

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.

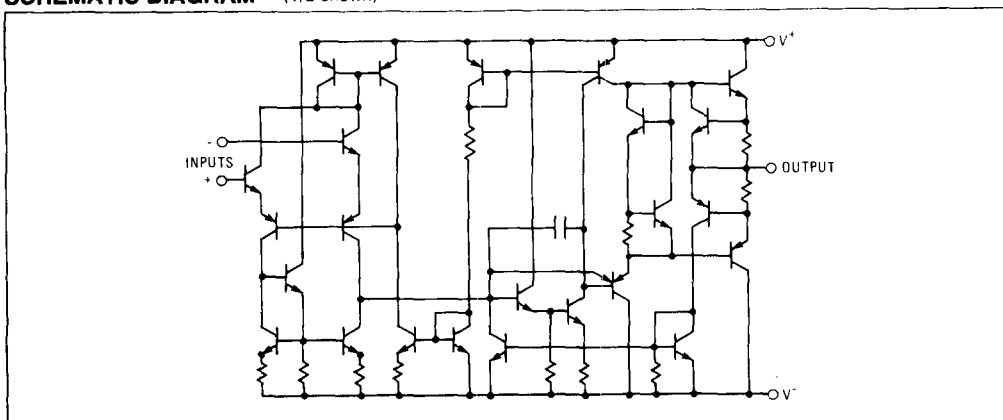
The military version, RM1558, operates over a temperature range from -55°C to $+125^{\circ}\text{C}$. The commercial version, RC1458, operates from 0°C to $+70^{\circ}\text{C}$.

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

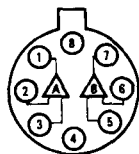
- Short-Circuit Protection
- No Frequency Compensation Required
- No Latch-Up
- Large Common-Mode and Differential Voltage Ranges
- Low Power Consumption
- Parameter Tracking Over Temperature Range
- Gain and Phase Match Between Amplifiers

SCHEMATIC DIAGRAM (1/2 Shown)



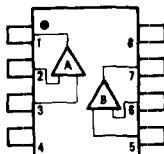
CONNECTION INFORMATION

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 $+150^{\circ}\text{C}$
Internal Power Dissipation (Note 1)	500 mW	Operating Temperature Range	RM1558: -55°C to $+125^{\circ}\text{C}$ RC1458: 0°C to $+70^{\circ}\text{C}$
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 ($V_{CC} = \pm 15\text{V}$, $T_A = 25^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	RM1558			RC1458			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Input Offset Voltage	$R_S \leq 10 \text{ k}\Omega$		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	$R_L \geq 2 \text{ k}\Omega$ $V_{out} = \pm 10\text{V}$	50,000	200,000		50,000	200,000		V/V
Output Voltage Swing	$R_L \geq 10 \text{ k}\Omega$	± 12	± 14		± 12	± 14		V
	$R_L \geq 2 \text{ k}\Omega$	± 10	± 13		± 10	± 13		V
Input Voltage Range		± 12	± 13		± 12	± 13		V
Common Mode Rejection Ratio	$R_S \leq 10 \text{ k}\Omega$	70	90		70	90		dB
Supply Voltage Rejection Ratio	$R_S \leq 10 \text{ k}\Omega$		30	150		30	150	$\mu\text{V/V}$
Power Consumption			100	150		100	170	mW
Transient Response (unity gain)	$V_{in} = 20\text{mV}$ $R_L = 2 \text{ k}\Omega$ $C_L \leq 100\text{pF}$							
	Risetime		0.3			0.3		μs
	Overshoot		5.0			5.0		%
Slew Rate (unity gain)	$R_L \geq 2 \text{ k}\Omega$		0.5			0.5		V/ μs
Channel Separation	$f = 1 \text{ kHz}$		98			98		dB
The following specifications apply for $-55^{\circ}\text{C} \leq T_A \leq +125^{\circ}\text{C}$ for RM1558; $0^{\circ}\text{C} \leq T_A \leq +70^{\circ}\text{C}$ for RC1458.								
Input Offset Voltage	$R_L \leq 10 \text{ k}\Omega$			6.0			7.5	mV
Input Offset Current	$+125^{\circ}\text{C}, +70^{\circ}\text{C}$			200			300	nA
	$-55^{\circ}\text{C}, 0^{\circ}\text{C}$			500			300	nA
Input Bias Current	$+125^{\circ}\text{C}, +70^{\circ}\text{C}$			500			800	nA
	$-55^{\circ}\text{C}, +70^{\circ}\text{C}$			1500			800	nA
Large-Signal Voltage Gain	$R_L \geq 2 \text{ k}\Omega$ $V_{out} = \pm 10\text{V}$	25,000			25,000			
Output Voltage Swing	$R_L \geq 2 \text{ k}\Omega$	± 12 ± 10			± 10			V
Power Consumption	$V_S = \pm 15\text{V}$							
	$T_A = +125^{\circ}\text{C}$			150			150	mW
	$T_A = -55^{\circ}\text{C}$			200			200	mW
Input Voltage Range		± 12			± 12			V

NOTES:

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