



M2120

LINEAR INTEGRATED CIRCUIT

OPERATIONAL AMPLIFIER WITH SWITCH

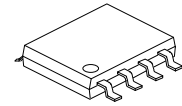
DESCRIPTION

The UTC **M2120** is a dual operational amplifier of 2-INPUT and 1-OUTPUT with analog switch. The UTC **M2120** can be used as analog switch, as Switch + Amp in order that each gain (A or B) can be adjusted independently.

The UTC **M2120** is suitable for Audio, Video, Electrical musical instrument...etc.

FEATURES

- * Analog Switch Function
- * Operating Voltage: $\pm 2.5V \sim \pm 18V$
- * Slew Rate: $1.2V/\mu s$ typ.
- * Wide Unity Gain Bandwidth: 3.5 MHz typ.



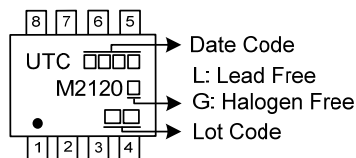
SOP-8

ORDERING INFORMATION

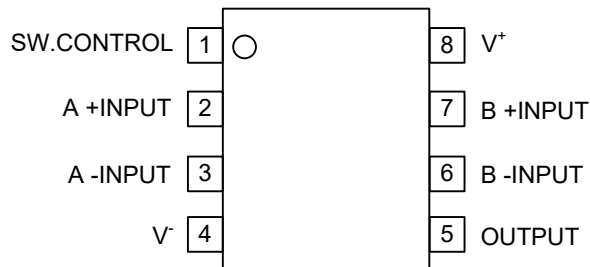
Ordering Number		Package	Packing
Lead Free	Halogen Free		
M2120L-S08-R	M2120G-S08-R	SOP-8	Tape Reel

<p>M2120G-S08-R</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) R: Tape Reel (2) S08: SOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



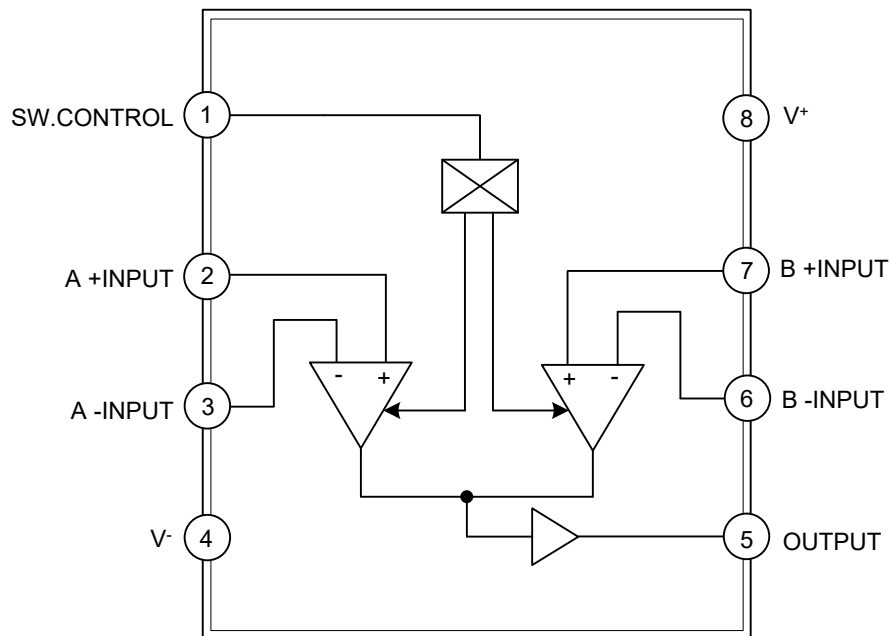
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	SW.CONTROL	Switch of channel control
2	A +INPUT	Non-invert input of A AMP
3	A -INPUT	Invert input of A AMP
4	V ⁻	Negative power supply
5	OUTPUT	Output of AMP
6	B -INPUT	Invert input of B AMP
7	B +INPUT	Non-invert input of B AMP
8	V ⁺	Positive power supply

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING ($T_A=25^\circ\text{C}$, unless otherwise specified)

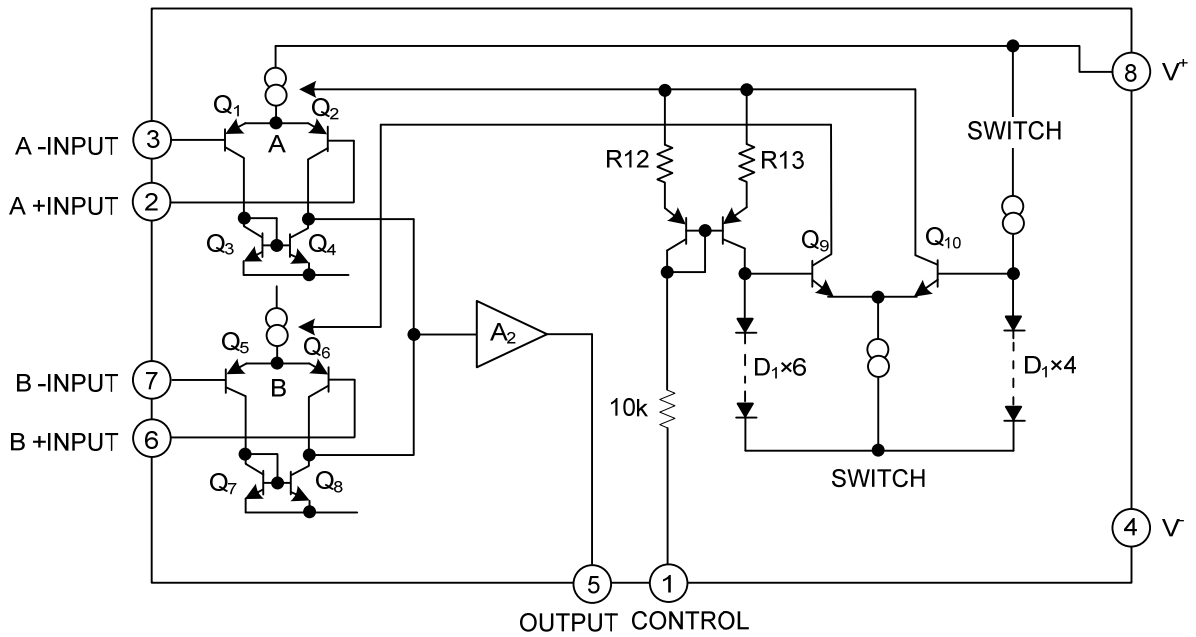
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+ / V^-	± 18	V
Differential Input Voltage	V_{ID}	± 30	V
Input Voltage	V_{IC}	± 15	V
Output Current	I_O	± 50	mA
Power Dissipation	P_D	800	mW
Operating Temperature Range	T_{OPR}	-40 ~ +85	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-40 ~ +125	$^\circ\text{C}$

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 ($V^+ / V^- = \pm 15\text{V}$, $T_A=25^\circ\text{C}$, unless otherwise specified)

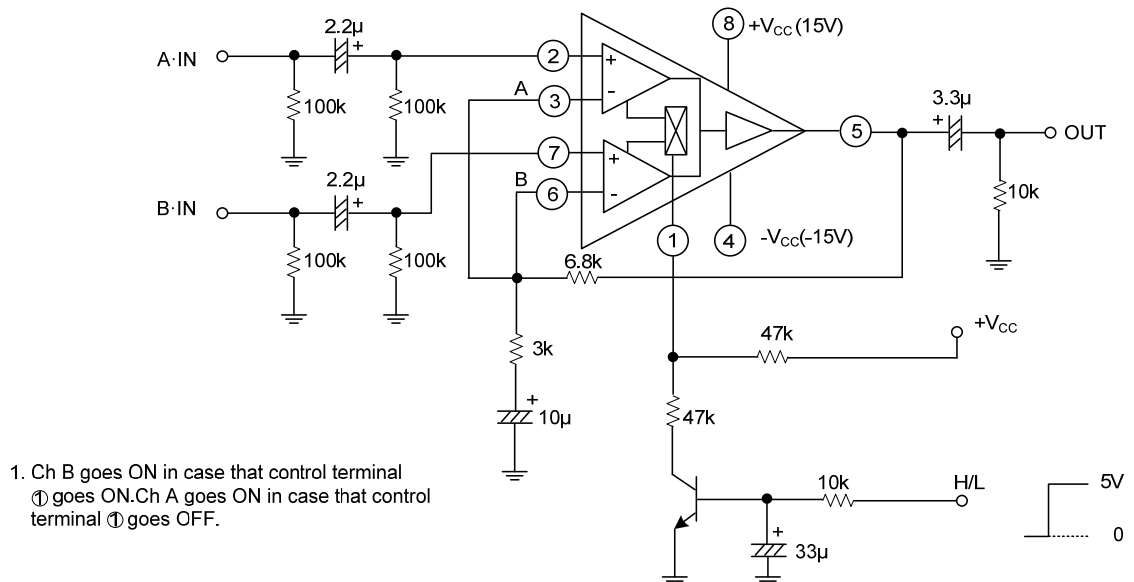
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Current	I_Q	V_{IN} SW ON		2.2	6.0	mA
		V_{IN} SW OFF		1.6	6.0	mA
Supply Voltage Rejection Ratio	SVR		90	115		dB
Offset Voltage	V_{IO}			0.8	6.0	mV
Input Bias Current	I_B	$V_{CM}=0\text{V}$		60	500	nA
Large Signal Voltage Gain	A_V	$R_L=2\text{k}\Omega$		105		dB
Maximum Output Voltage Swing	V_{OM}	$R_L=10\text{k}\Omega$	± 12	± 14		V
Slew Rate	SR	$G_V=0\text{dB}$, $R_L=2\text{k}\Omega/100\text{pF}$		1.2		V/ μs
Gain Bandwidth Product	GBW	$G_V=40\text{dB}$		3.5		MHz
Total Harmonic Distortion	THD	$V_O=5\text{Vrms}$, $f=1\text{kHz}$, $G_V=20\text{dB}$		0.002		%
Channel Separation	CS	$f=1\text{kHz}$		80		dB
Equivalent Input Noise Voltage	V_{NI}	$R_S=1\text{k}\Omega$, BW =10Hz~30kHz, Flat		2.8		μVrms

■ EQUIVALENT CIRCUIT



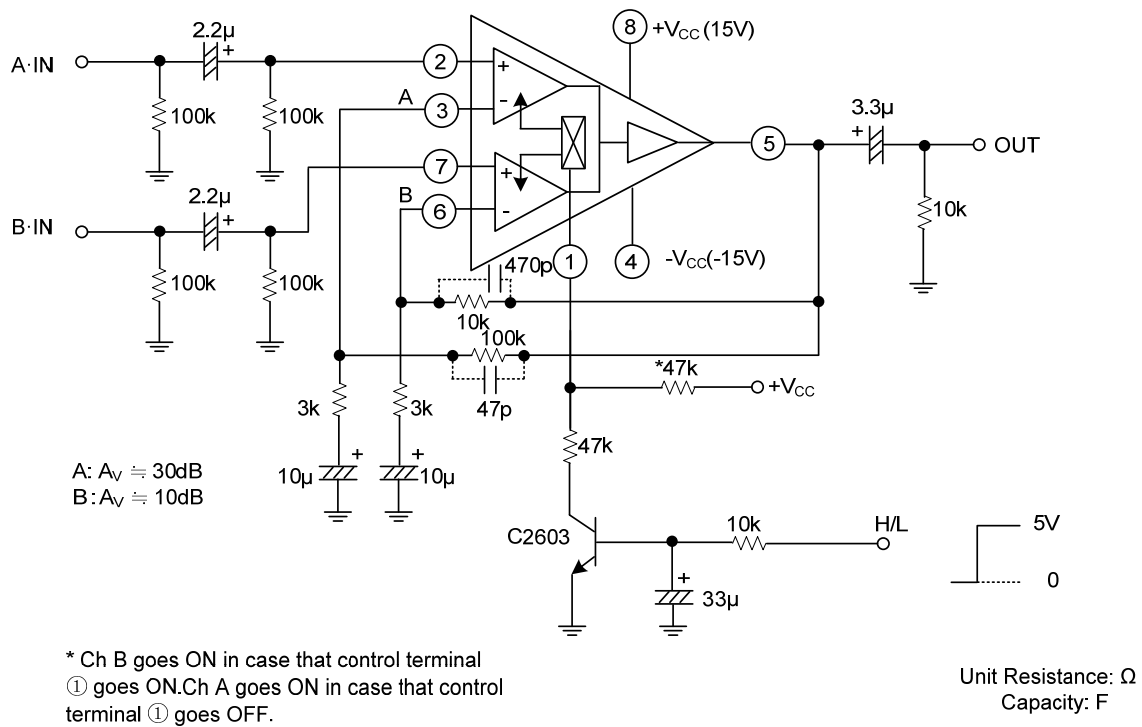
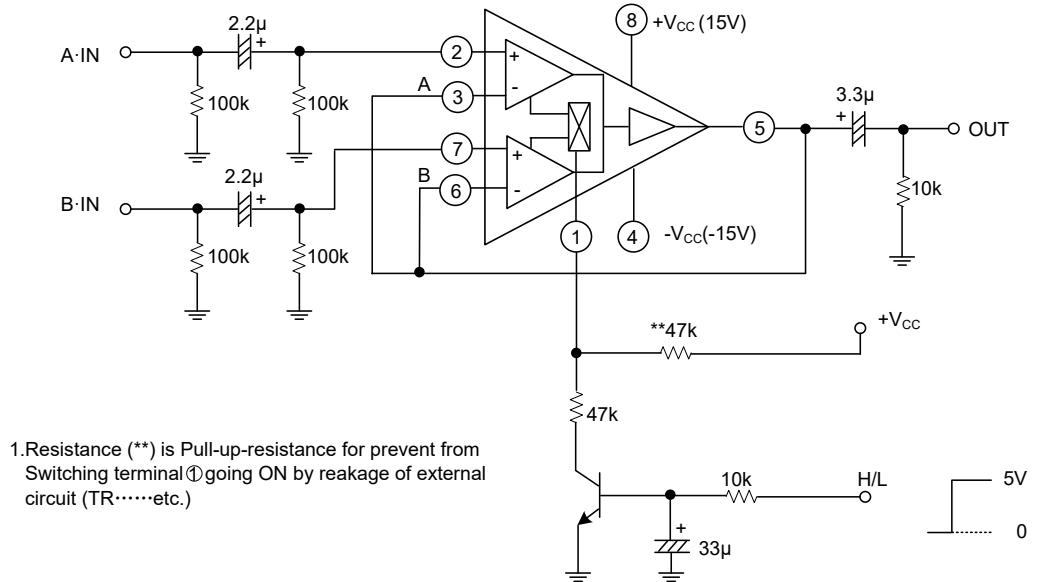
■ TYPICAL APPLICATION CIRCUIT

1. $G_v \cong 10\text{dB}$ FLAT Amp + Analog Switch Circuit

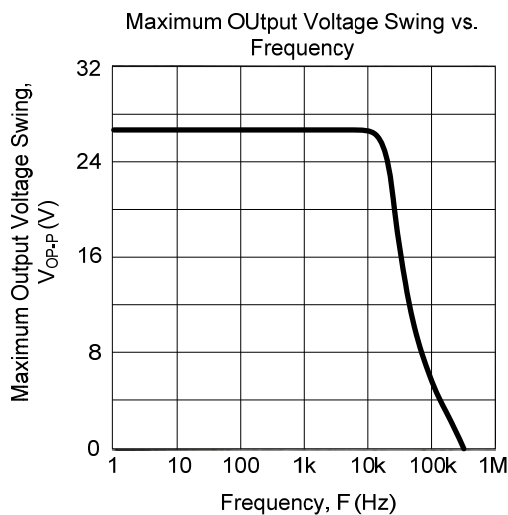
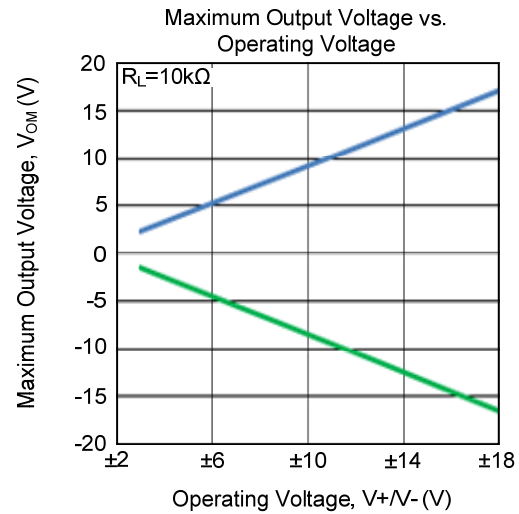
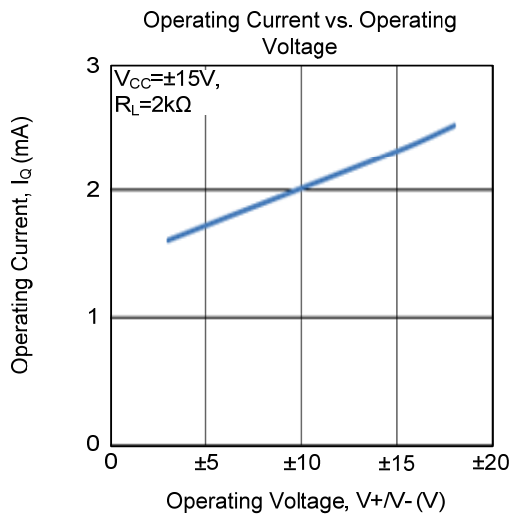


■ TYPICAL APPLICATION CIRCUIT (Cont.)

2. Analog Switch Circuit (GV=0dB Voltage Follower Amp)



■ TYPICAL CHARACTERISTICS



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