



M7612

LINEAR INTEGRATED CIRCUIT

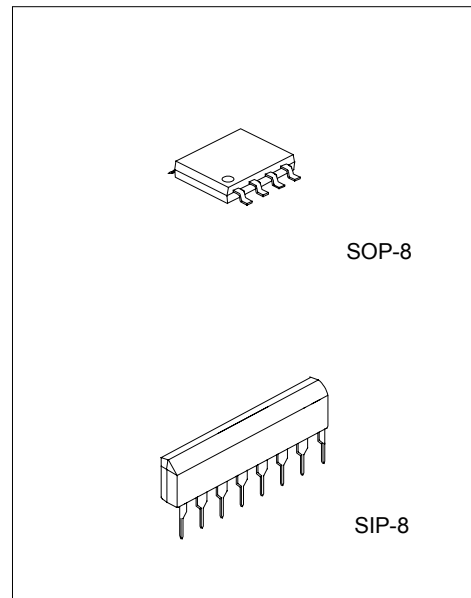
VIDEO SIGNAL SWITCHER

DESCRIPTION

The UTC **M7612** is three-channel analog multiplexes and designed for use in TV and video cassette recorders. It is characterized by a large dynamic range and wide operating frequency range.

FEATURES

- *3-input / 1-output switches.
- *Built-in mute 6dB amplifier and 75Ω driver.
- *Large input impedance (20kΩ Typ.).
- *Wide operating supply voltage range
(4.5V ~ 13.0V for SIP-8 package)
(4.5V ~ 9.5V for SOP-8 package).
- *Low power dissipation (103mW Typ.).
- *Excellent frequency characteristics (10MHz, 0dB Typ.).
- *Wide dynamic range (3.5V_{P-P} Typ.).
- *Low interchannel crosstalk (– 65dB Typ., f = 4.43MHz).

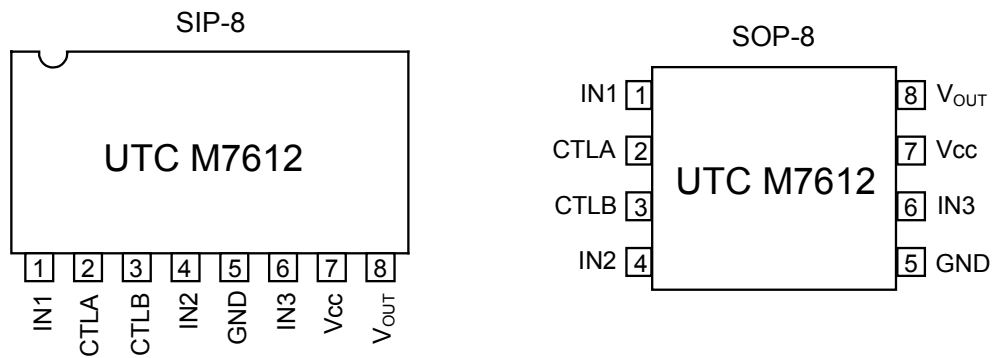


*Pb-free plating product number: M7612L

ORDERING INFORMATION

Ordering Number		Package	Packing
Normal	Lead Free Plating		
M7612-S08-T	M7612L-S08-T	SOP-8	Tube
M7612-S08-R	M7612L-S08-R	SOP-8	Tape Reel
M7612-G08-T	M7612L-G08-T	SIP-8	Tube

■ PIN CONFIGURATIONS



■ TRUTH TABLE

CTL A	CTL B	OUT
L (OPEN)	L (OPEN)	IN1
L (OPEN)	H	IN2
H	L (OPEN)	IN3
H	H	MUTE

■ ABSOLUTE MAXIMUM RATINGS (Ta=25 °C)

PARAMETER		SYMBOL	RATINGS	UNIT
Power Supply Voltage	SIP-8	V _{CC}	13.5	V
	SOP-8		10.0	
Power Dissipation	SIP-8	P _D	900	mW
	SOP-8		550	
Operating Temperature		T _{OPR}	0 ~ +70	
Storage Temperature		T _{STG}	-40 ~ +150	

■ ELECTRICAL CHARACTERISTICS (Ta=25 °C, Vcc=5V, unless otherwise specified.)

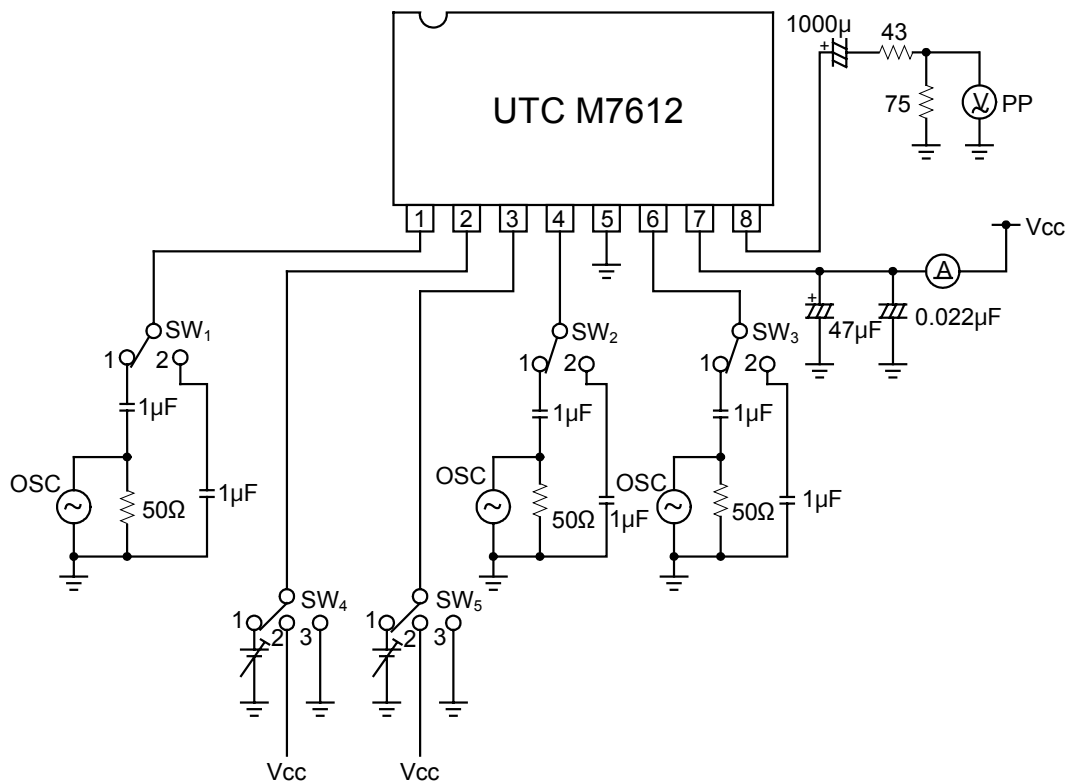
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage Range	SIP-8	V _{CC}		4.5		13.0	V
	SOP-8			4.5		9.5	V
Supply Current		I _{CC}			20.5	29.0	mA
Maximum Output Level		V _{OM}	f=1kHz, THD=0.5%	3.0	3.5		Vp-p
Voltage Gain		G _V	f=1MHz, V _{IN} =1.0Vp-p	5.5	6.0	6.5	dB
Interchannel Crosstalk		C _T	f=4.43MHz, V _{IN} =1.0Vp-p		-65		dB
Frequency Characteristic		C _F	f=10MHz/1MHz, V _{IN} =1.0Vp-p	-3.0	0	1.0	dB
Input Impedance		Z _{IN}		14	20	26	kΩ
CTL Pin Switching Level A		V _{TH-A}		1.0	2.0	3.0	V
CTL Pin Switching Level B		V _{TH-B}		1.0	2.0	3.0	V

*Not designed for radiation resistance.

■ MEASUREMENT CONDITIONS

PARAMETER		SYMBOL	SWITCH SETTINGS					MEASUREMENT METHOD
			SW ₁	SW ₂	SW ₃	SW ₄	SW ₅	
Current Dissipation		I _{CC}	2	2	2	2	2	Ammeter
Maximum Output Level	I _{N1}	V _{OM}	1	2	2	3	3	f=1kHz, THD=0.5% see Test Notes 2
	I _{N2}	V _{OM}	2	1	2	3	2	
	I _{N3}	V _{OM}	2	2	1	2	3	
Voltage Gain	I _{N1}	G _V	1	2	2	3	3	f=1MHz, V=1Vp-p see Test Notes 3
	I _{N2}	G _V	2	1	2	3	2	
	I _{N3}	G _V	2	2	1	2	3	
Interchannel Crosstalk	I _{N1} →I _{N2}	C _T	1	2	2	3	2	f=4.43MHz, V=1Vp-p see Test Notes 4
	I _{N1} →I _{N3}	C _T	1	2	2	2	3	
	I _{N1} →MUTE	C _T	1	2	2	2	2	
	I _{N2} →I _{N3}	C _T	2	1	2	2	3	
	I _{N2} →MUTE	C _T	2	1	2	2	2	
Frequency Characteristic	I _{N1}	G _F	1	2	2	3	3	f=10MHz/f=1MHz V=1Vp-p see Test Notes 5
	I _{N2}	G _F	2	1	2	3	2	
	I _{N3}	G _F	2	2	1	2	3	
CTL Pin Switching Level	CTL A	V _{TH}	2	2	1	1	3	see Test Notes 6
	CTL B	V _{TH}	2	1	2	3	1	

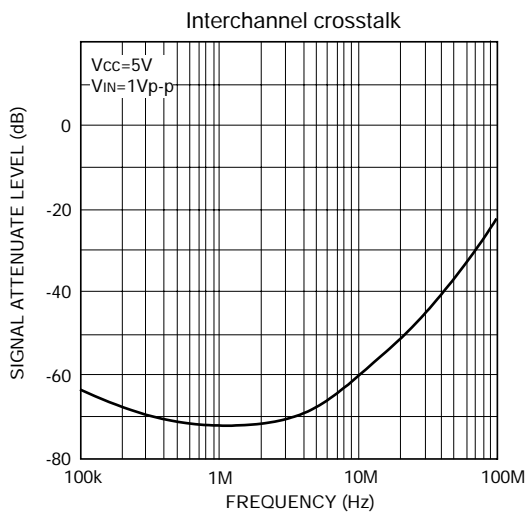
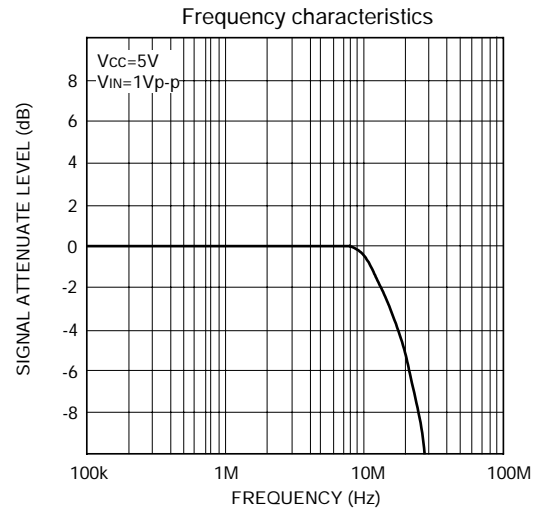
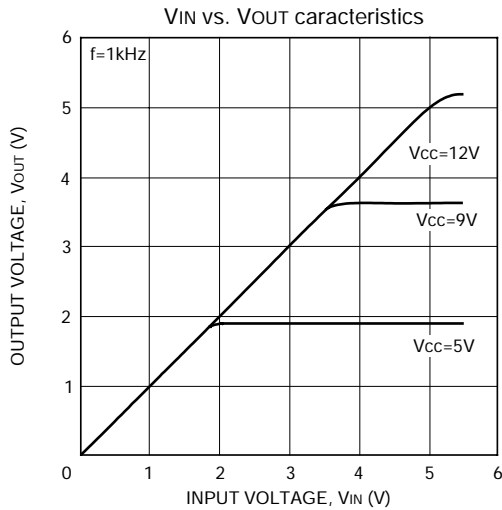
■ TEST CIRCUIT



■ TEST NOTES

1. The output impedance is approximately 32Ω. Therefore, to ensure output matching, connect an external resistor of 43Ω.
2. Connect a distortion meter to the output, and input a $f = 1\text{kHz}$ sine wave. Adjust the input level until the output distortion is 0.5%. This output voltage at this time multiplied by 2 is the maximum output level V_{om} (V_{P-P}).
3. Input a $1V_{P-P}$, 1MHz sine wave. The voltage gain is given by $G_V = 20 \log (V_{OUT} / V_{IN}) + 6$.
4. Input a $1V_{P-P}$, 4.43MHz sine wave. The interchannel crosstalk is given by $C_T = 20 \log (V_{OUT} / V_{IN})$.
5. Input $1V_{P-P}$, 1MHz and 10MHz sine waves.
The frequency characteristic is given by $G_F = 20 \log (V_{OUT} (f = 10\text{MHz}) / V_{OUT} (f = 1\text{MHz}))$.
6. Input a $1V_{P-P}$, 1MHz sine wave. Reduce the CTL pin voltage from V_{CC} . The CTL pin switching level (V_{TH}) is the CTL pin voltage at which the V_{OUT} level drops below $20mV_{P-P}$.

■ TYPICAL CHARACTERISTIC



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