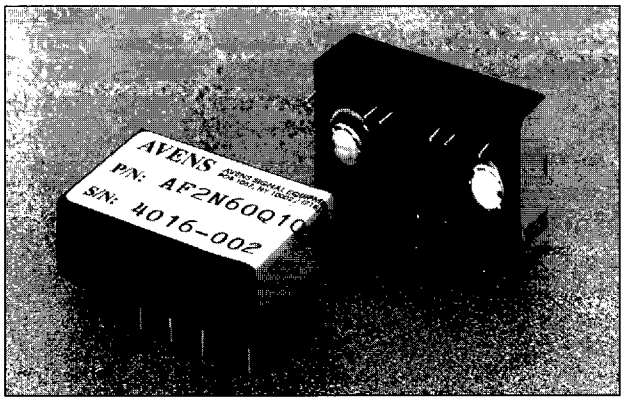
Miniature Precision

Active/Bandpass/Band-Reject

This active notch filter is particularly useful for rejecting unwanted line frequencies such as 50, 60, 100, 120 or 400 Hz within sharply defined limits. Applications are in such diversified areas as communications, telemetry, control, analog computers or sensitive chemical measurements. Carrier frequencies can be eliminated where passive filters would affect waveform. In Biological and Medical recording equipment, this filter will eliminate 60 or 50 cycle noise signals in EEGs, ECGs, EMGs and EGGs without signal distortion such as would occur with passive filters. At 60 and 50 Hz the rejection bandwidth can be narrowed to 1 Hz.



Features include:

❒ 60 CYCLES (60Hz) POWER NOISE REJECTION
Up to 60 dB attenuation.
Q = 10 (10% - 3 db bandwidth).
Other frequency available (e.g. 50Hz)

❒ 2ND ORDER FILTER BLOCK
Implement a 2nd order (biquad) stage.
Cascade to build higher order filter.

❒ MULTI-FUNCTION OUTPUTS
Simultaneous outputs : Lowpass, Highpass, Bandpass & Bandreject

❒ COMPLETELY ASSEMBLED
Fully finished module.
No external component required.

❒ BUILT-IN ADJUSTABLE PARAMETERS
3 dB bandwidth, Notch frequency, center frequency, DC offset.

❒ IDEAL FUNCTION BLOCK
High input impedance.
Low output impedance.

❒ SYMMETRICAL RESPONSES
Same roll-off rate on lower & upper band

❒ STABLE OUTPUT
Unity gain output.
Amplification available.

❒ COMPENSATED DC OFFSET
Internal DC offset < 2 mV.
External adjustable to 0.0.

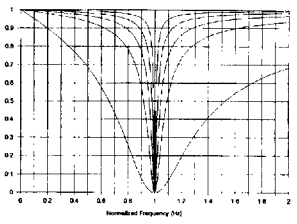
❒ BUILT-IN DECOUPLING
Internal power supply decoupling.

❒ LOW POWER CONSUMPTION
1 mA of supply current per unit.

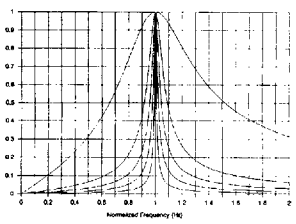
Suggested Applications and Ratings

APPLICATIONS
- Phase correction
- Signal Conditioner
- Frequency selection
- Harmonic elimination
- 60 Hz/50Hz power noises rejection
- Audio Equalizer
- Speech Analysis

TYPICAL RESPONSE CURVES



Band Reject



Bandpass

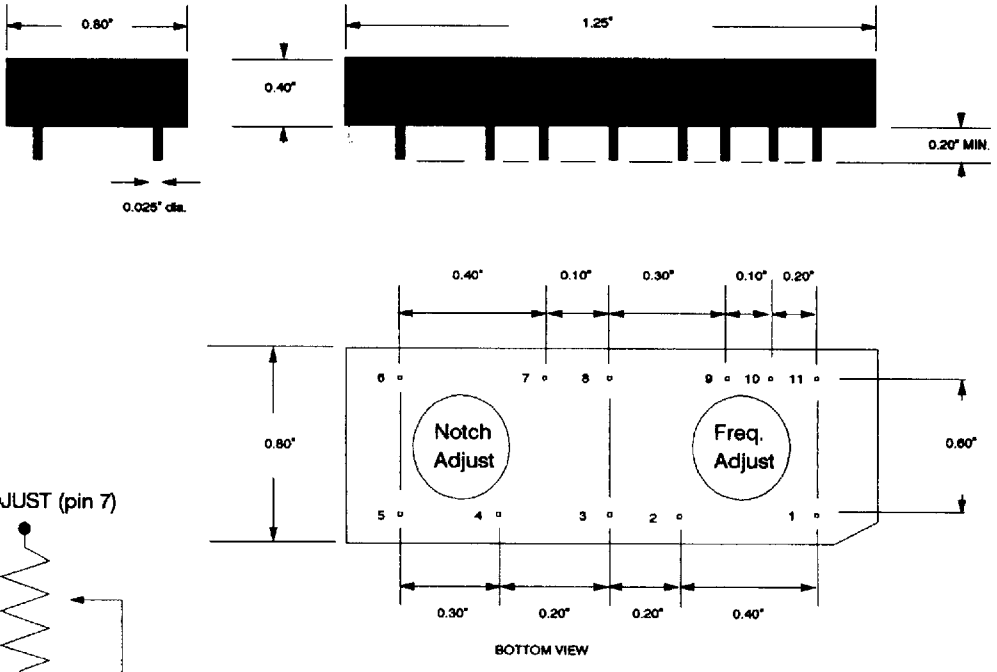
ABSOLUTE MAXIMUM RATING

Supply Voltage	± 15 V to ± 5 V
Input Voltage	± 12 V
Output Swing	± 12 V (2k load)
Dynamic Range	> 90 dB
Operating Temp.	
commercial	0° C to 70° C
industrial	- 25° C to 85° C
military	- 55° C to 125° C
Storage Temp.	- 65° C to 150° C
Max. Attenuation	> 60 dB

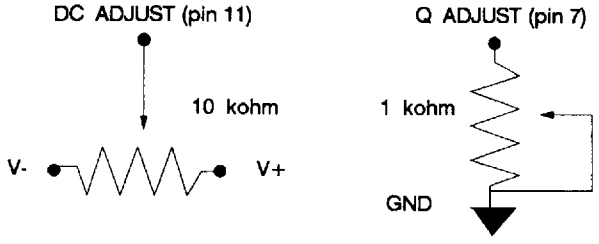
Case Style and Outline Dimensions

24 PIN DIP PACKAGE

PIN NO.	FUNCTION
1	No Connection
2	Highpass Output
3	V+ Supply
4	Bandpass Output
5	No Connection
6	Filter Input
7	Q Adjust
8	V-Supply
9	Band-reject Output
10	Ground & common of supply
11	DC Adjust



ADJUSTMENT CIRCUITS



Specifications

ELECTRICAL CHARACTERISTICS

(Supply = ±15V., Load = 10 kΩ, Temp. = 25° C)

Supply Current	10 mA/4th order
Input Impedance	> 500 kohm
Output Impedance	< 1 ohm (@ DC)
Cut-off Variation	± 2%
Frequency Stability	0.01 % /°C
Unity Gain Output	0.0 dB
Max. Input Voltage	±12 V.
Max. Output Voltage	±12 V.
DC Offset	< ±2mV

MECHANICAL CHARACTERISTICS

Dimension	1.25" x 0.80" x 0.025"
Pin Diameter	0.025"
Materials	Glass Filled Thermoplastic Nylon
Socket	Standard 24 pin DIP Socket

OPTIONS

Suffix	Description
L –	Low power consumption (1mA)
I –	Industrial temp. range (-25° C to 85° C)
M –	Military temp. range (-55° C to 125° C)
A1 –	10x amplification
A2 –	100x amplification
A3 –	1000x amplification

PART NUMBER SYSTEM (Typical part numbering example shown below)

AF2 – B – 60 – Q10 – I – L – A1

- A1 — Gain Option (see option)
- L — Low power Option (see option)
- I — Temperature Range Option (see option)
- Q10 — Q value : center frequency/-3 dB bandwidth
- 60 — Center Frequency in Bandpass/Notch Frequency in Band reject
- B — Filter Functions : B = Bandpass, N = Band-reject
- AF2 — Model Number

Typical Frequency Response Curves Available
(See Back of Catalog)

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