

Resistor Tunable Filter

RT-8FLA1/2 RT-8FLB1/2 RT-3BP1/2



RT series filters are resistor tunable filters that allocate cutoff (center) frequencies with the external resistors (6 or 8 pcs.). RT-8FLA/8FLB low pass filters possess steep attenuation characteristics, which are suited to be used as anti-aliasing filters. RT-3BP 1/3-octave-band pass filter is in conformity with IEC-225 standards.

- 135dB/oct or equivalent: 8-pole Elliptic low pass RT-8FLA
- 100dB/oct or equivalent: 8-pole Elliptic low pass RT-8FLB
- 1/3oct bandwidth (Q = 4.32): 3-pole pair band pass RT-3BP

▼Absolute maximum ratings

Supply voltage (±Vs)	±18V
Input voltage	±Vs

▼Filter characteristics

Filter characteristics	RT-8FLA/8FLB: 8-pole Elliptic LPF 3BP: 3-pole pair BPF
------------------------	---

▼fc, fo

Setting	Connected with external resistors of the same resistance. RT-8FLA/8FLB: 8 pcs. 3BP: 6 pcs
---------	---

Range	Type 1	10Hz to 2kHz
	Type 2	100Hz to 20kHz

External resistors	Type 1	R_F (kΩ) = $15.9 \times 10^3 / f_c$ or f_o (Hz)
	Type 2	R_F (kΩ) = $159 \times 10^3 / f_c$ or f_o (Hz)

Setting accuracy	Max. ±2% (errors of external resistors excluded)
------------------	--

▼Pass-band characteristics

Model	RT-8FLA1/2	RT-8FLB1/2	RT-3BP1/2
Gain	0dB±0.1dB(max)		0dB±1dB(max)
Adjusted R _F	-		0dB±0.1dB(typ)
Ripple (p-p) (≤0.9fc)	0.15dB(typ)	0.15dB(typ)	-
Adjusted R _F	0.1dB(typ)	0.1dB(typ)	-
Distortion	0.005%(typ)at 1kHz		

▼Attenuation characteristics

Model	RT-8FLA1/2	RT-8FLB1/2	RT-3BP1/2
Rolloff	135dB/oct equiv.	100dB/oct equiv.	-
Q	-	-	4.32(BW1/3oct)
Attenuation characteristics	86dB(typ)1.56fc	92dB(typ)2.0fc	18dB/octBW
Minimum attenuation	86dB (typ)	106dB (typ)	-
High frequency attenuation 10fc (fo) to 1MHz	Min. 80dB	Min. 86dB	Min. 80dB

▼Input characteristics

Input impedance	Min. 50kΩ
Maximum input voltage (linear)	±10V

▼Output characteristics

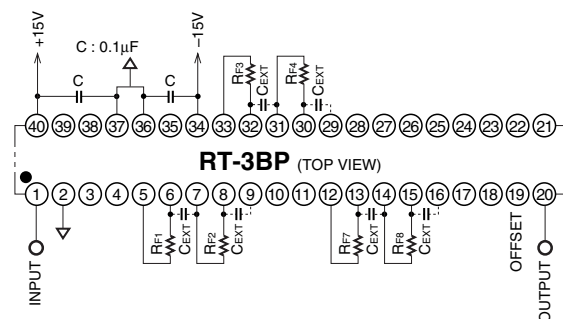
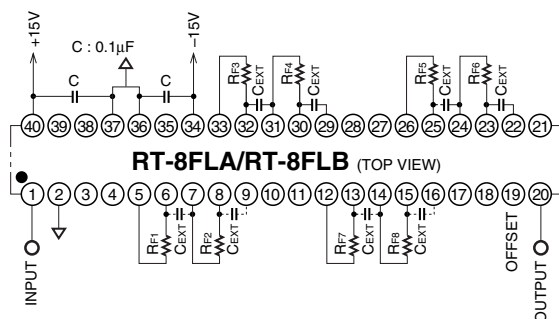
Output impedance	Max. 100Ω
Maximum output voltage	±10V
Voltage noise (input short)	Max. 140μVrms (BW10Hz to 500kHz)
Offset voltage	±10mV(typ) adjustable

▼Others

Supply voltage	±15V(±5 to ±18V)	
Quiescent current	8FLA, 8FLB : ±40mA (typ) 3BP : ±25mA(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	54.4 × 33.7 × 6.5mm, Type H	

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

Basic connection diagram



Equation of external resistor R_F

$$\text{Type 1 } R_F = \frac{15.9 \times 10^3}{f_c \text{ or } f_o} \text{ (k}\Omega\text{)}$$

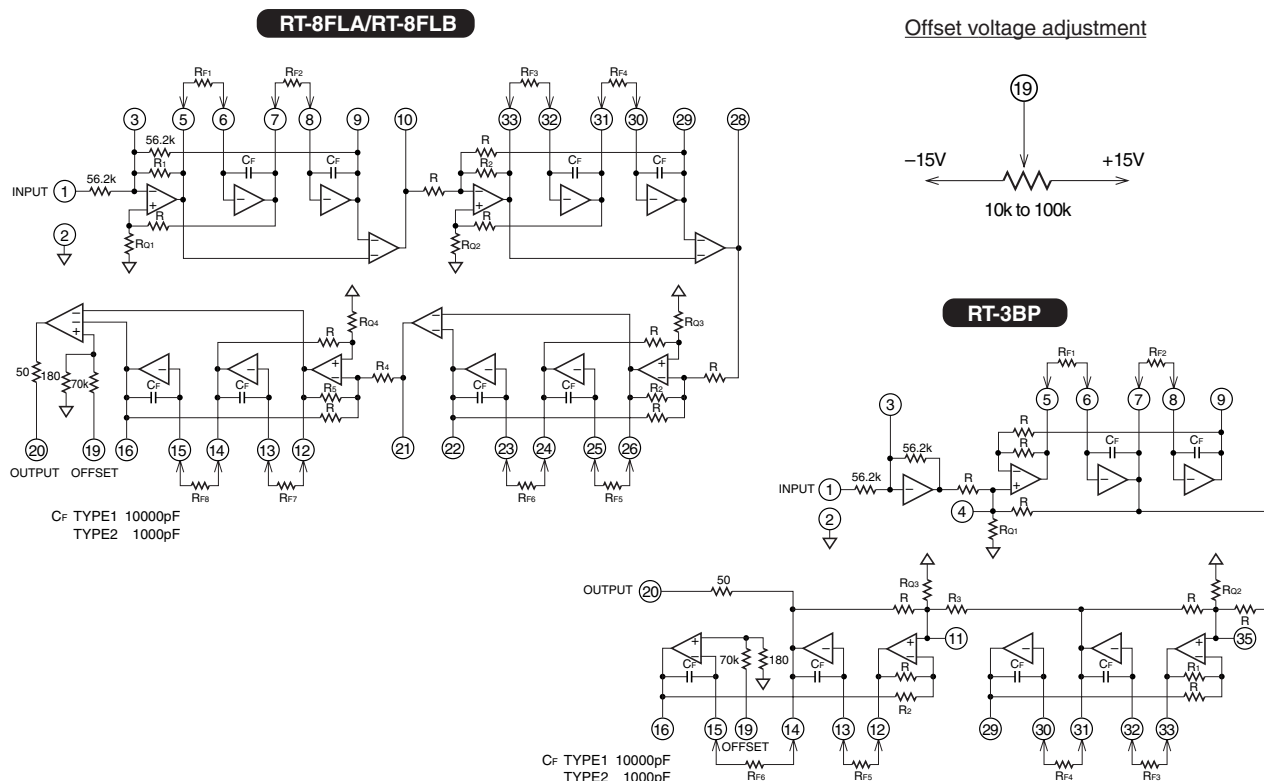
$$R_F = \frac{159}{(C_{EXT} + 0.01) \times f_c \text{ or } f_o} \text{ (k}\Omega\text{)}$$

$$\text{Type 2 } R_F = \frac{159 \times 10^3}{f_c \text{ or } f_o} \text{ (k}\Omega\text{)}$$

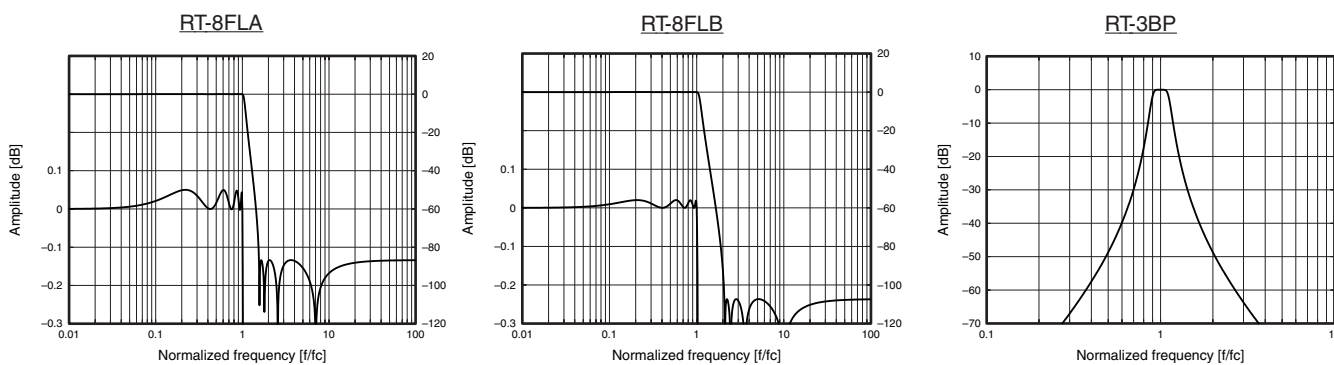
$$R_F = \frac{159}{(C_{EXT} + 0.001) \times f_c \text{ or } f_o} \text{ (k}\Omega\text{)}$$

Note: Units: fc or fo in Hz, C_{EXT} in μF
Note: C_{EXT} is required only for expansion of the lower cut-off/center frequency (fc/fo).

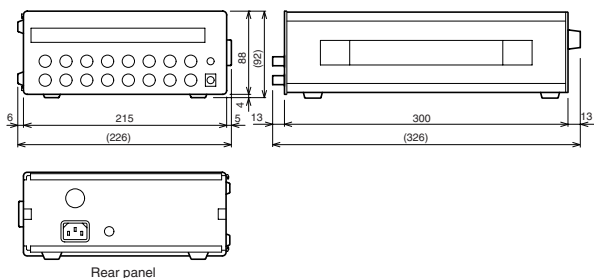
Block diagram



Characteristics



■ Multichannel filter 3316



This 3316 is capable of storing up to 8 RT filters that is utilized as a fixed frequency-allocated multichannel filter.

Filter characteristics vary with type of filters to be stored.

Available filters	All RT filters
Number of channels	Max. 8
fc/fo setting	Fixed resistors (6 or 8 pcs.) are soldered to the discrete platform (accessory) and connected to the socket.
Supply voltage	AC100V, ±10%, 48Hz to 62Hz
Dimensions	215(W) × 88(H) × 300(D)mm (protrusion not included)