acceleration, defense, aerospace, secure communications, and advanced sensing.

Business Model

Astera follows a dual-track commercialization model consisting of direct graphene substrate sales and IP licensing or joint development partnerships with device manufacturers and system integrators.

Strategic Positioning

Astera is aligning with photonic computing partners and foundries to become a critical upstream materials supplier as photonics transitions from research to deployment, prioritizing wafer commercialization and foundry readiness.

Capitalization Overview (SAFE + Round A)

SAFE Financing: \$2.0M YC-style SAFE with a \$50.0M valuation cap and 20% discount, converting automatically at the close of Round A. Implied SAFE conversion price is approximately \$1.67 per share, resulting in approximately 1.2M shares issued.

Holder	Shares	% Ownership
Founders	30,000,000	96.2%
SAFE Investors	1,200,000	3.8%
Total Outstanding	31,200,000	100%

Round A Financing: \$10.0M equity raise at a \$70.0M pre-money valuation, priced at \$2.50 per share, issuing 4.0M new shares. Post-money valuation is \$80.0M.

Holder	Shares	% Ownership
Founders	30,000,000	85.2%
SAFE Investors	1,200,000	3.4%
Round A Investors	4,000,000	11.4%
Total Outstanding	35,200,000	100%

Vision: Astera Technologies aims to become the foundational materials platform for photonic computing, enabling a future where photons—not electrons—define performance, efficiency, and scale.

How S.A.F.E. Investors Win

This illustrates how S.A.F.E. investors in Astera Technologies realize significant upside through early-stage participation, disciplined valuation structure, and a clear path to liquidity via a public offering.

S.A.F.E. Investment Terms (Locked)

- Investment Amount: \$2,000,000 total or \$250,000 each
- Valuation Cap: \$50,000,000 (pre-money)
- Founder Shares (pre-S.A.F.E.): 30,000,000
- Implied Conversion Price: ~\$1.67 per share
- Shares Issued at Conversion: ~1,200,000

IPO Scenario (Illustrative)

- Timing: ~24 months from investment
- IPO Share Price: \$12.00

S.A.F.E. Investor Outcome at IPO

At an IPO price of \$12.00 per share, the S.A.F.E. investor's approximately 1,200,000 converted shares would be valued at \$14,400,000.

Return Summary

- Initial Investment: \$2,000,000
- Value at IPO: \$14,400,000
- Gross Gain: \$12,400,000
- Multiple on Invested Capital (MOIC): ~7.2×
- Approximate Annualized IRR (24 months): ~168%