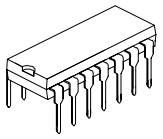
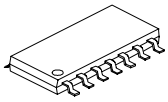
SINGLE SUPPLY QUAD AMPLIFIER

The UTC12902 is single-supply quad operational amplifier, which can operate from 2V supply. The features are low offset voltage, low bias current, and drive TTL or DTL circuit directly. The package lineup is DIP, DMP and others compact, which is SON, so that the UTC12902 is suitable for audio for low voltage operation and any other kind of signal amplifier.



DIP-14-300-2.54



SOP-14-225-1.27

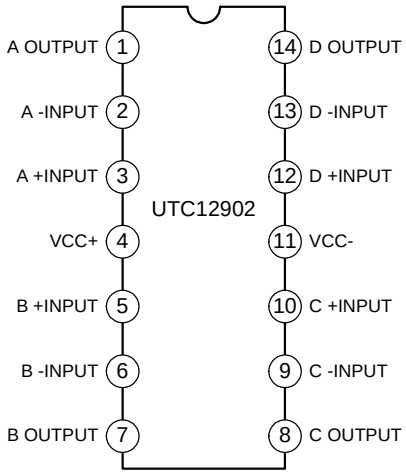
FEATURE

- Wide Operating Voltage (+2V to +14V)
- Low Input Offset Voltage (5mV max.)
- Slew Rate (0.7V/μs typ.)
- Operating Current (1.0mA typ.)
- Bipolar Technology
- Package Outline DIP14, SOP14

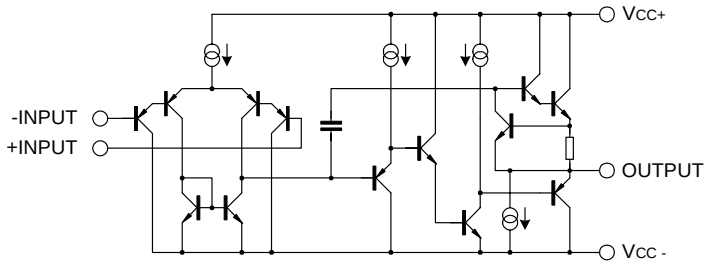
ORDERING INFORMATION

Device	Package
UTC12902	DIP-14-300-2.54
UTC12902S	SOP-14-225-1.27

PIN CONFIGURATIONS



BLOCK DIAGRAM



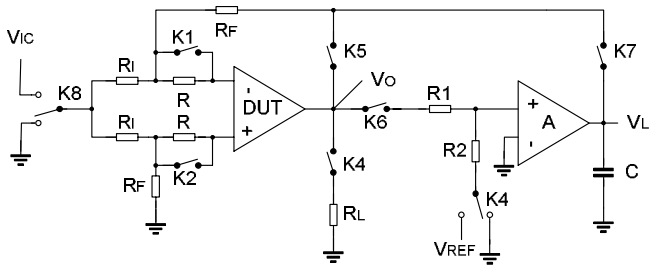
ABSOLUTE MAXIMUM RATING (Tamb=25°C)

Characteristics	Symbol	Rating	Unit
Supply Voltage	VCC+	15	V
Differential Input Voltage	VID	14	V
Input Voltage	VIC	-0.3 to +14	V
Power Dissipation	PD	(DIP14) 700	mW
		(SOP14) 300	
Operating Temperature Range	Topr	-40 to +85	°C
Storage Temperature	Tstg	-50 to +125	°C

ELECTRICAL CHARACTERISTICS (Unless otherwise stated, Tamb=25°C)

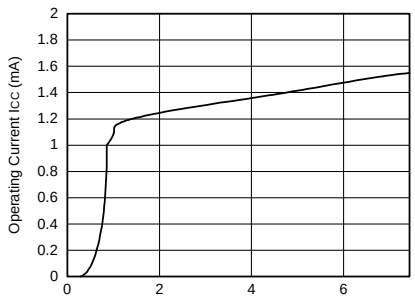
Characteristics	Symbol	Test condition	Min.	Typ.	Max.	Unit
Operating Voltage	Vopr		2	--	14	V
Input Offset Voltage	VIO	RS=0	--	1	5	mV
Input Offset Current	IIO		--	5	50	nA
Input Bias Current	IB		--	20	150	nA
Large Signal Voltage Gain	AV	RL≥2k	--	100	--	dB
Maximum Output Voltage Swing	VOM	RL=2k	3.5	--	--	V
Input Common Mode Voltage Range	VICM		0 ~3.5	--	--	V
Common Mode Rejection Ratio	CMR		--	85	--	dB
Supply Voltage Rejection Ratio	SVR		--	100	--	dB
Output Source Current	ISOURCE	VIN+=1V,VIN-=0V	20	40	--	mA
Output Sink Current	ISINK	VIN+=0V,VIN-=1V	8	30	--	mA
Channel Separation	CS	f=1k to 20kHz	--	120	--	dB
Operating Current	ICC	RL= ∞	--	1.0	2.0	mA
Slew Rate	SR	VCC+/VCC-=±2.5V, RL=2k, AV=0dB,f=1kHz	--	0.7	--	V/μs
Gain Bandwidth Product	GB		--	1.5	--	MHz

TEST CIRCUITS

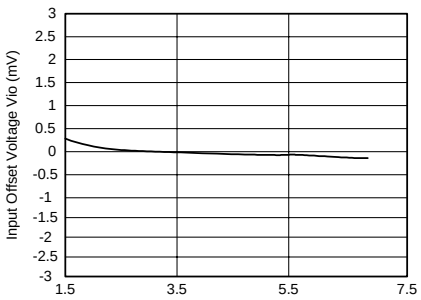


TYPICAL ELECTRICAL CHARACTERISTIC CURVES

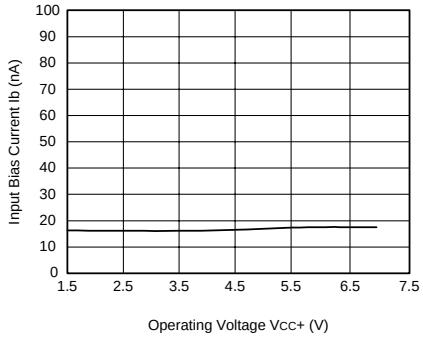
Operating Current v.s Operating Voltage



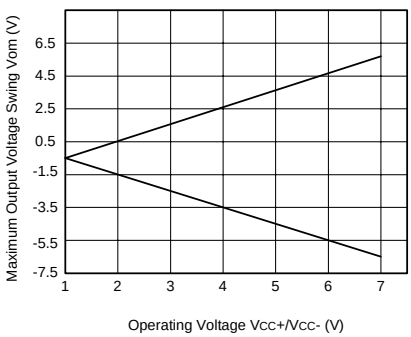
Input Offset Voltage v.s Operating Voltage



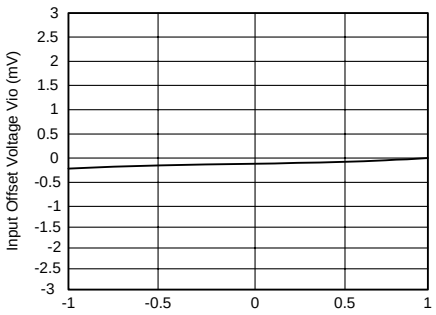
Input Bias Current v.s Operating Voltage



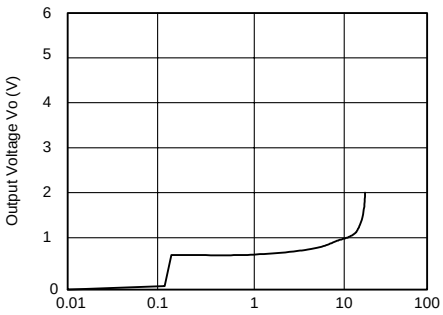
Maximum Output Voltage Swing v.s Operating Voltage



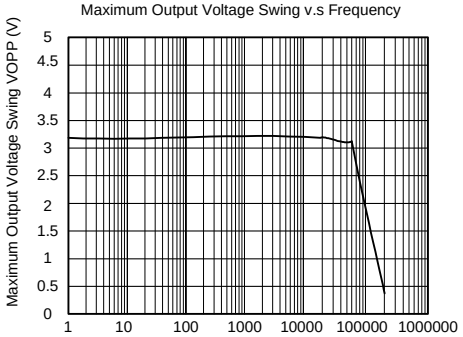
Input Common Mode Voltage Range



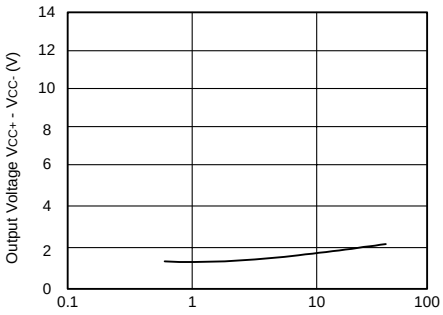
Output Voltage v.s Output Sink Current



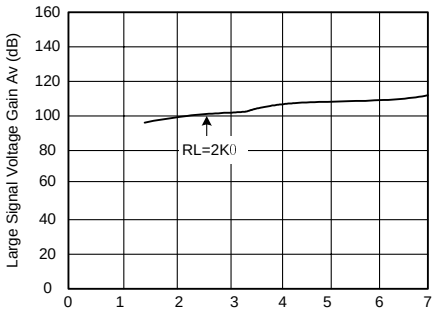
Maximum Output Voltage Swing v.s Frequency



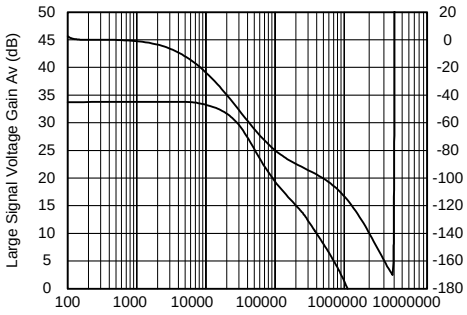
Output Voltage v.s Output Source Current



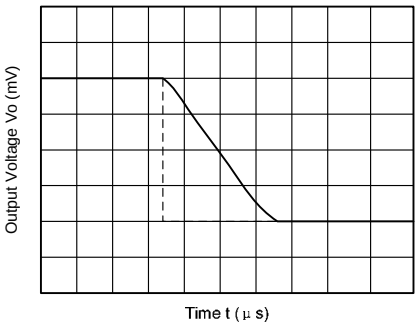
Large Signal Voltage Gain vs. Operating Voltage



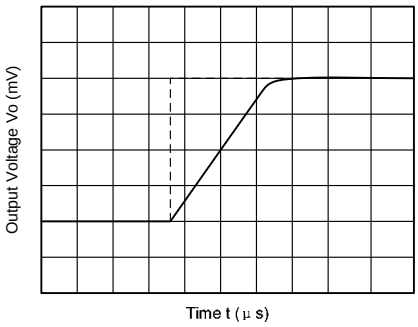
Large Signal Voltage Gain v.s Frequency



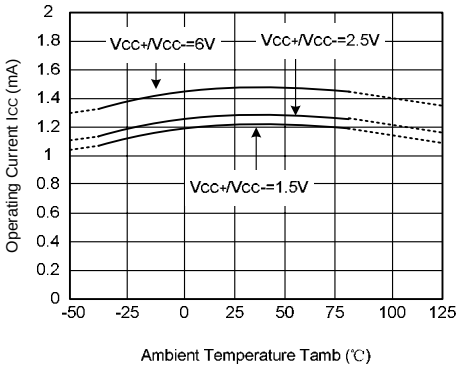
Slew Rate (Fall)



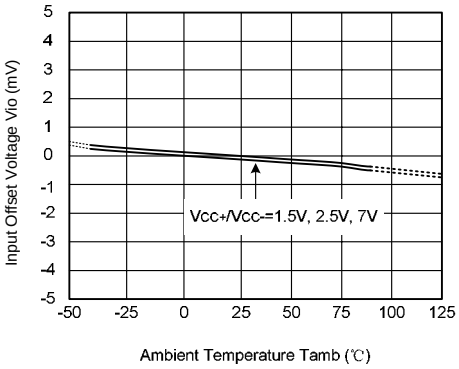
Slew Rate (Rise)



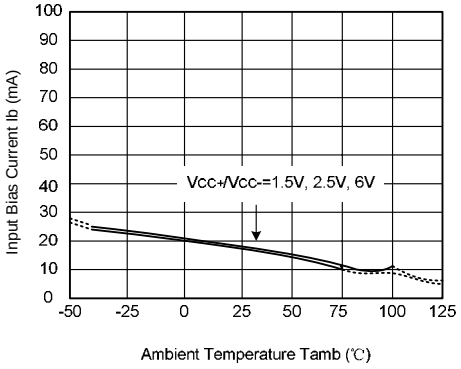
Operating Current v.s Temperature



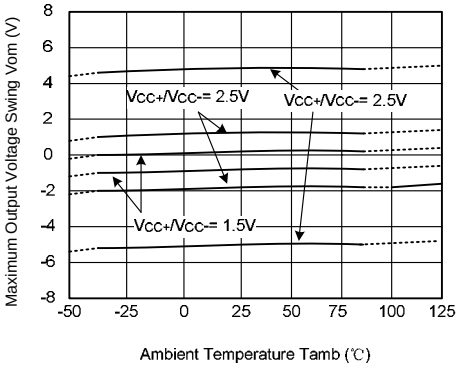
Input Offset Voltage v.s Temperature



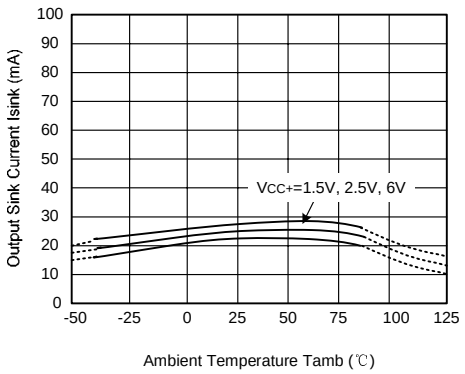
Input Bias Current v.s Temperature



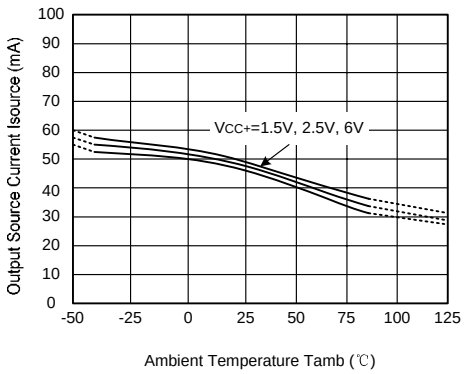
Maximum Output Voltage Swing v.s Temperature



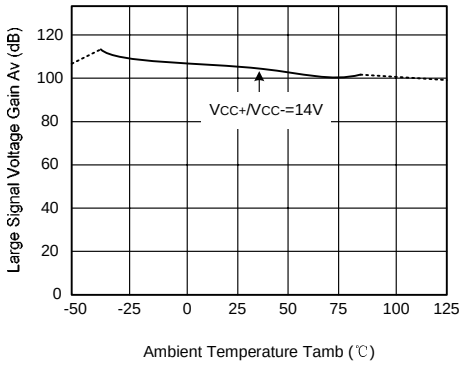
Output Sink Current v.s Temperature



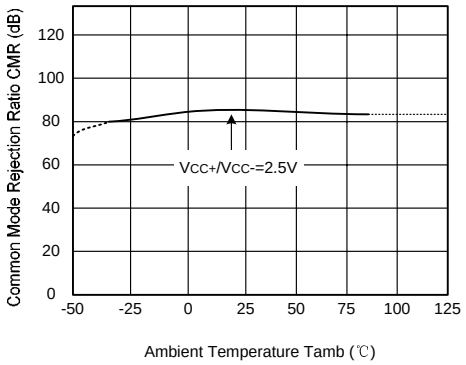
Output Source Current v.s Temperature



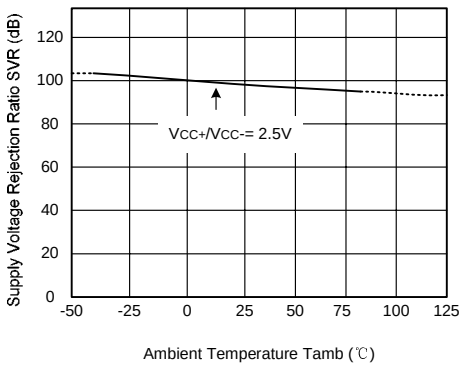
Large Signal Voltage Gain v.sTemperature



Common Mode Rejection Ratio v.s Ambient Temperature

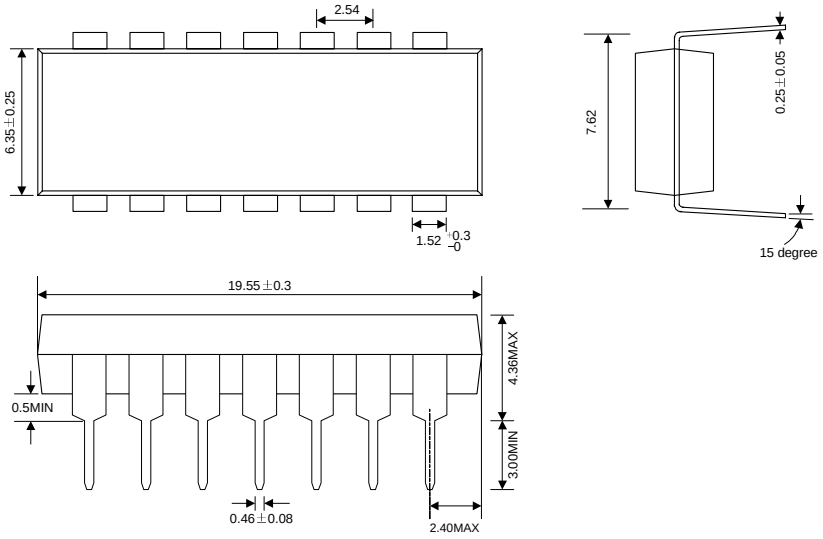


Supply Voltage Rejection Ratio v.s Temperature



PACKAGE OUTLINE

DIP-14-300-2.54 Unit: mm



SOP-14-225-1.27 UNIT: mm