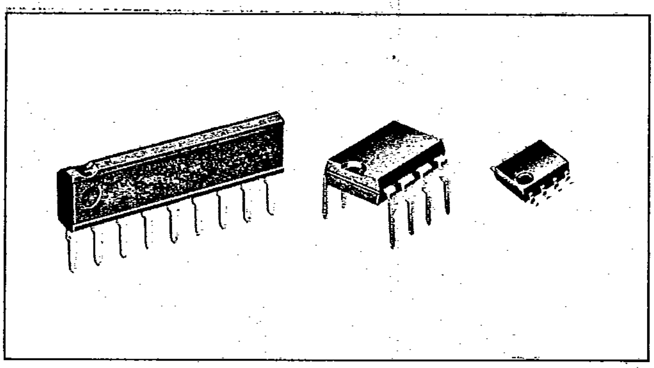
BA718 BA728 BA728F



The BA718, BA728, and BA728F are monolithic dual operational amplifiers; each chip contains two independent op amps with internal phase compensation. The devices feature a wide supply voltage range of 3 to 18 V (±1.5 to ±9 V). They can operate on a single power supply and can include a negative voltage in the common-mode input voltage range.

The current consumption is small, 1.5 mA at V_{CC}=6 V and V_{EE}= −6 V, which is about a half that of the BA4558.

Features

1. Can operate on a single power supply.
2. Low power consumption.
3. Pin configuration is identical to that of the 4558 type general-purpose op amps.
4. Supply voltage range for a single power supply is 3 to 18 V.
5. Supply voltage range for dual power supply is ±1.5 to ±9 V.
6. Output is short-circuit protected.
7. Output stage operates in class AB to minimize crossover distortion.
8. Small input bias current of 10 nA (typ.)
9. Dual amplifiers in each package
10. Internal phase compensation

Applications

Ground-sensing small signal amplifiers
Control amplifiers requiring high phase margin, such as motor drivers
Low-power, low-voltage operational amplifiers
Capacitive load driving amplifiers

Dimensions (Unit: mm)

BA718

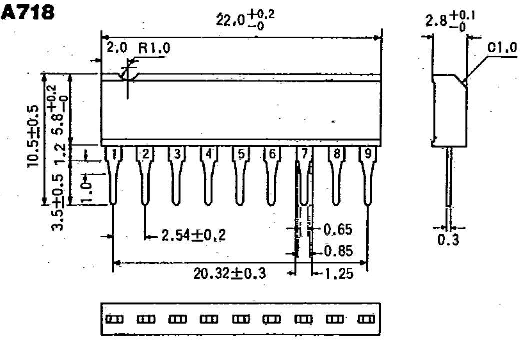


Fig. 1

BA728

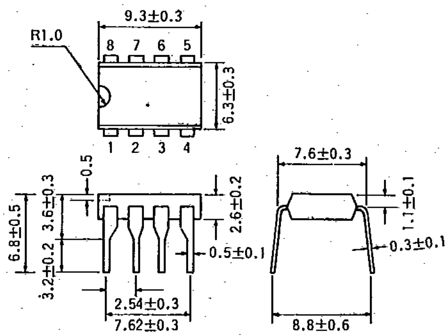


Fig. 2

BA728F

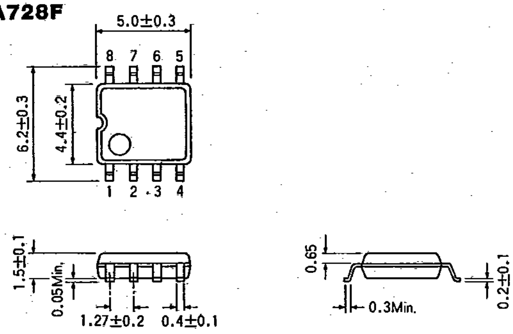


Fig. 3

Block Diagrams

BA718

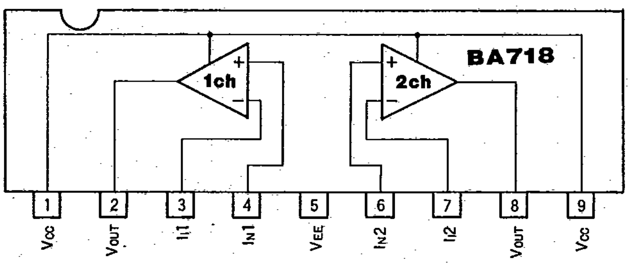


Fig. 4

BA728 BA728F

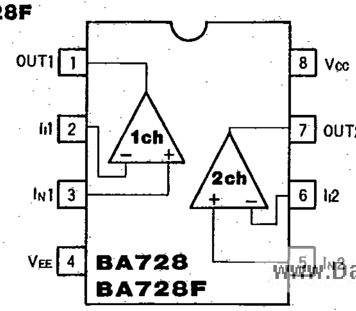


Fig. 5

Circuit Diagram

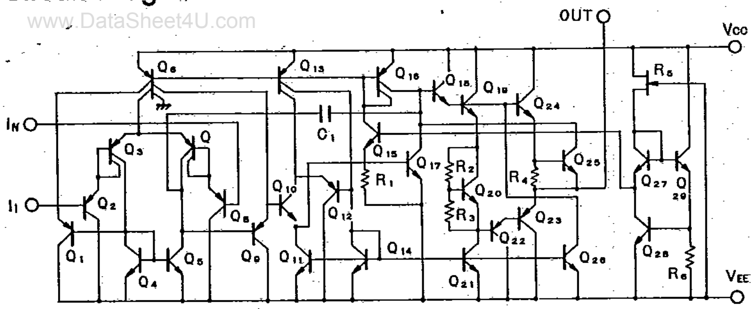


Fig. 6

Test Circuits

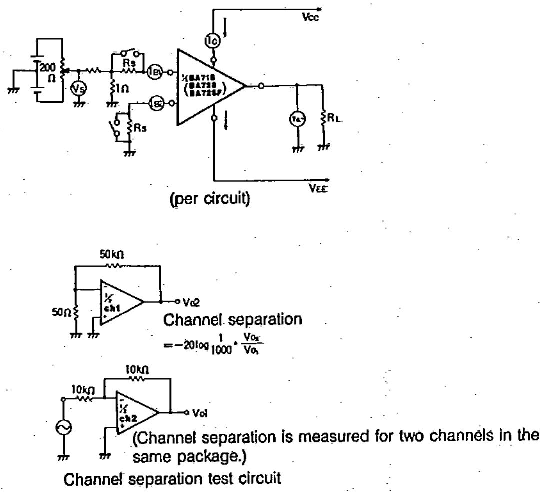


Fig. 7

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V_{CC}	18	V
Differential input voltage	V_{ID}	18	V
Common-mode input voltage range	V_{ICM}	−0.3～18	V
Power dissipation	Pd	450*1	mW
Operating temperature range	Topr	−20～75*2	°C
Storage temperature range	Tstg	−55～125	°C

*1 Derating is done at 4.5 mW/°C for operation above Ta=25°C.
*2 For an extended operating temperature range, consult your local ROHM representative.

Electrical Characteristics (Ta=25°C, V_{CC}=6V, V_{EE}= −6V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	Test circuit
Input offset voltage	V_{IO}	—	2	10	mV	—	Fig. 7
Input offset current	I_{IO}	—	1	50	nA	—	Fig. 7
Input bias current	I_B	—	10	250	nA	—	Fig. 7
Common-mode input voltage range	V_{ICM}	V_{EE}	—	$V_{CC}-1.5$	V	—	Fig. 7
Quiescent current	I_Q	—	1.5	3.1	mA	—	Fig. 7
Large signal voltage gain	A_V	86	100	—	dB	R_L=2kΩ	Fig. 7
Output voltage amplitude	V_O	±3.0	±4.5	—	V	R_L=2kΩ	Fig. 7
Common-mode rejection	CMR	70	90	—	dB	—	Fig. 7
Supply voltage regulation	SVR	—	30	150	μV/V	—	Fig. 7
Channel separation	S_{EP}	—	120	—	dB	—	Fig. 7
Output current (SOURCE)	I_O source	—	20	—	mA	V_{IN}^+=1V, V_{IN}^-=0V	Fig. 7
Output current (SINK)	I_O sink	—	20	—	mA	V_{IN}^-=1V, V_{IN}^+=0V	Fig. 7

*The input bias current flows out from the IC since a PNP transistor is used at the input.

Electrical Characteristic Curves

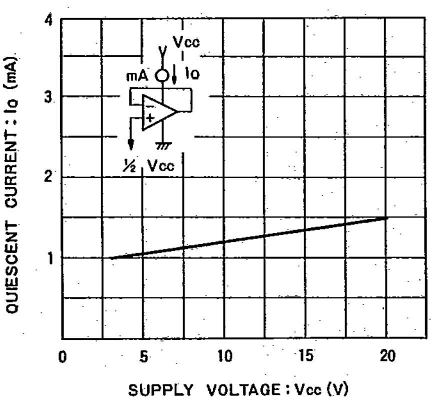


Fig. 8 Quiescent current vs. supply voltage

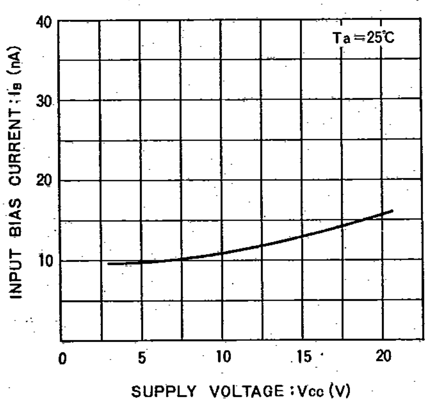


Fig. 9 Input bias current vs. supply voltage

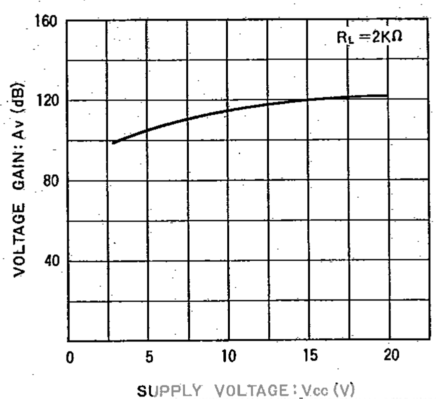


Fig. 10 Voltage gain vs. supply voltage

Electrical Characteristic Curves

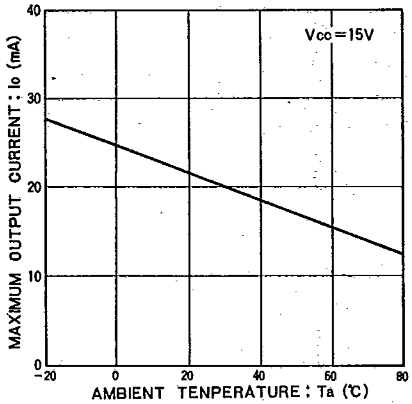


Fig. 11 Maximum output current vs. ambient temperature

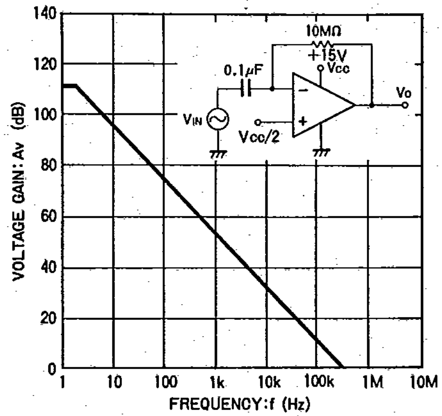


Fig. 12 Voltage gain vs. frequency

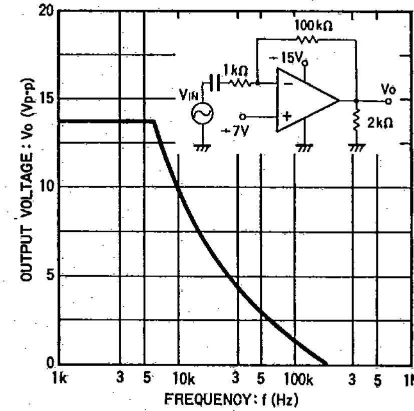


Fig. 13 Output voltage vs. frequency

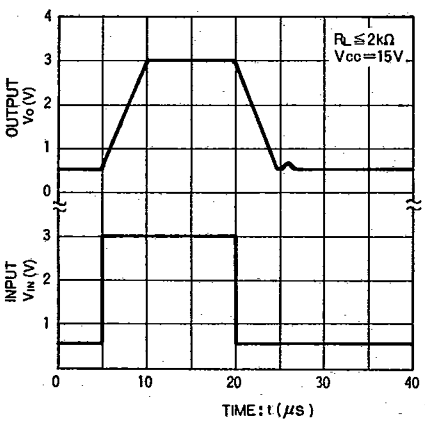


Fig. 14 Input/output vs. time

Application Examples

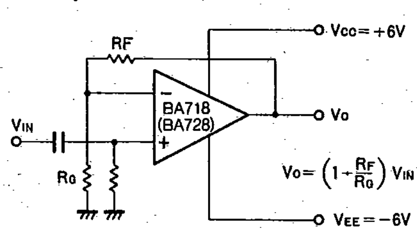


Fig. 15 Noninverting amplifier

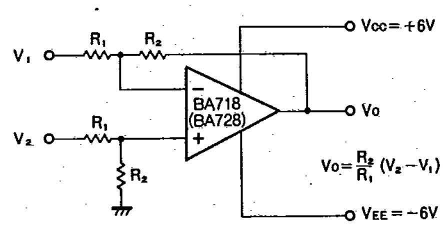


Fig. 16 Differential amplifier

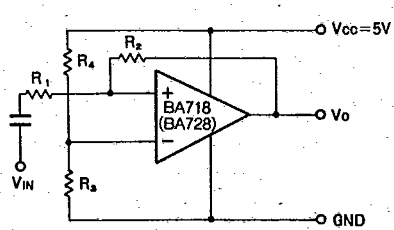


Fig. 17 AC amplifier using a single supply

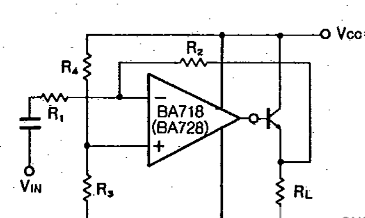


Fig. 18 Booster circuit