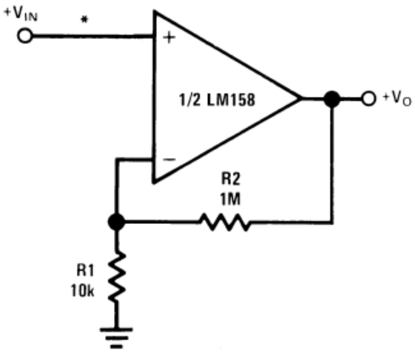
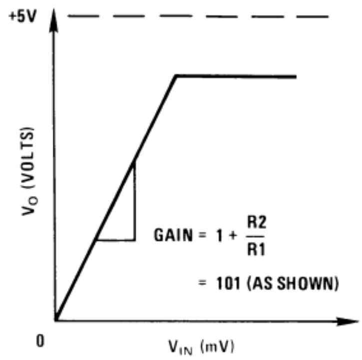
Typical Single-Supply Applications

($V^+ = 5.0\ V_{DC}$)

Non-Inverting DC Gain (0V Output)



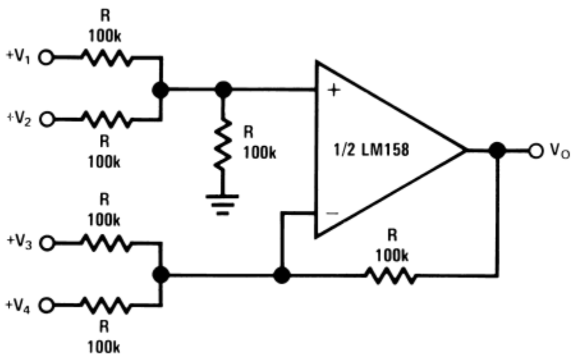
00778706



00778707

*R not needed due to temperature independent I_{IN}

DC Summing Amplifier
($V_{IN'S} \geq 0\ V_{DC}$ and $V_O \geq 0\ V_{DC}$)

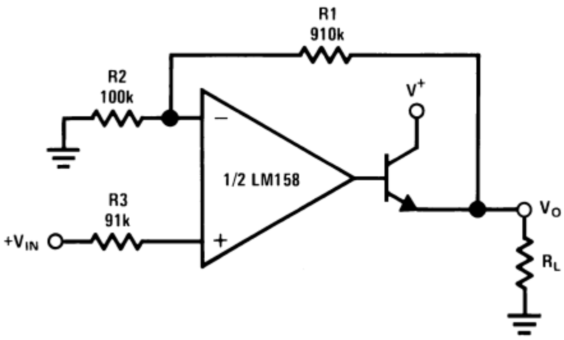


00778708

Where: $V_O = V_1 + V_2 + V_3 + V_4$

$(V_1 + V_2) \geq (V_3 + V_4)$ to keep $V_O > 0\ V_{DC}$

Power Amplifier



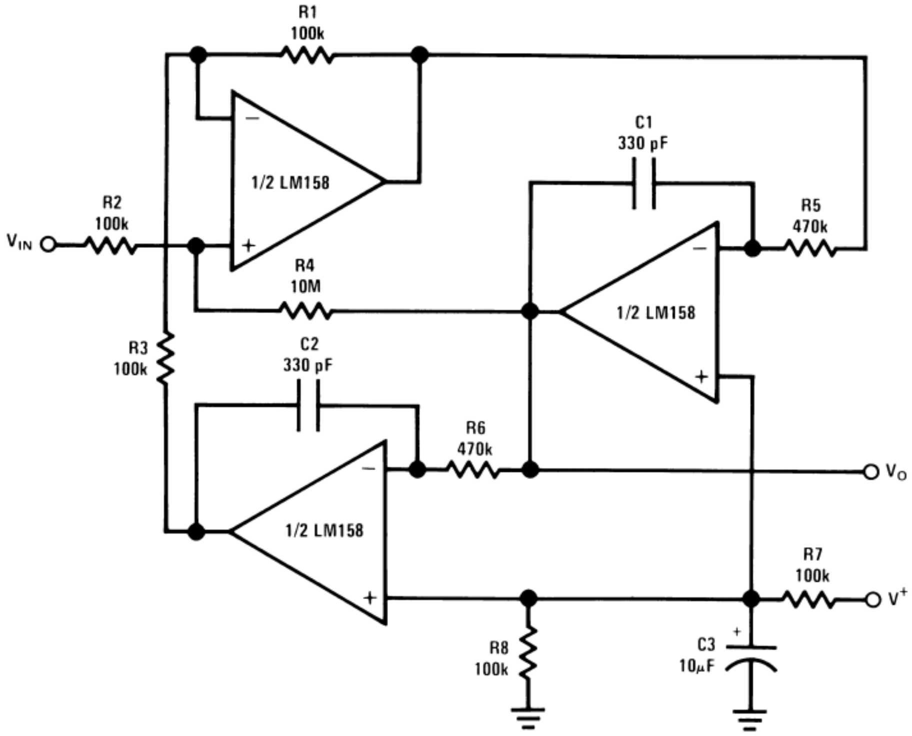
00778709

$V_O = 0\ V_{DC}$ for $V_{IN} = 0\ V_{DC}$

$A_V = 10$

Typical Single-Supply Applications ($V^+ = 5.0\ V_{DC}$) (Continued)

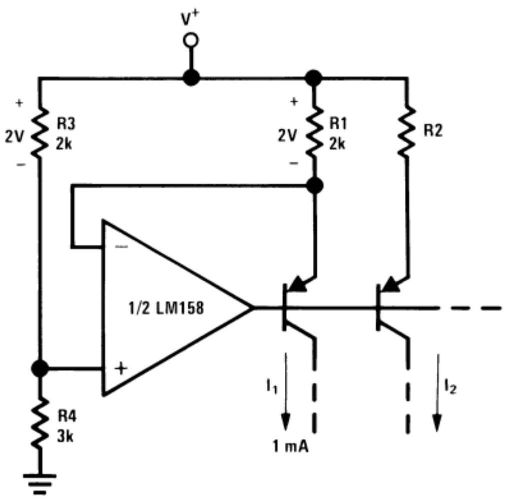
"BI-QUAD" RC Active Bandpass Filter



00778710

f_O = 1 kHz
Q = 50
A_V = 100 (40 dB)

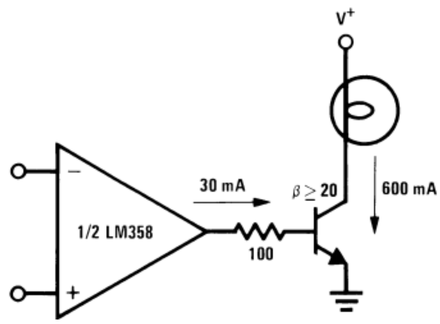
Fixed Current Sources



00778711

$$I_2 = \left(\frac{R1}{R2}\right) I_1$$

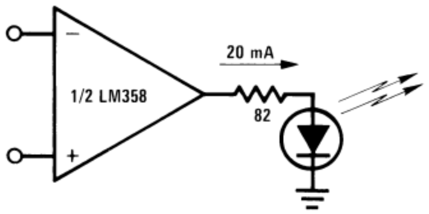
Lamp Driver



00778712

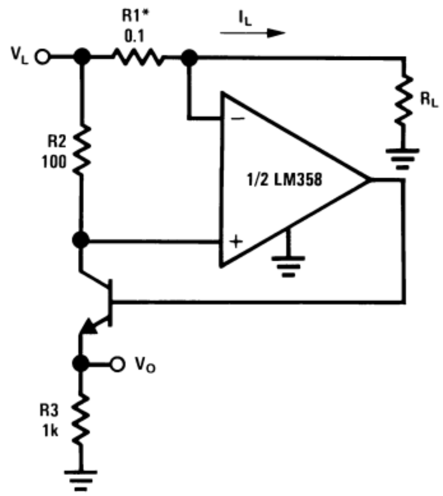
Typical Single-Supply Applications ($V^+ = 5.0\ V_{DC}$) (Continued)

LED Driver



00778713

Current Monitor



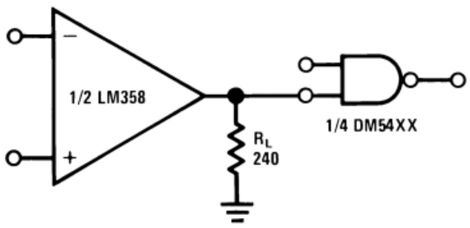
00778714

$$V_O = \frac{1V\,(I_L)}{1A}$$

*(Increase R1 for I_L small)

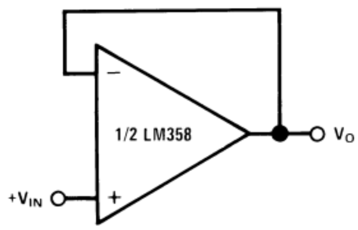
$V_L \leq V^+ - 2V$

Driving TTL



00778715

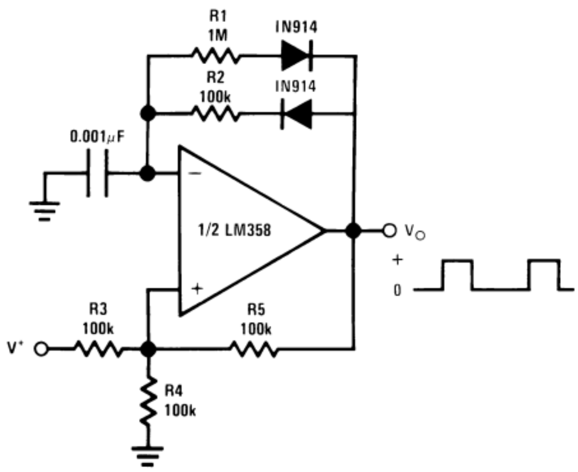
Voltage Follower



00778717

$V_O = V_{IN}$

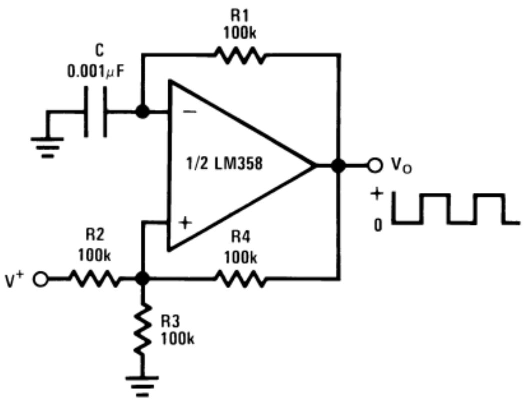
Pulse Generator



00778716

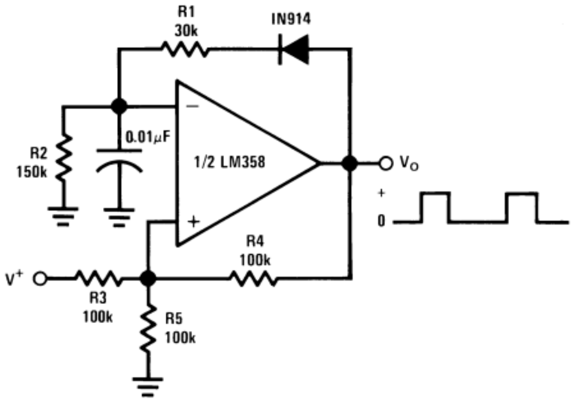
Typical Single-Supply Applications ($V^{+} = 5.0\ V_{DC}$) (Continued)

Squarewave Oscillator



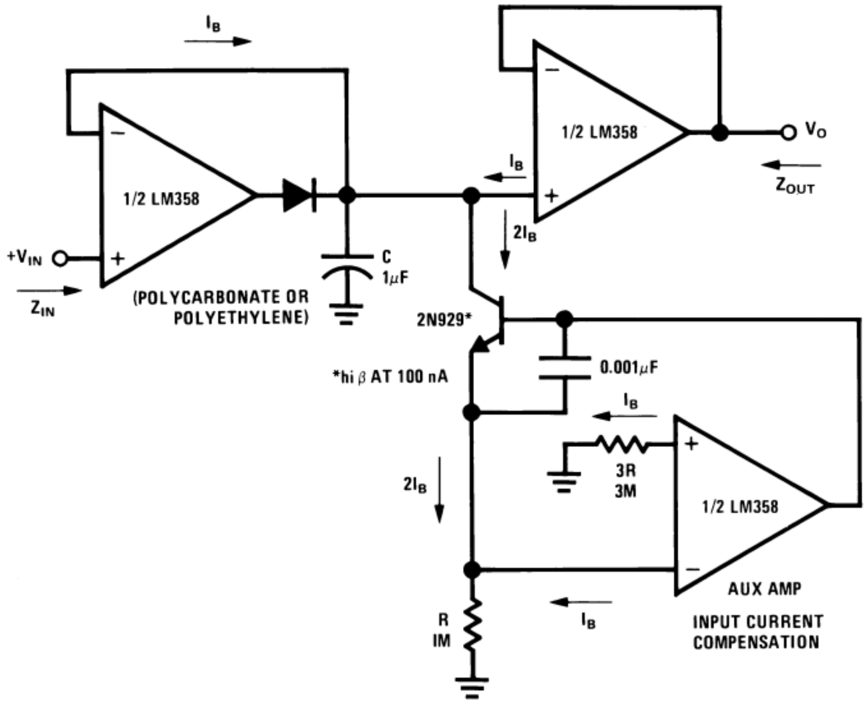
00778718

Pulse Generator



00778719

Low Drift Peak Detector



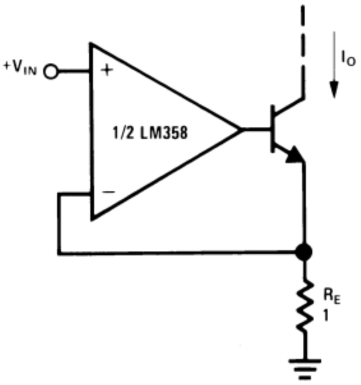
00778720

HIGH Z_{IN}

LOW Z_{OUT}

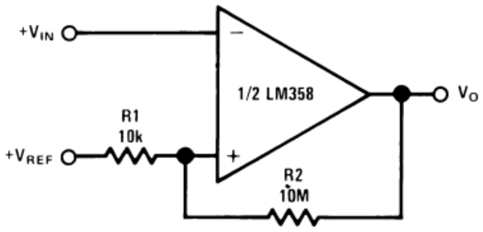
Typical Single-Supply Applications ($V^+ = 5.0\ V_{DC}$) (Continued)

High Compliance Current Sink

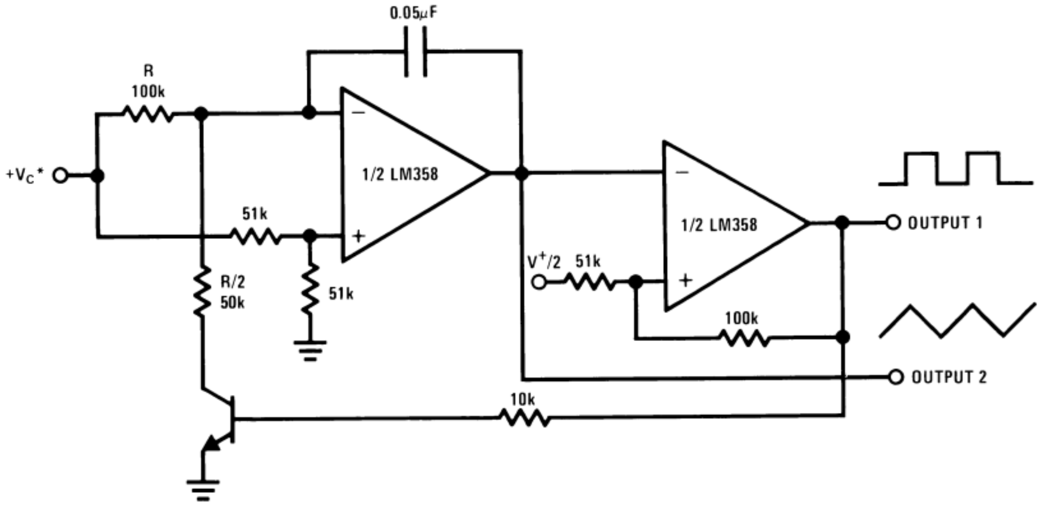


I_O = 1 amp/volt V_{IN}
(Increase R_E for I_O small)

Comparator with Hysteresis



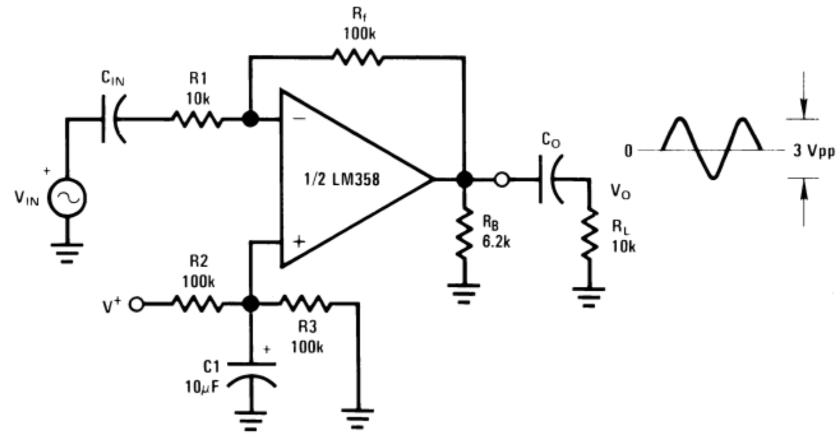
Voltage Controlled Oscillator (VCO)



*WIDE CONTROL VOLTAGE RANGE: 0 $V_{DC} \leq V_C \leq 2\ (V^+ -1.5V_{DC})$

Typical Single-Supply Applications ($V^+ = 5.0\ V_{DC}$) (Continued)

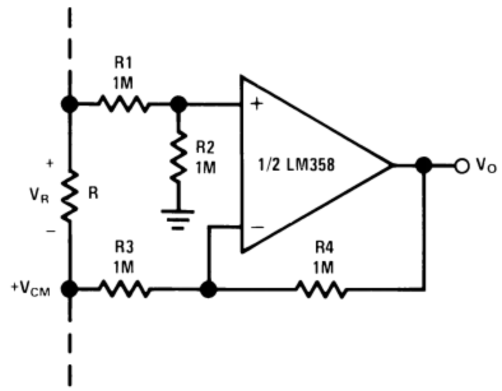
AC Coupled Inverting Amplifier



00778724

$$A_V = \frac{R_f}{R1} \quad \text{(As shown, } A_V = 10\text{)}$$

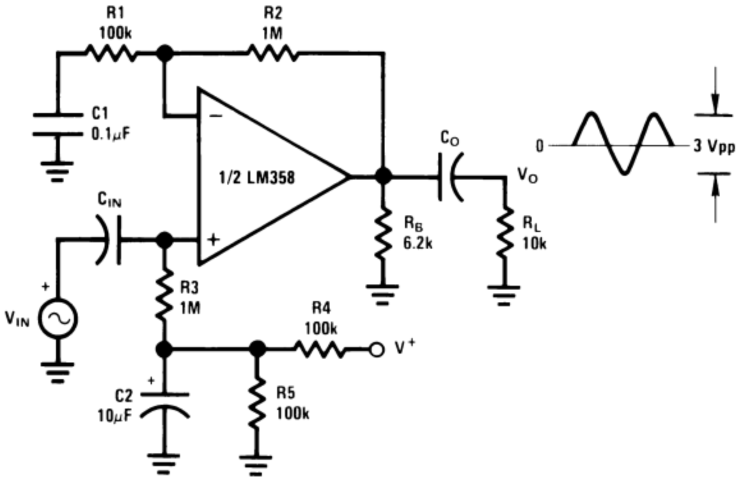
Ground Referencing a Differential Input Signal



00778725

Typical Single-Supply Applications ($V^+ = 5.0\ V_{DC}$) (Continued)

AC Coupled Non-Inverting Amplifier

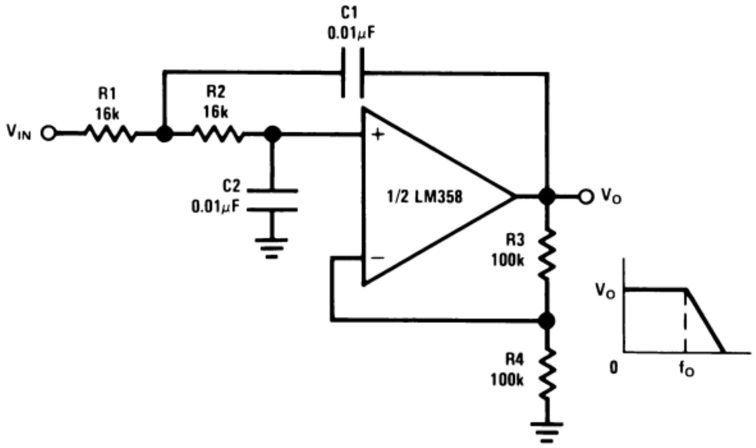


00778726

$$A_V = 1 + \frac{R2}{R1}$$

$A_V = 11$ (As Shown)

DC Coupled Low-Pass RC Active Filter



00778727

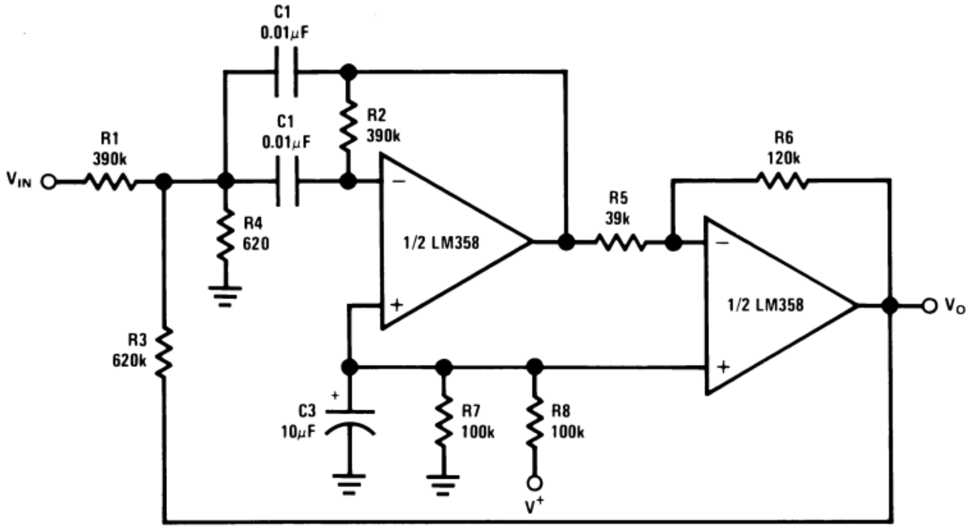
$f_O = 1$ kHz

$Q = 1$

$A_V = 2$

Typical Single-Supply Applications ($V^+ = 5.0\ V_{DC}$) (Continued)

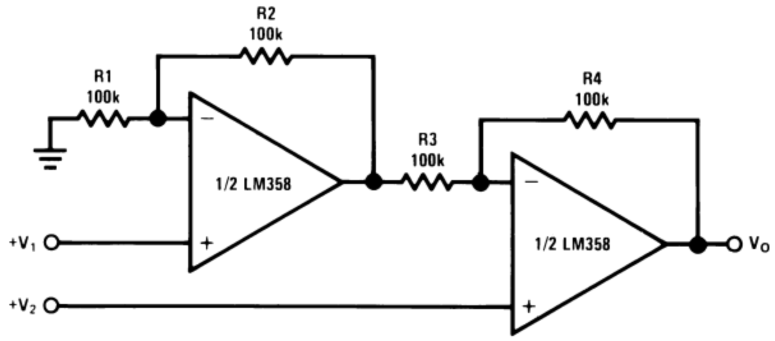
Bandpass Active Filter



00778728

$f_O = 1$ kHz
Q = 25

High Input Z, DC Differential Amplifier



00778729

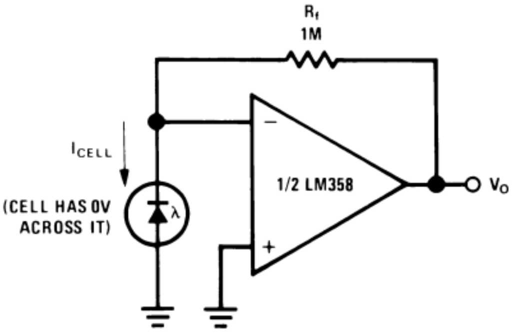
For $\frac{R1}{R2} = \frac{R4}{R3}$ (CMRR depends on this resistor ratio match)

$$V_O = 1 + \frac{R4}{R3}(V_2 - V_1)$$

As Shown: $V_O = 2\,(V_2 - V_1)$

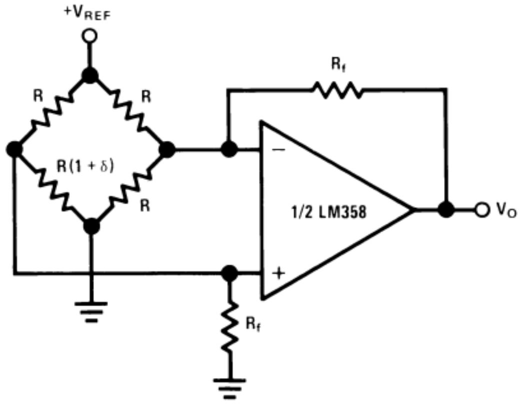
Typical Single-Supply Applications ($V^+ = 5.0\ V_{DC}$) (Continued)

Photo Voltaic-Cell Amplifier



00778730

Bridge Current Amplifier

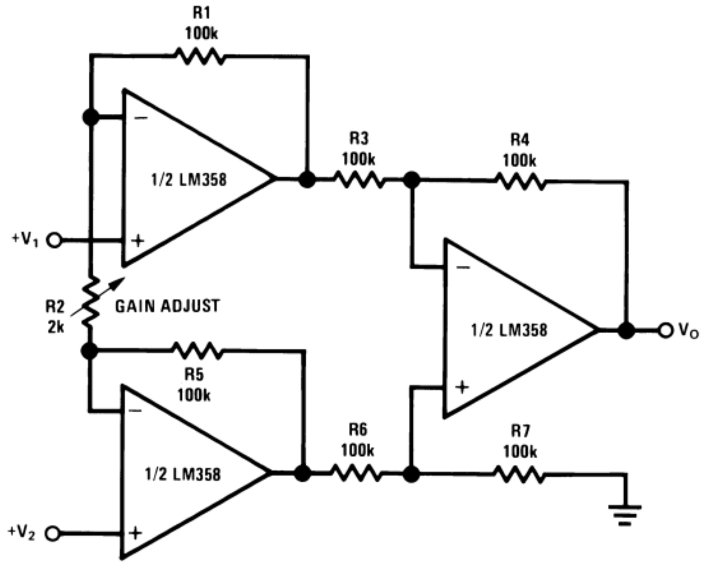


00778733

For $\delta << 1$ and $R_f >> R$

$$V_O \cong V_{REF}\left(\frac{\delta}{2}\right)\frac{R_f}{R}$$

High Input Z Adjustable-Gain DC Instrumentation Amplifier



00778731

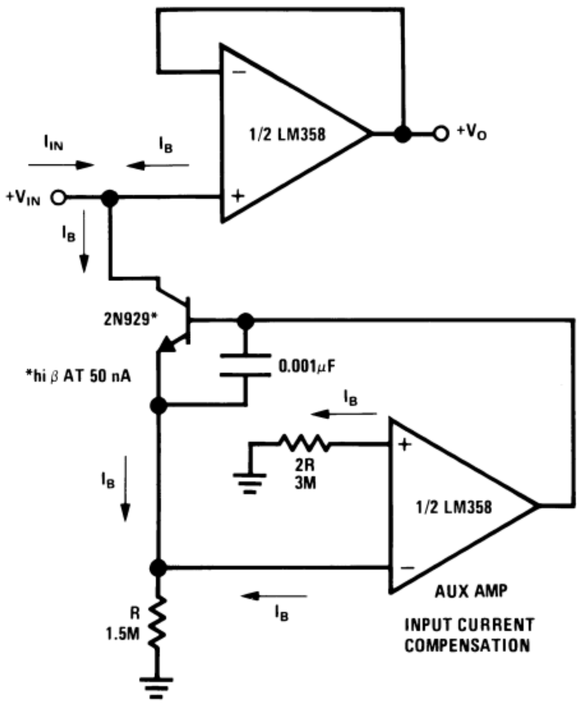
If R1 = R5 & R3 = R4 = R6 = R7 (CMRR depends on match)

$$V_O = 1 + \frac{2R1}{R2}(V_2 - V_1)$$

As shown $V_O = 101\ (V_2 - V_1)$

Typical Single-Supply Applications ($V^+ = 5.0\ V_{DC}$) (Continued)

Using Symmetrical Amplifiers to Reduce Input Current (General Concept)



Schematic Diagram (Each Amplifier)