

**Single Driver for GaAs FET Switches and Attenuators**

**DR65-0109  
V3**

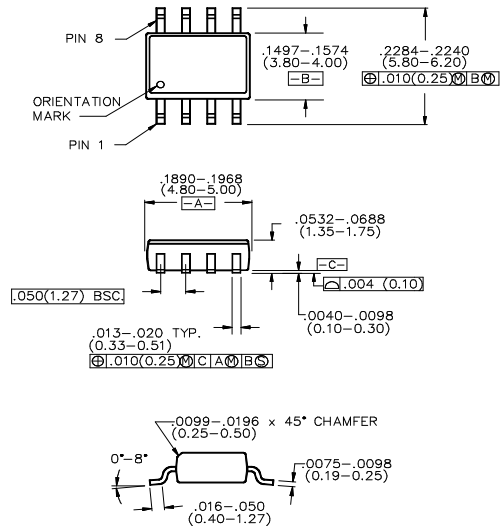
**Features**

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

**Description**

M/A-COM's DR65-0109 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.

**SO-8**



**Ordering Information**

| Part Number | Package         |
|-------------|-----------------|
| DR65-0109   | Bulk Packaging  |
| DR65-0109TR | 1000 piece reel |

**Pin Configuration**

| PIN | Function        |
|-----|-----------------|
| 1   | V <sub>CC</sub> |
| 2   | V <sub>IN</sub> |
| 3   | GND             |
| 4   | GND             |
| 5   | GND             |
| 6   | Output A        |
| 7   | Output B        |
| 8   | V <sub>EE</sub> |

**Guaranteed Operating Ranges**

| Symbol                                | Parameter <sup>1</sup>            | Unit | Min  | Typical | Max  |
|---------------------------------------|-----------------------------------|------|------|---------|------|
| V <sub>CC</sub>                       | Positive DC Supply Voltage        | V    | 4.5  | 5.0     | 5.5  |
| V <sub>EE</sub>                       | Negative DC Supply Voltage        | V    | -5.5 | -5.0    | -4.5 |
| V <sub>CC-V<sub>EE</sub></sub>        | Positive to Negative Supply Range | V    | 9.0  | 10.0    | 11.0 |
| T <sub>A</sub>                        | Operating Ambient Temperature     | °C   | -40  | +25     | +85  |
| I <sub>OH</sub>                       | DC Output Current - HIGH          | mA   | —    | —       | -1.0 |
| I <sub>OL</sub>                       | DC Output Current - LOW           | mA   | —    | —       | 1.0  |
| T <sub>rise</sub> , T <sub>fall</sub> | Maximum Input Rise or Fall Time   | nS   | —    | —       | 500  |

1. All voltages are relative to GND.

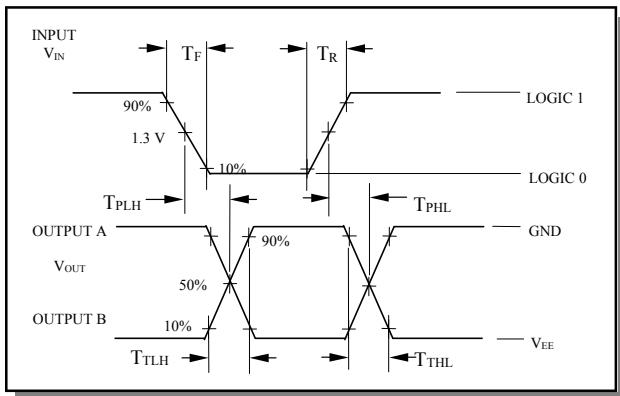
\* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

**AC & DC Characteristics Over Guaranteed Operating Range**

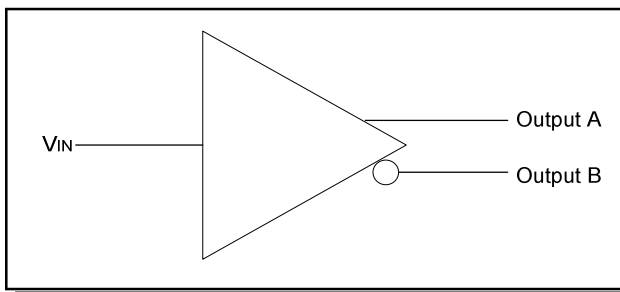
| Symbol                              | Parameter                           | Test Conditions                          |   | Units | Min  | Typ | Max                   |
|-------------------------------------|-------------------------------------|--|---|-------|------|-----|-----------------------|
| V <sub>IH</sub>                     | Input HIGH Voltage                  | Guaranteed HIGH Input Voltage            |   | V     | 2.0  | —   | -                     |
| V <sub>IL</sub>                     | Input LOW Voltage                   | Guaranteed LOW Input Voltage             |   | V     | -    | —   | 0.8                   |
| V <sub>OH</sub>                     | Output HIGH Voltage                 | I <sub>OH</sub> = -1 mA                  | V <sub>EE</sub> = Max   | V     | -0.1 | —   | -                     |
| V <sub>OL</sub>                     | Output LOW Voltage                  | I <sub>OL</sub> = 1 mA                   | V <sub>EE</sub> = Max   | V     | —    | —   | V <sub>EE</sub> + 0.1 |
| I <sub>IN</sub>                     | Input Leakage Current               | V <sub>IN</sub> = V <sub>CC</sub> or GND | V <sub>EE</sub> = Min   | μA    | -1.0 | 0   | 1.0                   |
| I <sub>CC</sub>                     | Quiescent Supply Current            | V <sub>CC</sub> = Max                    | V <sub>EE</sub> = Min<br>V <sub>IN</sub> = V <sub>CC</sub> or GND | μA    | —    | —   | 400                   |
| T <sub>PHL</sub> , T <sub>PLH</sub> | Propagation Delay                   | Guaranteed -40° C to +85° C              |   | nS    | —    | —   | 50                    |
| T <sub>THL</sub> , T <sub>TLH</sub> | Output Transition Time              | Guaranteed -40° C to +85° C              |   | nS    | —    | —   | 25                    |
|                                     | Delay Skew,<br>Output A to Output B | Guaranteed -40° C to +85° C              |   | nS    | —    | —   | 8                     |

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

**Switching Waveforms**



**Logic Diagram**



**Absolute Maximum Ratings**

| Parameter                         | Absolute Maximum       |
|-----------------------------------|------------------------|
| V <sub>CC</sub>                   | - .5V to + 6.0 V       |
| V <sub>EE</sub>                   | - 6.0 V to - .5 V      |
| V <sub>CC</sub> - V <sub>EE</sub> | 12 V                   |
| V <sub>IN</sub> <sup>2</sup>      | V <sub>CC</sub> + .5 V |
| V <sub>OUT</sub>                  | V <sub>EE</sub> - .5 V |
| Storage Temperature               | -65°C to +150°C        |

- Standard CMOS TTL interface, latch-up will occur if logic signal is applied prior to power supply.

**Truth Table**

| Input           | Outputs         |                 |
|-----------------|-----------------|-----------------|
| V <sub>IN</sub> | A               | B               |
| 0               | V <sub>EE</sub> | GND             |
| 1               | GND             | V <sub>EE</sub> |