

**GENERAL DESCRIPTION**

The RC1437 and RM1537, previously referred to as the 4709, integrated circuits are monolithic dual high gain operational amplifiers. The device is composed of two 709 operational amplifiers fabricated on a single silicon chip. It has all the outstanding features of the 709.

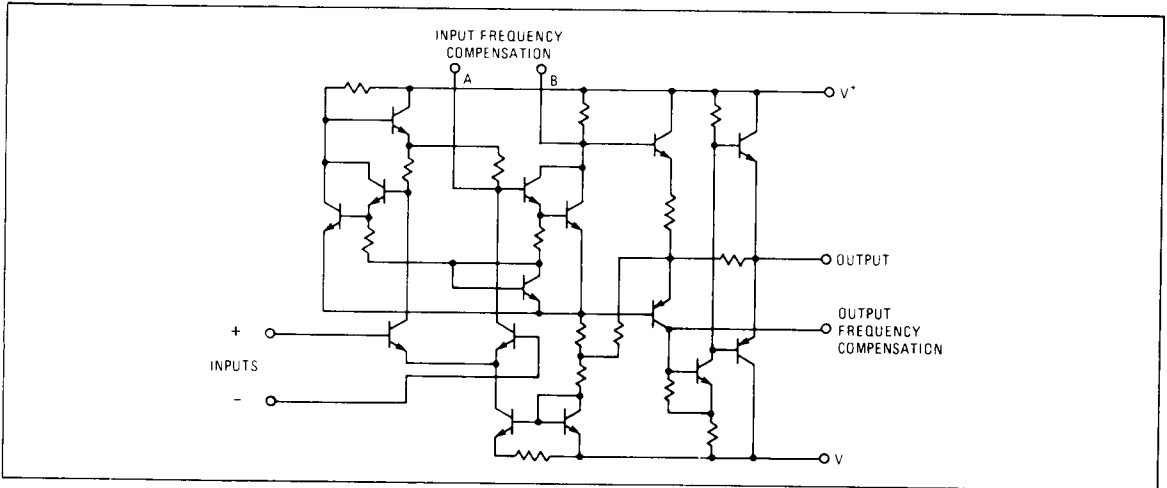
Due to the inherent matching and tracking of parameters, the 1537/1437 has several unique applications: differential in/out amplifiers, non-inverting amplifiers, gain and phase matched channels.

The RM1537 operates over a temperature range of -55°C to +125°C. RC 1437 is the commercial temperature range device for operation from 0°C to +75°C.

**DESIGN FEATURES**

- Gain and Phase Matching Between Amplifiers
- Low Temperature Drift  $\pm 3 \mu\text{V}/^\circ\text{C}$
- Large Output Voltage Swing  $\pm 14 \text{ V}$  Typical

**SCHEMATIC DIAGRAM (1/2 Shown)**



**CONNECTION INFORMATION**

**DC and DB  
Dual In-line Packages  
(Top View)**

Order Part Nos.:  
RM1537DC, RC1437DC,  
RC1437DB

PIN	FUNCTION
1	OUTPUT LAG 2
2	OUTPUT 2
3	INPUT LAG 2
4	INPUT LAG 2
5	-INPUT 2
6	+INPUT 2
7	V <sup>-</sup>
8	+INPUT 1
9	-INPUT 1
10	INPUT LAG 1
11	INPUT LAG 1
12	OUTPUT 1
13	OUTPUT LAG 1
14	V <sup>+</sup>

# Dual High-Gain Operational Amplifiers

## ABSOLUTE MAXIMUM RATINGS

Supply Voltage	±18 V	Operating Temperature Range	RM1537: -55°C to +125°C RC1437: 0°C to +75°C
Differential Mode Input Voltage	±5 V	Storage Temperature Range	-65°C to +150°C
Common Mode Input Voltage	±V <sub>V</sub>	Lead Temperature (Soldering, 60s)	300°C
Power Dissipation	500 mW	Output Short Circuit Duration (25°C)	5 s
Derate above 75°C	5.0 mW/°C		

## ELECTRICAL CHARACTERISTICS (RM1537: -55°C to +125°C; RC1437: 0°C to +75°C, unless otherwise noted)

PARAMETER	CONDITIONS	RM1537			RC1437			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Input Offset Voltage	50Ω ≤ R <sub>S</sub> ≤ 10kΩ ±9V < V <sup>+</sup> < ±15V	T <sub>A</sub> = 25°C		1.0	5.0	1.0	7.5	mV
					6.0	10		
Input Offset Current	±9V < V <sup>+</sup> < ±15V	RM1537: +25°C to +125°C RC1437: +25°C to +75°C		50	200	50	500	nA
		RM1537: -55°C RC1437: 0°C			500		750	
Input Bias Current	±9V < V <sup>+</sup> < ±15V	RM1537: +25°C to +125°C RC1437: +25°C to +75°C		0.2	0.5	0.4	1.5	μA
		RM1537: -55°C RC1437: 0°C			1.5		2.0	
Input Resistance	±9V < V <sup>+</sup> < ±15V	150	400		50	150	kΩ	
Output Resistance	±9V < V <sup>+</sup> < ±15V		150			150	Ω	
Power Consumption	V <sup>+</sup> = ±15V, R <sub>L</sub> = ∞		160	225		160	225	mW
Large Signal Voltage Gain	V <sup>+</sup> = ±15V, V <sub>0</sub> = ±10V, R <sub>L</sub> ≥ 2 kΩ	25	45	70	15	45		KV/V
Output Voltage Swing	V <sup>+</sup> = ±15V R <sub>L</sub> ≥ 10 kΩ R <sub>L</sub> ≥ 2 kΩ	±12	±14		±12	±14		V
		±10	±13		±10	±13		
Input Common Mode Voltage	V <sup>+</sup> = ±15V	±8	±10		±8	±10		V
Common Mode Rejection Ratio	R <sub>S</sub> ≤ 10 kΩ, ±9V < V <sup>+</sup> < ±15V	70	90		65	90		dB
Supply Voltage Rejection Ratio	R <sub>S</sub> ≤ 10 kΩ, ±9V < V <sup>+</sup> < ±15V			150			200	μV/V
Transient Response	V <sup>+</sup> = ±15V, V <sub>in</sub> = 20 mV, R <sub>L</sub> = 2 kΩ, C <sub>1</sub> = 5 nF, R <sub>1</sub> = 1.5 kΩ, C <sub>2</sub> = 200 pF, R <sub>2</sub> = 50 Ω		0.3	1.0		0.3	1.0	μs %
				30		30		
Average Temperature Coefficient of Input Offset Voltage	±9V < V <sup>+</sup> < ±15V R <sub>S</sub> = 50 Ω R <sub>S</sub> = 10 kΩ		1.5 3.0			1.5 3.0		μV/°C
Average Temperature Coefficient of Input Offset Current	±9 < V <sup>+</sup> < ±15V		0.7			0.7		nA/°C
Channel Separation, f = 10 kHz	±9V < V <sup>+</sup> < ±15V		90			90		dB

## MATCHING CHARACTERISTICS (T<sub>A</sub> = 25°C, ±9V < V<sup>+</sup> < ±15V unless otherwise noted)

PARAMETER	RM1537			RC1437			UNITS
	MIN	TYP	MAX	MIN	TYP	MAX	
Voltage Gain		±1.0			±1.0		dB
Input Bias Current		±100			±150		nA
Input Offset Current		±15			±20		nA
Input Offset Voltage		±0.5			±1.0		mV
Average Temperature Coefficient of Input Offset Voltage		±0.5			±0.5		μV/°C
Average Temperature Coefficient of Input Offset Current		±0.2			±0.2		nA/°C