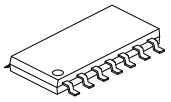
LF347

LINEAR INTEGRATED CIRCUIT

JFET-INPUT QUAD OPERATIONAL AMPLIFIER



SOP-14

■ DESCRIPTION

The UTC **LF347** is low-cost, high-speed, JFET-input operational amplifier. It requires low supply current yet maintains a large gain-bandwidth product and a fast slew rate. In addition, it matched high-voltage JFET input provide very low input bias and offset current.

The UTC **LF347** can be used in applications such as high-speed integrators, digital-to-analog converters, sample-and-hold circuits, and many other circuits.

■ FEATURES

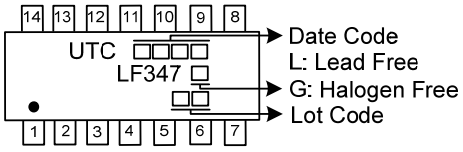
* Supply Voltage: ±3.5 ~ ±18V
* Supply Current/Amplifier: 3mA (Max.)
* Input Offset Voltage: 10mV (Max.)
* Slew Rate: 11V/μs (Typ.)

■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
LF347L-S14-R	LF347G-S14-R	SOP-14	Tape Reel

LF347G-S14-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) S14: SOP-14 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



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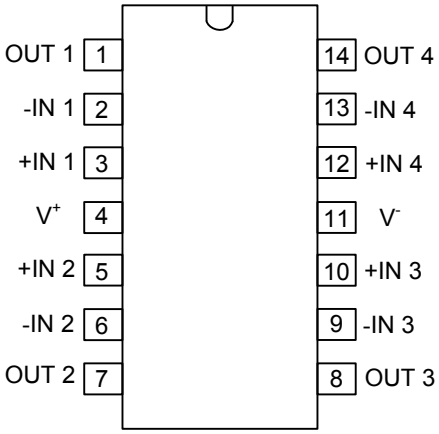
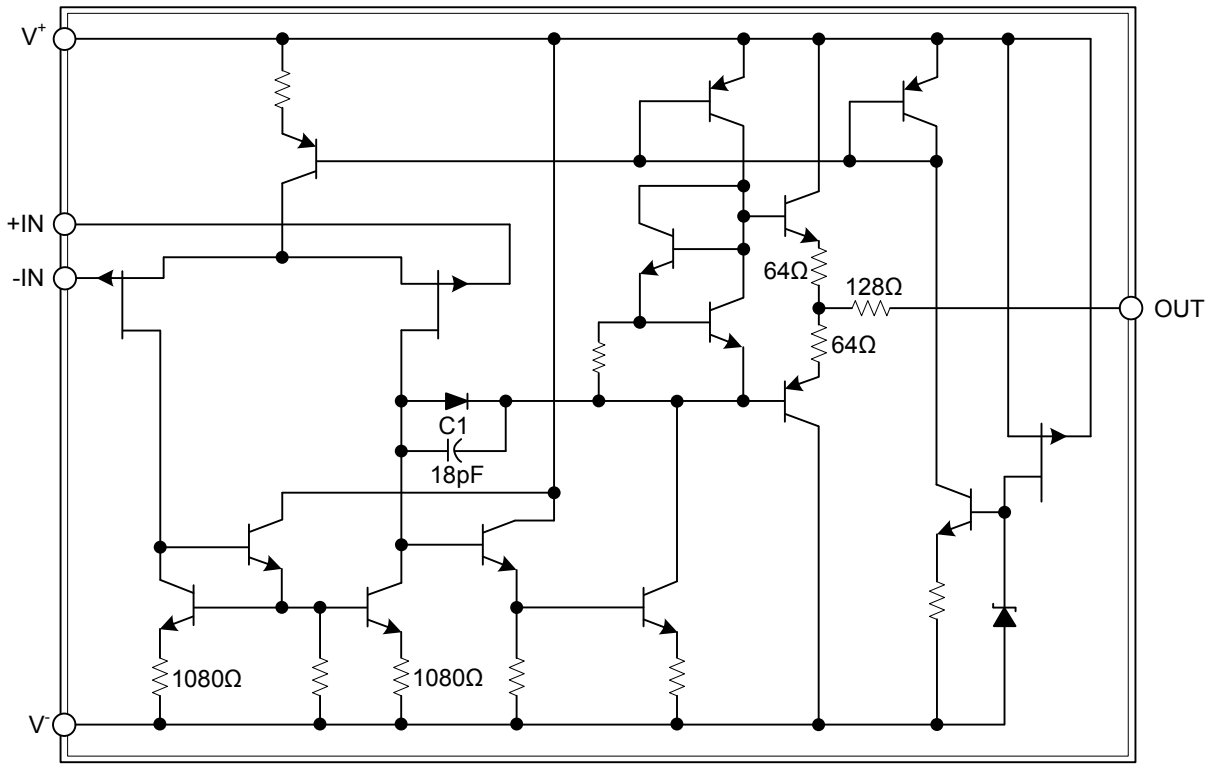
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	OUT 1	Output of 1 AMP
2	-IN 1	Inverting input of 1 AMP
3	+IN 1	Non-inverting input of 1 AMP
4	V^+	Positive power supply
5	-IN 2	Non-inverting input of 2 AMP
6	+IN 2	Inverting input of 2 AMP
7	OUT 2	Output of 2 AMP
8	OUT 3	Output of 3 AMP
9	-IN 3	Inverting input of 3 AMP
10	+IN 3	Non-inverting input of 3 AMP
11	V^-	Negative power supply
12	-IN 4	Non-inverting input of 4 AMP
13	+IN 4	Inverting input of 4 AMP
14	OUT 4	Output of 4 AMP

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^{\pm}$	±18	V
Differential Input Voltage	V_{ID}	Supply voltage	V
Input Voltage (Note 1)	V_I	±15	V
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-65 ~ +150	°C

Notes: 1. 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.
2. Unless otherwise specified, the absolute maximum negative input voltage is equal to the negative power supply voltage.

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage	V^+	3.5		18	V
	V^-	-3.5		-18	V
Operating Free-Air Temperature	T_{OPR}	0		+70	°C

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	76	°C/W

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, $V^{\pm}$ =±15V, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Supply Current/ Amplifier	I_{CC}				2.5	3.0	mA
Power Supply Rejection Ratio	PSRR	(Note 1)		70	100		dB
Input Offset Voltage	V_{OS}	V_{IC}=0, R_S=10kΩ			3.5	10	mV
Input Offset Voltage Drift	$\Delta V_{OS}/\Delta T$	V_{IC}=0, R_S=10kΩ			20		μV/°C
Input Bias Current (Note 2)	I_B	V_{IC}=0			60		pA
Input Offset Current (Note 2)	I_{OS}	V_{IC}=0			30		pA
Common-Mode Voltage Range	V_{CM}			-11		11	V
Common-Mode Rejection Ratio	CMRR	R_S ≤ 10kΩ		70	100		dB
Large Signal Voltage Gain	A_V	V_O=±10V, R_L=2kΩ		88	100		dB
Output Voltage	V_O	R_L=10kΩ	V_{OH}	12	13.5		V
			V_{OL}		-13.5	-12	V
Slew Rate	SR				11		V/μs
Gain-Bandwidth Product	GBW				2.7		MHz
Crosstalk Attenuation	V_{O1} / V_{O2}	f=1kHZ			115		dB
Input-Referred Voltage Noise	e_n	R_S=20Ω, f=1kHz			20		nV/$\sqrt{Hz}$
Input-Referred Current Noise	i_n	f=1kHz			0.03		pA/$\sqrt{Hz}$

Notes: 1. Supply-voltage rejection ratio is measured for both supply magnitudes increasing or decreasing simultaneously.
2. Input bias currents of a FET-input operational amplifier are normal junction reverse currents, which are temperature sensitive. Pulse techniques must be used that will maintain the junction temperatures as close to the ambient temperature as possible.

■ PARAMETER MEASUREMENT INFORMATION

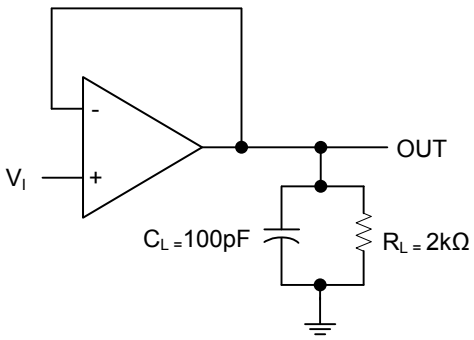


Figure 1. Unity-Gain Amplifier

■ TYPICAL APPLICATION CIRCUIT

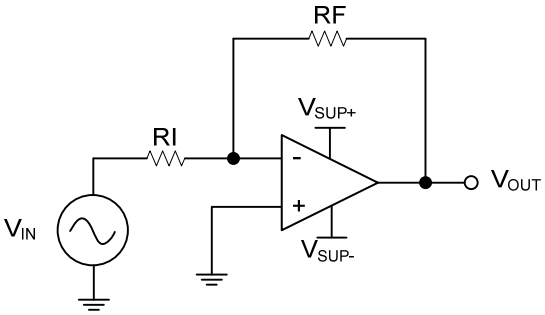


Figure 2. Inverting Amplifier

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