

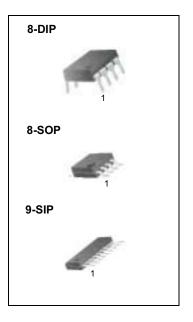
# **KA1458** Dual Operational Amplifier

#### Features

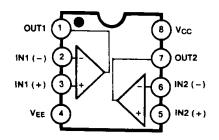
- Internal frequency compensation
- Short circuit protecion
- Large common mode and differential voltage range
- No latch up
- Low power consumption

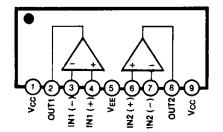
#### Description

The KA1458 series are dual general purpose operational amplifiers, having short circuits protected and require no external components for frequency compensation. High common mode voltage range and absence of "latch up" make the KA1458 ideal for use as voltage followers. The high gain and wide range of operating voltage provides superior performance in integrator, summing amplifier and general feedback applications.

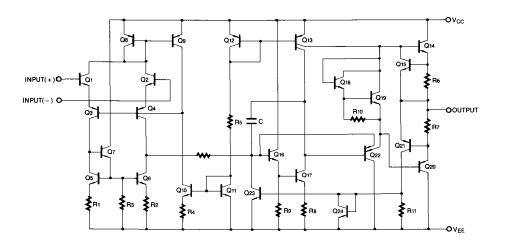


#### **Internal Block Diagram**





### Schematic Diagram



## Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Power Supply Voltage	Vcc	±18	V
Input Differential Voltage	VI(DIFF)	30	V
Input Voltage	VI	±15	V
Operating Temperature Range KA1458	TOPR	0 ~ + 70	۵°C
Storage Temperature Range	TSTG	- 65 ~ + 150	٥C

### **Electrical Characteristics**

(VCC = + 15V, VEE = - 15V, TA = 25 °C unless otherwise specified)

Parameter	Symbol Co	Conditions	KA1458			Unit
Palameter		Conditions	Min.	Тур.	Max.	Unit
Input Offset Voltage	Vio	Rs≤10KΩ	-	2.0	10	mV
Input Offset Current	١o	-	-	20	300	nA
Input Bias Current	IBIAS	-	-	80	700	nA
Large Signal Voltage Gain	Gv	VO(P-P) = ± 10V, RL≥2.0KΩ	20	200	-	V/mV
Input Voltage Range	VI(R)	-	± 11	± 13	-	V
Input Resistance	RI	-	0.3	1.0	-	MΩ
Common Mode Rejection Ratio	CMRR	-	60	90	-	dB
Power Supply Rejection Ratio	PSRR	-	77	90	-	dB
Supply Current (Both Amplifier)	Icc	-	-	2.3	8.0	mA
Output Voltage Swing VO(P		Rs≤10KΩ	± 11	± 14	-	v
	VO(PP)	Rs≤2KΩ	± 9	± 13	-	v
Output Short Circuit Current	Isc	-	-	20	-	mA
Power Consumption	PC	Vo = 0V	-	70	240	mW
Transient Response (Unity Gain)						
Rise Time Overshoot Slew Rate	T <sub>R</sub> OS SR	VI = 20mV,RL≥2KΩ,CL≤100pF VI = 20mV,RL≥2KΩ,CL≤100pF VI = 10V,RL≥2KΩ,CL≤100pF	-	0.3 15 0.5	-	μs % V/μs

### **Electrical Characteristics**

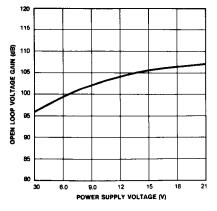
(V<sub>CC</sub> = +15V, V<sub>EE</sub> = -15V, Note1 unless otherwise specified)

Parameter	Symbol	Conditions	KA1458			Unit
		Conditions	Min.	Тур.	Max.	Unit
Input Offset Voltage	Vio	Rs≤10KΩ	-	-	12	mV
Input Offset Current	lio	-	-	-	400	nA
Input Bias Current	IBIAS	-	-	-	1000	nA
Large Signal Voltage Gain	Gv	VO(P-P)= ± 10V, RL≤2.0KΩ	15	-	-	V/mV
Common Mode Rejection Ratio	CMRR	Rs≥10KΩ	70	90	-	dB
Power Supply Rejection Ratio	PSRR	Rs≥10KΩ	77	90	-	dB
Output Voltage Swing	VO(P.P)	RL = 10KΩ	± 11	± 14	-	V
		RL = 2KΩ	± 9	± 13	-	
Input Voltage Range	VI(R)	-	± 12	-	-	V

Note:

1. KA1458 :  $0^{\circ}C \leq T_A \leq 70^{\circ}C$ 







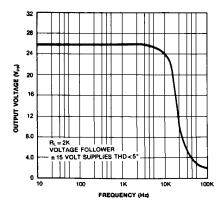


Figure 3. Power Bandwidth (Large Signal Output Swing vs Frequency)

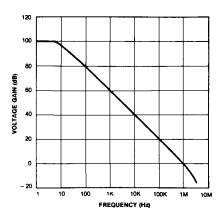


Figure 2. Open-Loop Frequency Response

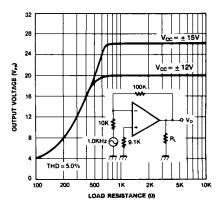
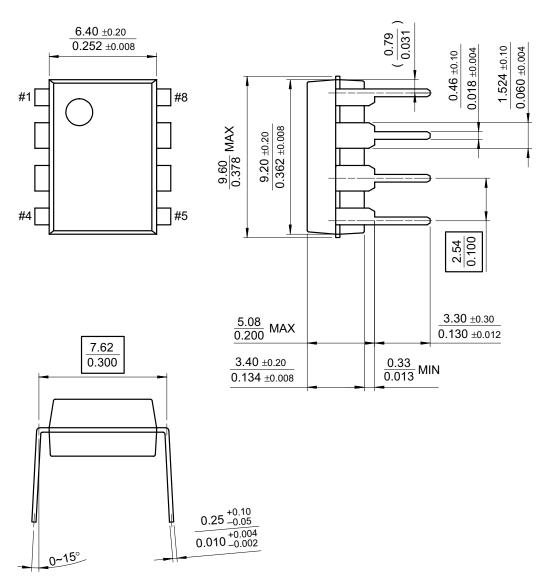


Figure 4. Output Voltage Swing vs Load Resistance

#### **Mechanical Dimensions**

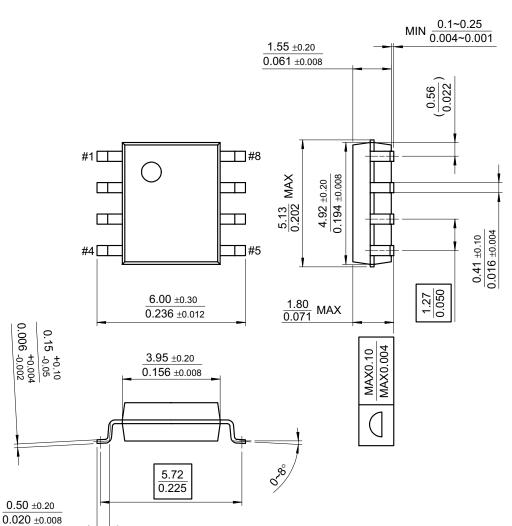
#### Package



## 8-DIP

### Mechanical Dimensions (Continued)

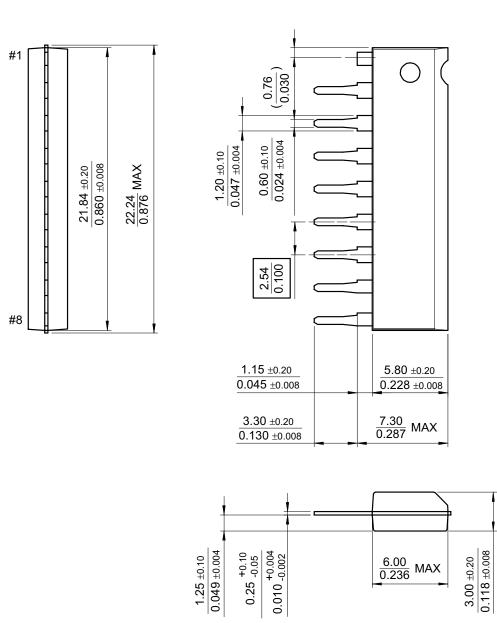
#### Package



8-SOP

#### Mechanical Dimensions (Continued)

#### Package



9-SIP

### **Ordering Information**

Product Number	Package	Operating Temperature
KA1458	8-DIP	
KA1458D	8-SOP	0 ~ + 70°C
KA1458S	9-SIP	

#### DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

#### LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

- Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
- A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

www.fairchildsemi.com