



M4034

LINEAR INTEGRATED CIRCUIT

3-INPUT VIDEO SWITCH

DESCRIPTION

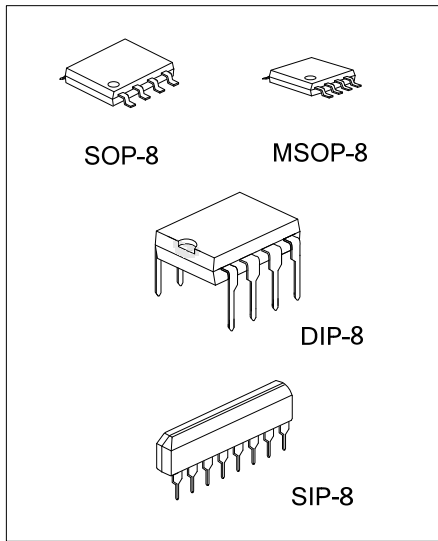
The UTC **M4034** is 3-input video switch selecting one of three input video or audio signals. Its operating supply voltage range is 5 ~ 12V and bandwidth is 10MHz. Crosstalk is 70dB (at 4.43MHz).

FEATURES

- * Operating Voltage: +4.75V ~ +13V
- * 3 Input-1 Output
- * Muting Function available
- * Wide Operating Supply voltage Range: 4.75V ~ 13V
- * Cross-talk 70dB (at 4.43MHz)
- * Muting Function available
- * Bipolar Technology

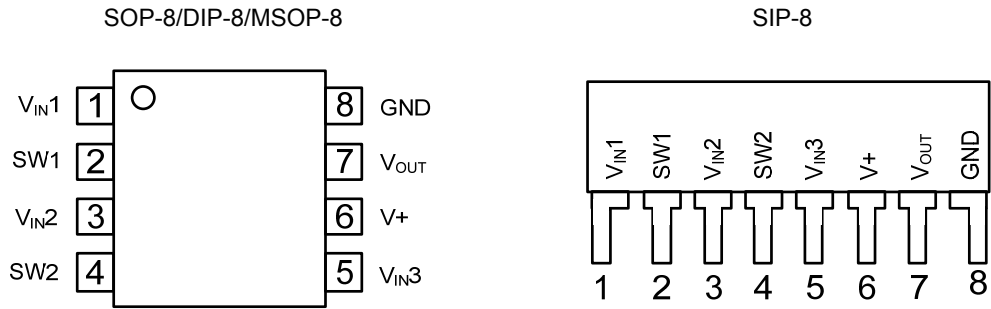
ORDERING INFORMATION

| Order Number | | Package | Packing |
|--------------|--------------|---------|-----------|
| Lead Free | Halogen Free | | |
| M4034L-D08-T | M4034G-D08-T | DIP-8 | Tube |
| M4034L-G08-T | M4034G-G08-T | SIP-8 | Tube |
| M4034L-S08-R | M4034G-S08-R | SOP-8 | Tape Reel |
| M4034L-S08-T | M4034G-S08-T | SOP-8 | Tube |
| M4034L-SM1-R | M4034G-SM1-R | MSOP-8 | Tape Reel |

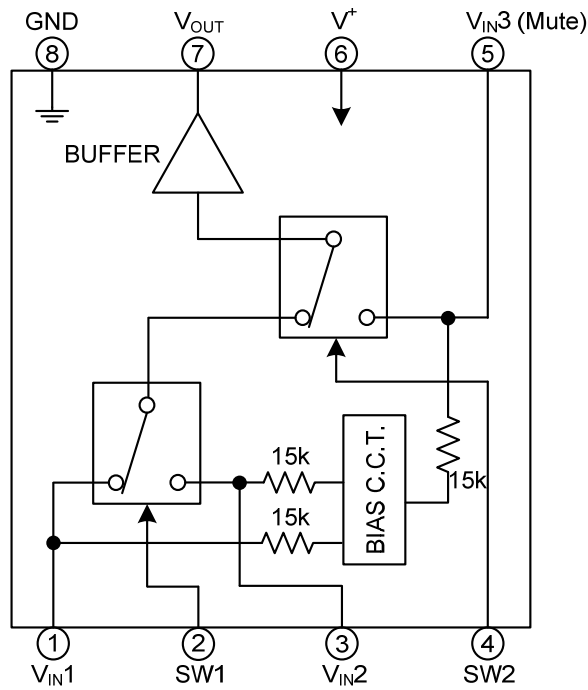


| | |
|---|---|
| <p>M4034L-D08-T</p> <p>(1)Packing Type (2)Package Type (3)Lead Free</p> | <p>(1) R: Tape Reel, T: Tube (2) D8: DIP-8, G08: SIP-8, S08: SOP-8, SM1: MSOP-8 (3) G: Halogen Free, L: Lead Free</p> |
|---|---|

■ PIN CONFIGURATION



■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|-----------------------|--------|-----------|------------|------|
| Supply Voltage | | V^+ | 15 | V |
| Power Dissipation | SOP-8 | P_D | 300 | mW |
| | DIP-8 | | 500 | mW |
| | MSOP-8 | | 250 | mW |
| | SIP-8 | | 800 | mW |
| Junction Temperature | | T_J | +125 | °C |
| Operating Temperature | | T_{OPR} | -20 ~ +75 | °C |
| Storage Temperature | | T_{STG} | -40 ~ +125 | °C |

Note Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ($V_{IN}=5V$, $T_a=25^\circ C$)

| PARAMETER | | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|------------------------------|------|--------------|--|------|------|------|------|
| Recommended Supply Voltage | | V^+ | | 4.75 | | 13.0 | V |
| Output Offset Voltage | | $V_{O(OFF)}$ | (Note 2) | -30 | | +30 | mV |
| Switch Change Voltage | High | V_{CH} | All inside SW : ON | 2.4 | | | V |
| | Low | V_{CL} | All inside SW : OFF | | | 0.8 | V |
| Operating Current | | I_{CC} | S1=S2=S3=S4=S5=1 | | 10.6 | 14.5 | mA |
| Voltage Gain | | G_V | $V_{IN}=2.5V$, 100kHz, V_{OUT}/V_{IN} | -0.5 | | +0.5 | dB |
| Total Harmonic Distortion | | THD | $V_{IN}=2.5V$, 1kHz | | 0.03 | | % |
| Differential Gain | | DG | $V_{IN}=2V$, Staircase signal | | 0 | | % |
| Differential Phase | | DP | $V_{IN}=2V$, Staircase signal | | 0 | | deg |
| Frequency Characteristic (1) | | G_{f1} | $V_{IN}=2.5V$, $V_{OUT}(20Hz)/V_{OUT}(100kHz)$ | -1.0 | | +1.0 | dB |
| Frequency Characteristic (2) | | G_{f2} | $V_{IN}=2.0V$, $V_{OUT}(10MHz)/V_{OUT}(100kHz)$ | -1.0 | | +1.0 | dB |
| Crosstalk (1) | | CT1 | $V_{IN}=2.0V$, 4.43MHz, V_{OUT}/V_{IN} (Note 3) | | -70 | | dB |
| Crosstalk (2) | | CT2 | $V_{IN}=2.0V$, 4.43MHz, V_{OUT}/V_{IN} (Note 4) | | -70 | | dB |
| Input Impedance | | R_1 | | | 15 | | kΩ |
| Output Impedance | | R_{OUT} | | | 10 | | Ω |

Note 1: If it is not shown about switch condition, it is tested on three conditions below.

(a) S1=2, S2=S3=S4=S5=1, (b) S2=S4=2, S1=S3=S5=1, (c) S3=S5=2, S1=S2=1, S4=1, or 2.

Note 2: S1=S2=S3=1, Output DC Voltage difference of three mode below.

(a) S4=S5=1, (b) S4=2, S5=1 (c) S4=1 or 2, S5=2

Note 3: S5=1, Tested on all combination of S1 to S4 excepted two below.

(a) S1=S2, S4=1 (b) S2=S4=2

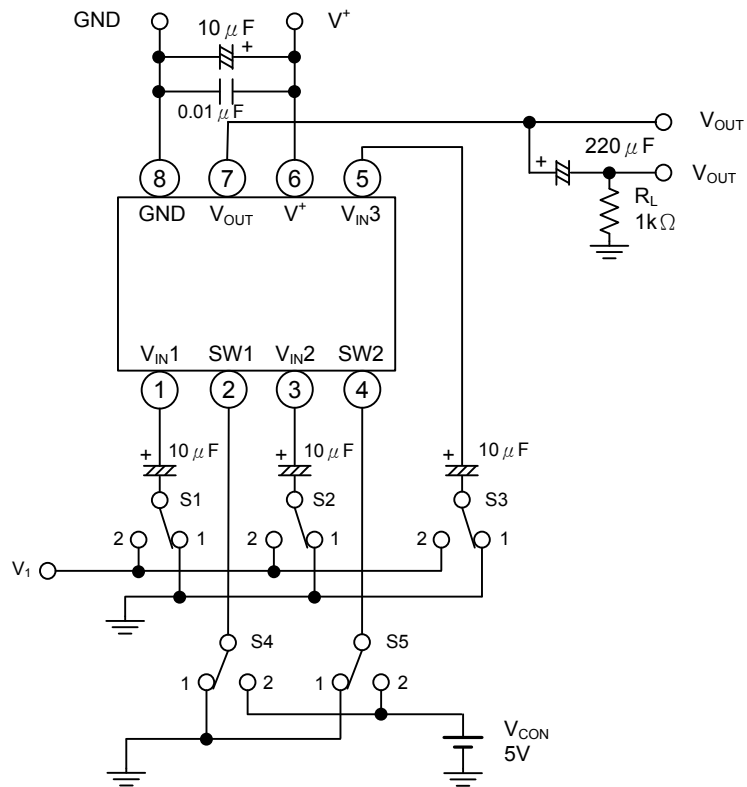
Note 4: Tested on all combination of S1 to S4 excepted one.

(a) S5=2, S3=2

■ EQUIVALENT CIRCUIT

| PIN NO. | PIN FUNCTION | INSIDE EQUIVALENT CIRCUIT |
|---------|----------------------------|---------------------------|
| 1 | V _{IN1} | |
| 2 | SW1 | |
| 3 | V _{IN2} | |
| 4 | SW2 | |
| 5 | V _{IN3} (Mute) | |
| 6 | V ⁺ | |
| 7 | V _{OUT} | |
| 8 | GND | |

■ TEST CIRCUIT

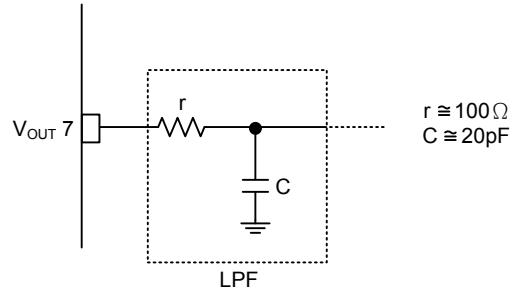


■ CONNECTION DIAGRAM

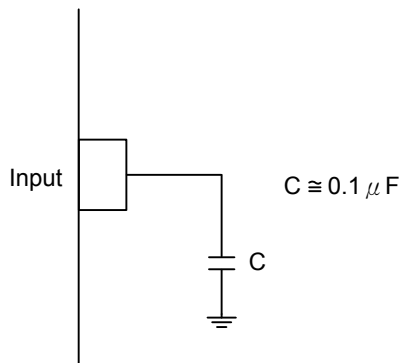
| Terminal Name | V _{IN1} | SW1 | V _{IN2} | SW2 | V _{IN3} | V ⁺ | V _{OUT} | GND |
|---------------|-------------------|-----|-------------------|-----|-------------------|----------------|-------------------------|-----|
| DC Voltage | $\frac{3}{5} V^+$ | | $\frac{3}{5} V^+$ | | $\frac{3}{5} V^+$ | | $\frac{3}{5} V^+ - 0.7$ | |

■ TYPICAL APPLICATION CIRCUIT

Oscillation Prevention on light loading conditions
Recommended under circuit



Note: 0.1uF capacitor is required between INPUT and GND for bias type input at mute mode.



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