National Semiconductor

AF103 Low Band Splitter

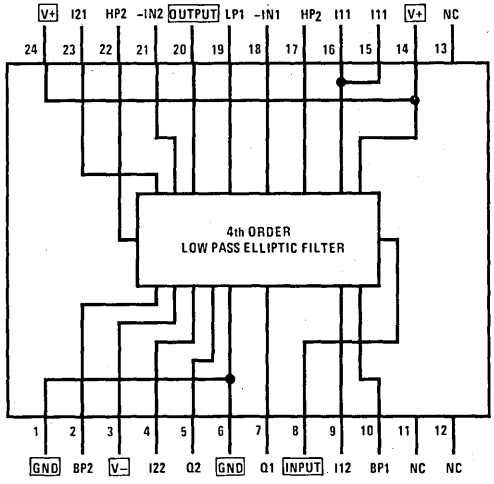
General Description

The AF103 is a fourth order elliptic low pass filter designed to reject frequencies above 1200 Hz and pass signals below 950 Hz. This filter is used to separate the low band of frequencies from the high 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
AF103CJ

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

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Cutoff Frequency	f_c		941	955		Hz
Passband Ripple	A_{MAX}	f = 686 Hz to 955 Hz	-0.5	0	0.5	dB
Stopband Frequency	f_s			1190	1209	Hz
Stopband Attenuation	A_{MIN}	f > 1200 Hz	25	28		dB
Gain	A_O	at 852 Hz	-0.5	0	0.5	dB
Group Delay	gd				2	ms
Input Impedance	Z_{IN}		30k	33k		Ω
Output Impedance	Z_O			< 1	5	Ω
Operating Supply Voltage	V_S		±5		±18	V
Power Supply Current	I_S	$V_S = \pm 15V$		5	9	mA

Typical Performance Characteristics

Typical Amplitude Response