



M3366

Preliminary

LINEAR INTEGRATED CIRCUIT

3-INPUT VIDEO SWITCH WITH 75Ω DRIVER

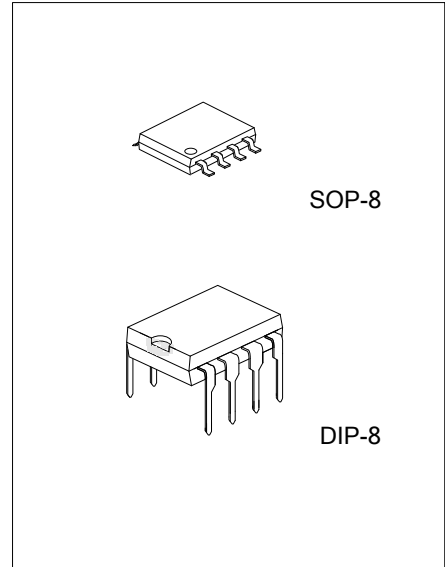
DESCRIPTION

The UTC **M3366** is a three input integrated video switch selects one video or audio signal from three input signals.

It contains driver circuit for 75Ω load and is able to connect to TV monitor.

Its operating supply voltage range is 5 ~ 12V and bandwidth is 10MHz. Crosstalk is 70dB (at 4.43MHz).

The UTC **M3366** contains clamp function and it can be operated while setting DC level fixed in position of the video signal.



FEATURES

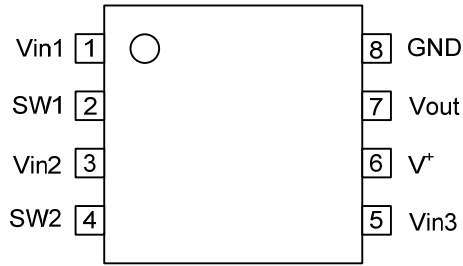
- * Operating Voltage 4.75 ~ 13V
- * 3 Input- 1 Output
- * Internal Driver Circuit for 75Ω Impedance
- * Muting Function available
- * Internal Clamp Function
- * Low power Dissipation 16.5mA
- * Cross-talk 70dB (at 4.43MHz)
- * Wide Frequency Range 10MHz (2Vp-p Input)

ORDERING INFORMATION

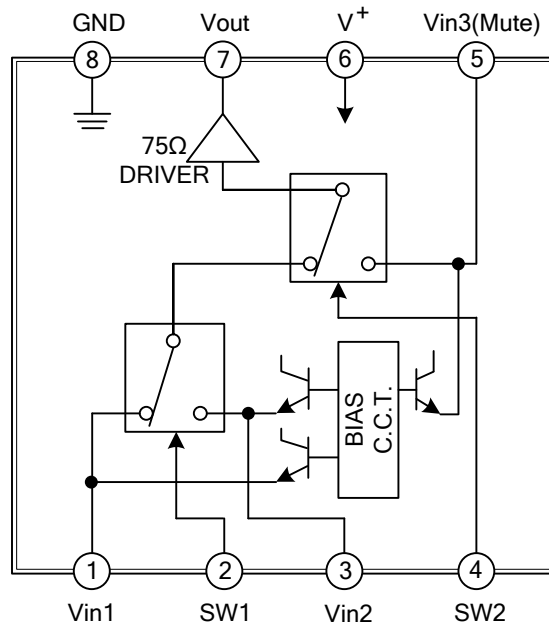
| Ordering Number | | Package | Packing |
|-----------------|--------------|---------|-----------|
| Lead Free | Halogen Free | | |
| M3366L-S08-R | M3366G-S08-R | SOP-8 | Tape Reel |
| M3366L-S08-T | M3366G-S08-T | SOP-8 | Tube |
| M3366L-D08-T | M3366G-D08-T | DIP-8 | Tube |

| | |
|---|---|
| <p>M3366L-S08-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p> | <p>(1) R: Tape Reel, T: Tube</p> <p>(2) S08: SOP-8, D08: DIP-8</p> <p>(3) G: Halogen Free, L: Lead Free</p> |
|---|---|

■ PIN CONFIGURATION



■ BLOCK DIAGRAM



■ PIN DESCRIPTION

| PIN NO. | PIN NAME | INSIDE EQUIVALENT CIRCUIT | PIN NO. | PIN NAME | INSIDE EQUIVALENT CIRCUIT |
|---------|----------|---------------------------|---------|-------------|---------------------------|
| 1 | VIN1 | | 5 | VIN3 (Mute) | |
| 2 | SW1 | | 6 | V+ | - |
| 3 | VIN2 | | 7 | VOUT | |
| 4 | SW2 | | 8 | GND | - |

■ INPUT CONTROL SIGNAL-OUTPUT SIGNAL

| SW1 | SW2 | OUTPUT SIGNAL |
|-----|-----|---------------|
| L | L | Vin 1 |
| H | L | Vin 2 |
| L/H | H | Vin 3 |

Note: Input clamp voltage is about 2/5 of supply voltage

■ ABSOLUTE MAXIMUM RATING (T_A=25°C)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------|------------------|----------|------|
| Supply Voltage | V ⁺ | 15 | V |
| Power Dissipation | DIP-8 | 500 | mW |
| | SOP-8 | 300 | |
| 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⁺=5V, T_A=25°C)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|----------------------------|------------------|---|------|------|------|------|
| Recommended Supply Voltage | V ⁺ | | 4.75 | | 13.0 | V |
| Operating Current | I _{CC} | S1=S2=S3=S4=S5=2 | 11.5 | 16.5 | 22.0 | mA |
| Voltage Gain | G _v | V _{in} =2.0V _{p-p} , 100kHz, V _o /V _i , R _L =150Ω | -0.8 | -0.3 | +0.2 | dB |
| Frequency Characteristic | G _f | V _{in} =2.0V _{p-p} , V _o (10MHz)/V _o (100kHz), R _L =150Ω | -1.0 | | +1.0 | dB |
| Differential Gain | DG | V _{in} =2.0V _{p-p} , staircase, R _L =150Ω | | 0.3 | | % |
| Differential Phase | DP | V _{in} =2.0V _{p-p} , staircase, R _L =150Ω | | 0.3 | | deg. |
| Output Offset Voltage | V _{off} | S1=S2=S3=2, S5=1→2 V _o : voltage change | | 0 | ±30 | mV |
| Crosstalk | CT | V _{in} =2.0V _{p-p} , 4.43MHz, V _o /V _i | | -70 | | dB |
| Switch Change Voltage | V _{CH} | All inside SW: ON | 2.4 | | | V |
| | V _{CL} | All inside SW: OFF | | | 0.8 | |

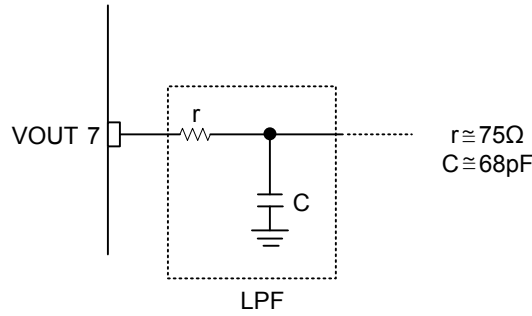
Note: Unless specified, tested with three mode below.

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

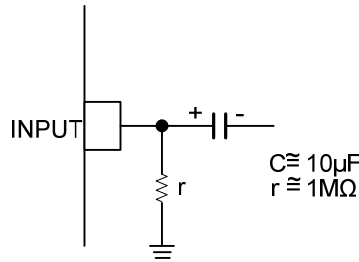
■ APPLICATION

Oscillation Prevention on light loading conditions recommended under circuit

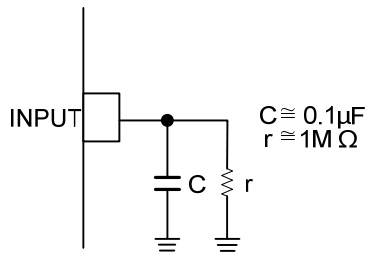
This IC requires 1MΩ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.



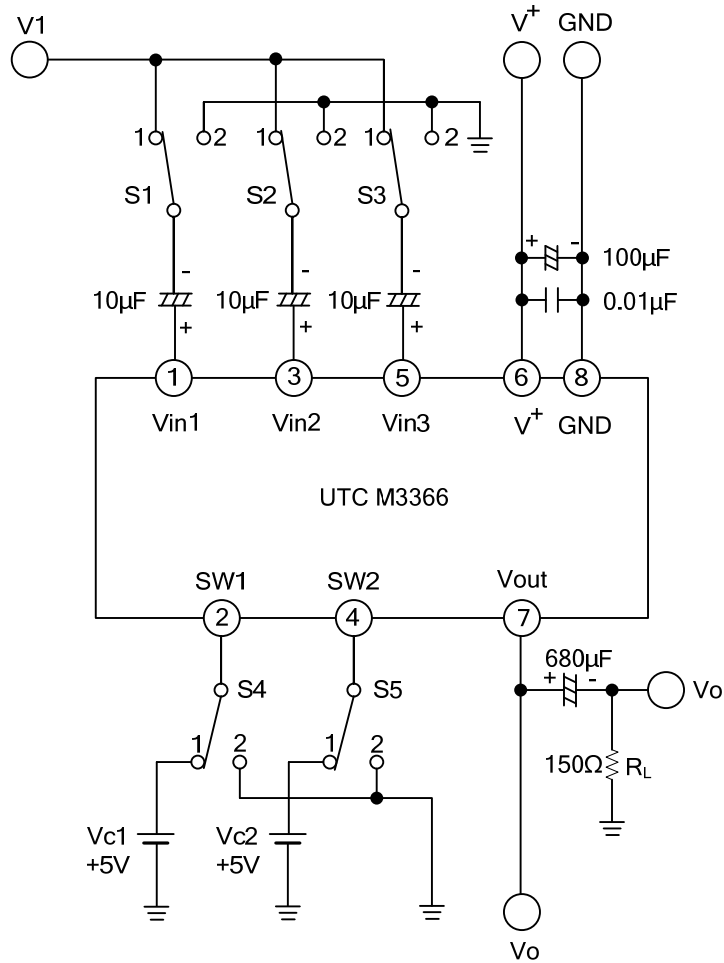
This IC requires 1MΩ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.



This IC requires 0.1μF capacitor between INPUT and GND ,1MΩ resistance between INPUT and GND for clamp type input at mute mode.



■ TEST CIRCUIT



■ DC VOLTAGE EACH TERMINAL (Typ. on Test Circuit $T_A=25^\circ\text{C}$)

| Terminal Name | VIN1 | SW1 | VIN2 | SW2 | VIN3 | V ⁺ | VOUT | GND |
|---------------|------------------|-----|------------------|-----|------------------|----------------|------------------------|-----|
| DC Voltage | $\frac{2}{5}V^+$ | | $\frac{2}{5}V^+$ | | $\frac{2}{5}V^+$ | | $\frac{2}{5}V^+ - 0.7$ | |

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