Quad Driver for GaAs FET Switches and Attenuators



Rev. V7

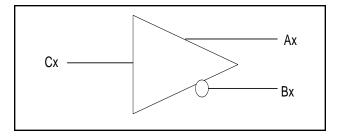
Features

- High Speed CMOS Technology
- Complementary Outputs
- Positive Voltage Control
- Low Power Dissipation
- Plastic SOIC Package for SMT Applications
- Tape and Reel Packaging Available
- SOIC-16 Package

Description

M/A-COM's DR65-0001 is a Quad channel driver used to translate TTL control inputs into 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.

Logic Diagram



Pin Configuration

Pin No.	Function	Pin No.	Function
1	A3	9	C2
2	B3	10	C1
3	A4	11	GND
4	B4	12	GND
5	V _{EE}	13	A1
6	V _{CC}	14	B1
7	C4	15	A2
8	C3	16	B2

Ordering Information

Part Number	Package	
DR65-0001	Bulk Packaging	
DR65-0001TR	1000 piece reel	

Note: Reference Application Note M513 for reel size information.

Guaranteed Operating Ranges

Symbol	Parameter ¹	Unit	Min	Typical	Max
V _{CC}	Positive DC Supply Voltage	V	4.5	5.0	5.5
V _{EE}	Negative DC Supply Voltage	V	-5.5	-5.0	-4.5
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.

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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.

¹

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DR65-0001



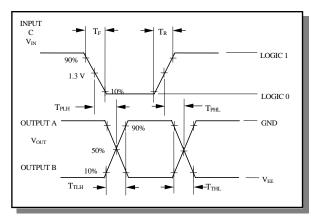
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Symbol **Test Conditions** Тур Parameter Units Min Max VIH Input HIGH Voltage Guaranteed HIGH Input Voltage V 2.0 Guaranteed LOW Input Voltage VIL Input LOW Voltage V 0.8 -V V_{OH} Output HIGH Voltage $I_{OH} = -1 \text{ mA}$ $V_{EE} = Max$ - 0.1 -____ **Output LOW Voltage** $V_{EE} = Max$ V VoL $I_{OL} = 1 \text{ mA}$ $V_{EE} + 0.1$ $V_{EE} = Min$ Input Current $V_{IN} = V_{CC}$ or GND μA -10 0 10 I_{IN} **Quiescent Supply Current** $V_{CC} = Max$ $V_{EE} = Min$ 400 Icc μA $V_{IN} = V_{CC} \text{ or } GND$ Additional Supply Current, per TTL $V_{\rm IN} = V_{\rm CC} - 2.1 V$ 1.0 $V_{CC} = Max$ mΑ ΔI_{CC} Input pin TPHL, TPLH Guaranteed -40° C to + 85° C **Propagation Delay** nS 50 **Output Transition Time** Guaranteed -40° C to + 85° C 25 nS T_{THL}, T_{TLH} Delay Skew, Output A to Output B Guaranteed -40° C to + 85° C nS 8

AC & DC Characteristics Over Guaranteed Operating Range

Switching Waveforms



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

Note: Unused inputs must be tied to Ground

Handling Procedures

Commitment to produce in volume is not guaranteed.

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.

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°C to +150°C		
Operating Temperature	-40°C to +85°C		

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

- M/A-COM does not recommend sustained operation near 3. 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		
C _X	A _X	B _X	
0	V _{EE}	GND	
1	GND	V _{EE}	

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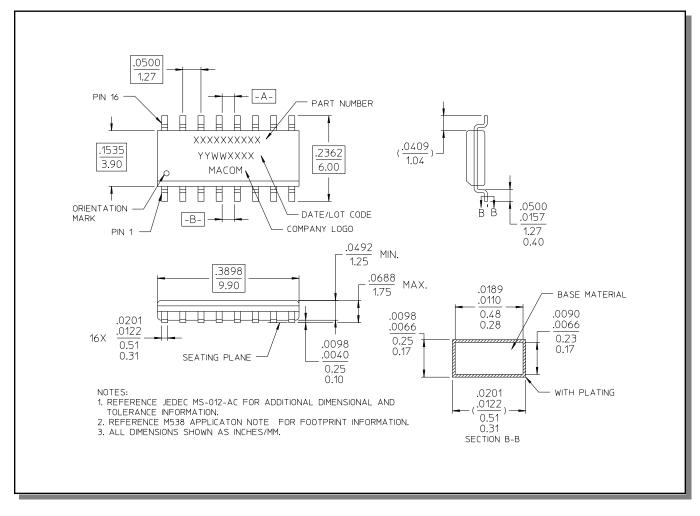
DR65-0001



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SOIC-16[†]



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

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