National Semiconductor

052809

AF101 High Band Splitter Filter

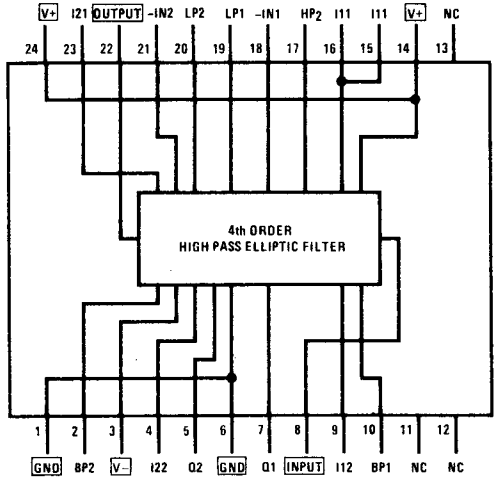
General Description

The AF101 is a fourth order high pass elliptic filter designed to pass frequencies above 1200 Hz. This filter is used to separate the high band of frequencies from the low band in a Dual Tone Multi Frequency (DTMF) Touch Tone® receiver. The unit is fully tuned and requires no external components – only power supply, input, and output connections.

Features

- Fully tuned
- High input impedance
- Low output impedance
- Wide power supply range ±5V to ±18V

Connection Diagram



Ceramic Dual-In-Line Package HY24A
AF101CJ

Note: Only those pin functions marked with a □ need be connected for normal operation. All other pins are internal connections or test points; DO NOT USE.

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Absolute Maximum Ratings

Supply Voltage	±18V
Power Dissipation	1W
Input Voltage	±36V
Output Short Circuit Duration	Infinite
Lead Temperature (soldering, 10 sec.)	300°C
Operating Temperature Range	0°C to +70°C
Storage Temperature Range	−25°C to +100°C

Electrical Characteristics

V_S ± 12V to ±15V, T_A = 0°C to 70°C, unless otherwise specified.

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Cutoff Frequency	f_C			1190	1209	Hz
Passband Ripple	A_{MAX}	1190 to 1660Hz	−0.5	0	0.5	dB
Stopband Edge	f_S		941	955		Hz
Stopband Attenuation	A_{MIN}		25	28		dB
Gain	A_O	at 1336Hz	−0.5	0	+0.5	dB
Group Delay	gd				2	ms
Input Impedance	Z_{IN}		30k	32k		Ω
Output Impedance	Z_O			< 1	5	Ω
Operating Supply Voltage	V_S		±5		±18	V
Power Supply Current	I_S	V_S = ±15V		5	9	mA

Typical Performance Characteristics

Typical Amplitude Response