Company Overview

Vision

AEON is a leading supplier of specialty fiber-optic amplification solutions for Telecom and Industrial markets

Business Overview

Founded: 2000 as part of Alphion
Independent business unit of the Alphion group since 2013
Approx. 150 employees worldwide

Headquarters: Princeton Junction, NJ

Market: Telecom, Datacom, Medical, Sensors, Test & Measurements

Products: Discrete and Integrated Photonic Devices; Largest market share of SOAs

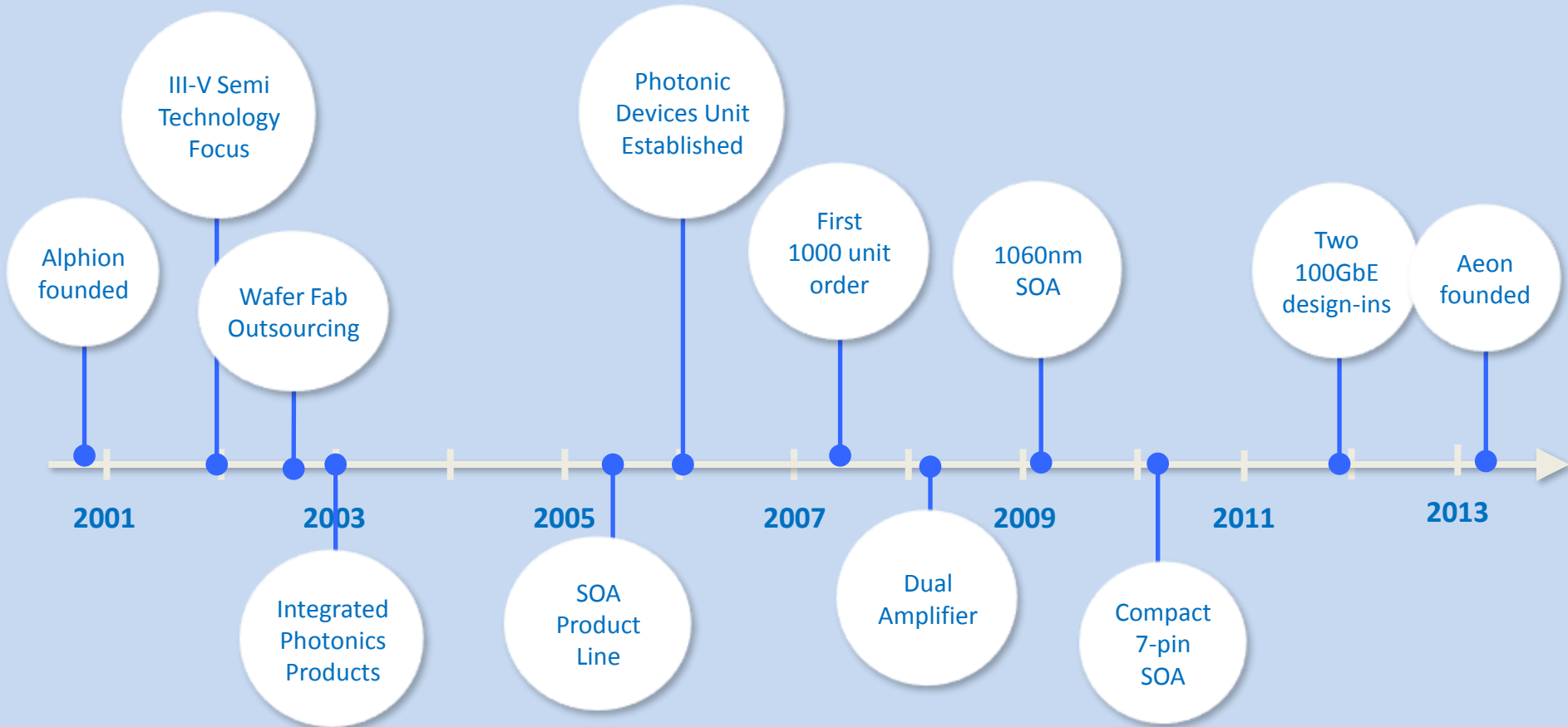**Business Model:** Fabless; Cleanroom for wafer post-processing and packaging

Patents: 28+ issued/pending patents

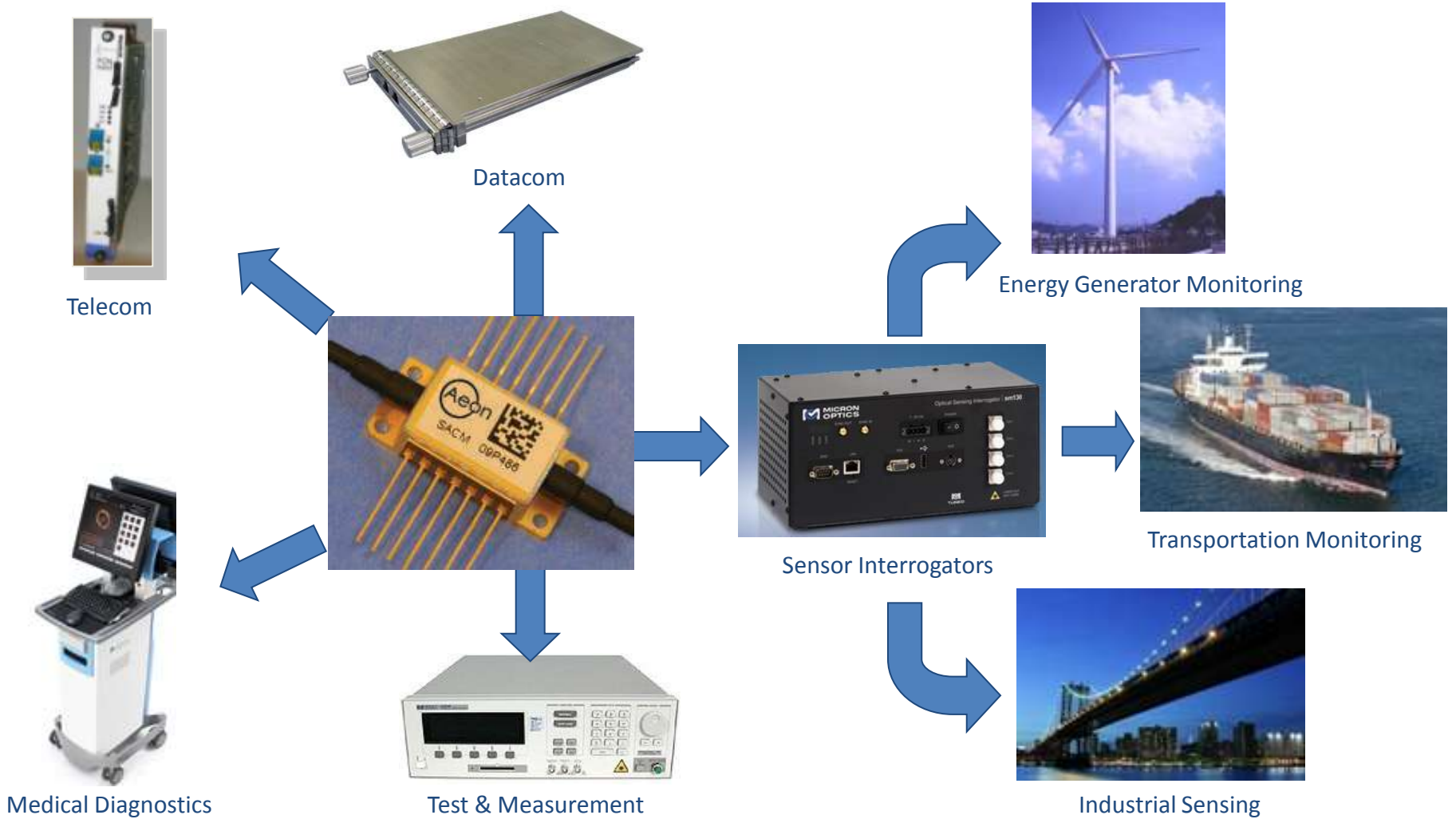**Customers:** 100+ customers world wide; Products in deployment over 10 years
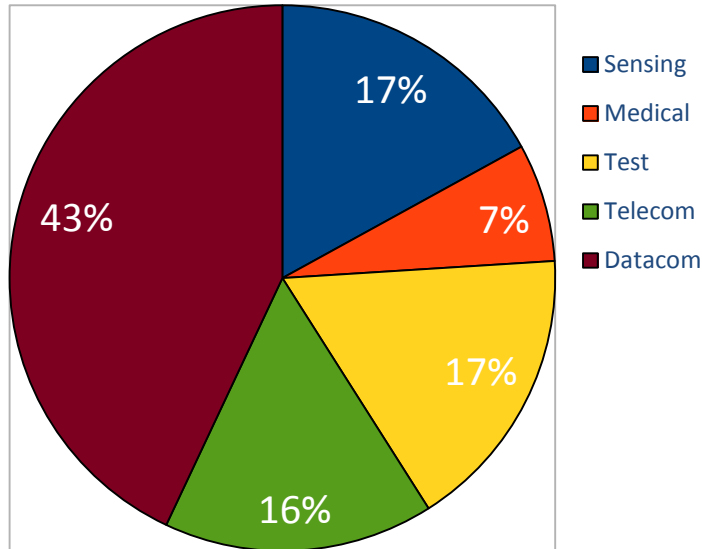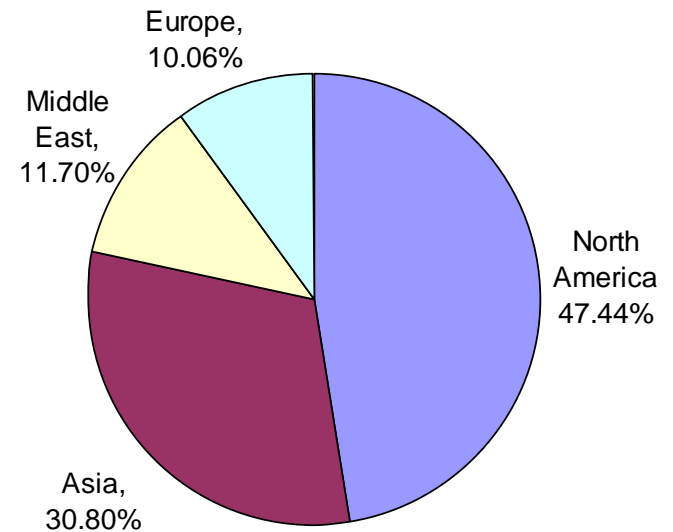
History of Device Business

Alphion founded

III-V Semi Technology Focus

Wafer Fab Outsourcing

Integrated Photonics Products

Photonic Devices Unit Established

SOA Product Line

First 1000 unit order

Dual Amplifier

1060nm SOA

Compact 7-pin SOA

Two 100GbE design-ins

Aeon founded

2001   2003   2005   2007   2009   2011   2013

Markets

Telecom

Datacom

Energy Generator Monitoring

Transportation Monitoring

Sensor Interrogators

Industrial Sensing

Medical Diagnostics

Test & Measurement

Current State of Business

Over 100 customers in 24 countries

Revenue by Market Segment

- Sensing — 17%
- Medical — 7%
- Test — 17%
- Telecom — 16%
- Datacom — 43%

Revenue by Region

- Europe, 10.06%
- Middle East, 11.70%
- North America 47.44%
- Asia, 30.80%

Aeon Photonic Devices in field for over 10 years carrying live service

Aeon's Strengths

- **Photonic Device Design**
  - Amplifiers, Lasers, Detectors
  - Monolithic Photonic Integrated Circuits
  - Splitters
  - Diplexers, Triplexers

- **Automated Photonic Device Test**
  - Amplifiers, Lasers, Detectors
  - Splitters
  - Transceivers
  - WDM modules

- **Facilities**
  - Class 1000/10000 cleanroom

- **ISO-9001:2008 Certified**

- **Photonic Semiconductor Manufacturing**
  - Wafer post-processing
  - Thin-film coating
  - Chip-on-carrier fabrication and test
  - High-reliability optoelectronic packaging
  - Multi-fiber I/O packaging

- **Outsourcing partnerships**
  - Semiconductor wafer fab
  - High-volume assembly

- **Sales**
  - North America: Direct
  - RoW: Resellers/Distributors

Technology & Applications

Photonic Device Markets

Telecommunications

- Data Communications
  - 40G WDM
  - 100GbE
  - 400GbE
  - Optical Packet Switching

- Access Networks
  - PON extension (G984.6)
  - 10G-EPON (802.3av)

- Long Haul Networks
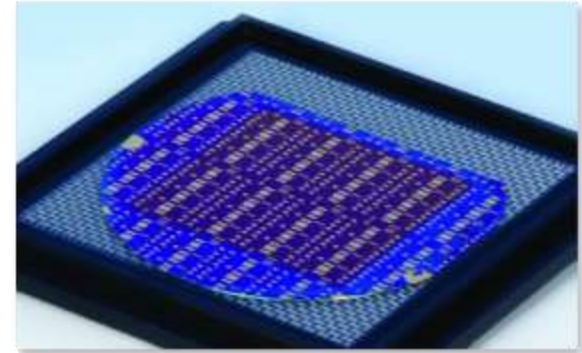 - DWDM optical supervisory channel

Sensors and Measurement

- Industrial Sensing
  - Wind energy
  - Transportation
  - Civil engineering
  - Oil & Gas exploration

- Medical Imaging
  - Retinal scanning
  - In-situ patient monitoring

- Test & Measurement
  - Broad Band Light Sources
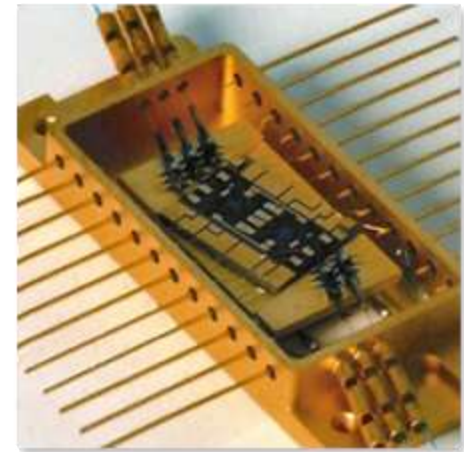 - Widely Tunable Lasers
  - Lab Amplifiers

QLight® Technology

Robust Device Platform

- Broad wavelength coverage
  - 1000nm to 1620nm Options
- High-quality optical performance
- Advanced monolithic integration
- Proven semiconductor technology
  - Designed for manufacturing and reliability
  - Multi-sourced wafer fabrication

Advanced Packaging

- Multi-fiber I/O
- Telecom-grade quality and reliability
- Hermetic and organics-free
- Design and process for repeatability
- Multi-sourced assembly operations

SOAs in Sensor Interrogator Lasers

SOA is preferred gain medium for tunable sources

- Large bandwidth ensures wide tunability/sweep range

- Same design supports multiple wavelength ranges
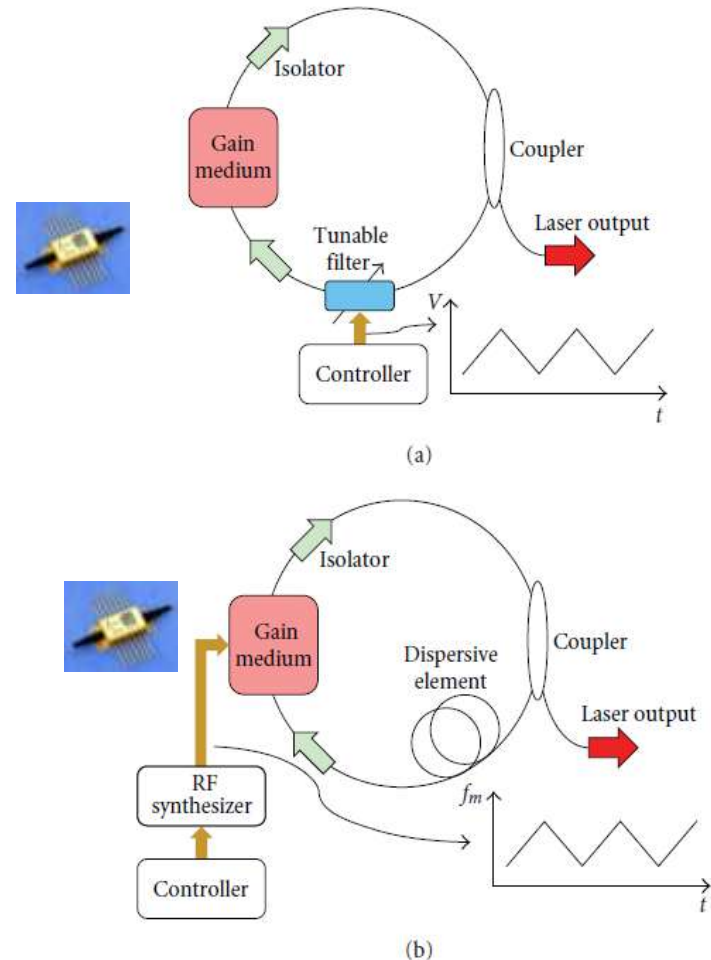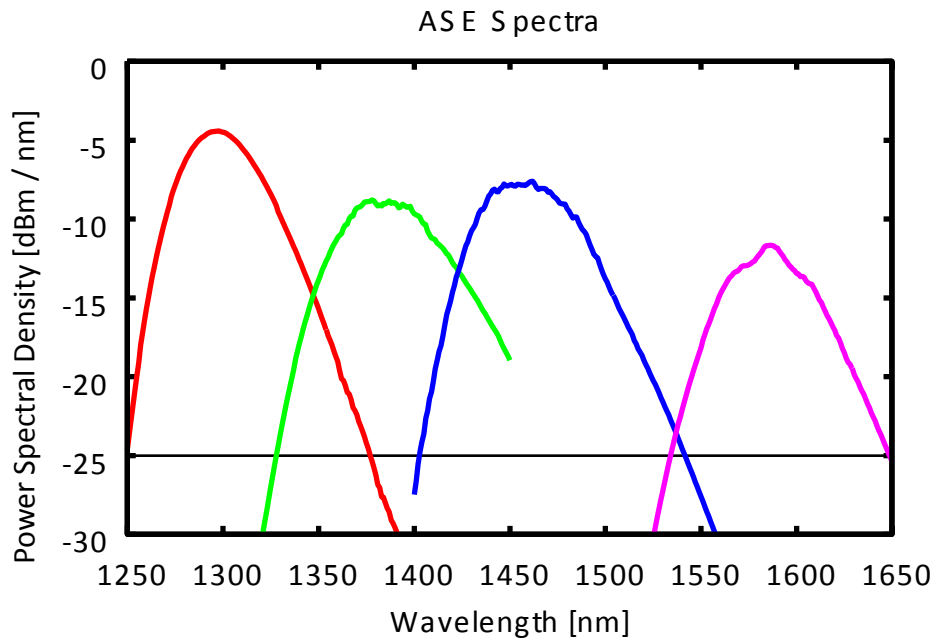
- Compact and highly manufacturable designs

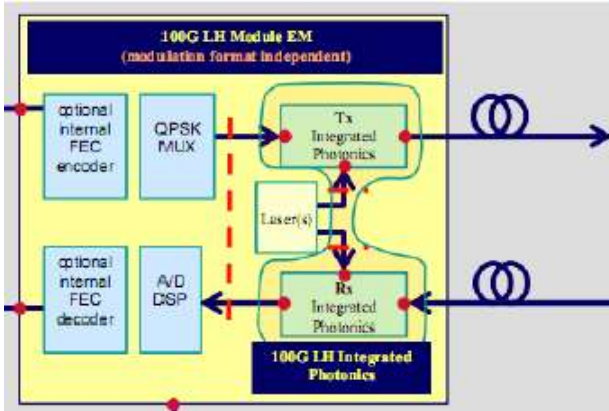FIGURE 2: Wavelength-swept fiber lasers: (a) tunable filter-based laser (b) dispersion-tuned laser.

SOA in Broad-Band Light Source

- ◆ T&M Application

- ◆ Use 4 devices to cover band 1250 – 1650 nm
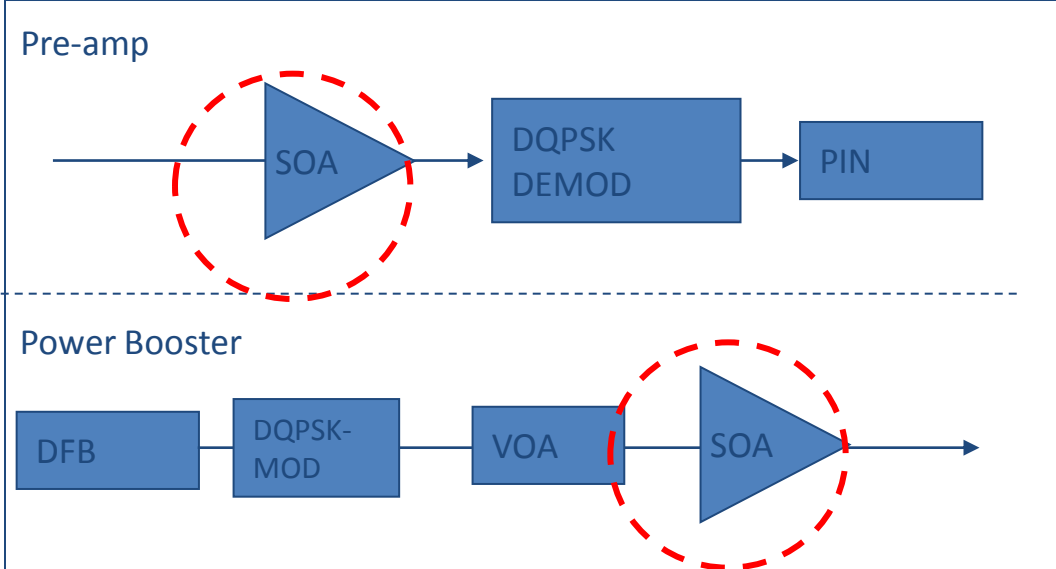
- ◆ Only SOA can deliver this type of coverage

ASE Spectra

SOAs in 40G Transponders (Telecom)

100G LH Module EM (modulation format independent)

40G MSA 300 pin module

Pre-amp

SOA → DQPSK DEMOD → PIN

Power Booster

DFB → DQPSK-MOD → VOA → SOA

- ◆ Low-power consumption, compact SOA is optimal for 300-pin MSA module
- ◆ SOA extends the reach by amplifying DQPSK modulated 40G signal
- ◆ SOA can be used as preamplifier or power booster
- ◆ Same design can be used for C- and L-band transponders
- ◆ Design win with Tier-1

SOA in 100GbE/400GbE (Datacom)

IEEE 802.3ab Standard calls for 1310nm SOA in 100GBASE-ER4 transceivers

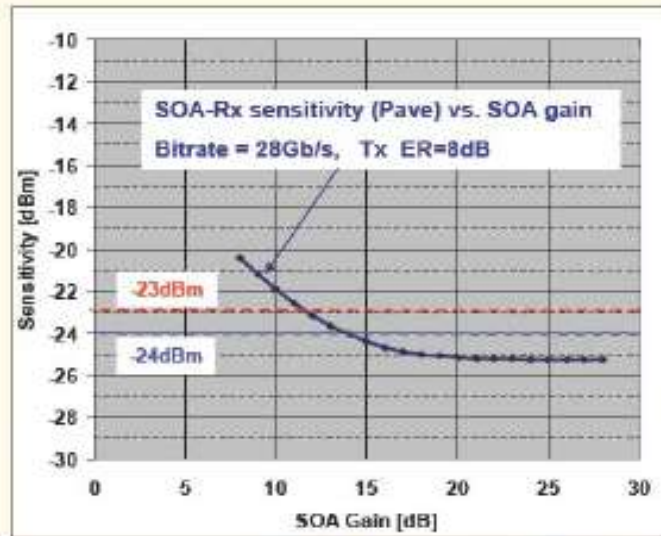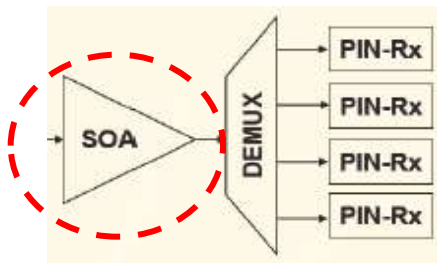Emerging 400GBASE standard requires SOA in IR/LR/ER versions

SOA is key enabler in these products

Aeon SOA designed in at two Tier-1 customers

SOA is indispensable!

SOA-Rx sensitivity (Pave) vs. SOA gain
Bitrate = 28Gb/s, Tx ER=8dB

Thank You

www.aeoncorporation.com