

Single Mode Fast Ethernet Optical Transceivers IEEE-802.3? Discussion



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Single Mode Fast Ethernet Optical Transceiver Issues

No IEEE 802.3 SM FE Specifications Exist

Customers Typically Reference OC-3 / STM-1 Components (ITU-G.957/8)

- Interoperability of OC-3 / STM-1 components is well proven
- 15 Km link standards in ITU-G.957 are well accepted
- Jitter and BER requirements are well defined
- Fiber specifications are well defined
- Off the shelf test equipment already exists
- Extended temperature range components already in widespread use

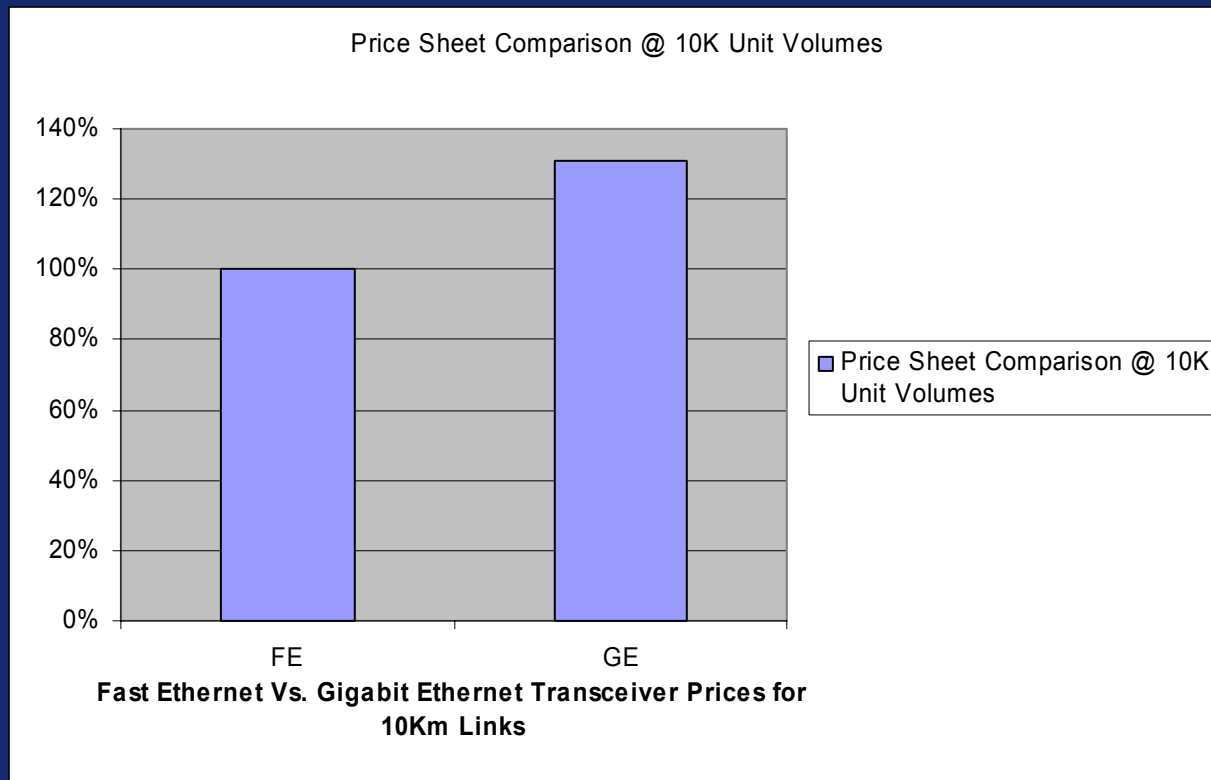
OC-3 Vs. Gigabit Ethernet Single Mode RX Technical Comparison

- OC-3 PIN Diodes offer excellent performance in SM FE applications
- Lower bandwidth permits larger aperture size PIN and higher sensitivity
 - OC-3 -34dBm RX typical instead of GE -20dBm RX typical
 - Large aperture size PIN permits passive alignment at transceiver assembly

OC-3 Vs. Gigabit Ethernet Single Mode TX Technical Comparison

- Higher sensitivity enables significantly lower launch power requirements
 - OC-3 -15dBm TX Min instead of GE -9.5dBm TX Min
 - Reduced overall power consumption
 - Reduced eye safety issues
- OC-12 Laser Diodes offer excellent performance in SM FE applications but marginal performance in SM GE applications
 - Binning for higher power output
 - Reflection issues
- Overall link budget is more robust (OC-3 -13dB Min instead of GE -10.5dB Min)

OC-3 vs. GE XCVR Price Sheet Comparison



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Fast Ethernet Vs. Gigabit Ethernet Silicon Comparison

Fast Ethernet

- Octal PHY providers
 - Broadcom
 - Intel
 - Marvell
 - ST Micro
- Integrated link status indicators with LED drivers
- Same silicon as UTP parts
 - Volume drives lower costs
 - Process improvements shared

Gigabit Ethernet

- Quad SerDes Max
 - AMCC
 - Vitesse
 - Agilent
- Link status LED drivers not integrated
- Different silicon than UTP products
 - No benefit of UTP volumes
 - Independent process development
- Significantly higher power requirements per port

Stratos IEEE-802.3? SMF Fast Ethernet Recommendations

Continue Reliance On Proven OC-3 Components And Specifications

- Eliminate half duplex FE option
- Raise min. RX sensitivity requirement to -32dBm (Same as FE/MM requirement) for robust link operation in high maintenance cost environment
- Maintain -15dBm min. launch power (Same as OC-3 SR/IR requirement) for robust link operation in high maintenance cost environment