

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.

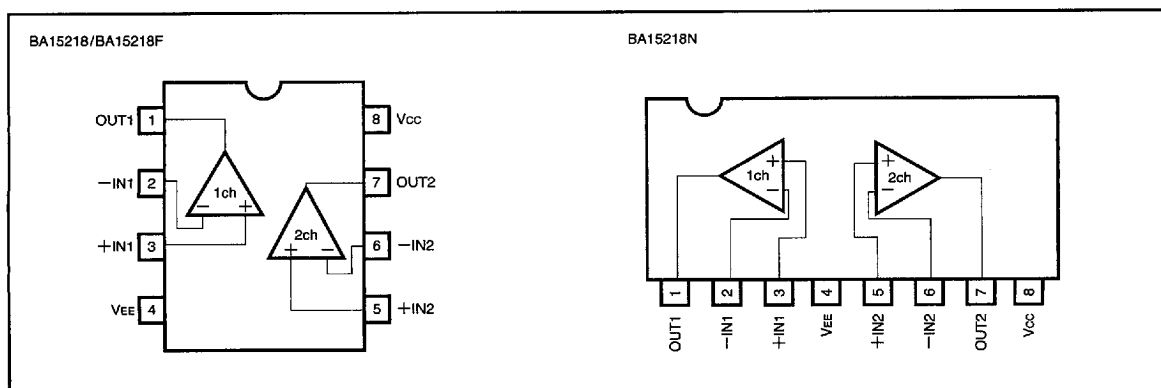
Either a dual or single power supply can be driven, and these products can be driven by a digital system 5V single power supply.

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

●Features

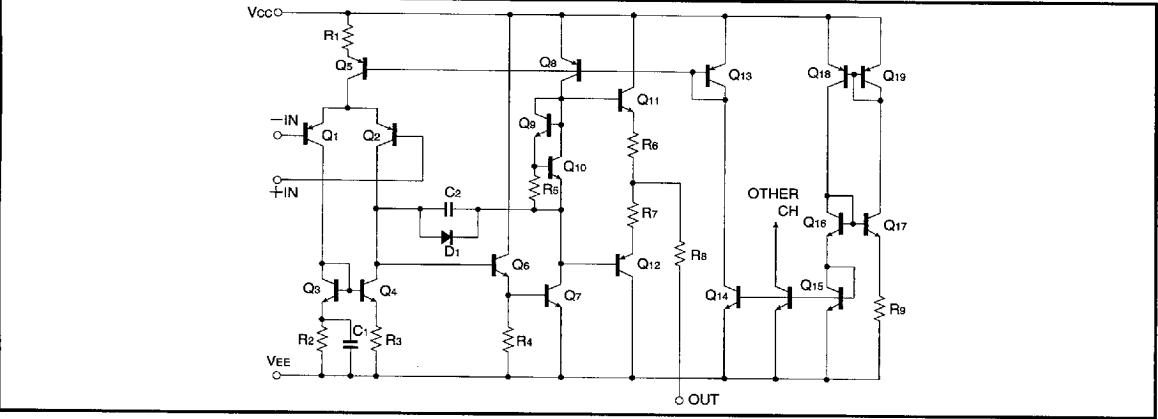
- 1) Low-voltage operation and single power supply drive enabled.
(Single power supply : 4 to 32V, dual power supply : ± 3 to ± 16 V)
- 2) Low noise level. ($V_n = 1.0 \mu V_{rms}$ typ. : RIAA)
- 3) High slew rate. ($SR = 3V/\mu s$, $GBW = 10MHz$ typ.)
- 4) Low offset voltage. ($V_{io} = 0.5mV$ typ.)
- 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



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●Internal circuit configuration diagram



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits			Unit
		BA15218	BA15218F	BA15218N	
Power supply voltage	V _{CC}	±18	±18	±18	V
Power dissipation	P _d	600*	550*	900*	mW
Differential input voltage	V _{ID}	±V _{CC}	±V _{CC}	±V _{CC}	V
In-phase input voltage	V _I	−V _{CC} ~V _{CC}	−V _{CC} ~V _{CC}	−V _{CC} ~V _{CC}	V
Load current	I _{OMA}	±50	±50	±50	mA
Operating temperature	T _{opr}	−40~85	−40~85	−40~85	°C
Storage temperature	T _{stg}	−55~125	−55~125	−55~125	°C

* For P_d values, please see P_d characteristic diagram.
Values are those when BA15218F is mounted on a glass epoxy PCB (50 mm x 50 mm x 1.6 mm).

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ROHM

●Electrical characteristics (unless otherwise noted, $T_a=25^{\circ}\text{C}$, $V_{CC}=+15\text{V}$, $V_{EE}=-15\text{V}$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input offset voltage	V_{IO}	—	0.5	5	mV	$R_s \leq 10\text{k}\Omega$
Input offset current	I_{IO}	—	5	200	nA	—
Input bias current	I_B	—	50	500	nA	—
High-amplitude voltage gain	A_v	86	110	—	dB	$R_L \geq 2\text{k}\Omega$, $V_o = \pm 10\text{V}$
Common mode input voltage range	V_{ICM}	± 12	± 14	—	V	—
Maximum output voltage	V_{OM}	± 12	± 14	—	V	$R_L \geq 10\text{k}\Omega$
Maximum output voltage	V_{OM}	± 10	± 13	—	V	$R_L \geq 2\text{k}\Omega$
Common mode rejection ratio	CMRR	70	90	—	dB	$R_s \leq 10\text{k}\Omega$
Power supply voltage rejection ratio	PSRR	76	90	—	dB	$R_s \leq 10\text{k}\Omega$
Quiescent circuit current	I_Q	—	5	8	mA	$V_{IN}=0\text{V}$, $R_L=\infty$
Slew rate	S.R.	—	3	—	$\text{V}/\mu\text{s}$	$A_v=1$, $R_L=2\text{k}\Omega$
Channel separation	CS	—	120	—	dB	$f=1\text{kHz}$ input conversion
Voltage gain band width	GBW	—	10	—	MHz	$f=10\text{kHz}$
Maximum frequency	f_r	—	7	—	MHz	—
Input noise voltage	V_n	—	1.0	—	μV_{rms}	RIAA, $R_s=1\text{k}\Omega$, $10\text{Hz}\sim 30\text{kHz}$

●Electrical characteristic curves

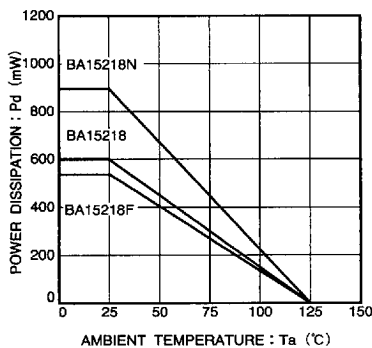


Fig.1 Power dissipation - ambient temperature characteristic

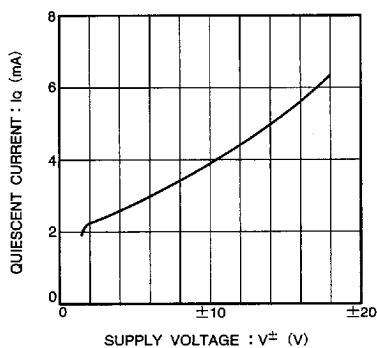


Fig.2 Quiescent current - power supply voltage characteristic

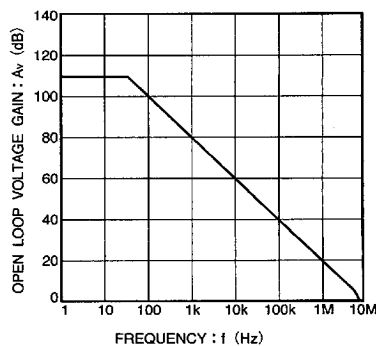


Fig.3 Open loop voltage gain - frequency characteristic

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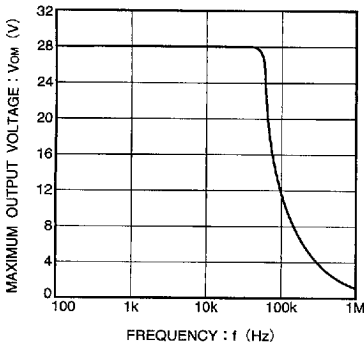


Fig.4 Maximum output voltage - frequency characteristic

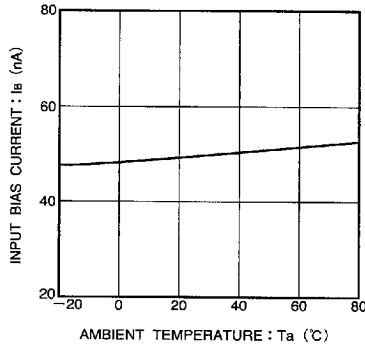


Fig.5 Input bias current - ambient temperature characteristic

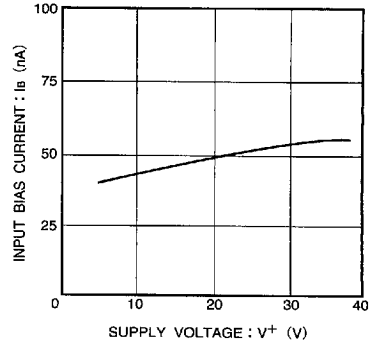


Fig.6 Input bias current - power supply voltage characteristic

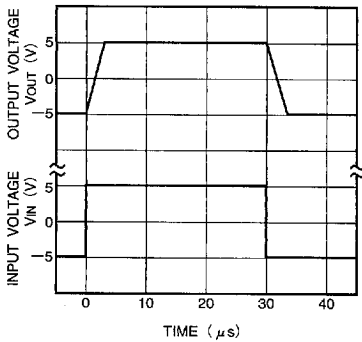


Fig.7 Output response characteristic

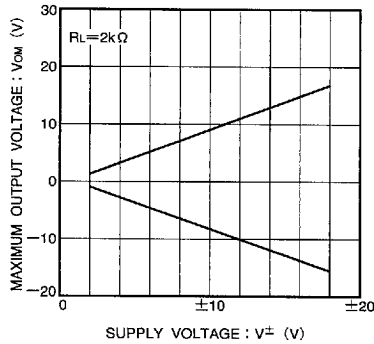


Fig.8 Maximum output voltage - power supply voltage characteristic

● Operation 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}).

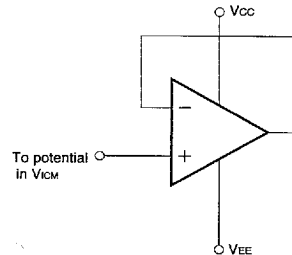
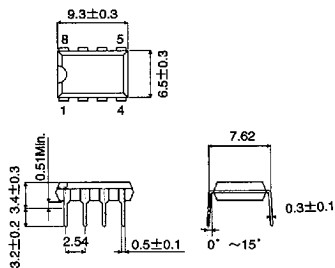


Fig.9 Unused circuit connections

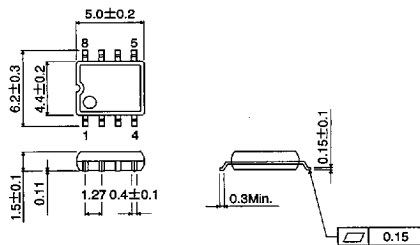
● External dimensions (Units: mm)

BA15218



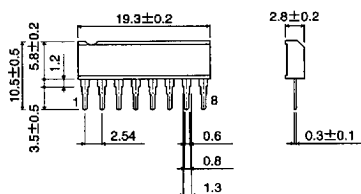
DIP8

BA15218F



SOP8

BA15218N



SIP8

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