

GENERAL DESCRIPTION

The RM1558 and RC1458 integrated circuits are high gain operational amplifiers internally compensated and constructed on a single silicon chip using the planar epitaxial process.

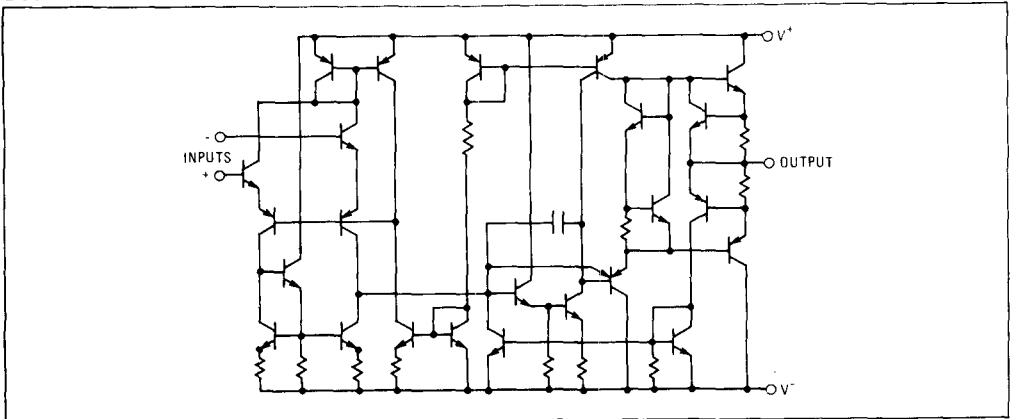
The military version, RM1558, operates over a temperature range from -55°C to +125°C. The commercial version, RC1458, operates from 0°C to +70°C.

Combining all of the features of the 741 with the close parameter matching and tracking of a dual device on a monolithic chip results in unique performance characteristics. It is especially well suited for applications where gain and phase matched channels are mandatory.

DESIGN FEATURES

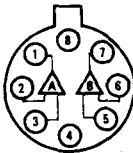
- Short-Circuit Protection
- No Frequency Compensation Required
- No Latch-Up
- Large Common-Mode and Differential Voltage Ranges
- Low Power Consumption
- Parameter Tracking Over Temperature Range
- Gain and Phase Match Between Amplifiers

SCHEMATIC DIAGRAM (1/2 Shown)



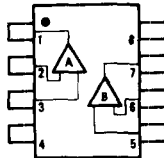
CONNECTION INFORMATION

TE (TO-99)
Metal Can Package
(Top View)



Order Part Nos.:
RM1558T, RC1458T

DE and NB Dual
In-line Package
(Top View)



Order Part No.:
RC1458NB, RC1458DE
RM1558DE

PIN	FUNCTION
1	OUTPUT (A)
2	-INPUT (A)
3	+INPUT (A)
4	V ⁻
5	+INPUT (B)
6	-INPUT (B)
7	OUTPUT (B)
8	V ⁺

Dual 741 General Purpose Operational Amplifier

ABSOLUTE MAXIMUM RATINGS

Supply Voltage	RM1558: ± 22 V RC1458: ± 18 V	Storage Temperature Range	-65°C to +150°C
Internal Power Dissipation (Note 1)	500 mW	Operating Temperature Range	RM1558: -55°C to +125°C RC1458: 0°C to +70°C
Differential Input Voltage	± 30 V	Lead Temperature (Soldering, 60s)	300°C
Input Voltage (Note 2)	± 15 V	Output Short-Circuit Duration (Note 3)	Indefinite

ELECTRICAL CHARACTERISTICS (V_{CC} = ± 15 V, T_A = 25°C unless otherwise noted)

PARAMETER	CONDITIONS	RM1558			RC1458			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Input Offset Voltage	R _S ≤ 10 k Ω		1.0	5.0		2.0	6.0	mV
Input Offset Current			30	200		30	200	nA
Input Bias Current			200	500		200	500	nA
Input Resistance		0.3	1.0		0.3	1.0		M Ω
Large-Signal Voltage Gain	R _L ≥ 2 k Ω V _{out} = ± 10 V	50,000	200,000		50,000	200,000		V/V
Output Voltage Swing	R _L ≥ 10 k Ω	± 12	± 14		± 12	± 14		V
	R _L ≥ 2 k Ω	± 10	± 13		± 10	± 13		V
Input Voltage Range		± 12	± 13		± 12	± 13		V
Common Mode Rejection Ratio	R _S ≤ 10 k Ω	70	90		70	90		dB
Supply Voltage Rejection Ratio	R _S ≤ 10 k Ω		30	150		30	150	μ V/V
Power Consumption			100	150		100	170	mW
Transient Response (unity gain)	V _{in} = 20mV R _L = 2 k Ω C _L ≤ 100 pF							
		Risetime		0.3		0.3		μ s
		Overshoot		5.0		5.0		%
Slew Rate (unity gain)	R _L ≥ 2 k Ω		0.5		0.5			V/ μ s
Channel Separation	f = 1 kHz		98		98			dB
The following specifications apply for -55°C \leq T _A \leq +125°C for RM1558; 0°C \leq T _A \leq +70°C for RC1458.								
Input Offset Voltage	R _L ≤ 10 k Ω			6.0			7.5	mV
Input Offset Current	+125°C, +70°C			200			300	nA
	-55°C, 0°C			500			300	
Input Bias Current	+125°C, +70°C			500			800	nA
	-55°C, +70°C			1500			800	
Large-Signal Voltage Gain	R _L ≥ 2 k Ω V _{out} = ± 10 V	25,000			25,000			
Output Voltage Swing	R _L ≥ 2 k Ω	± 12 ± 10			± 10			V
Power Consumption	V _S = ± 15 V							mW
	T _A = +125°C			150			150	
	T _A = -55°C			200			200	
Input Voltage Range		± 12			± 12			V

NOTES:

1. Rating applies for case temperatures to +125°C; derate linearly at 6.5 mW/°C for ambient temperatures above +75°C for RM1558.
2. For supply voltages less than ± 15 V, the absolute maximum input voltage is equal to the supply voltage.
3. Short-circuit may be to ground or either supply. Rating applies to +125°C case temperature or +75°C ambient temperature for RC1458.

