

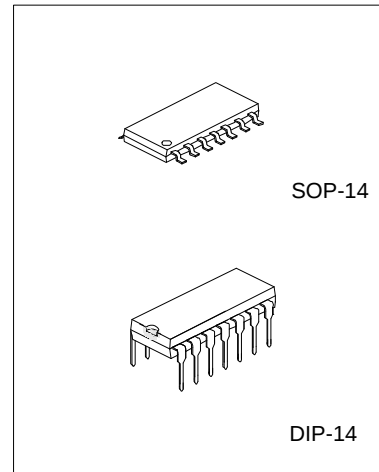
QUAD OPERATIONAL AMPLIFIERS

DESCRIPTION

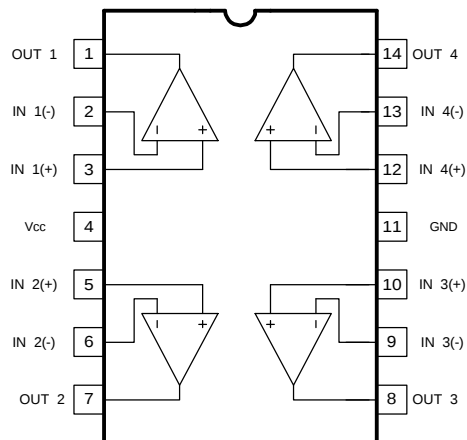
The UTC LM324 consists of four independent, high gain internally frequency compensated operational amplifiers which are designed specifically to operate from a single power supply over a wide voltage range. Operation from split power supplies is also possible. Application areas include transducer amplifier, DC gain blocks and all the conventional OP amp circuits which now can be easily implemented in single power supply system.

FEATURES

- *Internally frequency compensated for unity gain.
- *Large DC voltage gain :100dB.
- *Wide operating supply range($V_{CC}=3V\sim 32V$).
- *Input common-mode voltage includes ground.
- *Large output voltage swing: From 0V to $V_{CC}-1.5V$.
- *Power drain suitable for battery operation.

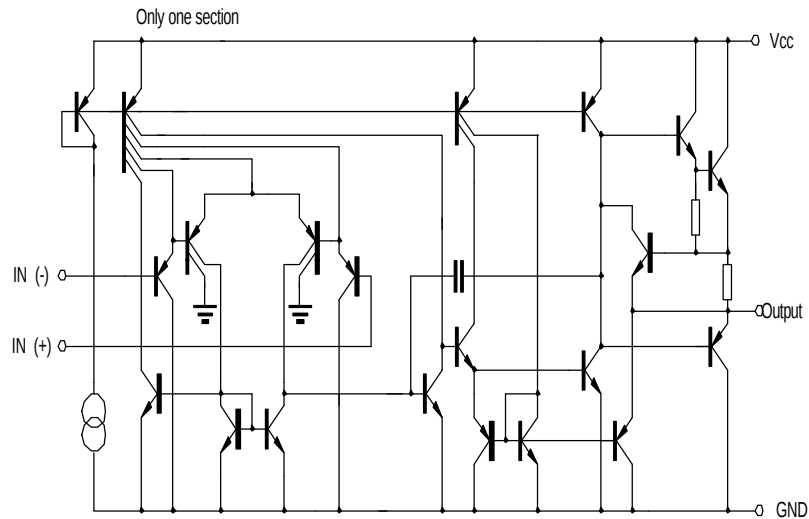


PIN CONFIGURATIONS



UTC LM324 LINEAR INTEGRATED CIRCUIT

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS(Ta=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	Vcc	18	V
Differential Input Voltage	VIDiff)	32	V
Input Voltage	VI	-0.3~32V	V
Power Dissipation	Pd	570	mW
Operating Temperature	Topr	0 to +70	°C
Storage Temperature	Tstg	-65 to 150	°C

UTC LM324 LINEAR INTEGRATED CIRCUIT

ELECTRICAL CHARACTERISTICS(Ta=25°C)

(Vcc=5.0V, All voltage referenced to GND unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP.	MAX	UNIT
Input Offset Voltage	V _{IO}	V _{CM} =0 to V _{CC} =-1.5 V _{O(p)} =1.4V, R _S =0			7	mV
Input Offset Current	I _{IO}				50	nA
Input Bias Current	I _B				250	nA
Input Common-Mode Voltage Range	V _{I(R)}	V _{CC} =30V	0	V _{CC} -1.5		V
Supply Current	I _{CC}	R _L =∞, V _{CC} =30V V _{CC} =5V		1.0 0.7	3 1.2	mA
Large Signal Voltage Gain	G _V	V _{CC} =15V, R _L >2kΩ V _{O(p)} =1V to 11V	25	100		V/mV
Output Voltage Swing	V _(OH)	V _{CC} =30V, R _L =2kΩ	26			V
		V _{CC} =30V, R _L =10kΩ	27	28		V
	V _(OL)	V _{CC} =5V, R _L >10kΩ		5	20	mV
Common-Mode Rejection Ratio	CMRR		65	75		dB
Power Supply Rejection Ratio	PSRR		65	100		dB
Channel Separation	CS	f=1kHz to 20kHz		120		dB
Short Circuit to GND	I _{SC}			40	60	mA
Output Current	I _{source}	V _{I(+)} =1V, V _{I(-)} =0 V _{CC} =15V, V _{O(p)} =2V	20	40		mA
	I _{sink}	V _{I(+)} =0V, V _{I(-)} =1V V _{CC} =15V, V _{O(p)} =2V	10	13		mA
		V _{I(+)} =1V, V _{I(-)} =0 V _{CC} =15V, V _{O(p)} =200mV	12	45		μA
Differential Input Voltage	V _{I(diff)}				V _{CC}	V

UTC LM324 LINEAR INTEGRATED CIRCUIT

TYPICAL PERFORMANCE CHARACTERISTICS

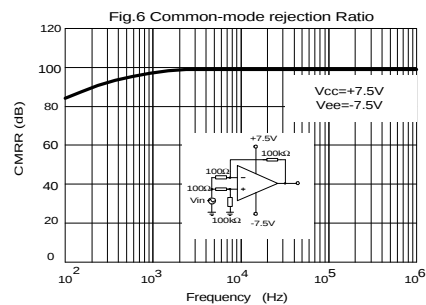
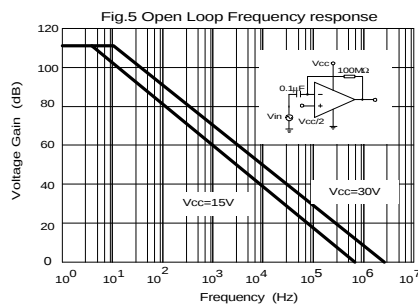
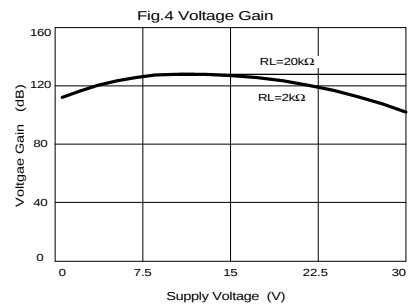
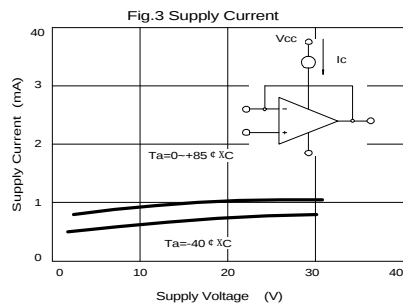
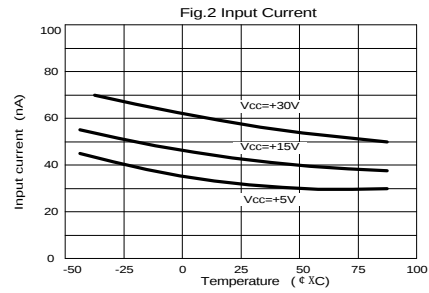
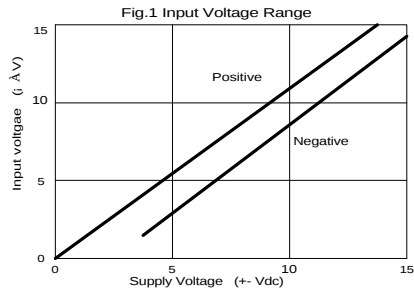


Fig.7

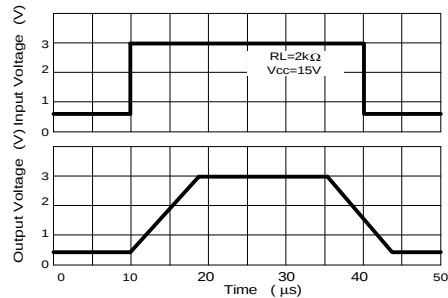


Fig.8 Voltage Follower pulse response (small signal)

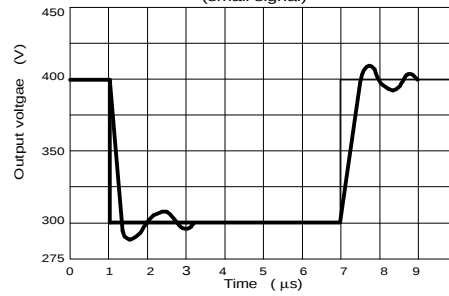


Fig.9 Large signal Frequency Response

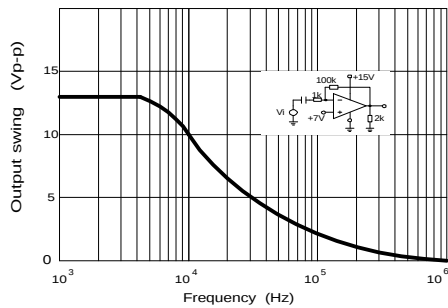


Fig.10 Output Characteristics current sourcing

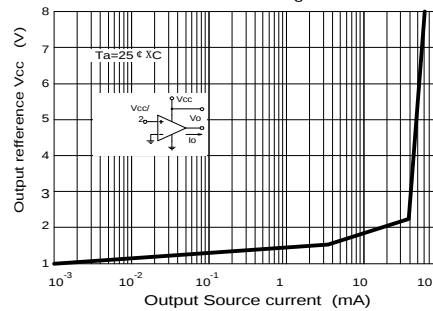


Fig.11 Output Characteristics Current sinking

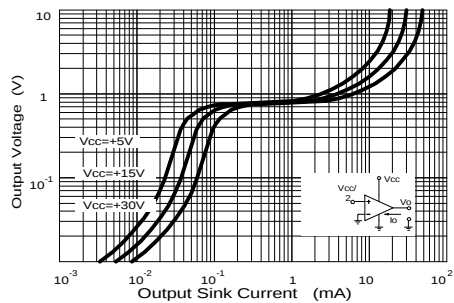


Fig.12 Current Limiting

