GENERAL DESCRIPTION

The RM725 and RC725 are high performance, high gain operational amplifiers on a silicon planar epitaxial processed chip.

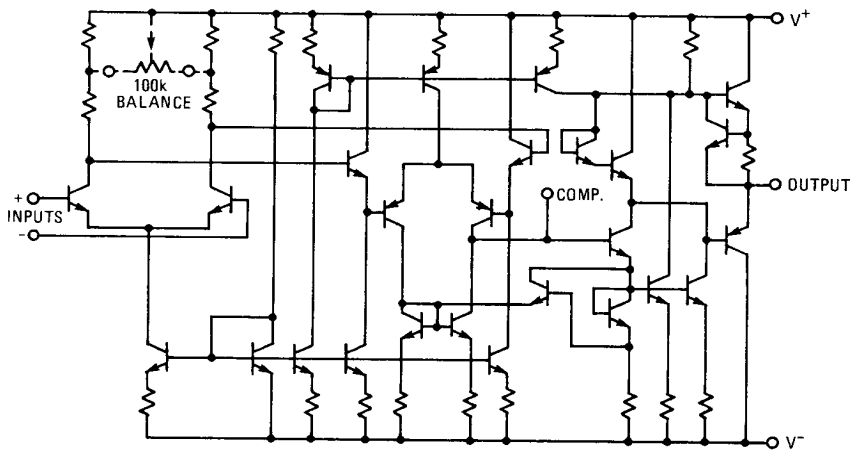
The RM725 military version operates over full temperature range from −55°C to +125°C. The commercial RC725 operates from 0°C to +70°C.

The RM725 and RC725 offer offset null capability, very high voltage gain and low power consumption over a wide power supply voltage range. They are used for all instrumentation applications requiring precise, low level signal amplification, low noise, low drift and accurate closed loop gain.

DESIGN FEATURES

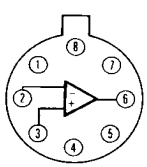
- Low Input Noise Current 0.15pA/√Hz
- High Open Loop Gain 3,000,000
- Low Input Offset Current 2nA
- Low Input Voltage Drift 0.6μV/°C
- High Common-Mode Rejection 120dB
- High Input Voltage Range ±14V
- Wide Power Supply Range ±3V to ±22V
- Offset Null Capability

SCHEMATIC DIAGRAM



CONNECTION INFORMATION

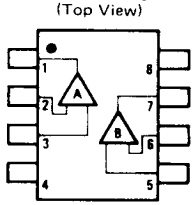
TE (TO-99)
Metal Can Package
(Top View)



Note: Pin 4 connected to case

Order Part Nos.:
RM725T, RC725T

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



Order Part Nos.:
RM725DE, RC725DE,
RC755NB

PIN	FUNCTION
1	BAL
2	-INPUT
3	+INPUT
4	V⁻
5	COMP
6	OUTPUT
7	V⁺
8	BAL

ABSOLUTE MAXIMUM RATINGS

Supply Voltage	±22V	Storage Temperature Range	−65°C to +150°C
Internal Power Dissipation (Note 1)	500mW	Operating Temperature Range	
Differential Input Voltage	±5V	RM725	−55°C to +125°C
Input Voltage (Note 2)	±22V	RC725	0°C to +70°C
Voltage Between Offset Null and V^+	±0.5V	Lead Temperature (Soldering, 60s)	300°C

ELECTRICAL CHARACTERISTICS (V_S = ±15V, T_A = 25°C unless otherwise specified)

PARAMETER	CONDITIONS	RM725			RC725			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Input Offset Voltage (without external trim)	$R_S \leq 10k\Omega$		0.5	1.0		0.5	2.5	mV
Input Offset Current			2.0	20		2.0	35	nA
Input Bias Current			42	100		42	125	nA
Input Noise Voltage	f_O = 10Hz		15			15		nV/√Hz
	f_O = 100Hz		9.0			9.0		
	f_O = 1kHz		8.0			8.0		
Input Noise Current	f_O = 10Hz		1.0			1.0		pA/√Hz
	f_O = 100Hz		0.3			0.3		
	f_O = 1kHz		0.15			0.15		
Input Resistance			1.5			1.5		MΩ
Input Voltage Range		±13.5	±14		±13.5	±14		V
Large Signal Voltage Gain	$R_L \geq 2k\Omega$ V_{out}=±10V	1,000,000	3,000,000		250,000	3,000,000		
Common Mode Rejection Ratio	$R_S \leq 10k\Omega$	110	120		94	120		dB
Power Supply Rejection Ratio	$R_S \leq 10k\Omega$		2.0	10		2.0	35	μV/V
Output Voltage Swing	$R_L \geq 10k\Omega$	±12	±13.5		±12	±13.5		V
	$R_L \geq 2k\Omega$	±10	±13.5		±10	±13.5		
Output Resistance			150			150		Ω
Power Consumption			80	105		80	150	mW
The following specifications apply for −55°C ≤ T_A ≤ +125°C for RM725; 0°C ≤ T_A ≤ +70°C for RC725.								
Input Offset Voltage (without external trim)	$R_S \leq 10k\Omega$			1.5			3.5	mV
Average Input Offset Voltage Drift (without external trim)	R_S = 50Ω		2.0	5.0		2.0		μV/°C
Average Input Offset Voltage Drift (with external trim)	R_S = 50Ω		0.6			0.6		μV/°C
Input Offset Current	T_A=125°C;70°C		1.2	20		1.2	3.5	nA
	T_A=−55°C;0°C		7.5	40		4.0	50	
Average Input Offset Current Drift			35	150		10		pA/°C
Input Bias Current	T_A=125°C;70°C		20	100			125	nA
	T_A=−55°C;0°C		80	200			250	
Large Signal Voltage Gain	T_A=125°C;70°C	1,000,000			125,000			
	T_A=−55°C;0°C	250,000			125,000			
Common Mode Rejection Ratio	$R_S \leq 10k\Omega$	100				115		dB
Power Supply Rejection Ratio	$R_S \leq 10k\Omega$			20		20		μV/V
Output Voltage Swing	$R_L \geq 2k\Omega$	±10			±10			V

NOTES:

1. Rating applies for case temperature to +125°C; derate linearly at 6.5 mW/°C for ambient temperature above +75°C.
2. For supply voltages less than ±22V, the absolute maximum input voltage is equal to the supply voltage.