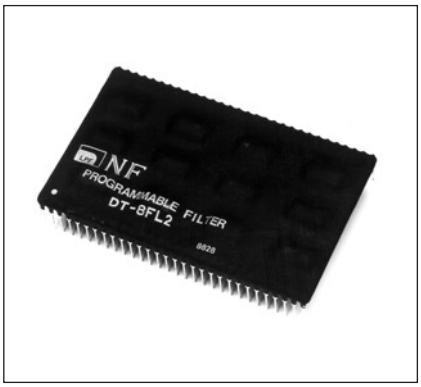
Programmable Filter

DT-8FL1/2



DT-8FL series filters are designed as anti-aliasing filters possessing 8-pole elliptic characteristics.
These filters are allocated with cut-off frequencies of 20Hz to 20kHz and of 100Hz to 100kHz that can be shifted at 10 positions in accordance with 4-bit external signal (1-, 2-, 5-sequence).
DT-8FL series filters are in 60-pin dual-inline package (DIP) and powered by ±8V.

▼Absolute maximum ratings

Supply voltage (±Vs)	±10V
Input voltage	±Vs
Control voltage	+8.5V, –0.5V

▼Filter characteristics

Filter characteristics	8-pole elliptic LPF

▼Cut-off frequency (fc)

Cut-off frequency range*	Type 1: 20Hz to 20kHz Type 2: 100Hz to 100kHz 1-, 2-, 5-sequence
Setting	4-bit binary code, negative logic

▼Pass-band characteristics

Gain	0dB±0.1dB (at 0.05fc)
Ripple	0.1dBp-p (typ) (at DC to fc)
Distortion	Max. 0.013% (at 0.5fc, 1Vrms)

▼Attenuation characteristics

Rolloff	130dB/oct equivalent
Attenuation characteristics	82dB (typ) (at 1.56fc to 1MHz)

▼Input characteristics

Input impedance	Min. 10kΩ, 20kΩ (typ)
Maximum input voltage (linear)	±5V

▼Output characteristics

Output impedance	Max. 100Ω, 50Ω (typ)
Maximum output voltage	±5V
Voltage noise	Type 1: 60μVrms (typ) Type 2: 80μVrms (typ) (BW: 10Hz to 500kHz)
Offset voltage	±10mV (typ) adjustable
Load resistance	Min. 2kΩ

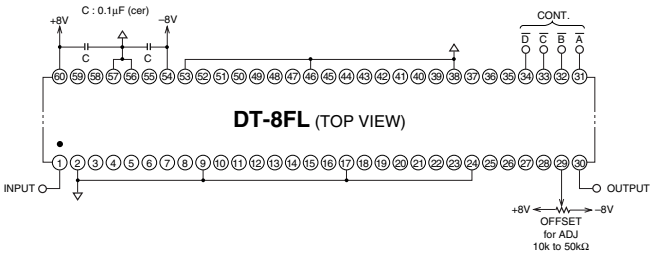
▼Others

Supply voltage		±8V ±10%
Quiescent current		Type 1: ±30mA (typ) Type 2: ±72mA (typ)
Temperature/ humidity range	**Operation**	–20°C to 70°C, 10 to 95%RH
	Storage	–30°C to 80°C, 10 to 80%RH
Dimensions		76.7 × 47.2 × 8.0mm, Type ID

Note: The following specifications are applied unless otherwise specified: 23±5°C, Vs = ±15V

* fc = A point passing 0dB

Basic connection diagram



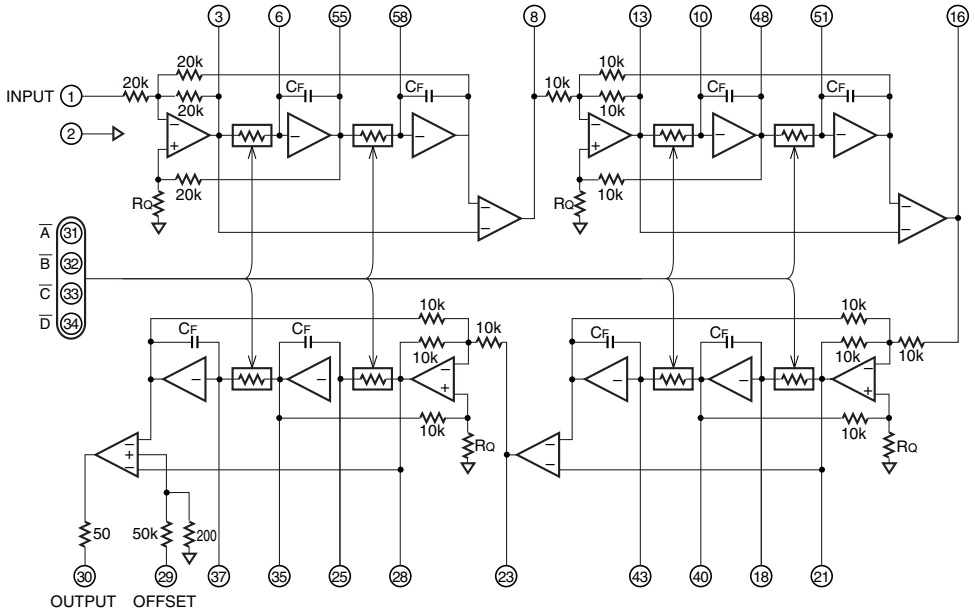
■Control

Control				Cut-off frequency [Hz]	
$\overline{D}$	$\overline{C}$	$\overline{B}$	$\overline{A}$	DT-8FL1	DT-8FL2
0	1	0	0	20k	100k
0	1	0	1	10k	50k
0	1	1	0	5k	20k
0	1	1	1	2k	10k
1	0	0	0	1k	5k
1	0	0	1	500	2k
1	0	1	0	200	1k
1	0	1	1	100	500
1	1	0	0	50	200
1	1	0	1	20	100

1: 0V or GND
0: +8V or open

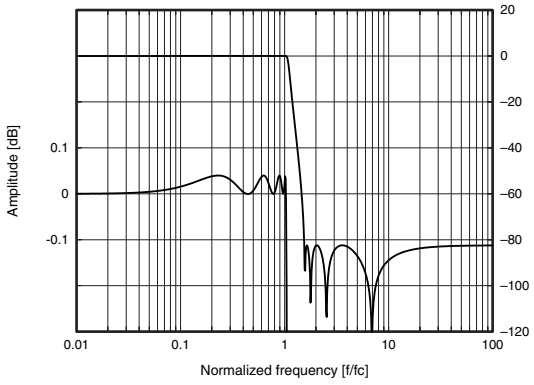
The control terminal is pulled up to +8V at 100kΩ for internal processing.

Block diagram

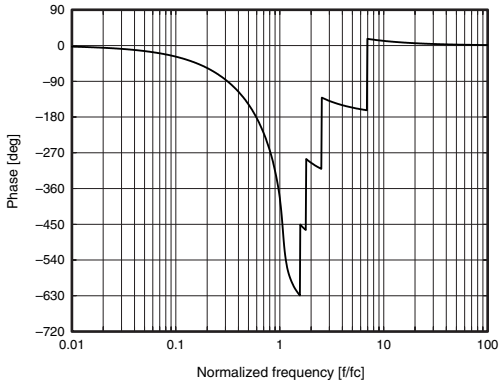


Characteristics

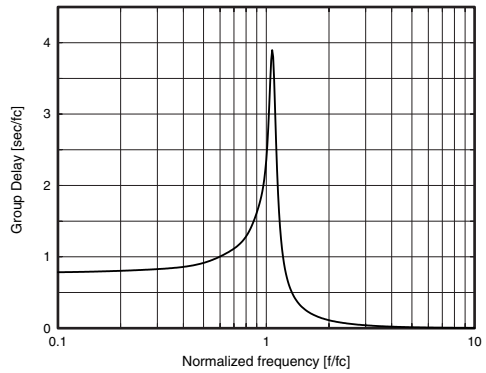
Amplitude



Phase

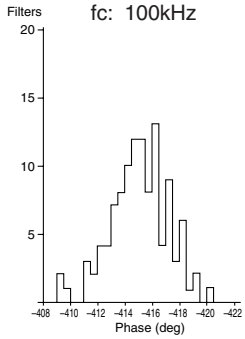


Group delay



Phase matching of cut-off frequency

DT-8FL2 fc: 100kHz



DT-8FL2 fc: 1kHz