Quad operational amplifier

BA14741/BA14741F

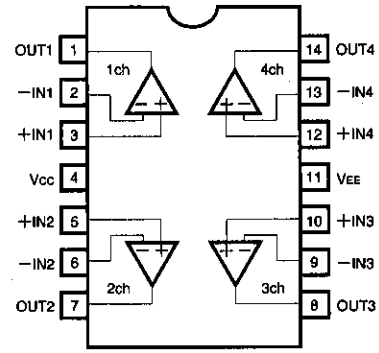
The BA14741 and BA14741F are monolithic ICs with four operational amplifiers featuring internal phase compensation mounted on a single silicon chip. Either a dual or single power supply can be driven.

●Applications
Active filters
Audio amplifiers
VCOs
Other electronic circuits

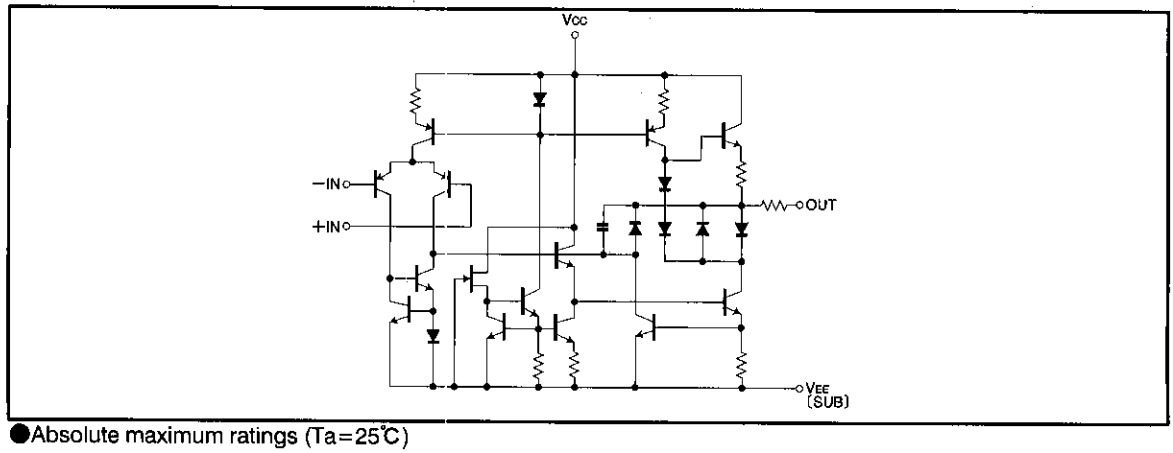
●Features
1) Built-in phase compensation circuit.
2) Wide range of operating voltages. (±2 to ±18V)
3) Can be connected to other standard quad operational amplifiers.
4) High gain and low noise.

●Block diagram

BA14741/BA14741F



●Internal circuit configuration diagram



●Absolute maximum ratings (Ta=25℃)

Parameter	Symbol	Limits		Unit
		BA14741	BA14741F	
Power supply voltage	Vcc	36 (±18)	36 (±18)	V
Power dissipation	Pd	1000*	450*	mW
Differential input voltage	VID	±Vcc	±Vcc	V
In-phase input voltage	VI	−Vcc~Vcc	−Vcc~Vcc	V
Operating temperature	Topr	−40~85	−40~85	℃
Storage temperature	Tstg	−55~125	−55~125	℃

* For Pd values, please see Pd characteristic diagram.
Values are those when BA14741F is mounted on a glass epoxy PCB (50 mm x 50 mm x 1.6 mm).

●Electrical characteristics (unless otherwise noted, Ta=25℃, Vcc=+15V, VEE=-15V)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input offset voltage		VIO	−	1	5	mV	RS≦10kΩ
Input offset current		IIO	−	10	50	nA	−
Input bias current		IB	−	60	300	nA	−
High-amplitude voltage gain		AV	86	100	−	dB	RL=2kΩ, VO=±10V
Common mode input voltage range		VICM	±12	±13.5	−	V	−
Maximum output voltage		VOM	±10	±12.5	−	V	RL=2kΩ
Common mode rejection ratio		CMRR	80	100	−	dB	−
Power supply voltage rejection ratio		PSRR	80	100	−	dB	−
Quiescent circuit current		IQ	−	3.5	7.0	mA	RL=∞, on All Op - Amps
Channel separation		CS	−	100	−	dB	f = 1 kHz input conversion
Maximum output current	source	Isource	10	20	−	mA	VO=0
	sink	Isink	5	10	−	mA	VO=0
Slew rate		S. R.	−	1	−	V / μs	AV=1, RL=2kΩ
Maximum frequency		fT	−	2	−	MHz	−
Input noise voltage		Vn	−	2	4.0	μVrms	RIAA , RS=2.2kΩ, 10Hz~30kHz

●Electrical characteristic curves

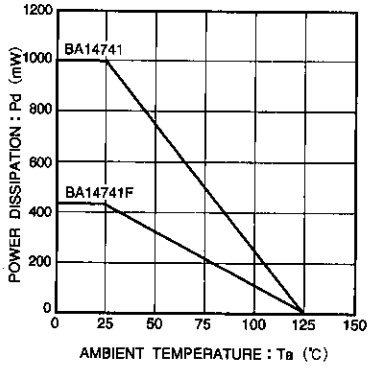


Fig.1 Power dissipation - ambient temperature characteristic

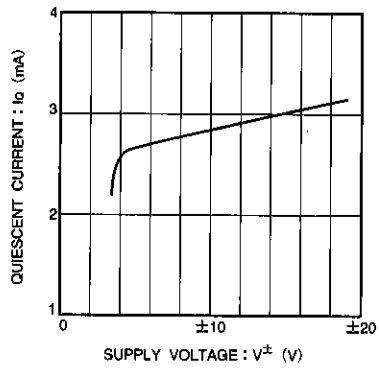


Fig.2 Quiescent current - power supply voltage characteristic

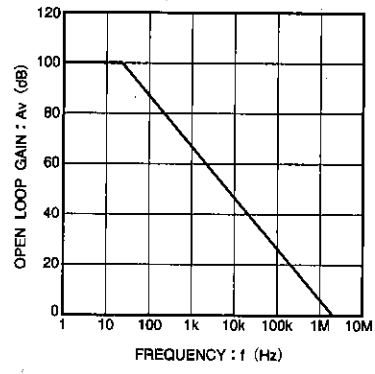


Fig.3 Open loop voltage gain - frequency characteristic

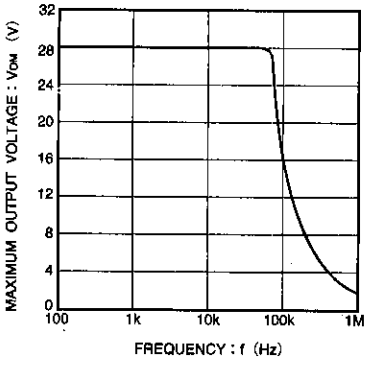


Fig.4 Maximum output voltage - frequency characteristic

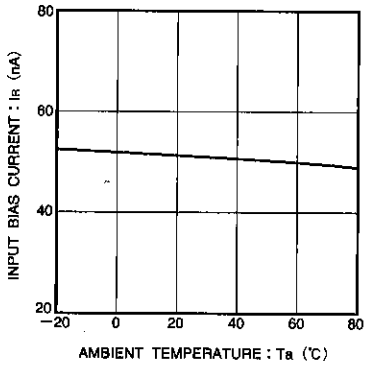


Fig.5 Input bias current - ambient temperature characteristic

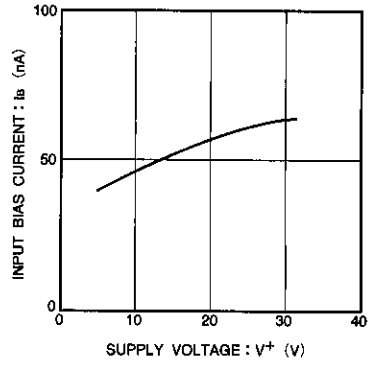


Fig.6 Input bias current - power supply voltage characteristic

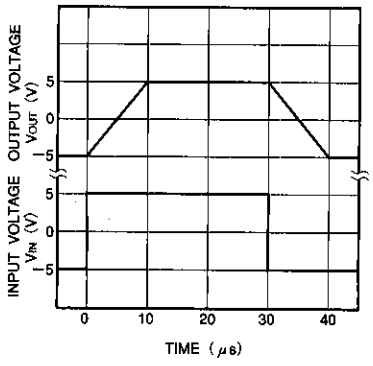


Fig.7 Output response characteristic

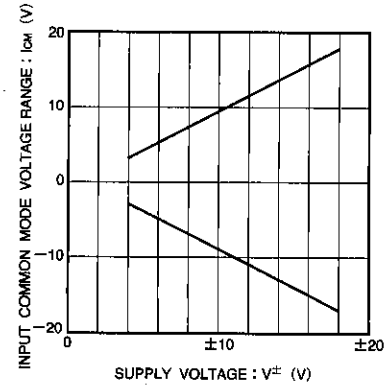


Fig.8 Common mode input voltage - power supply voltage characteristic

●Operatiom notes

・Unused circuit connections

If there are any circuits which are not being used, we recommend making connections as shown in Figure 9, with the non-inverted input pin connected to the potential within the in-phase input voltage range (V_{ICM}).

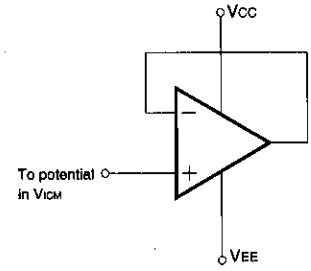
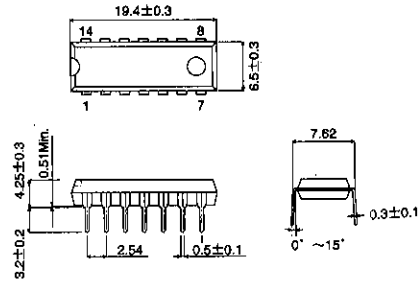


Fig.9 Unused circuit connections

●External dimensions (Units: mm)

BA14741



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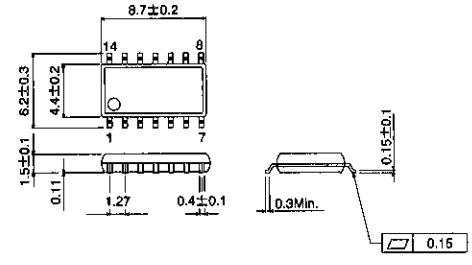
BA14741F



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