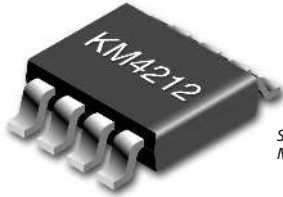


Product Brief



SOIC-8 shown (not actual size).
MSOP-8 package also available.

Features

- 70 μ A supply current per amplifier
- 7.3MHz bandwidth
- Fully specified at +2.7V and +5V supplies
- Output voltage range: 0.04V to 4.96V; $V_S = +5$
- Input voltage range: -0.3V to +3.8V; $V_S = +5$
- 9V/ μ s slew rate
- ± 4 mA linear output current
- ± 9 mA output short circuit current
- 29nV/ $\sqrt{\text{Hz}}$ input voltage noise
- Competes with low power CMOS amplifiers
- Package options (SOIC-8 and MSOP-8)

Applications

- Portable/battery-powered applications
- A/D buffer
- Active filters
- Signal conditioning
- Portable test instruments

General Description

The KM4212 is a dual, ultra-low power, low cost, voltage feedback amplifier. The KM4212 uses only 70 μ A of supply current per amplifier, and is designed to operate on +2.7V, +5V, or ± 2.5 V supplies. The input voltage range extends 300mV below the negative rail and 1.2V below the positive rail.

The KM4212 offers high bipolar performance at a low CMOS price. The KM4212 offers superior dynamic performance with a 7.3MHz small signal bandwidth and 9V/ μ s slew rate. The combination of low power, high bandwidth, and rail-to-rail performance make the KM4212 well suited for battery-powered communication/computing systems.

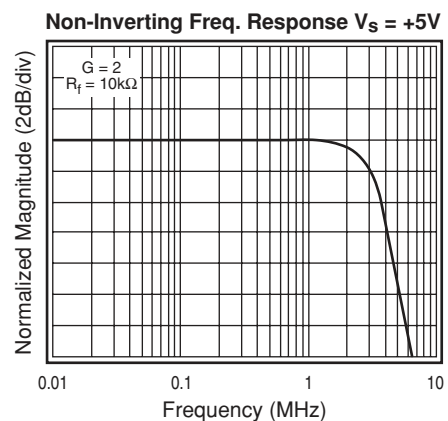
The KM4112 single amplifier is also available.

Outperforms the competition in single-supply applications at a

lower cost!

Advertised Specifications	KM4212	Typical CMOS Amplifier	Units
G = 1 BW	7.3	1	MHz
Noise	29	30	nV/ $\sqrt{\text{Hz}}$
Slew rate	9	1	V/ μ s
Supply current/amp	70	50	μ A

Typical Performance Plot



Ordering Information

Part No.	Package	Container	Pack Qty	Eval Bd*
KM4212IC8	SOIC-8	Rail	95	KEB006
KM4212IC8TR3	SOIC-8	Reel	2500	KEB006
KM4212IM8	MSOP-8	Rail	50	KEB010
KM4212IM8TR3	MSOP-8	Reel	4000	KEB010

Temperature range for all parts: -40°C to +85°C.

* Evaluation boards are available to aid in the evaluation of these products. See the full data sheet or website for complete information.

KM4212

Typical Specifications

Electrical Characteristics

($G = +2$, $R_f = 10k\Omega$, $R_L = 10k\Omega$ to $V_s/2$, $T_a = +25^\circ\text{C}$, unless noted)

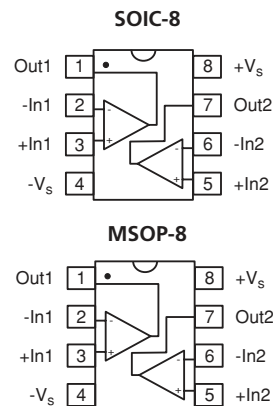
PARAMETERS	CONDITIONS	TYP	TYP	UNITS
		$V_s = +2.7\text{V}$	$V_s = +5\text{V}$	
Frequency Domain Response				
-3dB bandwidth ¹	$G = +1$, $V_o = 0.05V_{pp}$	6.5	7.3	MHz
full power bandwidth	$G = +2$, $V_o < 0.2V_{pp}$	3	3.4	MHz
gain bandwidth product	$G = -1$, $V_o = 2V_{pp}$	2	2.5	MHz
		3.5	4	MHz
Time Domain Response				
rise and fall time	0.2V step	55	50	ns
settling time to 0.1% ²	2V step	700	600	ns
overshoot ²	2V step	7	4	%
slew rate	2V step, $G = -1$	7	9	V/ μs
Distortion and Noise Response				
2nd harmonic distortion ²	$2V_{pp}$, 100kHz	68	67	dBc
3rd harmonic distortion ²	$2V_{pp}$, 100kHz	65	60	dBc
THD ²	$2V_{pp}$, 100kHz	63	59	dB
input voltage noise	>10kHz	30	29	nV/ $\sqrt{\text{Hz}}$
crosstalk	0.01MHz	89	89	dB
DC Performance				
input offset voltage		1	1	mV
average drift		3	8	$\mu\text{V}/^\circ\text{C}$
input bias current		90	90	μA
average drift		100	100	nA/ $^\circ\text{C}$
input offset current		2.1	1.3	nA
power supply rejection ratio	DC	63	63	dB
open loop gain		82	76	dB
quiescent current per amplifier		62	70	μA
Input Characteristics				
input resistance		>10	>10	M Ω
input capacitance		1.4	1.25	pF
input common mode voltage range		-0.3 to 1.5	-0.3 to 3.8	V
common mode rejection ratio	DC, $V_{cm} = 0\text{V}$ to $V_s - 1.5$	95	97	dB
Output Characteristics				
output voltage swing	$R_L = 10k\Omega$ to $V_s/2$	0.035 to 2.665	0.04 to 4.96	V
	$R_L = 2k\Omega$ to $V_s/2$	0.07 to 2.6	0.09 to 4.9	V
linear output current		± 4	± 4	mA
short circuit output current		± 9	± 9	mA
power supply operating range		2.7 to 5		V

Notes: 1) For +2.7V supply, a 1V_{pp} condition was used.
2) For $G = +1$, $R_f = 0$.

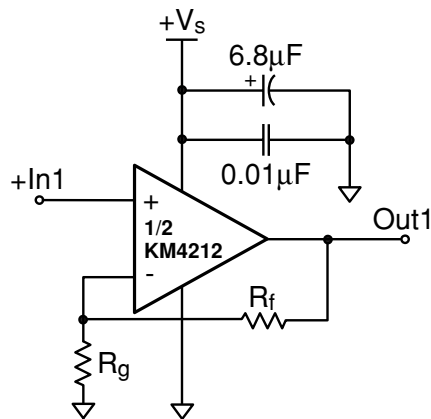
Absolute Maximum Ratings

supply voltage	0 to +6V
maximum junction temperature	+175°C
storage temperature range	-65°C to +150°C
lead temperature (10 sec)	+260°C
operating temperature range	-40° to +85°C
input voltage range	$\pm V_s + 0.5\text{V}$; $-V_s - 0.5\text{V}$;
internal power dissipation	see power derating curves in the full data sheet
θ_{ja} for 8 lead SOIC	152°C/W
θ_{ja} for 8 lead MSOP	206°C/W

Available Packages



Typical Circuit Configuration



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.