MADRCC0005



Single Driver for GaAs FET Switches and Attenuators

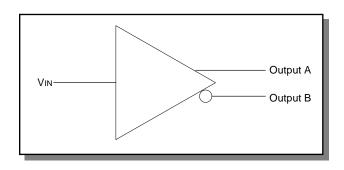
Rev. V3

Features

- High Speed CMOS Technology .
- **Complementary Outputs**
- **Positive Voltage Control**
- Low Power Dissipation .
- Plastic SOIC Package for SMT Applications .
- Tape and Reel Packaging Available
- Lead-Free SOIC-8 Package •
- 100% Matte Tin Plating over Copper
- Halogen-Free "Green" Mold Compound
- 260℃ Reflow Compatible
- RoHS* Compliant Version of DR65-0109

Description

M/A-COM's MADRCC0005 is a Single channel driver used to translate TTL control inputs into complementary gate voltages for GaAs FET microwave switches and attenuators. High speed analog CMOS technology is utilized to achieve low power dissipation at moderate to high speeds, encompassing most microwave switching applications.



Pin Configuration

Logic Diagram

Pin No.	Function		
1	V _{cc}		
2	V _{IN}		
3	GND		
4	GND		
5	GND		
6	Output A		
7	Output B		
8	V _{EE}		

Ordering Information

Part Number	Package			
MADRCC0005	Bulk Packaging			
MADRCC0005TR	1000 piece reel			

Note: Reference Application Note M513 for reel size information.

Guaranteed Operating Ranges

Symbol	Parameter ¹	Unit	Min	Typical	Max
VCC	Positive DC Supply Voltage	V	4.5	5.0	5.5
V _{EE}	Negative DC Supply Voltage	V	-5.5	-5.0	-4.5
$V_{CC}-V_{EE}$	Positive to Negative Supply Range	V	9.0	10.0	11.0
T _A	Operating Ambient Temperature	C	-40	+25	+85
I _{OH}	DC Output Current - HIGH	mA	—	—	-1.0
I _{OL}	DC Output Current - LOW	mA	—	—	1.0
T _{rise} , T _{fall}	Maximum Input Rise or Fall Time	nS	—	—	500

1. All voltages are relative to GND

Commitment to produce in volume is not guaranteed.

1

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

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are

• North America Tel: 800.366.2266 • Europe Tel: +353.21.244.6400 • India Tel: +91.80.4155721 • China Tel: +86.21.2407.1588

Visit www.macomtech.com for additional data sheets and product information.

typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. 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.

MADRCC0005



Single Driver for GaAs FET Switches and Attenuators

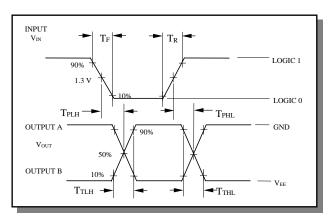
Rev. V3

Symbol	Parameter	Test Conditions		Units	Min	Тур	Max
VIH	Input HIGH Voltage	Guaranteed HIGH Input Voltage		V	2.0	—	-
VIL	Input LOW Voltage	Guaranteed LOW Input Voltage		V	-	_	0.8
V _{OH}	Output HIGH Voltage	I _{OH} = -1 mA	V _{EE} = Max	V	- 0.1	_	-
V _{OL}	Output LOW Voltage	I _{OL} = 1 mA	V _{EE} = Max	V	—	—	V _{EE} + 0.1
I _{IN}	Input Leakage Current	$V_{IN} = V_{CC}$ or GND	V _{EE} = Min	μA	-1.0	0	1.0
I _{CC}	Quiescent Supply Current	V _{CC} = Max	$V_{EE} = Min$ $V_{IN} = V_{CC}$ or GND	μA	—	_	400
T_{PHL}, T_{PLH}	Propagation Delay	Guaranteed -40°C to + 85°C		nS	—	—	50
T_{THL}, T_{TLH}	Output Transition Time	Guaranteed -40°C to + 85°C		nS	—	—	25
	Delay Skew, Output A to Output B	Guaranteed -40°C to + 85°C		nS	—	_	8

AC & DC Characteristics Over Guaranteed Operating Range

See Switching Wave Forms for the definition of the switching terms. Supplies must be by-passed with .01 μ F Capacitors.

Switching Waveforms



Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

Silicon Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

2

Absolute Maximum Ratings^{2,3}

Parameter	Absolute Maximum		
V _{CC}	5V to + 6.0 V		
V _{EE}	- 6.0 V to5 V		
V _{CC} - V _{EE}	12 V		
V IN ⁴	V _{CC} + .5 V		
V _{OUT}	V _{EE} 5 V		
Storage Temperature	-65℃ to +150℃		

2. Exceeding any one or combination of these limits may cause permanent damage to this device.

- 3. M/A-COM does not recommend sustained operation near these survivability limits.
- 4. Standard CMOS TTL interface, latch-up will occur if logic signal is applied prior to power supply.

Truth Table

Input	Outputs		
V _{IN}	А	В	
0	V _{EE}	GND	
1	GND	V _{EE}	

Visit www.macomtech.com for additional data sheets and product information.

Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology

North America Tel: 800.366.2266
 Europe Tel: +353.21.244.6400
 India Tel: +91.80.4155721
 China Tel: +86.21.2407.1588

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.

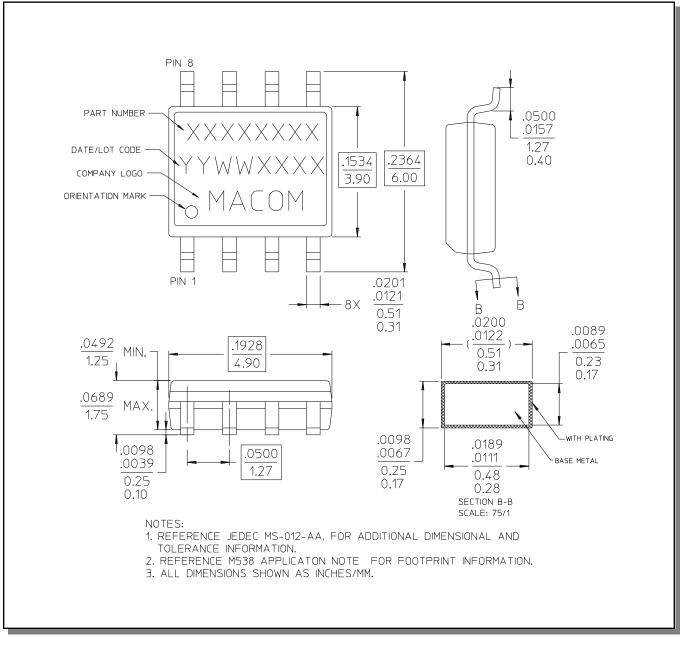
MADRCC0005



Single Driver for GaAs FET Switches and Attenuators

Rev. V3

Lead-Free, SOIC-8[†]



[†] Reference Application Note M538 for lead-free solder reflow recommendations.

- North America Tel: 800.366.2266
 Europe Tel: +353.21.244.6400
 India Tel: +91.80.4155721
 China Tel: +86.21.2407.1588
- Visit www.macomtech.com for additional data sheets and product information.

 PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology

 Solutions has under development. Performance is based on engineering tests. Specifications are

 typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available.

 Commitment to produce in volume is not guaranteed.

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed. PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on penipeering tests. Specifications are