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FAIRCHILD SEMICONDUCTOR™

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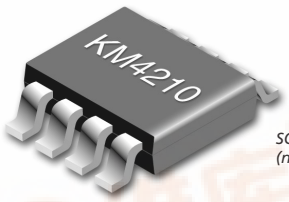
KM4210

Dual, 0.5mA, Low Cost, +2.7V and +5V, 75MHz Rail-to-Rail Amplifier

Product Brief

Preliminary



SOIC shown (not actual size)

Outperforms the competition in single-supply applications at a *lower cost!*

Features

- 505μA supply current per amplifier
- 75MHz bandwidth
- Fully specified at +2.7V and +5V supplies
- Output voltage range: 0.07V to 4.86V; V_S = +5
- Input voltage range: -0.3V to +3.8V; V_S = +5
- 50V/μs slew rate
- ±15mA linear output current
- ±30mA output short circuit current
- 12nV/√Hz input voltage noise
- Directly replaces AD8032
- Package option (MSOP-8)

Applications

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

General Description

The KM4210 is a dual, low power, low cost, voltage feedback amplifier. The KM4210 uses only 505μA of supply current per amplifer, and is designed to operate on +2.7V, +5V, or ±2.5V supplies. The input voltage range extends 300mV below the negative rail and 1.2V below the positive rail.

The KM4210 offers high bipolar performance at a low CMOS price. The KM4210 offers superior dynamic performance with a 75MHz small signal bandwidth and 50V/μs slew rate. The combination of low power, high bandwidth, and rail-to-rail performance make the KM4210 well suited for battery-powered communication/computing systems.

The KM4110 (single) and KM4120 (single with disable) are also available.

Advertised Specifications	KM4210	Competitor A	Units
G = 1 BW	75	80	MHz
Noise	12	15	nV/√Hz
Slew rate	50	30	V/μs
Supply current/amp	0.5	0.8	μA

Typical Performance Plot

TBD

Ordering Information

Part No.	Package	Container	Pack Qty	Eval Bd*
KM4210IM8	MSOP-8	Rail	50	KEB010
KM4210IM8TR3	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.

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KM4210

Typical Specifications ***Preliminary***

Electrical Characteristics

(G = +2, R_f = 1kΩ, R_L = 1kΩ to V_s/2, T_a = +25°C, unless noted)

PARAMETERS	CONDITIONS	TYP V_s = +2.7V	TYP V_s = +5V	UNITS
Frequency Domain Response				
-3dB bandwidth	G = +1, V_o = 0.05V_{pp}	x	75	MHz
	G = +2, V_o < 0.2V_{pp}	x	35	MHz
full power bandwidth	G = +2, V_o = 2V_{pp}	x	x	MHz
gain bandwidth product		x	x	MHz
Time Domain Response				
rise and fall time	0.2V step	y	y	ns
settling time to 0.1%	2V step	x	x	ns
overshoot	0.2V step	y	y	%
slew rate	5V step	x	50	V/µs
Distortion and Noise Response				
2nd harmonic distortion	2V_{pp}, 1MHz	y	y	dBc
3rd harmonic distortion	2V_{pp}, 1MHz	y	y	dBc
THD	2V_{pp}, 1MHz	x	x	dB
input voltage noise	>1MHz	x	12	nV/Hz
input current noise	>1MHz	x	x	pA/Hz
DC Performance				
input offset voltage		x	-1	mV
average drift		x	10	µV/°C
input bias current		x	1.2	µA
average drift		y	3.5	nA/°C
input offset current		x	30	nA
power supply rejection ratio	DC	x	65	dB
open loop gain		x	80	dB
quiescent current per amplifier		x	505	µA
Input Characteristics				
input resistance		x	x	MΩ
input capacitance		x	x	pF
input common mode voltage range		x	-0.3 to 3.8	V
common mode rejection ratio	DC	x	92	dB
Output Characteristics				
output voltage swing	R_L = 10kΩ to V_s/2	x	x	V
	R_L = 1kΩ to V_s/2	x	0.07 to 4.86	V
linear output current		x	±15	mA
short circuit output current		x	±30	mA
power supply operating range		2.5 to 5.5		V

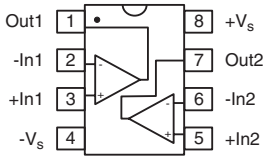
*x and y = TBD

Absolute Maximum Ratings

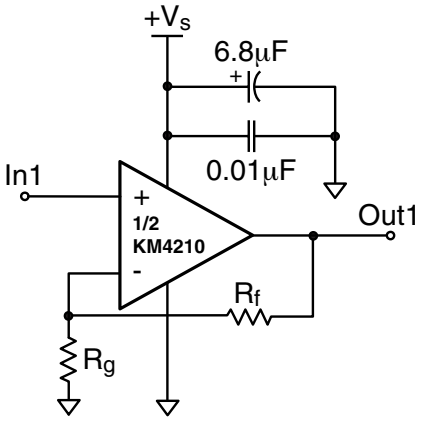
supply voltage	0 to +6V
maximum junction temperature	+175°C
storage temperature range	-65°C to +150°C
lead temperature (10 sec)	+300°C
operating temperature range	-40° to +85°C
input voltage range	+V_s + 0.5V, -V_s - 0.5V
internal power disapation	see power derating curves in the full data sheet
θ_{ja} for 8 lead MSOP	206°C/W

Available Packages

MSOP



Typical Circuit Configuration



Preliminary

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