ZITHA TECH SPECIALTY CABLES (Pty) Ltd

EML Project Quotation for Optical Active Power Grid



Overview

EML Optical Transmitter, 10G/40Gbps Electro-absorption Modulated The EML (Electro-absorption Modulated Laser) transmitter evaluation board consists of a co.

Key Takeaways

A project quotation for an EML-based optical active power grid should include device selection, optical output specifications, evaluation boards, and integration costs.1. EML Device Selection

For high-speed optical communication in power grid applications, EML chips are preferred due to their high modulation efficiency, low power consumption, and stable long-distance transmission . Key parameters to consider:

• Laser Diode (LD): Continuous-wave source, typically DFB type.

• Electroabsorption Modulator (EA): Modulates light intensity for data encoding.

• Optical Output Power: For high-power applications, EMLs with 11–15 dBm output are recommended .

• Wavelength: Commonly 1.3–1.55 µm for long-haul fiber compatibility.
2. Performance Specifications
• Modulation Speed: 10–50 Gbps depending on grid monitoring and control requirements .

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• Extinction Ratio (ER): 4–8 dB for clear signal quality.

• Thermal Management: Buried structures in InP improve current injection and heat dissipation, enhancing reliability .

• Integration with SOA: Optional semiconductor optical amplifier (SOA) can boost output power and improve eye diagram quality .

3. Evaluation and Prototyping

• Evaluation Boards: Boards like EV5490-C-00A provide high-accuracy current sources and EML bias control, simplifying testing and integration .

• Interface Kits: USB-I2C or similar kits allow real-time monitoring of current and temperature for system optimization.

4. Cost Considerations

A quotation should include:

• EML chips: Unit cost varies with output power and wavelength.

• Evaluation boards and interface kits: Typically $500–$1000 per board, depending on supplier and configuration .

• Integration and testing: Labor and calibration for optical power grid deployment.

• Shipping and logistics: Consider lead times and limited inventory for high-power EMLs.

5. Optional Enhancements

• High-power EML-SOA integration for improved signal-to-noise ratio.

• Custom submounts for thermal and mechanical stability.

• Monitoring electronics for real-time optical power and temperature feedback.

Summary

A complete EML project quotation for an optical active power grid should cover device selection, optical output and modulation specifications, evaluation boards, integration costs, and optional enhancements. High-power EMLs with buried InP structures and optional SOA integration provide reliable, high-speed optical performance suitable for modern power grid monitoring and control systems .

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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