阅读申明

1.本站收集的数据手册和产品资料都来自互联网，版权归原作者所有。如读者和版权方有任何异议请及时告之，我们将妥善解决。
2.本站提供的中文数据手册是英文数据手册的中文翻译，其目的是协助用户阅读，该译文无法自动跟随原稿更新，同时也可能存在翻译上的不当。建议读者以英文原稿为参考以便获得更精准的信息。
3.本站提供的产品资料，来自厂商的技术支持或者使用者的心得体会等，其内容可能存在描叙上的差异，建议读者做出适当判断。
4.如需与我们联系，请发邮件到marketing@iczoom.com，主题请标有“数据手册”字样。

Read Statement

1. The datasheets and other product information on the site are all from network reference or other public materials, and the copyright belongs to the original author and original published source. If readers and copyright owners have any objections, please contact us and we will deal with it in a timely manner.

2. The Chinese datasheets provided on the website is a Chinese translation of the English datasheets. Its purpose is for reader’s learning exchange only and do not involve commercial purposes. The translation cannot be automatically updated with the original manuscript, and there may also be improper translations. Readers are advised to use the English manuscript as a reference for more accurate information.

3. All product information provided on the website refer to solutions from manufacturers’ technical support or users the contents may have differences in description, and readers are advised to take the original article as the standard.

4. If you have any questions, please contact us at marketing@iczoom.com and mark the subject with “Datasheets”.

Downloaded from www.iczoom.com

Features

- GaN Depletion-Mode HEMT Microwave Transistor
- Common-Source configuration
- No internal matching
- Broadband Class AB operation
- RoHS* Compliant
- +50 V Typical Operation
- MTTF = 600 years

Description

The MAGX-000035-01000X is a gold-metalized unmatched Gallium Nitride (GaN) on Silicon Carbide RF power transistor suitable for a variety of RF power amplifier applications. Using state of the art wafer fabrication processes, these high performance transistors provide high gain, efficiency, bandwidth, and ruggedness over multiple octave bandwidths for today's demanding application needs.

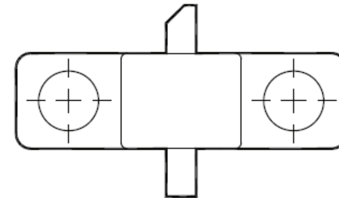
The MAGX-000035-01000X is constructed with either a flanged or flangeless ceramic package which provides excellent thermal performance. High breakdown voltages allow for reliable and stable operation in extreme mismatched load conditions compared with older semiconductor technologies.

Applications

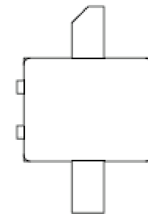
General purpose for pulsed or CW applications:

- Commercial Wireless Infrastructure (WCDMA, LTE, WIMAX)
- Civilian and Military Radar
- Military and Commercial Communications
- Public Radio
- Industrial, Scientific and Medical
- SATCOM
- Instrumentation
- Avionics

MAGX-000035-010000 (Flanged)



MAGX-000035-01000S (Flangeless)



Ordering Information

Part Number	Package
MAGX-000035-010000	10 W GaN Power Transistor (Flanged)
MAGX-000035-01000S	10 W GaN Power Transistor (Flangeless)
MAGX-000035-SB2PPR	1.2-1.4 GHz Evaluation Board (Flanged)
MAGX-000035-SB3PPR	1.2-1.4 GHz Evaluation Board (Flangeless)

* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macomtech.com for additional data sheets and product information.

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Absolute Maximum Ratings[1, 2, 3]

Parameter	Limit
Supply Voltage (V_{DD})	+65 V
Supply Voltage (V_{GG})	-8 to 0 V
Supply Current (I_{DD})	800 mA
Input Power (P_{IN})	25 dBm
Junction/Channel Temp	200ºC
MTTF (T_J < 200 °C)	600 years
Continuous Power Dissipation (P_{DISS}) at 85 ºC	18 W
Pulsed Power Dissipation (P_{AVG}) at 85 ºC	43 W
Thermal Resistance, (T_J = 200 ºC), CW	9.2 ºC/W
Thermal Resistance, (T_J = 200 ºC), Pulsed 500 µs, 10% Duty cycle	3.4 ºC/W
Operating Temp	-40 to +95ºC
Storage Temp	-65 to +150ºC
ESD Min. - Charged Device Model (CDM)	250 V
ESD Min. - Human Body Model (HBM)	250 V

1. Exceeding any one or combination of these limits may cause permanent damage to this device
2. Junction temperature directly affects device MTTF. Junction temperature should be kept as low as possible to maximize lifetime.
3. For saturated performance it is recommended that the sum of (3*Vdd + abs(Vgg)) <175 V.

DC Characteristics

Parameter	Test Conditions	Symbol	Min.	Typ.	Max.	Units
Drain-Source Leakage Current	V_{GS} = -8 V, V_{DS} = 175 V	I_{DS}	-	-	10.8	mA
Gate Threshold Voltage	V_{DS} = 5 V, I_D = 2 mA	$V_{GS\ (TH)}$	-5	-3	-2	V
Forward Transconductance	V_{DS} = 5 V, I_D = 500 mA	G_M	5.5	-	-	S

DC Characteristics

Parameter	Test Conditions	Symbol	Min.	Typ.	Max.	Units
Input Capacitance	V_{DS} = 0 V, V_{GS} = -8 V, F = 1 MHz	C_{ISS}	-	4.4	-	pF
Output Capacitance	V_{DS} = 50 V, V_{GS} = -8 V, F = 1 MHz	C_{OSS}	-	1.9	-	pF
Reverse Transfer Capacitance	V_{DS} = 50 V, V_{GS} = -8 V, F = 1 MHz	C_{RSS}	-	0.2	-	pF

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macomtech.com for additional data sheets and product information.

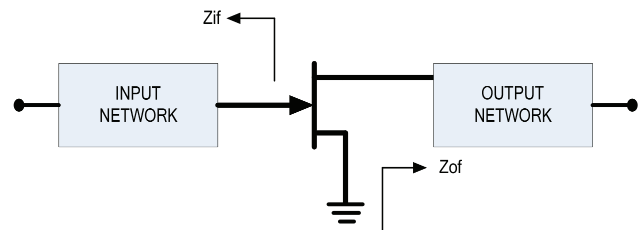
- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Electrical Specifications: T_A = 25 ºC

Parameter	Test Conditions	Symbol	Min.	Typ.	Max.	Units
RF FUNCTIONAL TESTS						
CW Output Power (P2dB) 1.3 GHz	V_{DD} = 50 V, I_{DQ} = 25 mA, P_{IN} = 0.3 W	P_{OUT}	10	11	-	W
Power Gain (P2dB) 1.3 GHz	V_{DD} = 50 V, I_{DQ} = 25 mA	G_P	18	19		dB
Drain Efficiency @ 1.3 GHz	V_{DD} = 50 V, I_{DQ} = 25 mA, P_{OUT} = 10 W	η_D		45		%
Load Mismatch Stability	V_{DD} = 50 V, I_{DQ} = 25 mA, P_{IN} = 0.3 W	VSWR-S	5:1	-	-	-
Load Mismatch Tolerance	V_{DD} = 50 V, I_{DQ} = 25 mA, P_{IN} = 0.3 W	VSWR-T	10:1	-	-	-

Test Fixture Impedance

Freq. (MHz)	Z_{IN-OPT} (Ω)	$Z_{OUT-OPT}$ (Ω)
1300	3.6 + j6.9	38.3 + j20.5



M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macomtech.com for additional data sheets and product information.

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

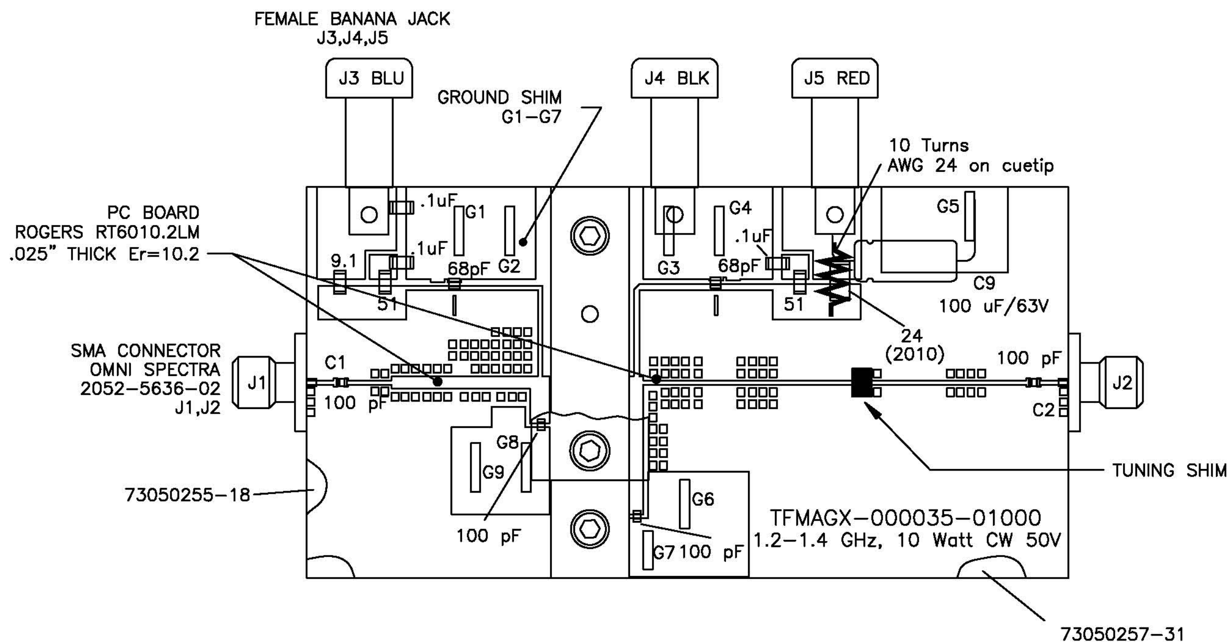
1.2—1.4 GHz Typical CW Performance

Freq. (GHz)	P_{OUT} (dBm)	P_{OUT} (W)	Gain (dB)	I_D (A)	Eff. (%)	V_D (V)	I_{DQ} (mA)
1.20	40.0	10.0	17.5	0.49	41	50	25
1.30	40.0	10.0	18.4	0.40	44	-	-
1.40	40.0	10.0	17.8	0.50	40	-	-

3.3 GHz Typical CW Performance

Freq. (GHz)	P2dB (dBm)	P_{OUT} (W)	Gain (dB)	I_D (A)	Eff. (%)	V_D (V)	I_{DQ} (mA)
3.30	40.3	10.7	16.2	0.38	57	50	25

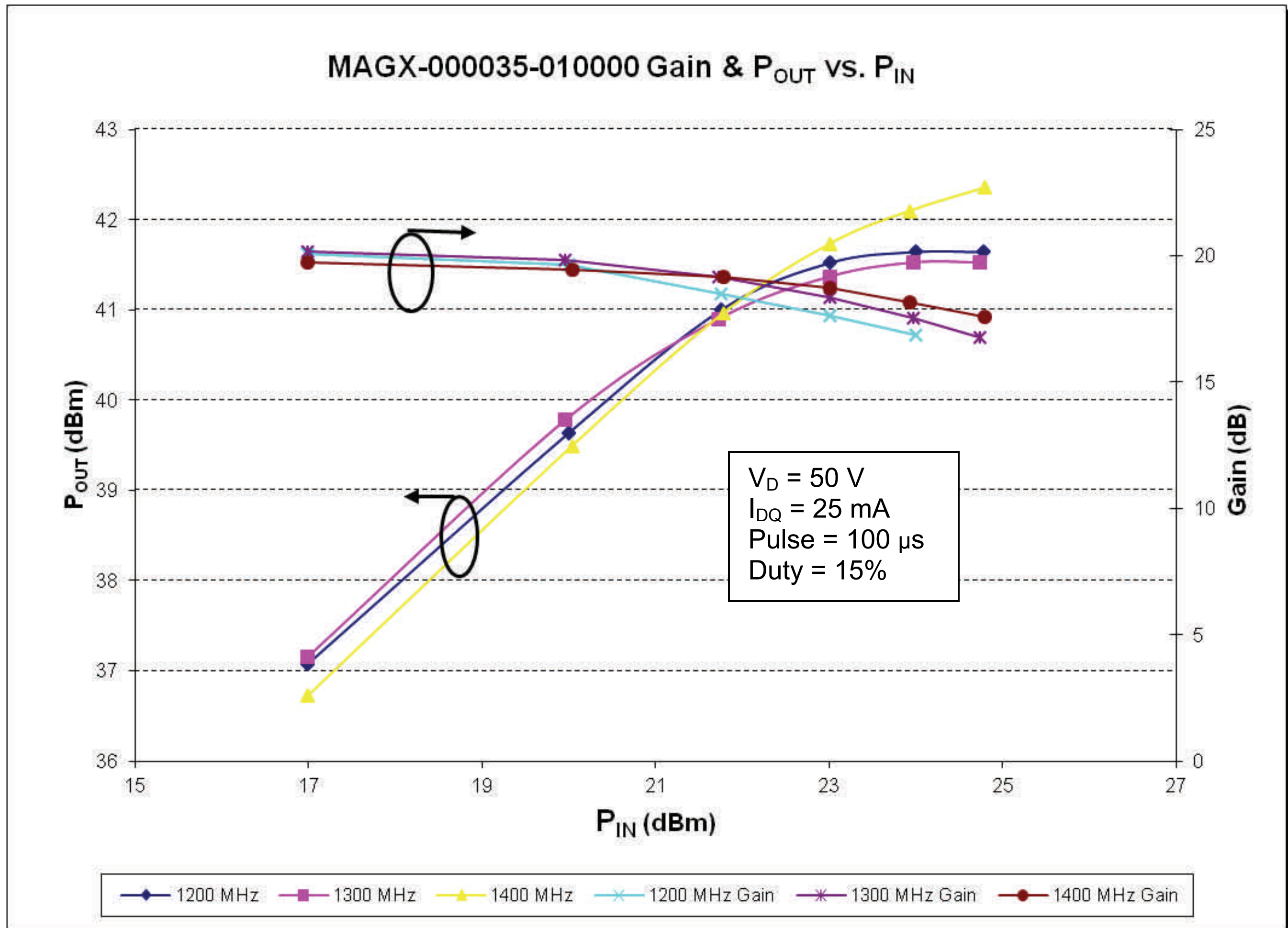
1.2—1.4 GHz Test Fixture



M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macomtech.com for additional data sheets and product information.

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

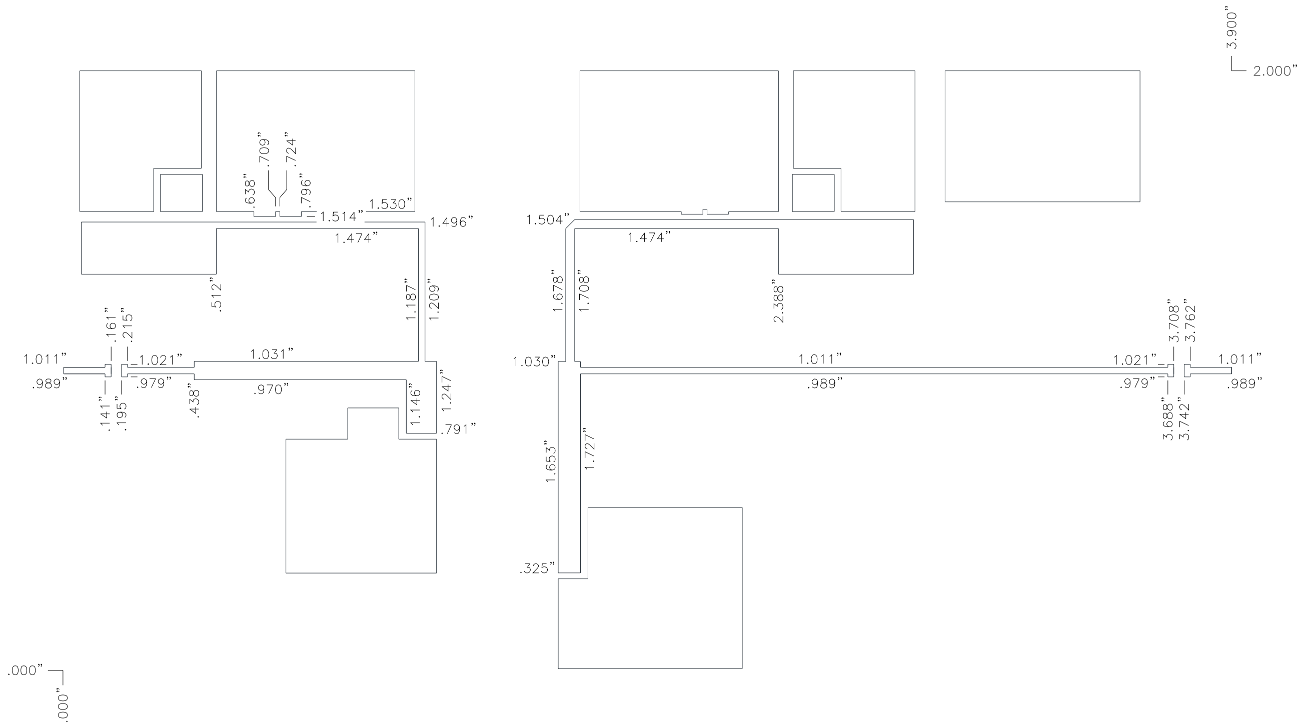
1.2—1.4 GHz Performance With Pulsed Signal



M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macomtech.com for additional data sheets and product information.

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

1.2—1.4 GHz Matching Circuit For Rogers RT6010.2LM

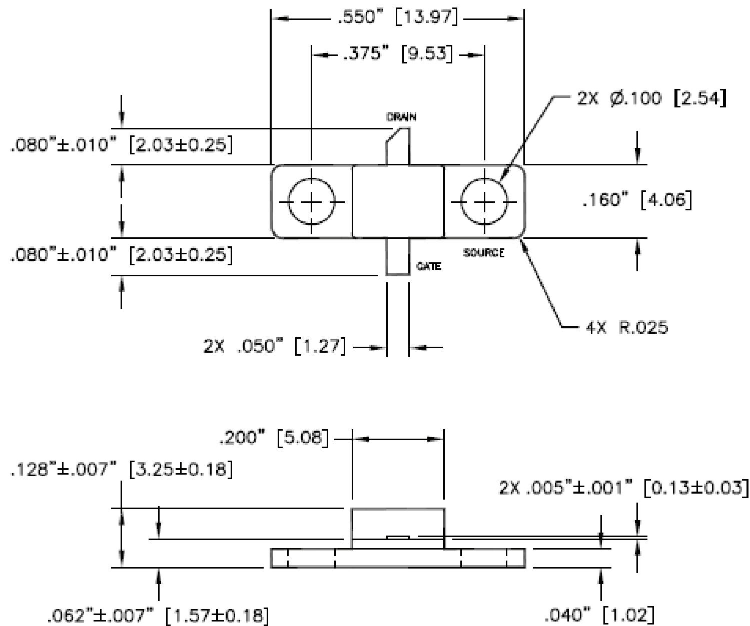


M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macomtech.com for additional data sheets and product information.

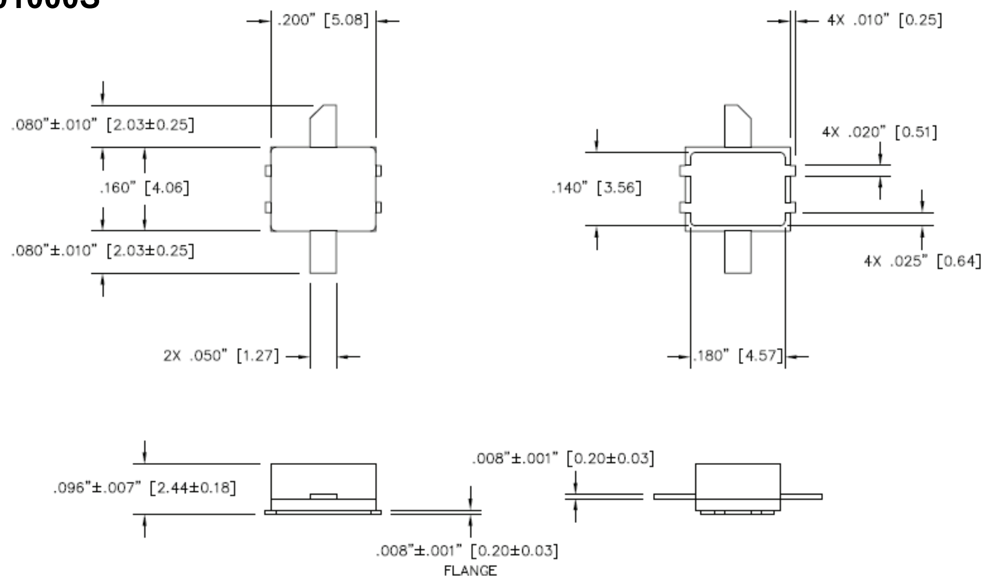
- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Outline Drawings

MAGX-000035-010000



MAGX-000035-01000S



Unless otherwise noted, tolerances are inches ±.005" [millimeters ±0.13mm]

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macomtech.com for additional data sheets and product information.

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

CORRECT DEVICE SEQUENCING

TURNING THE DEVICE ON

1. Set V_{GS} to the pinch-off (V_P), typically -5 V.
2. Turn on V_{DS} to nominal voltage (50 V).
3. Increase V_{GS} until the I_{DS} current is reached.
4. Apply RF power to desired level.

TURNING THE DEVICE OFF

1. Turn the RF power off.
2. Decrease V_{GS} down to V_P.
3. Decrease V_{DS} down to 0 V.
4. Turn off V_{GS}.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.
Visit www.macomtech.com for additional data sheets and product information.

• **North America** Tel: 800.366.2266 / Fax: 978.366.2266
• **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
• **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298