

RC Filter Cutoff Calculator

Calculate the ideal first-order RC corner frequency from resistance and capacitance. The result is circuit arithmetic, not a complete filter, EMC, equipment, or code approval.

Generated October 10, 2026

<https://www.elecatrix.com/circuits-components/rc-filter-cutoff-calculator/>

Inputs

Input	Value	Unit
Resistance	10000	ohm
Capacitance	0.1	uF
Filter type	Low pass	

Results

Result	Value	Unit
Cutoff frequency	159.1549	Hz
Time constant	0.001	s
Filter type	Low pass	

Calculation details

Detail	Value	Unit
Calculation basis	Ideal first-order RC filter arithmetic. The low-pass and high-pass corner frequency uses the same R and C relationship.	
Filter boundary	This is a corner-frequency estimate only. It does not model source impedance, load impedance, parasitic elements, component tolerance, attenuation shape beyond the first-order model, phase response, noise, or stability.	
U.S. project boundary	United States electrical estimate only. Verify component voltage, current, temperature, frequency, EMC, equipment, manufacturer, and local project requirements before use.	

Formulas

$$C_F = C_muF \times 10^{-6}$$

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$$\tau = R \times C$$

$$f_c = (1/2\pi\tau)$$

Warnings and limitations

This RC filter cutoff estimate uses an ideal first-order model. It does not model source or load interaction, parasitics, tolerance, attenuation, phase response, noise, EMC, stability, component ratings, or code compliance.