Dual high slew rate, low noise operational amplifier

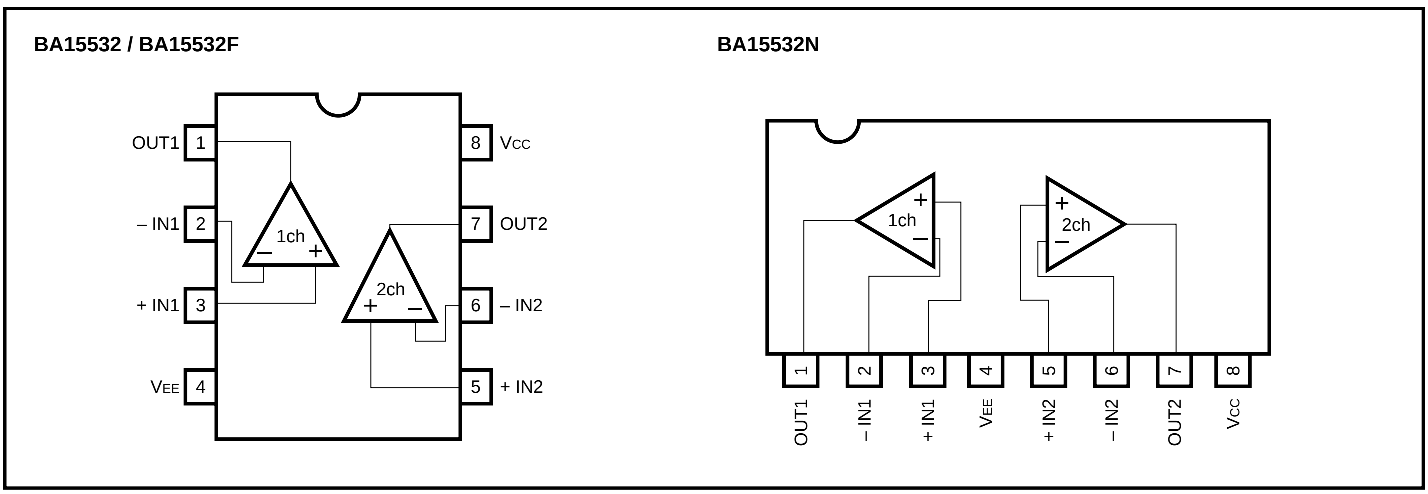
BA15532 / BA15532F / BA15532N

The BA15532, BA15532F, and BA15532N are low-noise dual operational amplifiers designed especially for applications involving high-grade audio equipment. Since they feature low noise, a wide band width, and high power output, these products can also be used in measuring instruments and control circuits. The following packages are available : 8-pin DIP (BA15532), 8-pin SOP (BA15532F), and 8-pin SIP (BA15532N).

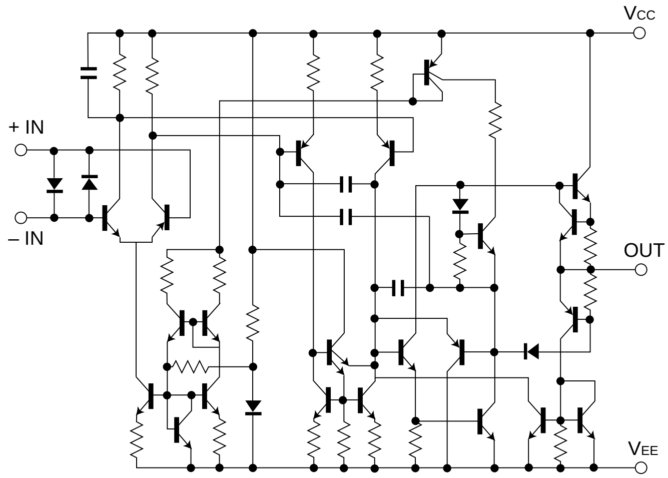
●Features

1) High output current capacity.
2) High slew rate.
3) Low noise.

●Block diagram



●Internal circuit configuration



●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits			Unit
		BA15532	BA15532F	BA15532N	
Power supply voltage	V_{CC}	± 21	± 21	± 21	V
Power dissipation	Pd	800*	550*	900*	mW
Differential input voltage	V_{ID}	± 0.5	± 0.5	± 0.5	V
Common-mode input voltage	V_I	– V_{CC} ~ V_{CC}	– V_{CC} ~ V_{CC}	– V_{CC} ~ V_{CC}	V
Operating temperature	Topr	– 20 ~ + 75	– 20 ~ + 75	– 20 ~ + 75	°C
Storage temperature	Tstg	– 55 ~ + 125	– 55 ~ + 125	– 55 ~ + 125	°C

* Refer to Pd characteristics diagram.
The values for the BA15532F are those when it is mounted on a glass epoxy board (50mm × 50mm × 1.6mm).

●Electrical characteristics (unless otherwise noted, Ta = 25°C, V_{CC} = + 15V, V_{EE} = - 15V)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input offset voltage	V_{IO}	—	0.5	4	mV	R_S = 50Ω, R_L ≧ 10kΩ
Input offset current	I_{IO}	—	10	150	nA	R_L ≧ 10kΩ
Input bias current	I_B	—	200	800	nA	R_L ≧ 10kΩ
High-amplitude voltage gain	A_V	80	94	—	dB	R_L ≧ 600Ω, V_O = ± 10V
Common-mode input voltage	V_{ICM}	± 12	± 13	—	V	R_L ≧ 10kΩ
Maximum output voltage	V_{OM}	± 12	± 13	—	V	R_L ≧ 600Ω
Maximum output voltage	V_{OM}	± 15	± 16	—	V	R_L ≧ 600Ω, V_{CC} = 18V, V_{EE} = – 18V
Common-mode rejection ratio	CMRR	70	100	—	dB	R_L ≧ 10kΩ
Power supply voltage rejection ratio	PSRR	80	100	—	dB	R_S = 50Ω, R_L ≧ 10kΩ
Quiescent current	I_Q	—	8	16	mA	R_L = ∞, on All Op - Amps
Output short-circuit current	I_{OS}	—	38	—	mA	
Slew rate	S. R.	—	8	—	V / µs	A_V = 1, R_L = 600Ω, C_L = 100pF
Voltage gain band width	GBW	—	20	—	MHz	C_L = 100pF, R_L = 600Ω, f = 10kHz
Maximum frequency	f_T	—	7	—	MHz	
Input conversion noise voltage	V_n	—	0.7	1.5	µV	RIAA, R_S = 100Ω, BW = 20Hz ~ 30kHz
Channel separation	CS	—	110	—	dB	RIAA, f = 1kHz

●Electrical characteristic curves

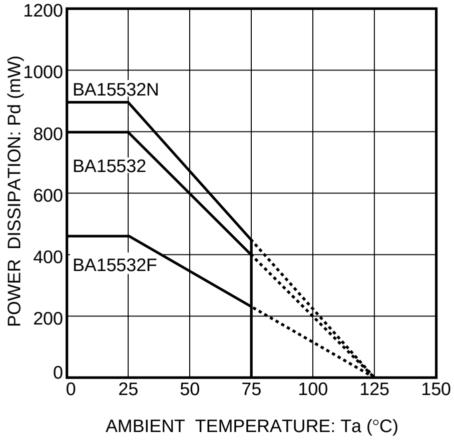


Fig.1 Power dissipation vs. ambient temperature

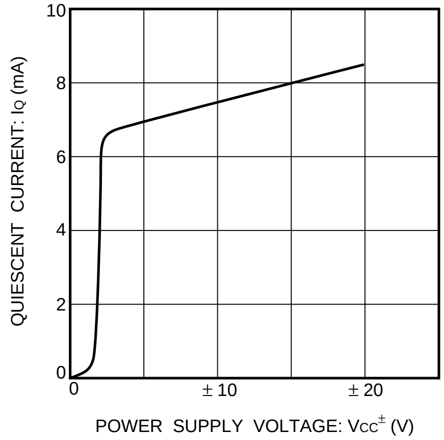


Fig.2 Quiescent current vs. power supply voltage

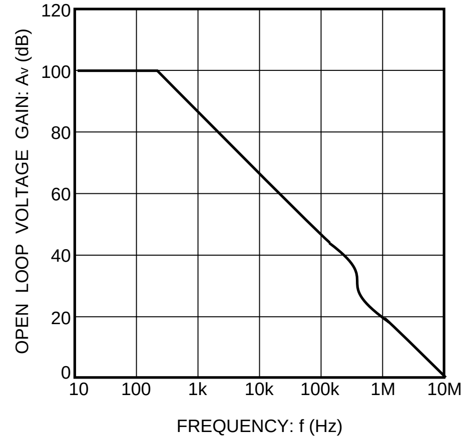


Fig.3 Open loop voltage gain vs. frequency

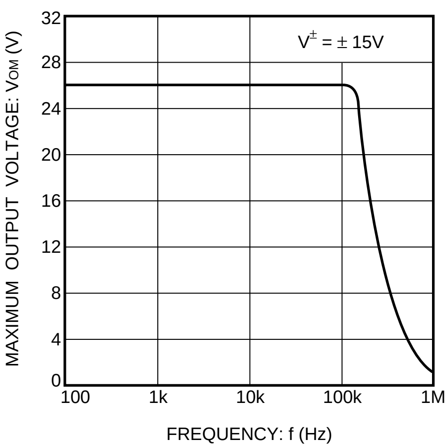


Fig.4 Maximum output voltage vs. frequency

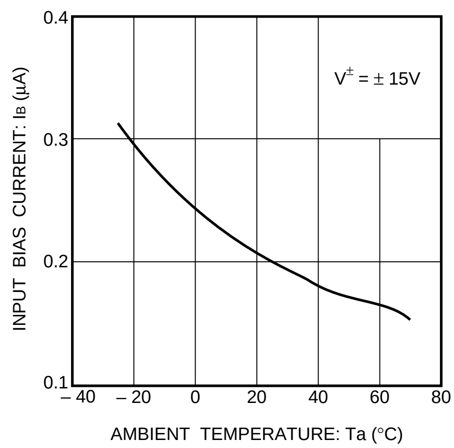


Fig.5 Input bias current vs. ambient temperature

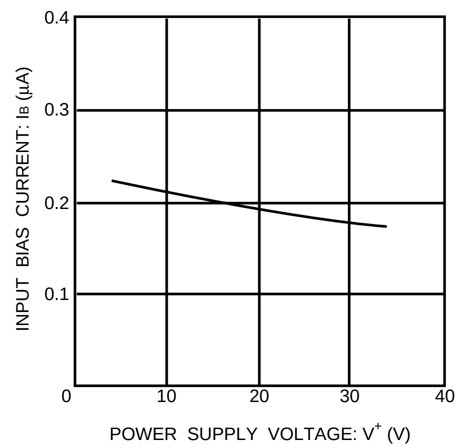


Fig.6 Input bias current vs. power supply voltage

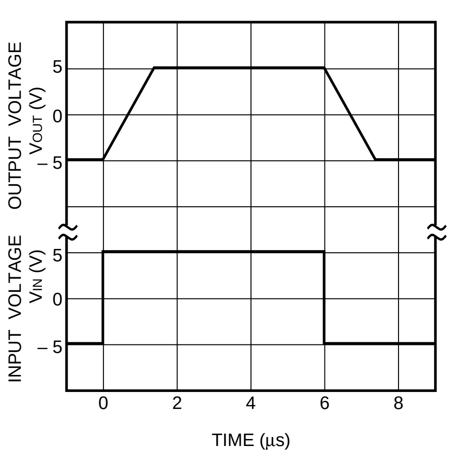


Fig.7 Output response characteristics

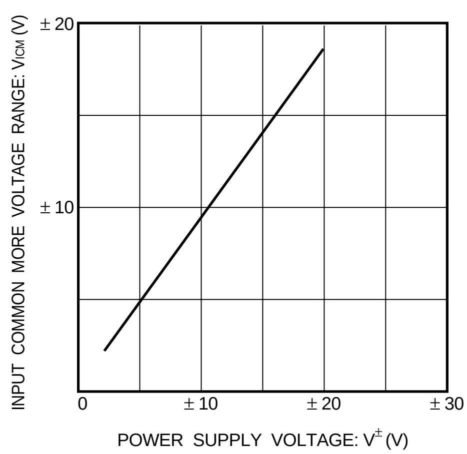


Fig.8 Common mode input voltage vs. power supply voltage

●Operation notes

(1) Handling unused circuits

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}).

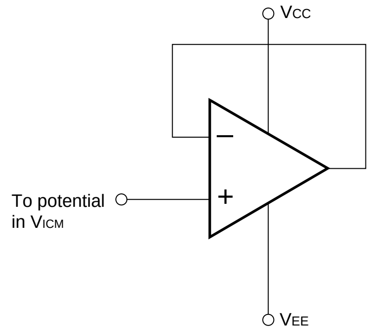
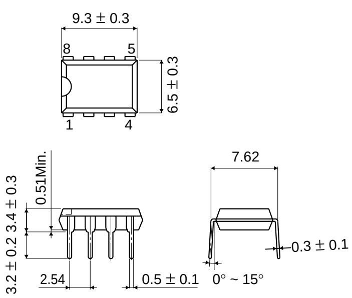


Fig.9 Unused circuit connections

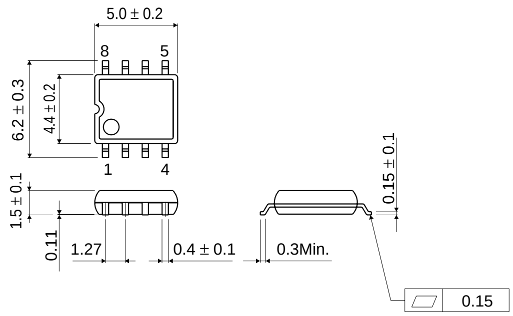
●External dimensions (Units: mm)

BA15532



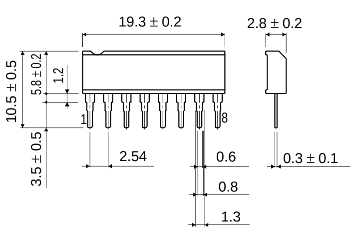
DIP8

BA15532F



SOP8

BA15532N



SIP8

Notes

- No technical content pages of this document may be reproduced in any form or transmitted by any means without prior permission of ROHM CO.,LTD.
- The contents described herein are subject to change without notice. The specifications for the product described in this document are for reference only. Upon actual use, therefore, please request that specifications to be separately delivered.
- Application circuit diagrams and circuit constants contained herein are shown as examples of standard use and operation. Please pay careful attention to the peripheral conditions when designing circuits and deciding upon circuit constants in the set.
- Any data, including, but not limited to application circuit diagrams information, described herein are intended only as illustrations of such devices and not as the specifications for such devices. ROHM CO.,LTD. disclaims any warranty that any use of such devices shall be free from infringement of any third party's intellectual property rights or other proprietary rights, and further, assumes no liability of whatsoever nature in the event of any such infringement, or arising from or connected with or related to the use of such devices.
- Upon the sale of any such devices, other than for buyer's right to use such devices itself, resell or otherwise dispose of the same, no express or implied right or license to practice or commercially exploit any intellectual property rights or other proprietary rights owned or controlled by
- ROHM CO., LTD. is granted to any such buyer.
- Products listed in this document use silicon as a basic material.
  Products listed in this document are no antiradiation design.

The products listed in this document are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys).
Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

About Export Control Order in Japan

Products described herein are the objects of controlled goods in Annex 1 (Item 16) of Export Trade Control Order in Japan.
In case of export from Japan, please confirm if it applies to "objective" criteria or an "informed" (by MITI clause) on the basis of "catch all controls for Non-Proliferation of Weapons of Mass Destruction.