M62412P

2CH 4 MODE PRESET EQUALIZER

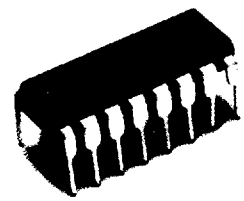
DESCRIPTION

The M62412P is a preset equalizer IC developed for mini compo and radio cassette units.

This IC having sound effects of 4 modes, "Normal", "Rock", "Pops" and "Classic". These modes are produced by combining DC levels at the 2 control terminals.

FEATURES

- Can be realized preset equalizer at external capacitors of 3 pieces per channel.
- Sound effects of 4 modes can be selected at 2 switches.



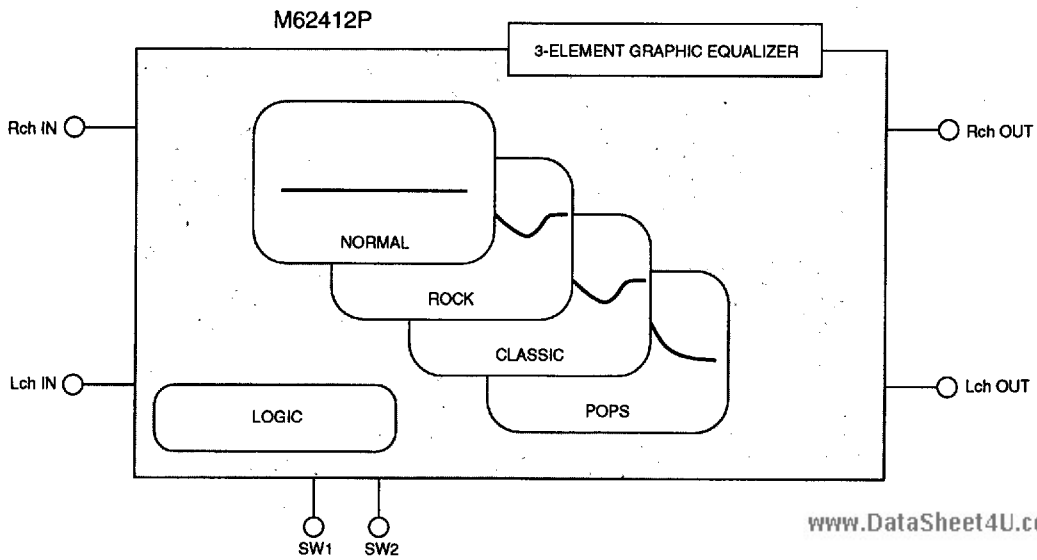
Outline 16P4

2.54mm pitch 300mil DIP
(6.3mm×19.0mm×3.3mm)

RECOMMENDED OPERATING CONDITIONS

Supply voltage range ..... Vcc = 8 to 13 V
Rated supply voltage ..... Vcc = 10.7 V

SYSTEM CONFIGURATION



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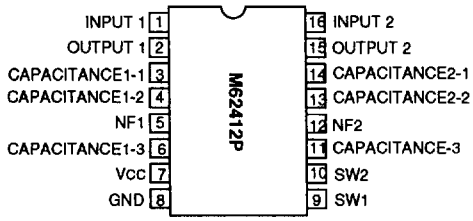
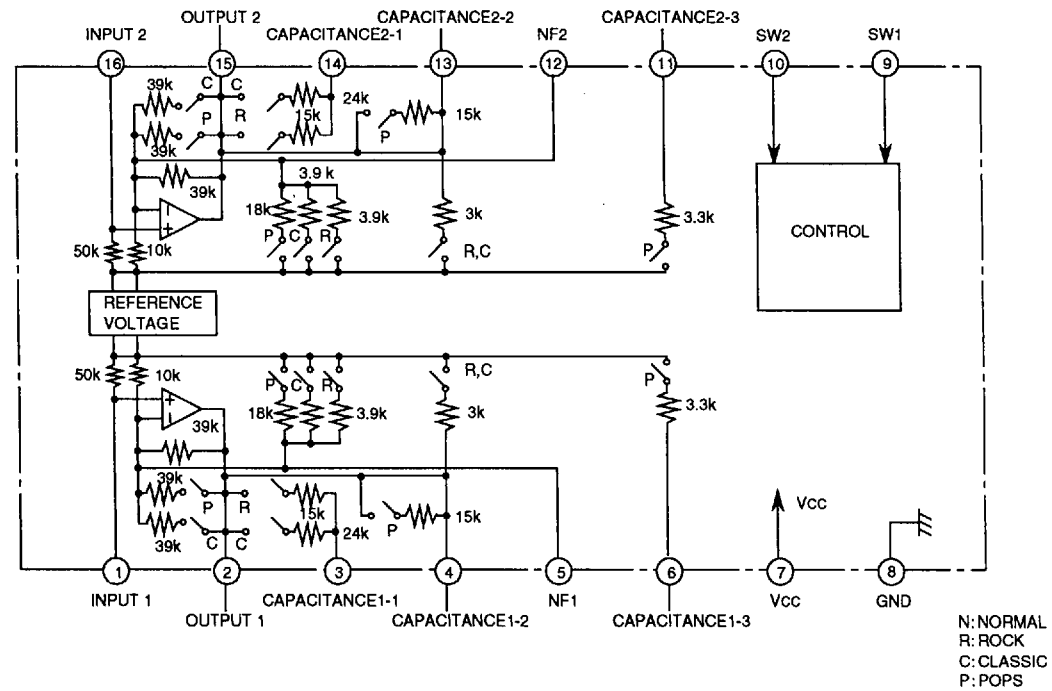
PIN CONFIGURATION (TOP VIEW)



Outline 16P4

IC INTERNAL BLOCK DIAGRAM



Units Resistance : Ω

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ABSOLUTE MAXIMUM RATINGS (Ta = 25℃, unless otherwise noted)

Symbol	Parameter	Ratings	Unit
V_{ccmax}	Supply voltage	14	V
Pd	Power dissipation (Ta≦25℃)	1000	mW
K_θ	Thermal derating (Ta>25℃)	10.0	mW/℃
Topr	Operating temperature	−20 to 75	℃
Tstg	Storage temperature	−40 to 125	℃
Vi	Switch input voltage range	−0.3 to Vcc 0.3	V

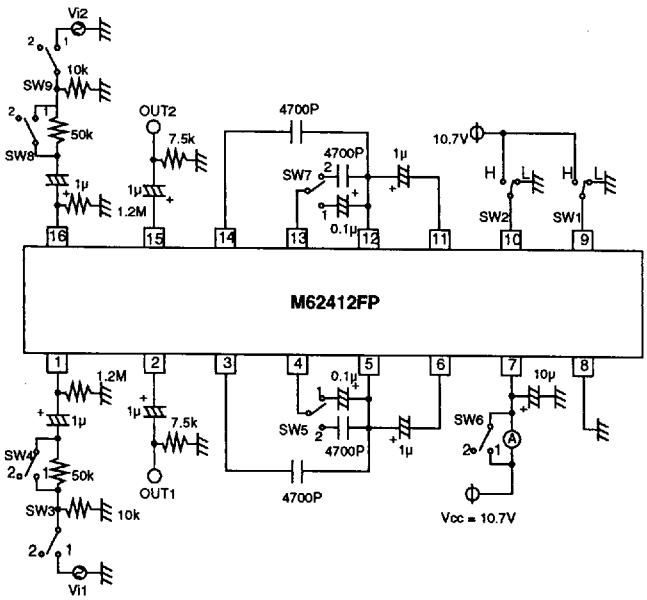
SWITCH CONDITIONS (L≦1.0 V, H≧3.5 V)

	SW 1 ⑨pin	SW 2 ⑩pin
Normal	L	L
Rock	L	H
Classic	H	L
Pops	H	H

ELECTRICAL CHARACTERISTICS (Normal, Vcc = 10.7 V, f = 1 kHz, Vi = 56 mVrms unless otherwise noted)

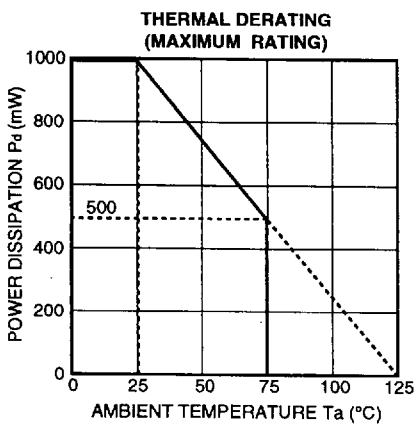
Symbol		Parameter	Test conditions	Switchs									Limits			Unit
				S1	S2	S3	S4	S5	S6	S7	S8	S9	Min	Typ	Max	
Icc		Circuit current	Quiescent	L	L	2	1	1	2	1	1	2	4.8	8.0	11.2	mA
G (Normal)	Normal	Output voltage gain		L	L	1	1	1	1	1	1	1	11.8	13.8	15.8	dB
VOM (Normal)	Normal	Maximum output voltage	RL = 7.5kΩ THD = 1%	L	L	1	1	1	1	1	1	1	2.0	2.5	–	Vrms
THD (Normal)	Normal	Total harmonic distortion	BW : 400 to 30kHz	L	L	1	1	1	1	1	1	1	–	0.013	0.1	%
VNO (Normal)	Normal	Output noise voltage	Rg = 10kΩ Quiescent, IHF-A	L	L	2	1	1	1	1	1	2	–	20	40	μVrms
G (ROCK)	ROCK	Output voltage gain		L	H	1	1	1	1	1	1	1	20.2	23.2	26.2	dB
VOM (ROCK)	ROCK	Maximum output voltage	RL = 7.5kΩ THD = 1%	L	H	1	1	1	1	1	1	1	2.0	2.7	–	Vrms
THD (ROCK)	ROCK	Total harmonic distortion	BW : 400 to 30kHz	L	H	1	1	1	1	1	1	1	–	0.025	0.1	%
VNO (ROCK)	ROCK	Output noise voltage	Rg = 10kΩ Quiescent, IHF-A	L	H	2	1	1	1	1	1	2	–	30	60	μVrms
G (CLASSIC)	CLASSIC	Output voltage gain		H	L	1	1	1	1	1	1	1	16.8	19.8	22.8	dB
VOM (CLASSIC)	CLASSIC	Maximum output voltage	RL = 7.5kΩ THD = 1%	H	L	1	1	1	1	1	1	1	2.0	2.7	–	Vrms
THD (CLASSIC)	CLASSIC	Total harmonic distortion	BW : 400 to 30kHz	H	L	1	1	1	1	1	1	1	–	0.023	0.1	%
VNO (CLASSIC)	CLASSIC	Output noise voltage	Rg = 10kΩ Quiescent, IHF-A	H	L	2	1	1	1	1	1	2	–	27	54	μVrms
G (POPS)	POPS	Output voltage gain		H	H	1	1	2	1	2	1	1	14.5	17.5	20.5	dB
VOM (POPS)	POPS	Maximum output voltage	RL = 7.5kΩ THD = 1%	H	H	1	1	2	1	2	1	1	2.0	2.7	–	Vrms
THD (POPS)	POPS	Total harmonic distortion	BW : 400 to 30kHz	H	H	1	1	2	1	2	1	1	–	0.013	0.1	%
VNO (POPS)	POPS	Output noise voltage	Rg = 10kΩ Quiescent, IHF-A	H	H	2	1	2	1	2	1	2	–	18	36	μVrms
CSep		Channel separation	Rg = 10kΩ IHF-A	L	L	2	1	1	1	1	1	2	75	85	–	dB
Ri		Input resistor		L	L	1	1/2	1	1	1	1/2	1	35	50	–	kΩ

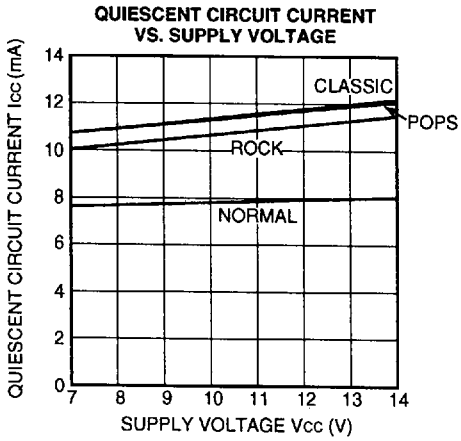
TEST CIRCUIT



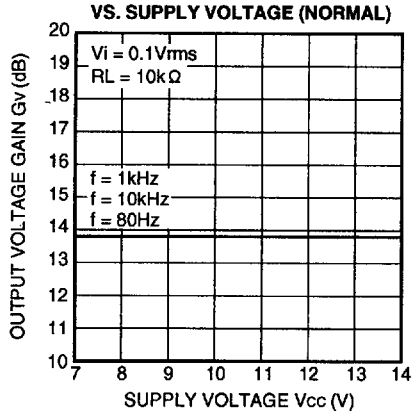
Units Resistance : Ω
Capasitance : F

TYPICAL CHARACTERISTICS

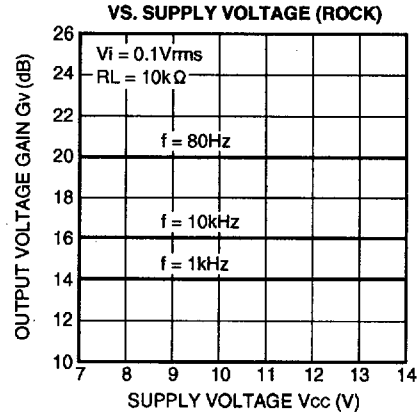




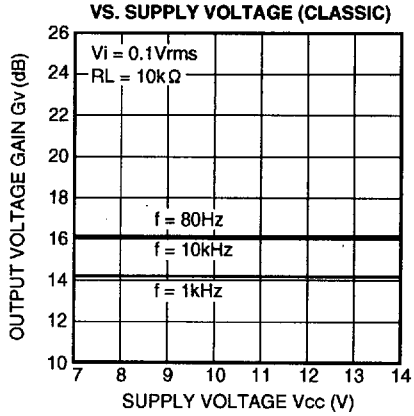
OUTPUT VOLTAGE GAIN
VS. SUPPLY VOLTAGE (NORMAL)



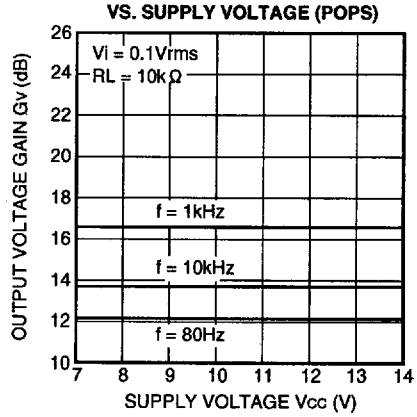
OUTPUT VOLTAGE GAIN
VS. SUPPLY VOLTAGE (ROCK)



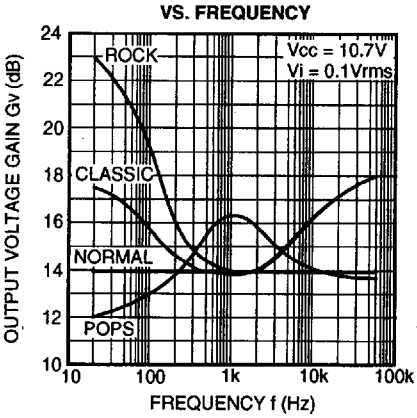
OUTPUT VOLTAGE GAIN
VS. SUPPLY VOLTAGE (CLASSIC)



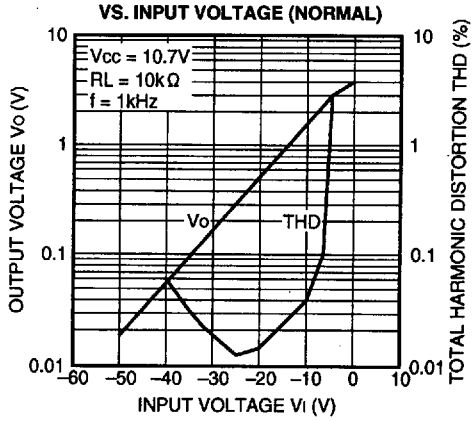
OUTPUT VOLTAGE GAIN
VS. SUPPLY VOLTAGE (POPS)



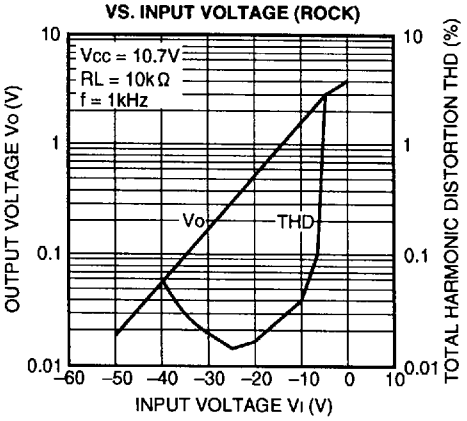
OUTPUT VOLTAGE GAIN
VS. FREQUENCY



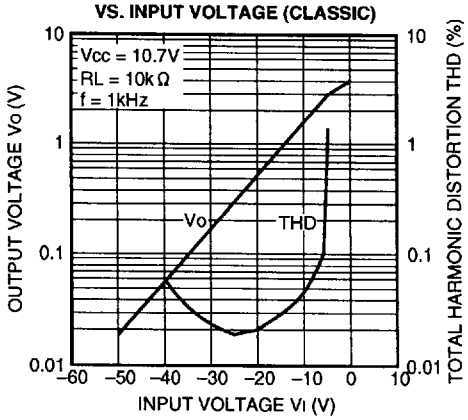
TOTAL HARMONIC DISTORTION
OUTPUT VOLTAGE
VS. INPUT VOLTAGE (NORMAL)



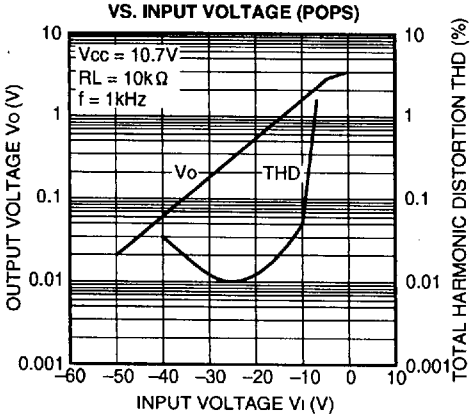
TOTAL HARMONIC DISTORTION
OUTPUT VOLTAGE
VS. INPUT VOLTAGE (ROCK)



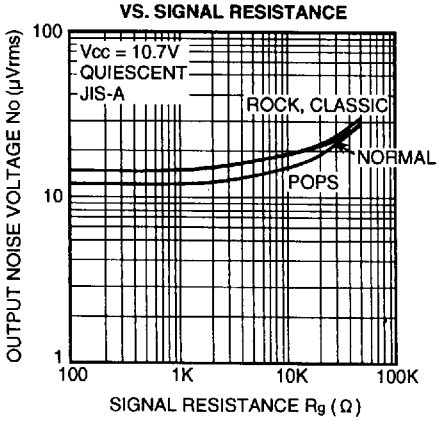
TOTAL HARMONIC DISTORTION
OUTPUT VOLTAGE
VS. INPUT VOLTAGE (CLASSIC)



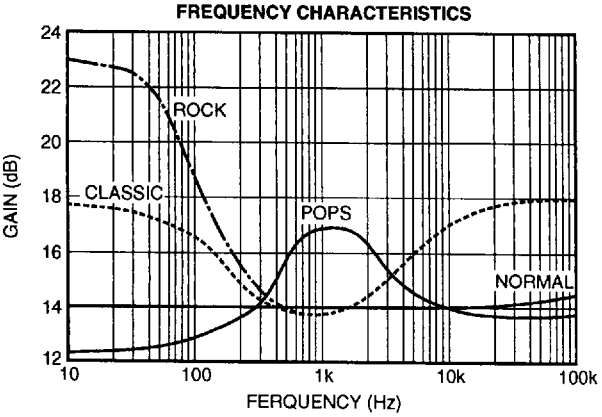
TOTAL HARMONIC DISTORTION
OUTPUT VOLTAGE
VS. INPUT VOLTAGE (POPS)



OUTPUT NOISE VOLTAGE
VS. SIGNAL RESISTANCE



FREQUENCY CHARACTERISTICS



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2CH 4 MODE PRESET EQUALIZER

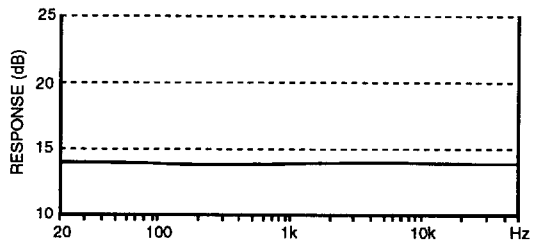
FUNCTION DESCRIPTION

ELECTRICAL CHARACTERISTICS OF APPLICATION EXAMPLE (Normal, Vcc = 10.7 V, f = 1 kHz, Vi = 0.1 Vrms, f = 1 kHz unless otherwise noted)

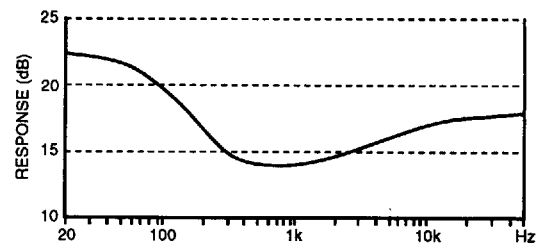
Symbol	Parameter			Conditions	Data	Unit
Icc	Circuit current			Vcc = 10.7V	8.0	mA
G(Normal)B	Preset mode	Normal voltage gain	BASS	f = 80Hz	14	dB
G(Normal)M			MID	f = 1kHz	14	dB
G(Normal)T			TREBLE	f = 10kHz	14	dB
G(ROCK)B		Rock voltage gain	BASS	f = 80Hz	20	dB
G(ROCK)M			MID	f = 1kHz	14	dB
G(ROCK)T			TREBLE	f = 10kHz	16	dB
G(CLASSIC)B		Classic voltage gain	BASS	f = 80Hz	16	dB
G(CLASSIC)M			MID	f = 1kHz	14	dB
G(CLASSIC)T			TREBLE	f = 10kHz	16	dB
G(POPS)B		Pops voltage gain	BASS	f = 80Hz	12	dB
G(POPS)M			MID	f = 1kHz	16	dB
G(POPS)T			TREBLE	f = 10kHz	14	dB
VOM	Maximum output voltage			THD = 1%, f = 1kHz	2.5	Vrms
THD	Total harmonic distortion			f = 1kHz, Vo = 0.5Vrms BW = 400Hz to 30kHz	0.02	%
VNO	Output noise voltage			Rg = 10kΩ, BW : IHF-A	20.0	μVrms
CSep	Channel separation			f = 1kHz, BW : IHF-A	−75	dB
Ri	Input resistor				50	kΩ

SOUND CONTROL SPECK OF APPLICATION EXAMPLE

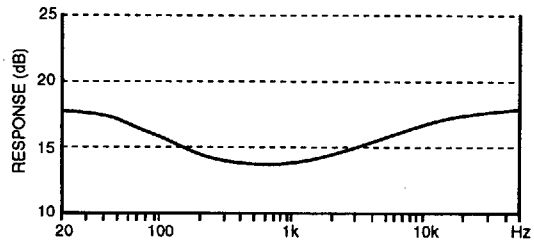
NORMAL



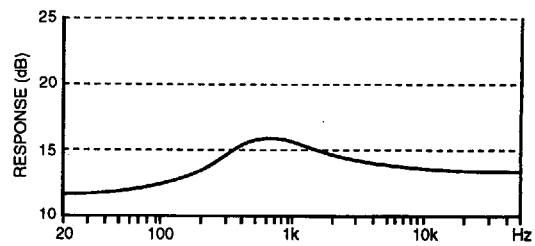
ROCK



CLASSIC



POPS



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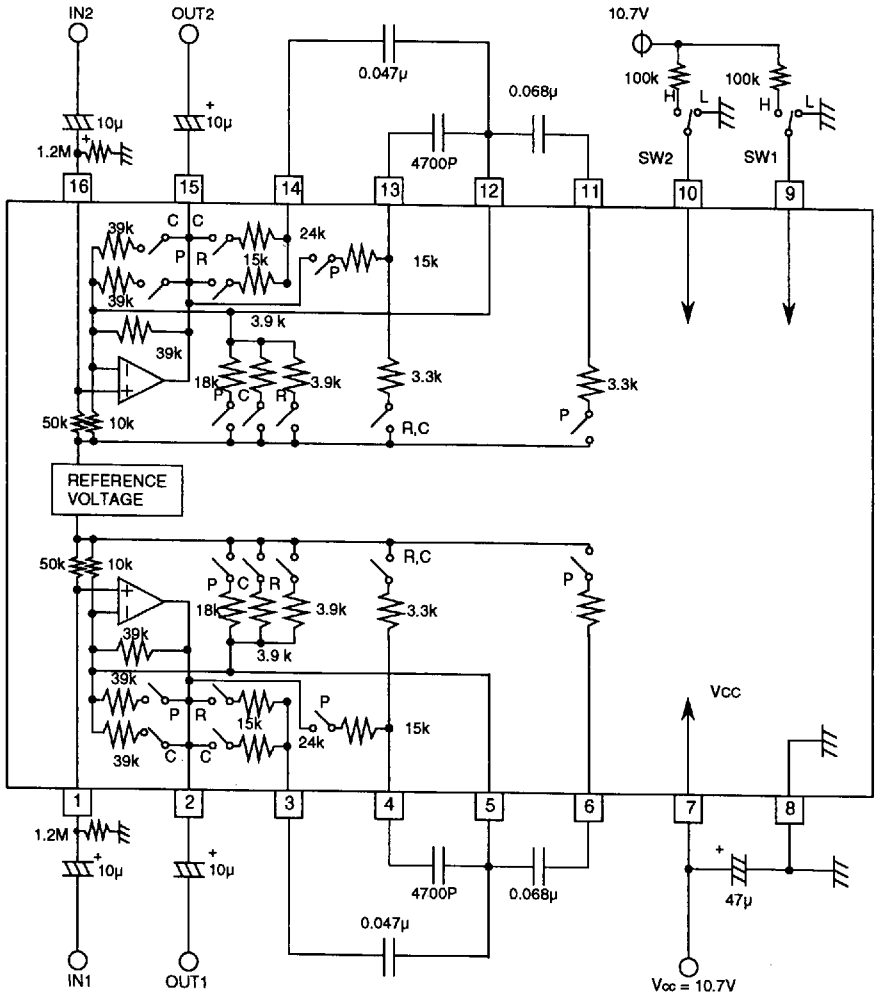
APPLICATION EXAMPLE



Units Resistance : Ω
Capasitance : F