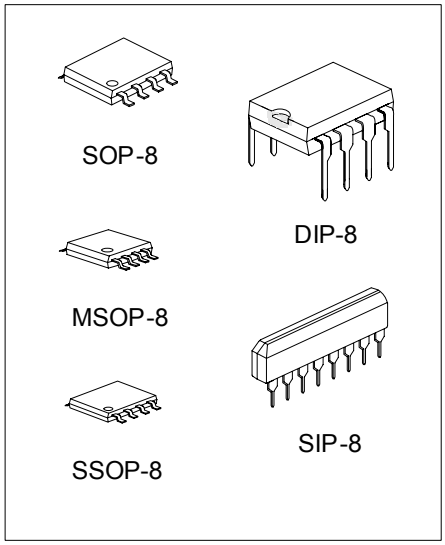
M4034

LINEAR INTEGRATED CIRCUIT

3-INPUT VIDEO SWITCH



*Pb-free plating product number: M4034L

■ 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

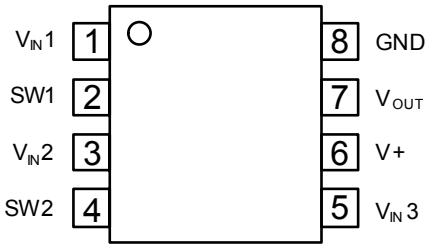
■ ORDERING INFORMATION

Order Number		Package	Packing
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

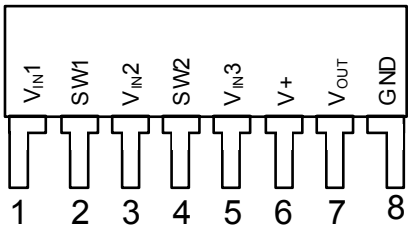
M4034L-D08-T (1)Packing Type (2)Package Type (3)Lead Plating	(1) R: Tape Reel, T: Tube (2) D8: DIP-8, G08: SIP-8, S08: SOP-8, SM 1: MSOP-8, R08: SSOP-8 (3) L: Lead Free Plating Blank: Pb/Sn

■ PIN CONFIGURATION

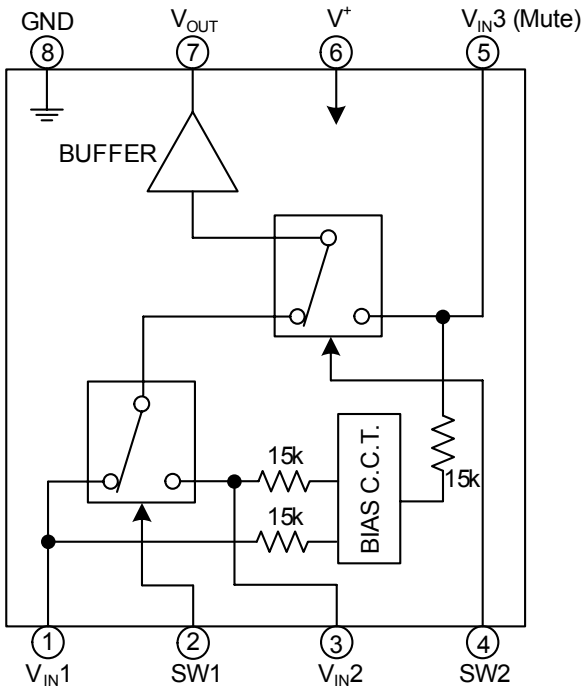
SOP-8/DIP-8/MSOP-8/SSOP-8



SIP-8



■ 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	℃
Operating Temperature		T_{OPR}	-20 ~ +75	℃
Storage Temperature		T_{STG}	-40 ~ +125	℃

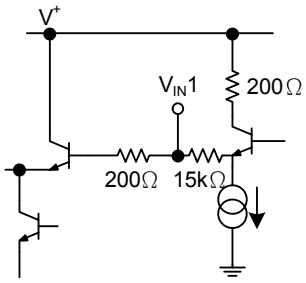
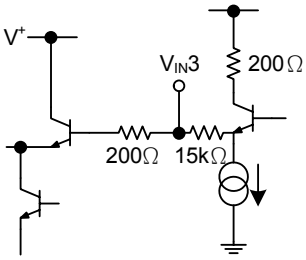
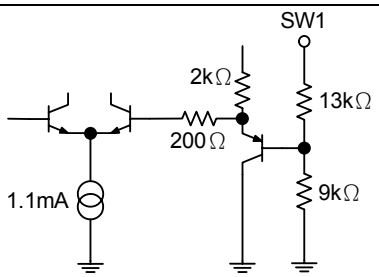
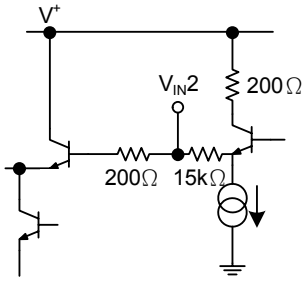
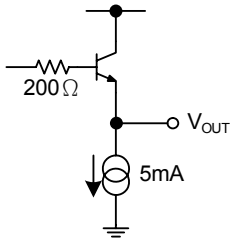
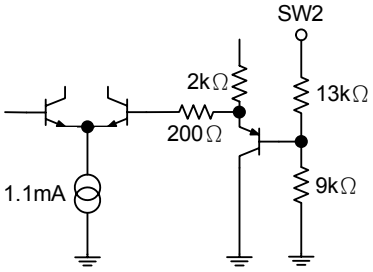
Note Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (V_{IN}=5V, Ta=25℃)

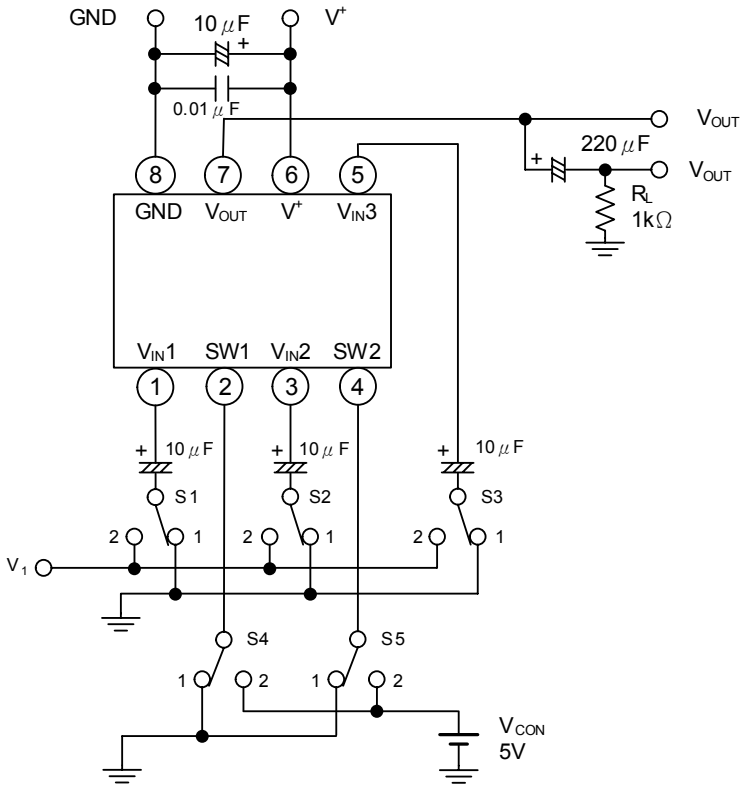
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Recommended Supply Voltage		V^+		4.75		13.0	V
Output Offset Voltage		$V_{O(OFF)}$	(Note 2)	-30		+30	mV
Switch Change Voltage	High	V_{CH}	All inside SW : ON	2.4			V
	Low	V_{CL}	All inside SW : OFF			0.8	V
Operating Current		I_{CC}	S1=S2=S3=S4=S5=1		10.6	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_{INI}=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	PIN NO.	PIN FUNCTION	INSIDE EQUIVALENT CIRCUIT
1	$V_{IN}1$		5	$V_{IN}3$ (Mute)	
2	SW1		6	V^+	
3	$V_{IN}2$		7	V_{OUT}	
4	SW2		8	GND	

■ TEST CIRCUIT

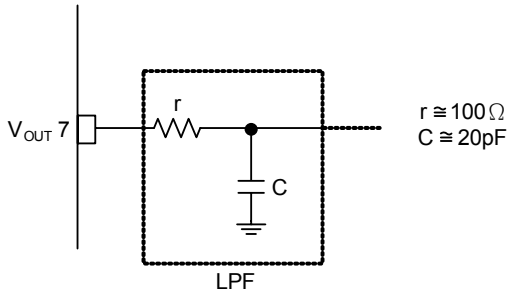


■ CONNECTION DIAGRAM

Terminal Name	$V_{IN}1$	SW1	$V_{IN}2$	SW2	$V_{IN}3$	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.