

# STARLINE<sup>®</sup> GaN Hybrid Nodes and Amplifiers

## 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

## SG4, MBN, BT, MB, MBV3, BLE and BLN Starline 1 GHz Nodes and Amplifiers with GaN

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 Gallium Arsenide (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 a study comparing a Node plus two amplifier (N + 2) system with GaAs versus GaN we can demonstrate up to 22% CAPEX and 18% OPEX. 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 amplifiers 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.

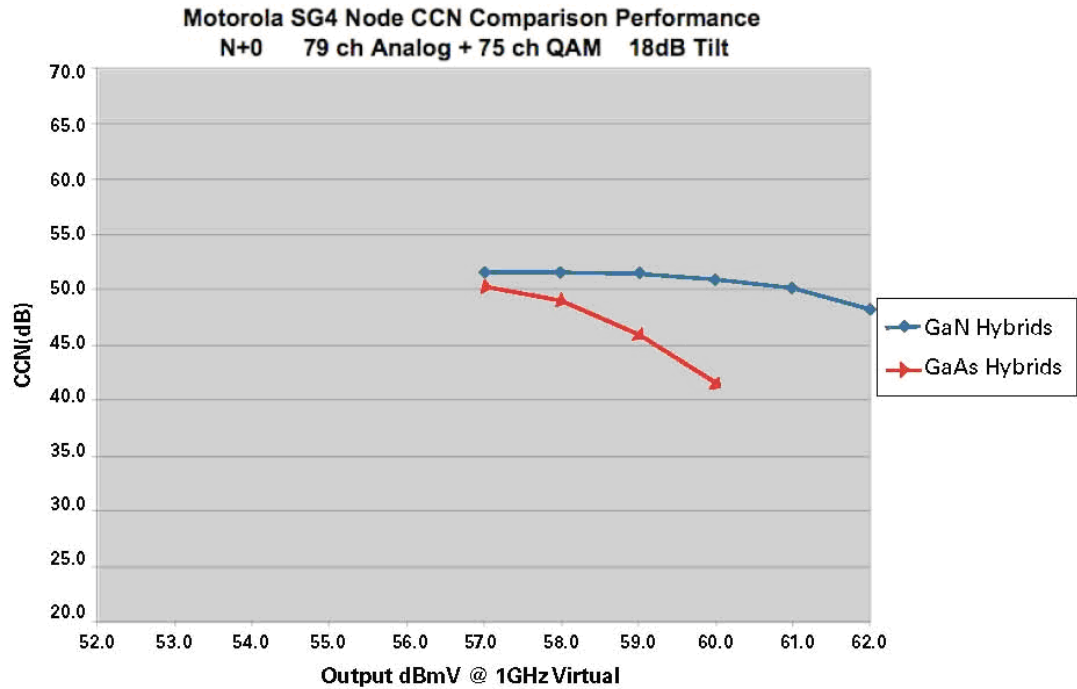


Figure 1. Motorola SG4 Node CCN Comparison Performance

### Node Specifications

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

### Amplifier Specifications

Parameter	Specification	Conditions
CSO	-69 dBc	48 dBmV @ 550 MHz, analog loading from
CTB	-70 dBc	55 – 550 MHz and digital loading from
CCN	56 dB	550 – 1003 MHz, virtual analog channel
		Measures 57 dBmV @ 1003 MHz
		18 dB of Slope



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