



## M4034

## LINEAR INTEGRATED CIRCUIT

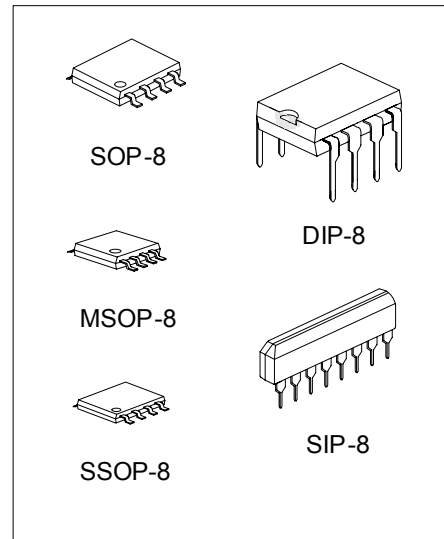
### 3-INPUT VIDEO SWITCH

#### 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



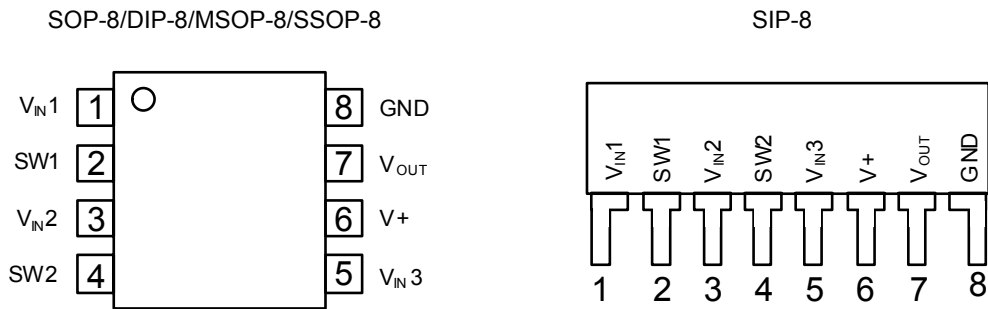
\*Pb-free plating product number: M4034L

#### ORDERING INFORMATION

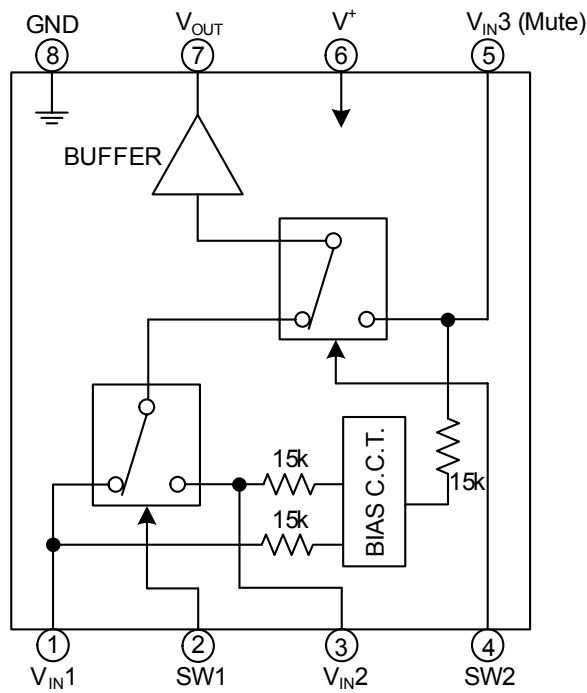
Order Number		Package	Packing
Normal	Lead Free Plating		
M4034-D08-T	M4034L-D08-T	DIP-8	Tube
M4034-G08-T	M4034L-G08-T	SIP-8	Tube
M4034-S08-R	M4034L-S08-R	SOP-8	Tape Reel
M4034-S08-T	M4034L-S08-T	SOP-8	Tube
M4034-SM1-R	M4034L-SM1-R	MSOP-8	Tape Reel
M4034-SM1-T	M4034L-SM1-T	MSOP-8	Tube
M4034-R08-R	M4034L-R08-R	SSOP-8	Tape Reel
M4034-R08-T	M4034L-R08-T	SSOP-8	Tube

<p>M4034L-D08-T</p> <p>(1)Packing Type (2)Package Type (3)Lead Plating</p>	<p>(1) R: Tape Reel, T: Tube (2) D8: DIP-8, G08: SIP-8, S08: SOP-8, SM 1: MSOP-8, R08: SSOP-8 (3) L: Lead Free Plating Blank: Pb/Sn</p>
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## PIN CONFIGURATION



## BLOCK DIAGRAM



## ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		$V^+$	15	V
Power Dissipation	SOP-8	$P_D$	250	mW
	DIP-8		500	mW
	MSOP-8		300	mW
	SSOP-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	$V_{IN}=2V, \text{Staircase signal}$		0		%
Differential Phase		DP	$V_{IN}=2V, \text{Staircase signal}$		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

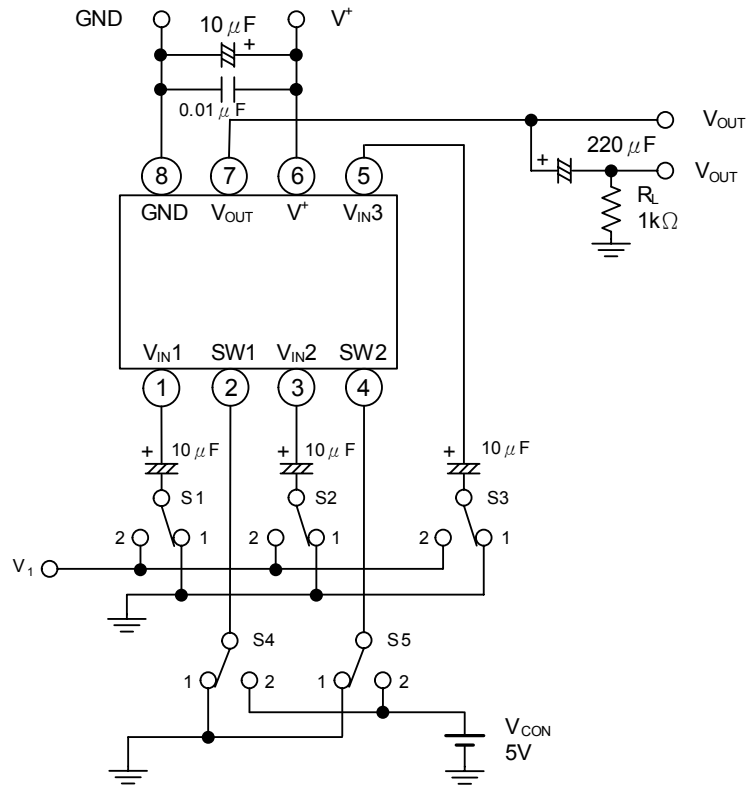
Note 4: Tested on all combination of S1 to S4 excepted one.

(a) S5=2, S3=2

## ■ EQUIVALENT CIRCUIT

PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT	PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT
1	V <sub>IN1</sub>		5	V <sub>IN3</sub> (Mute)	
2	SW1		6	V <sup>+</sup>	
3	V <sub>IN2</sub>		7	V <sub>OUT</sub>	
4	SW2		8	GND	

## ■ TEST CIRCUIT

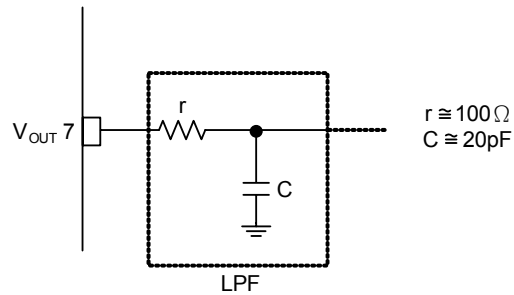


## ■ CONNECTION DIAGRAM

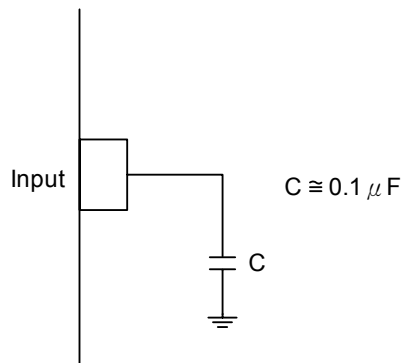
Terminal Name	V <sub>IN1</sub>	SW1	V <sub>IN2</sub>	SW2	V <sub>IN3</sub>	V <sup>+</sup>	V <sub>OUT</sub>	GND
DC Voltage	$\frac{3}{5} V^+$		$\frac{3}{5} V^+$		$\frac{3}{5} V^+$		$\frac{3}{5} V^+ - 0.7$	

## ■ 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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