



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



Dual ground sense operational amplifier

BA10358 / BA10358F / BA10358FV / BA10358N

The BA10358, BA10358F, BA10358FV, and BA10358N are monolithic ICs with two independent built-in operational amplifiers featuring high gain and frequency compensation.

These products offer a particularly wide range of operating voltages, from 3 to 32V (when using a single power supply). Current dissipation is low and remains constant regardless of the power supply voltage. Available packages include an 8-pin DIP (BA10358), an 8-pin SOP (BA10358F), an 8-pin SSOP-B (BA10358FV), and an 8-pin SIP (BA10358N).

●Features

- 1) Can be driven with a single power supply.
- 2) Extremely low current dissipation.
- 3) Level is compatible with any kind of logic circuit.
- 4) Operating voltage range is 3 to 32V for single power supply, ± 1.5 to ± 16 V for dual power supply.
- 5) High DC voltage gain.
- 6) Wide frequency response.
- 7) Pin assignments is the same as the general-purpose 4558 model.
- 8) Compatible with model 358 operation amplifiers of other manufacturers.

●Absolute maximum ratings

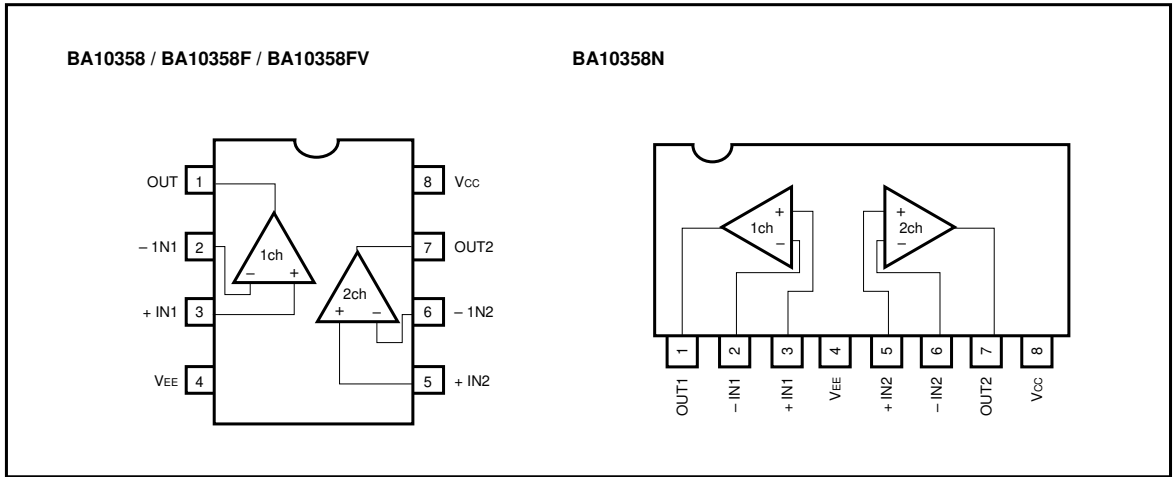
| Parameter | Symbol | Limits | | | | Unit |
|----------------------------|-----------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | | BA10358 | BA10358F | BA10358FV | BA10358N | |
| Power supply voltage | V_{CC} | 32 (± 16) | 32 (± 16) | 32 (± 16) | 32 (± 16) | V |
| Power dissipation | P_d | 800* | 550* | 350* | 900* | mW |
| Differential input voltage | V_{ID} | $\pm V_{CC}$ | $\pm V_{CC}$ | $\pm V_{CC}$ | $\pm V_{CC}$ | V |
| Common-mode input voltage | V_I | $-0.3 \sim V_{CC}$ | $-0.3 \sim V_{CC}$ | $-0.3 \sim V_{CC}$ | $-0.3 \sim V_{CC}$ | V |
| Operating temperature | T_{opr} | $-40 \sim +85$ | $-40 \sim +85$ | $-40 \sim +85$ | $-40 \sim +85$ | $^{\circ}\text{C}$ |
| Storage temperature | T_{stg} | $-55 \sim +125$ | $-55 \sim +125$ | $-55 \sim +125$ | $-55 \sim +125$ | $^{\circ}\text{C}$ |

* Refer to the P_d characteristic diagram.

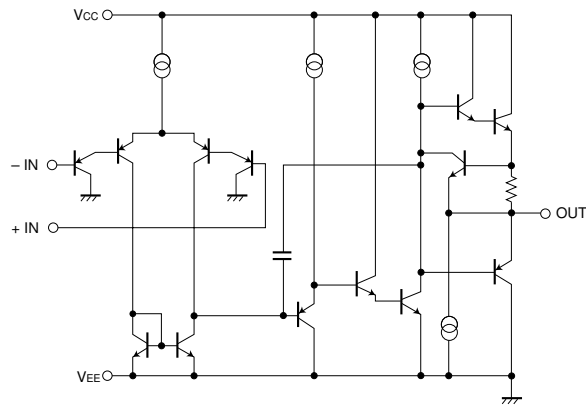
The values for the BA10358F are those when it is mounted on a glass epoxy board (50mm \times 50mm \times 1.6mm).

The values for the BA10358FV are those when it is mounted on a glass epoxy board (70mm \times 70mm \times 1.6mm).

●Block diagram



●Internal circuit configuration (diagram shows only one channel)



●Electrical characteristics (unless otherwise noted, Ta = 25°C, Vcc = +5 V)

| Parameter | | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|--------|--------------|------|------|----------------|--------|--|
| Input offset voltage | | V_{IO} | — | 2 | 7 | mV | $R_S = 50\Omega$ |
| Input offset current | | I_{IO} | — | 5 | 50 | nA | — |
| Input bias current | | I_B | — | 45 | 250 | nA | — |
| High-amplitude voltage gain | | A_v | 25 | 100 | — | V / mV | $R_L \geq 2k\Omega, V_{CC} = 15V$ |
| Common-mode input voltage | | V_{ICM} | 0 | — | $V_{CC} - 1.5$ | V | — |
| Output voltage | | V_O | 0 | — | $V_{CC} - 1.5$ | V | $R_L = 2k\Omega$ |
| Common-mode rejection ratio | | CMRR | 65 | 80 | — | dB | — |
| Power supply voltage rejection ratio | | PSRR | 65 | 100 | — | dB | $R_S = 50\Omega$ |
| Quiescent current | | I_Q | — | 0.7 | 1.2 | mA | $R_L = \infty$, on All Op - Amps |
| Channel separation | | CS | — | 120 | — | dB | $f = 1\text{ kHz}$ input conversion |
| Maximum output current | source | I_{source} | 10 | 20 | — | mA | $V_{IN^+} = 1V, V_{IN^-} = 0V, V_O = 0V$ |
| | sink | I_{sink} | 10 | 20 | — | mA | $V_{IN^-} = 1V, V_{IN^+} = 0V, V_O = V_{CC}$ |

●Electrical characteristic curves

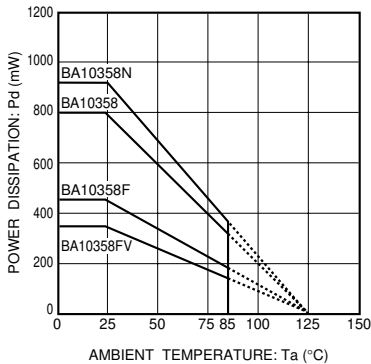


Fig. 1 Power dissipation vs. ambient temperature

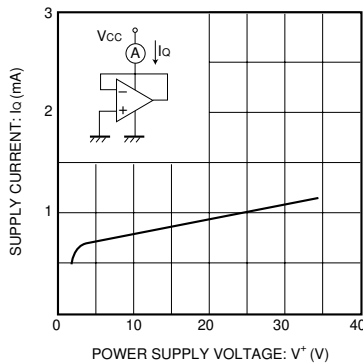


Fig. 2 Quiescent current vs. power supply voltage

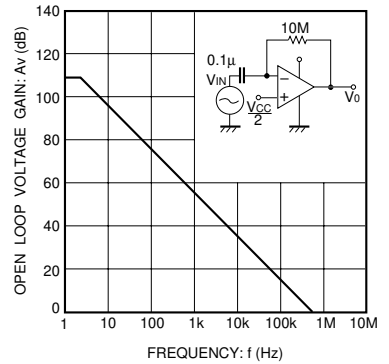


Fig. 3 Open loop voltage gain vs. frequency

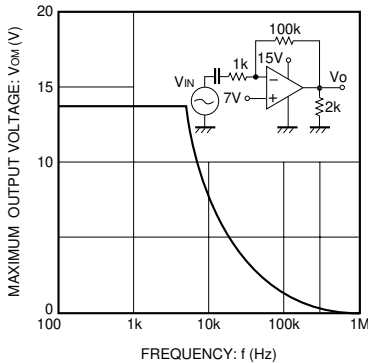


Fig. 4 Maximum output voltage vs. frequency

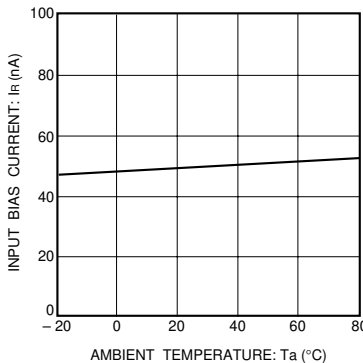


Fig. 5 Input bias current vs. ambient temperature

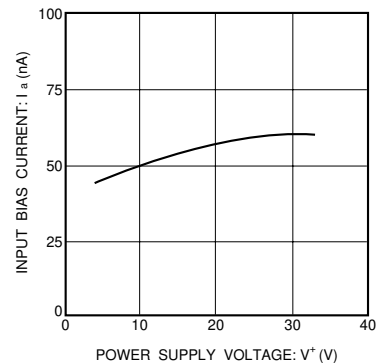


Fig. 6 Input bias current vs. power supply voltage

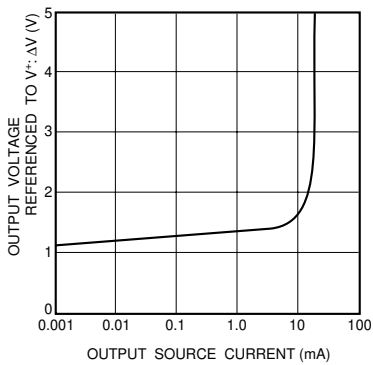


Fig. 7 Voltage difference during power supply output vs. output source current

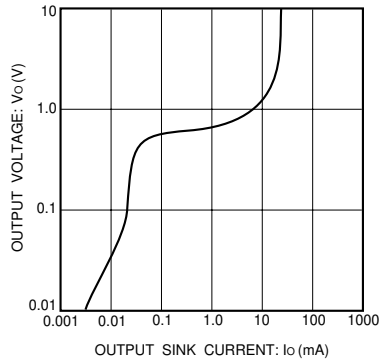


Fig. 8 Output voltage vs. output sink current

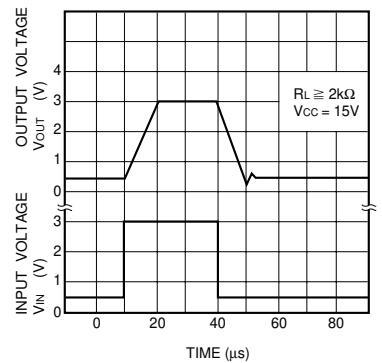


Fig. 9 Output response characteristics

● Operation notes

(1) Handling unused circuits

If there are any circuits which are not being used, we recommend making connections as shown in Figure 10, with the non-inverted input pin connected to the potential within the in-phase input voltage range (V_{ICM}).

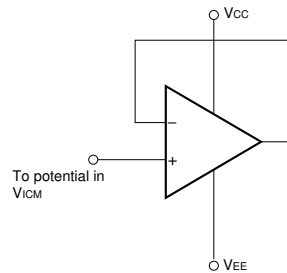


Fig. 10 Handling unused circuits

● External dimensions (Units: mm)

