advanced media technologies®

MODEL

Starline® GaN Hybrid Nodes and Amplifiers

SG4, MBN, BT, MB, MBV3, BLE AND BLN STARLINE 1GHZ NODES AND AMPLIFIERS WITH GAN

Benefits Include:

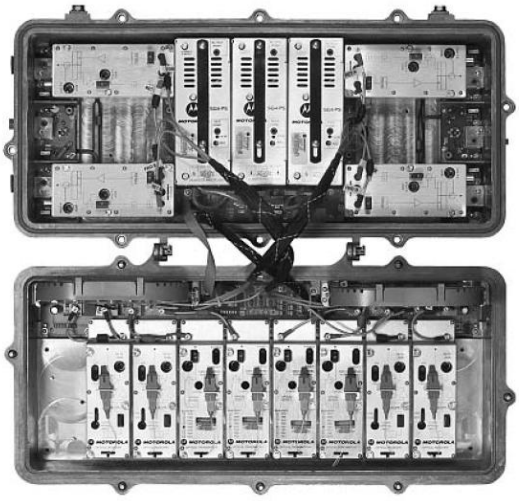
- Higher output levels
  - Up to 60 dBmV in Node @ 1 GHz
  - Up to 48 dBmV in Amplifiers @ 550 MHz
- Increased slope capabilities
  - Up to 18 dB in Nodes
  - Up to 18 dB in Amplifiers

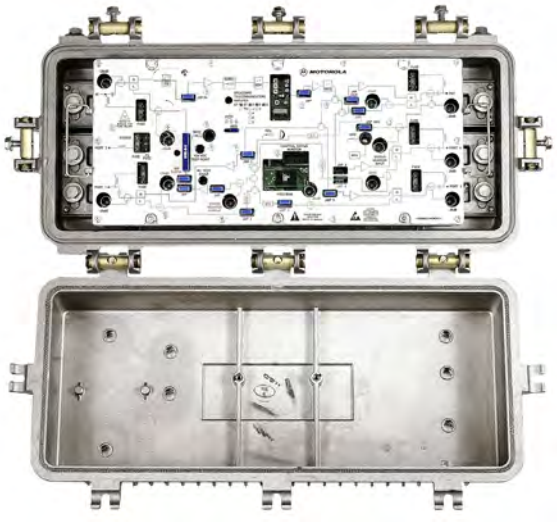
CapEx:

- Active Cost and Installation Cost
- Fiber and/or Cable Cost and Installation Cost
- RF and Optical Passives
- Connectors
- Accessories

OpEx:

- Maintenance
- Repair
- Powering





Motorola's STARLINE 1 GHz Node and Amplifiers have implemented Gallium Nitride hybrid technology to increase output levels and farther RF reaches.

Motorola's STARLINE 1 GHz Nodes and Amplifiers now feature Gallium Nitride (GaN) Output Hybrids to allow for an increased drive level while maintaining existing specifications. By implementing GaN based gain blocks together with our patented hybrid circuit technology, Motorola is once again taking the lead in providing the highest available RF output levels for cable operators driving fiber deeper into their networks. Motorola's GaN technology makes fiber deep architectures more affordable by reducing the number of active components in a network and extending the available reach of each active.
The GaN hybrid technology allows for 3 dB of increased drive level over the existing Galium Aresenide (GaAs) technology (see Figure 1). The GaN technology also provides for higher reliability of the products by increasing the Electro Static Discharge (ESD) levels similar to Silicon (Si) technology.

When building your network with Motorola's Gallium Nitride enhanced Nodes and Amplifiers you can realize significant cost savings in capital expenditure (CAPEX) and operating expenditures (OPEX). In system level designs, we can demonstrate up to 10 percent CAPEX and 20 percent OPEX reductions when using GaN over GaAs Nodes and Amplifiers for some applications. N + 0 designs can also benefit significantly by enabling higher drive levels to service more homes where typical GaAs and Silicon designs will require an amplifier after the node. Older systems can also benefit from a much lower re-spacing of network actives in a frequency expansion upgrade than can be accomplished today.

Implementation and System Design

Please contact your sales representative to understand the system design cost benefits when using GaN products and design implementation.

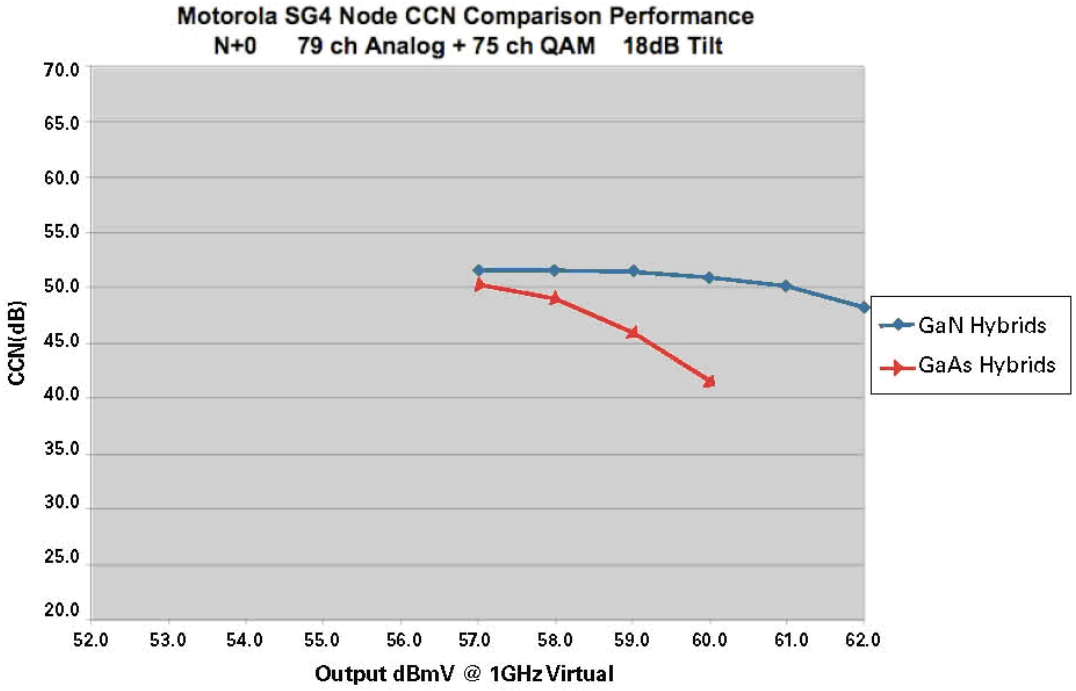


Figure 1. Motorola SG4 Node CCN Comparison Performance

Node Specifications

Parameter	Specification	Conditions
CSO	–62 dBc	51 dBmV @ 550 MHz, analog loading from 55 – 550 MHz, and digital loading from 550 – 1003 MHz, virtual analog channel measures 60 dBmV @ 1003 MHz with 18.0 dB of slope
CTB	–60 dBc	
CCN	50 dB	

Amplifier Specifications

Parameter	Specification	Conditions
CSO	–69 dBc	48 dBmV @ 550 MHz, analog loading from 55 – 550 MHz, and digital loading from 550 – 1003 MHz, virtual analog channel measures 57 dBmV @ 1003 MHz with 18.0 dB of slope
CTB	–70 dBc	
CCN	56 dB	

Typically > 47 dB CCN with All Digital QAM load @ 1 GHz 60 dBmV virtual output with 18 dB of tilt.

Specifications are subject to change without notice.

MOTOROLA