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MACOM Introduces GaN Bias Controller and Sequence Module

This bias controller provides industry leading gate voltage and pulsed drain voltage biasing for any device under test.

LOWELL, Mass.--(BUSINESS WIRE)-- M/A-COM Technology Solutions Holdings Inc. ("MACOM"), a leading supplier of high performance RF, microwave, millimeterwave and photonic semiconductor products, today announced a GaN bias controller and sequencer for fixed and pulsed negative gate biasing. The MABC-001000-DP000L module provides proper gate voltage and pulsed drain voltage biasing for a device under test (DUT). The module also provides bias sequencing, ensuring that the pulsed drain voltage cannot be applied to a device under test unless the negative gate bias voltage is present.

The Bias Controller module solution offers protection and dynamic control of all MACOM High-Power transistors including MACOM's broad GaN portfolio. The solution consists of two functional elements arranged vertically on the customers' board to conserve size, weight and cost. (Photo: Business Wire)

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The first functional element referred to as Module 1 is patterned and populated directly onto the customer board. The second functional element, referred to as Module 2, uses the land pattern of Module 1 and interconnects vertically through Module 1. The primary function of Module 1 is drain switching, while the main function of Module 2 is to provide the customer with easy gate switching.

The device is capable of robust GaN protection at any power up/power down sequence and has a target total switch transition time of ≤ 500 ns. It features an open drain output current of ≤ 200 mA for an external MOSFET switch drive, gate bias output current of ≤ 50 mA for heavy RF compression, and an internal thermistor or external temperature sensor voltage for Gate Bias Sum. The recommended approach is to utilize both module functions. The overall MABC-001000-000DPM can be co-located in heavy EMI/RFI environments with little or no extra filtering. Additional features include optional remote temperature sensing and temperature, fast Gate Switching, Remote Gate Adjust, and Buffered Multi-Gate Bias.

With 30dB typical EMI/RFI Rejection at all I/O ports, the MABC-001000-DP000L is RoHS compliant and 260° reflow compatible.

"The MABC-001000-DP000L is ideal for a DUT such as depletion-mode GaN or GaAs power amplifiers, or HEMT devices," said Gary Lopes, Senior Product Director. "In addition to these key applications, this device can be used for high power transistors including LDMOS, Si Bipolar and more."

The MABC-001000-DP000L module can also be installed onto an MABC-001000-PB1PPR evaluation board for evaluation, test, and characterization purposes.

The table below outlines typical performance:

Parameter	Units	MABC-001000-DP000L
Supply (+) Voltage, V_{DS}	V	50
Supply (-) Voltage, V_{GS}	V	-6
Gate Bias Output Current	mA	≤ 50

Open Drain Output Current	mA	≤ 200
Target Total Switch Transition Time	ns	≤ 500
Packaging	mm²	6.60 x 22.48

Final datasheets and additional product information can be obtained from the MACOM website at: www.macom.com

ABOUT MACOM

M/A-COM Technology Solutions Holdings, Inc. (www.macom.com) is a leading supplier of high performance analog RF, microwave, millimeterwave and photonic semiconductor products that enable next-generation Internet and modern battlefield applications. Recognized for its broad catalog portfolio of technologies and products, MACOM serves diverse markets, including high speed optical, satellite, radar, wired & wireless networks, automotive, industrial, medical, and mobile devices. A pillar of the semiconductor industry, we thrive on more than 60 years of solving our customers' most complex problems, serving as a true partner for applications ranging from RF to Light.

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

For more information about MACOM, please visit www.macom.com; follow @MACOMtweets on Twitter; join MACOM on LinkedIn, or visit the MACOM YouTube Channel.

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