No. 1133 \$9.95

~ 6 JUN 1980



## THE ACTIVE FILTER HANDBOOK



## **Contents**

1	Filter Fundamentals	11
	Definitions and Concepts—Transformed Impedance—Transfer Function—Bode Diagrams—Pole and Zero Values for the Transfer Function—Plotting Approximate Amplitude Response—Frequency and Impedance Scaling or Normalizing—Second Order Transfer Function Amplitude and Phase Response—Third Order Transfer Function Amplitude and Phase Response	
<b>2</b>	Operational Amplifier Characteristics and Circuits	42
<b>3</b>	Butterworth and Chebyshev Transfer Functions  Butterworth Low-Pass Filter—Butterworth Transfer Functions— Chebyshev or Equal Ripple Low-Pass Filter—Comparing the Butterworth and Chebyshev Responses—Chebyshev Filter Transfer Functions—The Inverse Chebyshev Filter—Frequency Transformation—Low-Pass to High-Pass Transformation—Low-Pass to Band-Pass Transformation	61
4:	Putting Together an Active Filter Circuit	80
5	Low-Pass Active Filter Design	.104

6	High-Pass Active Filter Design	130
7	Band-Pass Active Filter Design	159
8	Other Types of Active Filters	191
9	Scratch, Rumble, and Speech Filters—Octave Equalizer—Pink Noise Generator—Room Equalizing Instrument—Biamp-lification—Active Crossover Networks—Electronic Music—Speech Therapy—Modems	206
10	Active Filter Potpourri  Deliyannis Band-Pass Active Filter Circuit—Testing the Deliyannis Circuit—Jump Resonance in Band-Pass Active Filter Circuits—Voltage Controlled State Variable Filter—Transconductance Controlled Low-Pass, High-Pass, or All-Pass Filters	227
Appendices The Q of a State Variable Filter255		
	The General Transconductance Controlled Network	259
	LM108/LM208 Operational Amplifiers	261
	MC1741/MC1741C Operational Amplifiers	
	Additional Reading	277
Index		279