



## M3368

## LINEAR INTEGRATED CIRCUIT

### 3-INPUT VIDEO SWITCH WITH 6dB AMPLIFIER

#### DESCRIPTION

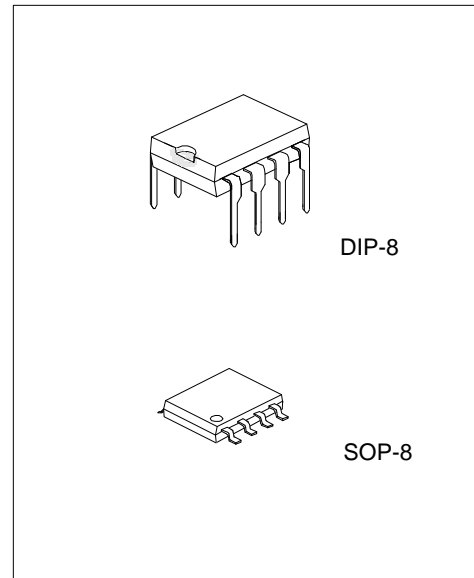
The UTC **M3368** is three input integrated video switch witch selects one video or audio signal from three input signals.

It contains 6dB amplifier and its operating supply voltage range is 4.75 to 13V and bandwidth is 5MHz.

Crosstalk is 65dB (at 4.43MHz).

#### FEATURES

- \* Operating Voltage: 4.75 ~ 13V
- \* 3 Input-1 Output
- \* Internal 6dB Amplifier
- \* Muting Function available
- \* Internal Clamp Function
- \* Cross-talk 65dB (at 4.43MHz)
- \* Wide Frequency Range 5MHz (1Vp-p Input)



#### ORDERING INFORMATION

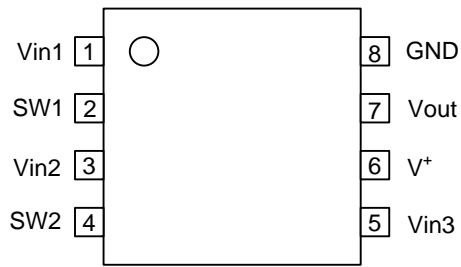
Ordering Number		Package	Packing
Lead Free	Halogen Free		
M3368L-D08-T	M3368G-D08-T	DIP-8	Tube
M3368L-S08-R	M3368G-S08-R	SOP-8	Tape Reel

<p>M3368G-D08-T</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) T: Tube, R: Tape Reel</li> <li>(2) D08: DIP-8, S08: SOP-8</li> <li>(3) G: Halogen Free and Lead Free, L: Lead Free</li> </ul>
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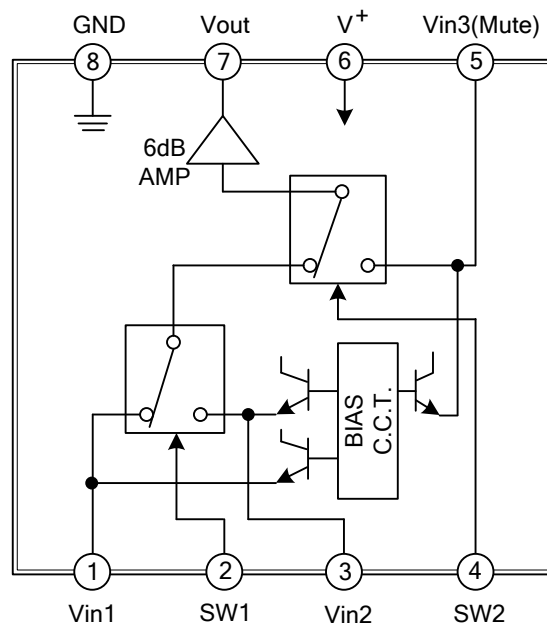
#### MARKING

DIP-8	SOP-8
<p>UTC M3368</p> <ul style="list-style-type: none"> <li>Date Code</li> <li>L: Lead Free</li> <li>G: Halogen Free</li> <li>Lot Code</li> </ul>	<p>UTC M3368</p> <ul style="list-style-type: none"> <li>Date Code</li> <li>L: Lead Free</li> <li>G: Halogen Free</li> <li>Lot Code</li> </ul>

## ■ 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<sub>A</sub>=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup>	15	V
Power Dissipation	DIP-8	500	mW
	SOP-8	300	
Operating Temperature	T <sub>OPR</sub>	-40~+85	°C
Storage Temperature	T <sub>STG</sub>	-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<sup>+</sup>=5V, T<sub>A</sub>=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Recommended Supply Voltage	V <sup>+</sup>		4.75		13.0	V
Operating Current	I <sub>CC</sub>	S1=S2=S3=S4=S5=2	9.5	14.0	21.0	mA
Voltage Gain	G <sub>v</sub>	V <sub>in</sub> =1.0V <sub>p-p</sub> , 1MHz, V <sub>o</sub> /V <sub>i</sub> , R <sub>L</sub> =1kΩ	5.5	6.0	6.5	dB
Frequency Characteristic	G <sub>f</sub>	V <sub>in</sub> =1.0V <sub>p-p</sub> , V <sub>o</sub> (10MHz)/V <sub>o</sub> (1MHz), R <sub>L</sub> =1kΩ	-1.0		+1.0	dB
Differential Gain	DG	V <sub>in</sub> =1.0V <sub>p-p</sub> , staircase, R <sub>L</sub> =1kΩ		0.3		%
Differential Phase	DP	V <sub>in</sub> =1.0V <sub>p-p</sub> , staircase, R <sub>L</sub> =1kΩ		0.3		deg.
Output Offset Voltage	V <sub>off</sub>	S1=S2=S3=2, S5=1→2, V <sub>o</sub> : voltage change			±60	mV
Crosstalk	CT	V <sub>in</sub> =1V <sub>p-p</sub> , 4.43MHz, V <sub>o</sub> /V <sub>i</sub>		-65		dB
Switch Change Voltage	V <sub>CH</sub>	All inside SW: ON	2.4			V
	V <sub>CL</sub>	All inside SW: OFF			0.8	

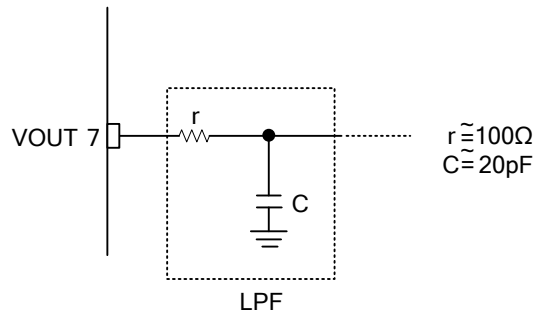
Note: Unless specified, tested with three mode below.

(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

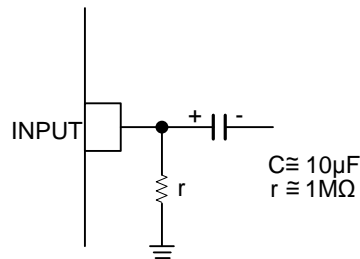
## ■ APPLICATION

Oscillation Prevention on light loading conditions Recommended under circuit.

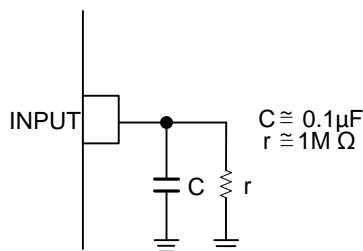
This IC requires 1MΩ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.



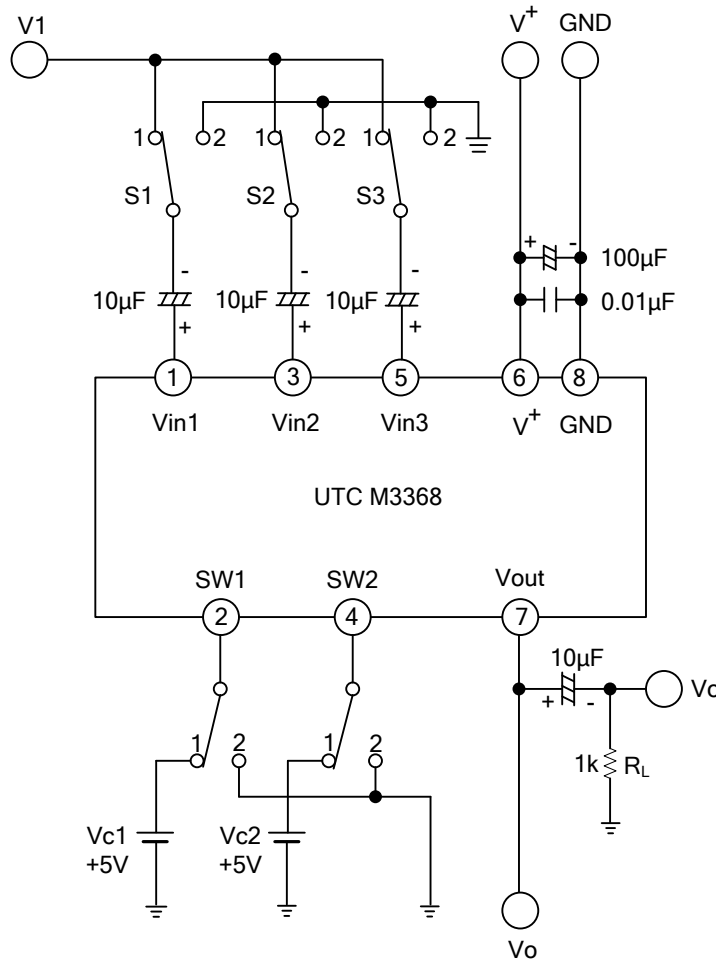
This IC requires 1MΩ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.



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 <sup>+</sup>	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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