

## Manejo hojas de catálogo Información web

### Ejemplo uso hoja características

Entrar en la página web del fabricante para obtener las fichas técnicas de sus productos. Se deben seguir estos pasos:

1. Entrar en la página web de Fairchild Semiconductor: <http://www.national.com/>
2. Consultar las condiciones de uso siguiendo el enlace Site Terms & Conditions de la página de inicio o yendo a [http://www.national.com/webteam/site\\_terms\\_of\\_use.html](http://www.national.com/webteam/site_terms_of_use.html)
3. Volver a la portada.
4. En el cuadro de búsqueda, escribir el número del producto (LM117) para encontrar un Terminal Adjustable Regulator (regulador ajustable de terminal) determinado y hacer clic en go.
5. Elegir entre las opciones disponibles (por ejemplo, descargar PDF, e-mail).

## Descripción general

LF147/LF347

### Wide Bandwidth Quad JFET Input Operational Amplifiers

#### General Description

The LF147 is a low cost, high speed quad JFET input operational amplifier with an internally trimmed input offset voltage (BI-FET II™ technology). The device requires a low supply current and yet maintains a large gain bandwidth product and a fast slew rate. In addition, well matched high voltage JFET input devices provide very low input bias and offset currents. The LF147 is pin compatible with the standard LM148. This feature allows designers to immediately upgrade the overall performance of existing LF148 and M124 designs.

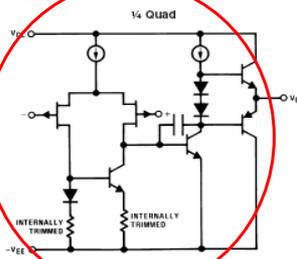
The LF147 may be used in applications such as high speed integrators, fast D/A converters, sample-and-hold circuits and many other circuits requiring low input offset voltage, low input bias current, high input impedance, high slew rate and wide bandwidth. The device has low noise and offset voltage drift.

#### Features

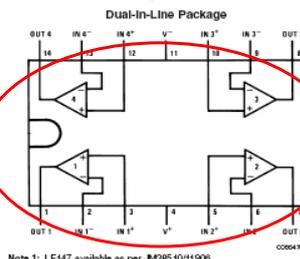
- Internally trimmed offset voltage: 5 mV ma
- Low input bias current: 50 pA
- Low input noise current: 0.01 pA/√Hz
- Wide gain bandwidth: 4 MHz
- High slew rate: 13 V/μs
- Low supply current: 7.2 mA
- High input impedance:  $10^{12} \Omega$
- Low total harmonic distortion:  $\leq 0.02\%$
- Low 1/f noise corner: 50 Hz
- Fast settling time to 0.01%: 2 μs

1ª Hoja resumen información más representativa

#### Simplified Schematic



#### Connection Diagram



Note 1: LF147 available as per M3285-10-11906.

Estructura interna simplificada

Encapsulado y numeración pines

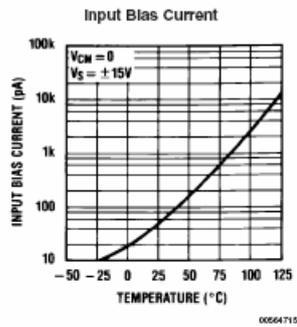
## 2ª Hoja Información tabulada

	LF147	LF347B/LF347	Range	$-65^{\circ}\text{C} \leq T_A \leq 150^{\circ}\text{C}$
Supply Voltage	$\pm 22\text{V}$	$\pm 18\text{V}$	Lead Temperature	
Differential Input Voltage	$\pm 38\text{V}$	$\pm 30\text{V}$	(Soldering, 10 sec.)	$260^{\circ}\text{C}$ $260^{\circ}\text{C}$
Input Voltage Range	$\pm 19\text{V}$	$\pm 15\text{V}$	Soldering Information	
(Note 3)			Dual-In-Line Package	
Output Short Circuit	Continuous	Continuous	Soldering (10 seconds)	$260^{\circ}\text{C}$
Duration (Note 4)			Small Outline Package	
Power Dissipation	900 mW	1000 mW	Vapor Phase (60 seconds)	$215^{\circ}\text{C}$
(Notes 5, 11)			Infrared (15 seconds)	$220^{\circ}\text{C}$
$T_J$ max	$150^{\circ}\text{C}$	$150^{\circ}\text{C}$	See AN-450 "Surface Mounting Methods and Their Effect on Product Reliability" for other methods of soldering surface mount devices.	
$\theta_{JA}$			ESD Tolerance (Note 12)	900V
Ceramic DIP (J) Package		$70^{\circ}\text{C}/\text{W}$		
Plastic DIP (N) Package		$75^{\circ}\text{C}/\text{W}$		
Surface Mount Narrow (M)		$100^{\circ}\text{C}/\text{W}$		
Surface Mount Wide (WM)		$85^{\circ}\text{C}/\text{W}$		

#### DC Electrical Characteristics (Note 7)

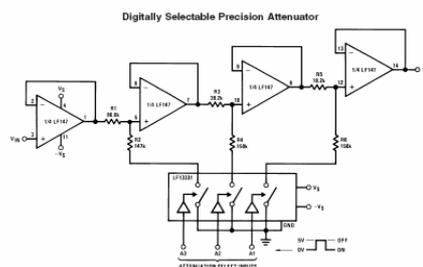
Symbol	Parameter	Conditions	LF147			LF347B			LF347			Units
			Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
$V_{OS}$	Input Offset Voltage	$R_F=10 \text{ k}\Omega$ , $T_A=25^{\circ}\text{C}$ Over Temperature	1	5	8	3	5	7	5	10	13	mV
$\Delta V_{OS}/\Delta T$	Average TC of Input Offset Voltage	$R_F=10 \text{ k}\Omega$		10			10			10		$\mu\text{V}/^{\circ}\text{C}$
$I_{OS}$	Input Offset Current	$T_J=25^{\circ}\text{C}$ , (Notes 7, 8) Over Temperature	25	100	25	25	100	25	100	4	100	pA
$I_b$	Input Bias Current	$T_J=25^{\circ}\text{C}$ , (Notes 7, 8) Over Temperature	50	200	50	50	200	50	200	8	200	pA
$R_{IN}$	Input Resistance	$T_J=25^{\circ}\text{C}$		$10^{12}$			$10^{12}$			$10^{12}$		$\Omega$
$A_{VOL}$	Large Signal Voltage Gain	$V_E=\pm 15\text{V}$ , $T_A=25^{\circ}\text{C}$ $V_O=\pm 10\text{V}$ , $R_L=2 \text{ k}\Omega$ Over Temperature	50	100	50	100	25	100	15	100		V/mV
			25		25							V/mV

## 3..ª Hoja Información gráfica



## 4..ª Hoja Notas aplicación

### Typical Applications



- All resistors 1% tolerance
- Accuracy of better than 0.4% with standard 1% value resistors
- No offset adjustment necessary
- Expandable to any number of stages
- Very high input impedance

A1	A2	A3	$V_0$ Attenuation
0	0	0	0
0	0	1	-1 dB
0	1	0	-2 dB
0	1	1	-3 dB
1	0	0	-4 dB
1	0	1	-5 dB
1	1	0	-6 dB
1	1	1	-7 dB

- Claves para su correcto uso
- Dimensiones encapsulado....

## Alguna información y a practicar

\*Algunas direcciones pueden cambiar

- **BUSQUEDA HOJAS DE CATALOG EN INTERNET**

- DIRECCIONES
- **A) INFORMACIÓN MÚLTIPLE:**
- A.1. <http://www.fer.nu/chipdir/>
- Una vez allí (describir distintas formas de búsqueda A.1.1 a A.1.3)
- A.2. <http://www.aim-andalucia.com/Electro.htm> (igual que en el anterior)
- A.3. Palabras clave: (ejemplo: A.3.1. sensores de humo, A.3.2 nombre Google del componente 1N4007
- Otras direcciones: [http://www.micropik.com/provisional/pag\\_sensores.htm](http://www.micropik.com/provisional/pag_sensores.htm)
- A.1.1) búsqueda por fabricante de chips:
- **Chip manufacturer (by prefix)[o Miscellaneous: Chip manufacturers]**
- A (dos ejemplos)
- **AD- Analog devices**
- Products and Data Sheets
- Amplifiers
- AD620
- **B**
- **Burr-Brown**
- buscar INA 106 (amplificador diferencial)
- A.1.2) búsqueda por fabricante de una familia:
- **Manufacturer of**
- Sensors (otro ejemplo)
- Honeywell
- Products and services
- Sensors electronics
- Temperature sensors
- (ver algún termistor: NTC)
- A.1.3) Distribuidores

- **B) DIRECTAMENTE A LA DIRECCIÓN DE LOS FABRICANTES**

- Analog devices: <http://www.analog.com/>
- Burr-Brown: <http://www.burrbrown.com/>(venta, ahora [www.ti.com](http://www.ti.com))
- National Semiconductors: <http://www.national.com>
- Honeywell: <http://www.honeywell.com/>
- Philips: <http://www.philips.com>
- (Componentes discretos <http://www.semiconductors.philips.com/cgi-bin/catalog/catalog.pl/mms/219/282/^27046/30928/index.html#30928>)
- Infineon: <http://www.infineon.com/>
- Empresas múltiples sensores: <http://www.applegate.co.uk/> (Electronics/Products/S)
- C) SI SE CONOCEN LAS SIGLAS PERO SE DESCONOCE EL FABRICANTE
- "ISB - Electronic" [www.isb-electronic.de](http://www.isb-electronic.de)