Dual high slew rate, low noise operational amplifier BA15218 / BA15218F / BA15218N

The BA15218, BA15218F, and BA15218N are monolithic ICs with two built-in low-noise, low-distortion operational amplifiers featuring internal phase compensation.

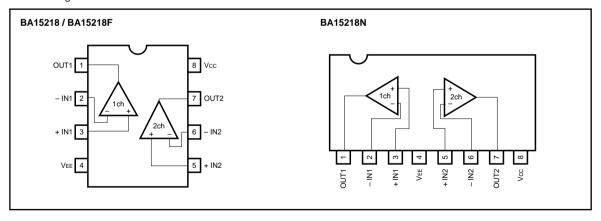
Either a dual or single power supply can be driven, and these products can be driven by a digital system 5V single power supply.

The following packages are available: 8-pin DIP (BA15218), 8-pin SOP (BA15218F), and 8-pin SIP (BA15218N).

Features

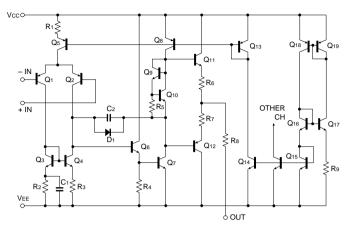
- Low-voltage operation and single power supply drive enabled.
 - (Single power supply: 4 to 32V, dual power supply: ± 3 to ± 16 V)
- 2) Low noise level. ($Vn = 1.0 \mu V_{rms}$ typ. : RIAA)
- 3) High slew rate. (SR = $3V / \mu s$, GBW = 10MHz typ.)
- 4) Low offset voltage. (Vio = 0.5mV typ.)
- 5) High gain and low distortion. ($G_{VO} = 110dB$, THD = 0.0015%)
- 6) Pin connections are the same as with standard dual operational amplifiers, and outstanding characteristics make these products compatible with the 4558 and 4560 models.

Block diagram





Internal circuit configuration



● Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol		Unit		
		BA15218	BA15218 BA15218F BA152		
Power supply voltage	Vcc	Vcc ± 18		± 18	V
Power dissipation	Pd	800*	550*	900*	mW
Differential input voltage	VID	± Vcc	± Vcc	± Vcc	V
Common-mode input voltage	Vı	- Vcc ~ Vcc	- Vcc ~ Vcc	- Vcc ~ Vcc	V
Load current	Іомах	± 50	± 50	± 50	mA
Operating temperature	Topr	- 40 ~ + 85	- 40 ~ + 85	- 40 ~ + 85	°C
Storage temperature	Tstg	- 55 ~ + 125	- 55 ~ + 125	− 55 ~ + 125	°C

^{*} Refer to Pd characteristics diagram.

The values for the BA15218F are those when it is mounted on a glass epoxy board ($50 \text{mm} \times 50 \text{mm} \times 1.6 \text{mm}$).

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

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Input offset voltage	Vio	_	0.5	5	mV	Rs ≦ 10kΩ
Input offset current	lio	_	5	200	nA	_
Input bias current	Ів	_	50	500	nA	_
High-amplitude voltage gain	Av	86	110	_	dB	$R_L \ge 2k\Omega$, $V_0 = \pm 10V$
Common-mode input voltage	Vісм	± 12	± 14	_	V	_
Maximum output voltage	Vон	± 12	± 14	_	V	$R_L \ge 10k\Omega$
Maximum output voltage	Vol	± 10	± 13	_	٧	$R_L \ge 2k\Omega$
Common-mode rejection ratio	CMRR	70	90	_	dB	Rs ≦ 10kΩ
Power supply voltage rejection ratio	PSRR	76	90	_	dB	Rs ≦ 10kΩ
Quiescent current	lα	_	5	8	mA	V _{IN} = 0V, R _L = ∞
Slew rate	S.R.	_	3	_	V/μs	$A_V = 1$, $R_L = 2k\Omega$
Channel separation	CS	_	120	_	dB	f = 1kHz input conversion
Voltage gain band width	GBW	_	10	_	MHz	f = 10kHz
Input conversion noise voltage	Vn	_	1.0	_	μV_{rms}	RIAA, Rs = $1k\Omega$, $10Hz \sim 30kHz$

•Electrical characteristic curves

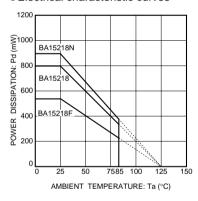


Fig.1 Power dissipation vs. ambient temperature

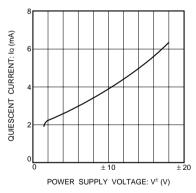


Fig.2 Quiescent current vs. power supply voltage

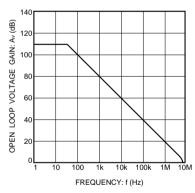


Fig.3 Open loop voltage gain vs. frequency

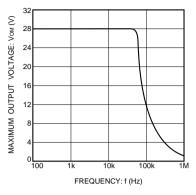


Fig.4 Maximum output voltage vs. frequency

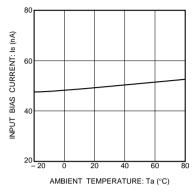


Fig.5 Input bias current vs. ambient temperature

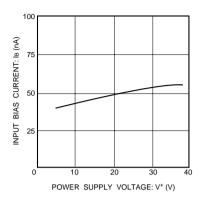


Fig.6 Input bias current vs. power supply voltage

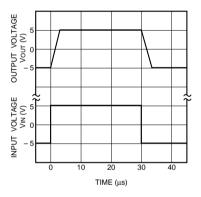


Fig.7 Output response characteristics

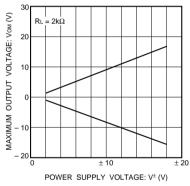


Fig.8 Maximum output voltage vs. power supply voltage

Operation notes

(1) 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 (Vicin).

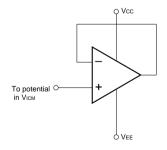


Fig.9 Unused circuit connections

●External dimensions (Units: mm)

