



Partners from RF to Light

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MACOM's Comb Generator Portfolio Delivers Industry-Leading Phase Noise Performance

- | MLPNC Series comb generators provide superior phase noise performance up to 20 dBc/Hz better than conventional SRD-based solutions
- | Plug-and-play, monolithic NLTL-based comb generators simplify design cycles by eliminating complex SRD-based harmonic generation circuitry
- | Solutions will be showcased at IMS 2018 in booth #1125

LOWELL, Mass.--(BUSINESS WIRE)-- [MACOM Technology Solutions Inc.](#) ("MACOM"), a leading supplier of high performance RF, microwave, millimeterwave and photonic solutions, today announced a portfolio of [Non-Linear Transmission Line \(NLTL\) comb generators](#) optimized to meet the demanding performance requirements of radar transceiver, VSAT and microwave radio applications. Featuring the lowest phase noise in the industry today, MACOM's MLPNC Series comb generators deliver superior performance and ease-of-design compared to conventional step recovery diode (SRD) based offerings.

This press release features multimedia. View the full release here:
<https://www.businesswire.com/news/home/20180611005299/en/>



The industry-leading phase noise performance delivered by MACOM's MLPNC Series comb generators is expected to significantly improve the overall performance of RF multiplier modules, complemented by a variable low input power profile (18 - 24 dBm) that relaxes the power requirements on power amplifiers and reduces overall power consumption. MLPNC Series comb generators also enable higher harmonic power at higher frequencies, in contrast with SRD-based comb generators whereby output power rapidly rolls off above 20 GHz. (Photo: Business Wire)

based devices. No bias or tuning is required, and the wide input frequency range extends from 75 - 1500 MHz across the portfolio, enabling the use of a single comb generator for multiple designs, or in combination with a tunable source. MACOM's MLPNC Series comb generators are available in space saving, compact SMT and connectorized SMA packaging options.

"With the launch of our MLPNC Series comb generators, MACOM has again pushed the boundaries of RF device performance while simultaneously helping to simplify our customers' frequency synthesizer designs," said Graham Board, Senior Director of Product Marketing, MACOM. "We believe that our NLTL comb generators deliver best-in-class phase noise performance with useable harmonics up to 50GHz. MACOM's Combs are MMIC-based so they are more reliable and repeatable than SRD based solutions. As a further advantage we offer both surface-mount and connectorized solutions."

For over 60 years, MACOM's design and applications experts have spearheaded innovation in the RF, microwave and millimeterwave domain, developing the industry's broadest portfolio of MMICs and components spanning the entire RF signal chain. Leveraging advanced, proprietary technologies, MACOM's heterogeneous semiconductor and packaging strategy ensures that each individual RF system function is fully optimized to deliver maximum performance at the appropriate cost. MACOM remains firmly committed to delivering true competitive advantage to our customers, providing

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MACOM's monolithic, NLTL-based MLPNC Series comb generators reduce design complexities by eliminating the harmonic generation circuitry needed with SRD-

superior technology, expertise, cost structures and supply chains - with no compromises.

The table below outlines typical [MLPNC Series comb generator](#) performance:

Part Number	Input Power (dBm)		Output Harmonics (dBm)		
	Min	Max			
MLPNC-7100-SMA850	20 @ 100 MHz	24 @ 400 MHz	> -8 @ 4 GHz	> -18 @ 12 GHz	> -35 @ 20 GHz
MLPNC-7100-SMT680	20 @ 100 MHz	24 @ 400 MHz	> -8 @ 4 GHz	> -18 @ 12 GHz	> -35 @ 20 GHz
MLPNC-7100S1SMA800	18 @ 75 MHz	24 @ 250 MHz	> -24 @ 4 GHz	N/A	N/A
MLPNC-7100S1SMT580	18 @ 75 MHz	24 @ 250 MHz	> -24 @ 4 GHz	N/A	N/A
MLPNC-7102-SMA800	21 @ 400 MHz	23 @ 600 MHz	> -8 @ 4 GHz	> -16 @ 12 GHz	> -20 @ 20 GHz
MLPNC-7102-SMT680	21 @ 400 MHz	23 @ 600 MHz	> -8 @ 4 GHz	> -16 @ 12 GHz	> -20 @ 20 GHz
MLPNC7102S1-SMA800	18 @ 300 MHz	24 @ 700 MHz	> -10 @ 4 GHz	> -22 @ 12 GHz	N/A
MLPNC7102S1-SMT580	18 @ 300 MHz	24 @ 700 MHz	> -10 @ 4 GHz	> -22 @ 12 GHz	N/A
MLPNC-7103-SMA800	21 @ 800 MHz	23 @ 1.3 GHz	> -5 @ 6 GHz	> -15 @ 18 GHz	> -20 @ 30 GHz
MLPNC-7103-SMT680	21 @ 800 MHz	23 @ 1.3 GHz	> -5 @ 6 GHz	> -15 @ 18 GHz	> -20 @ 30 GHz
MLPNC7103S1-SMA800	18 @ 600 MHz	24 @ 1.5 GHz	> 0 @ 4 GHz	> -14 @ 15 GHz	N/A
MLPNC-7103S1SMT580	18 @ 600 MHz	24 @ 1.5 GHz	> 0 @ 4 GHz	> -14 @ 15 GHz	N/A

The chart attached shows the expected phase noise comparison between MACOM NLTL-based MLPNC comb generators and conventional SRD comb generators.

MACOM's MLPNC Series comb generators are available to customers today. For assistance identifying MACOM products optimized to substitute or replace offerings from other vendors, visit [MACOM's Cross Reference tool](#).

MACOM will showcase its industry leading RF technology portfolio at IEEE's International Microwave Symposium (IMS) 2018, Booth #1125 in Philadelphia, Pennsylvania, June 12th - 14th. MACOM's booth will feature new product solutions optimized for 5G connectivity, basestations, SATCOM, Test and Measurement, ISM and Radio communications. To make an appointment, contact your local sales representative. For more information about MACOM's RF technology solutions visit www.macom.com.

ABOUT MACOM:

MACOM is a new breed of analog semiconductor company — one that delivers a unique combination of high growth, diversification and high profitability. We are enabling a better-connected and safer world by delivering breakthrough semiconductor technologies for optical, wireless and satellite networks that satisfy society's insatiable demand for information.

Today, MACOM powers the infrastructure that millions of lives and livelihoods depend on every minute to communicate, transact business, travel, stay informed and be entertained. Our technology increases the speed and coverage of the mobile Internet and enables fiber optic networks to carry previously unimaginable volumes of traffic to businesses, homes and data centers.

Keeping us all safe, MACOM technology enables next-generation radars for air traffic control and weather forecasting, as well as mission success on the modern networked battlefield.

MACOM is the partner of choice to the world's leading communications infrastructure and aerospace and defense companies, helping solve their most complex challenges in areas including network capacity, signal coverage, energy efficiency, and field reliability, through its best-in-class team and broad portfolio of RF, microwave, millimeterwave and lightwave semiconductor products.

MACOM is a pillar of the semiconductor industry, thriving for more than 60 years of daring to change the world for the better through bold technological strokes that deliver true competitive advantage to customers and superior value to investors.

Headquartered in Lowell, Massachusetts, MACOM is certified to the ISO9001 international quality standard and ISO14001 environmental management standard. MACOM has design centers and sales offices throughout North America, Europe, Asia and Australia.

MACOM, M/A-COM, M/A-COM Technology Solutions, M/A-COM Tech, Partners in RF & Microwave, The First Name in

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS:

This press release contains forward-looking statements based on MACOM's beliefs and assumptions and on information currently available to MACOM. These forward-looking statements reflect MACOM's current views about future events and are subject to risks, uncertainties, assumptions and changes in circumstances that may cause those events or our actual activities or results to differ materially from those expressed in any forward-looking statement. Although MACOM believes that the expectations reflected in the forward-looking statements are reasonable, it cannot and does not guarantee future events, results, actions, levels of activity, performance or achievements. Readers are cautioned not to place undue reliance on these forward-looking statements. A number of important factors could cause actual results to differ materially from those indicated by the forward-looking statements, including, but not limited to, those factors described in "Risk Factors" in MACOM's Annual Report on Form 10-K and Quarterly Report on Form 10-Q filings with the Securities and Exchange Commission. MACOM undertakes no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

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<http://www.macom.com/purchases>.

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