

μ A741, μ A741Y GENERAL-PURPOSE OPERATIONAL AMPLIFIERS

SLOS094B – NOVEMBER 1970 – REVISED SEPTEMBER 2000

- Short-Circuit Protection
- Offset-Voltage Null Capability
- Large Common-Mode and Differential Voltage Ranges
- No Frequency Compensation Required
- Low Power Consumption
- No Latch-Up
- Designed to Be Interchangeable With Fairchild μ A741

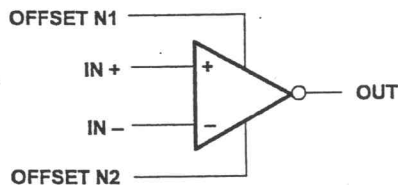
description

The μ A741 is a general-purpose operational amplifier featuring offset-voltage null capability.

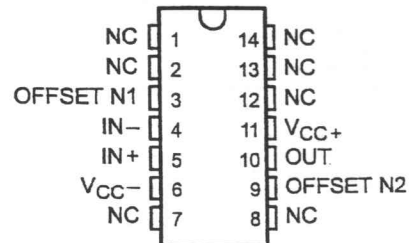
The high common-mode input voltage range and the absence of latch-up make the amplifier ideal for voltage-follower applications. The device is short-circuit protected and the internal frequency compensation ensures stability without external components. A low value potentiometer may be connected between the offset null inputs to null out the offset voltage as shown in Figure 2.

The μ A741C is characterized for operation from 0°C to 70°C. The μ A741I is characterized for operation from -40°C to 85°C. The μ A741M is characterized for operation over the full military temperature range of -55°C to 125°C.

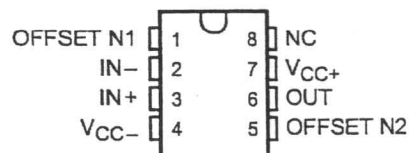
symbol



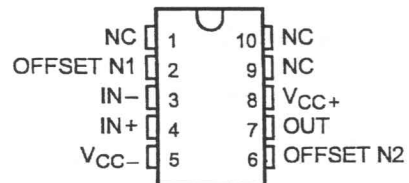
μ A741M ... J PACKAGE
(TOP VIEW)



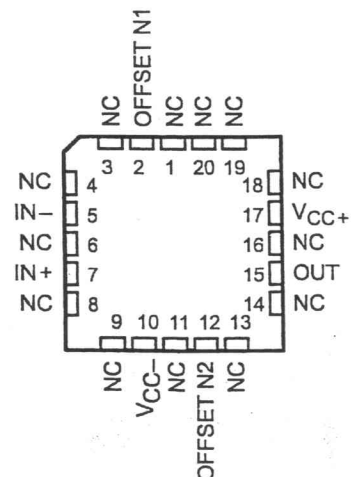
μ A741M ... JG PACKAGE
 μ A741C, μ A741I ... D, P, OR PW PACKAGE
(TOP VIEW)



μ A741M ... U PACKAGE
(TOP VIEW)



μ A741M ... FK PACKAGE
(TOP VIEW)



NC – No internal connection

PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

**TEXAS
INSTRUMENTS**

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electrical characteristics at specified free-air temperature, $V_{CC\pm} = \pm 15\text{ V}$, $T_A = 25^\circ\text{C}$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS	μA741Y			UNIT
		MIN	TYP	MAX	
V_{IO} Input offset voltage	$V_O = 0$		1	6	mV
$\Delta V_{IO}(\text{adj})$ Offset voltage adjust range	$V_O = 0$		±15		mV
I_{IO} Input offset current	$V_O = 0$		20	200	nA
I_{IB} Input bias current	$V_O = 0$		80	500	nA
V_{ICR} Common-mode input voltage range		±12	±13		V
V_{OM} Maximum peak output voltage swing	$R_L = 10\text{ k}\Omega$	±12	±14		V
	$R_L = 2\text{ k}\Omega$	±10	±13		
A_{VD} Large-signal differential voltage amplification	$R_L \geq 2\text{ k}\Omega$	20	200		V/mV
r_i Input resistance		0.3	2		MΩ
r_o Output resistance	$V_O = 0$, See Note 5		75		Ω
C_i Input capacitance			1.4		pF
CMRR Common-mode rejection ratio	$V_{IC} = V_{ICRmin}$	70	90		dB
k_{SVS} Supply voltage sensitivity ($\Delta V_{IO}/\Delta V_{CC}$)	$V_{CC} = \pm 9\text{ V to } \pm 15\text{ V}$		30	150	μV/V
I_{OS} Short-circuit output current			±25	±40	mA
I_{CC} Supply current	$V_O = 0$, No load		1.7	2.8	mA
P_D Total power dissipation	$V_O = 0$, No load		50	85	mW

† All characteristics are measured under open-loop conditions with zero common-mode voltage unless otherwise specified.

NOTE 5: This typical value applies only at frequencies above a few hundred hertz because of the effects of drift and thermal feedback.

operating characteristics, $V_{CC\pm} = \pm 15\text{ V}$, $T_A = 25^\circ\text{C}$

PARAMETER	TEST CONDITIONS	μA741Y			UNIT
		MIN	TYP	MAX	
t_r Rise time	$V_i = 20\text{ mV}$, $R_L = 2\text{ k}\Omega$, $C_L = 100\text{ pF}$, See Figure 1		0.3		μs
Overshoot factor			5%		
SR Slew rate at unity gain	$V_i = 10\text{ V}$, $R_L = 2\text{ k}\Omega$, $C_L = 100\text{ pF}$, See Figure 1		0.5		V/μs



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TYPICAL CHARACTERISTICS

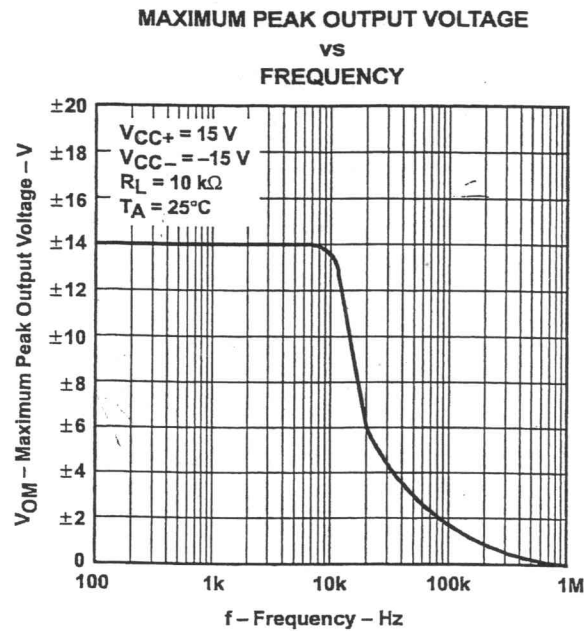


Figure 6

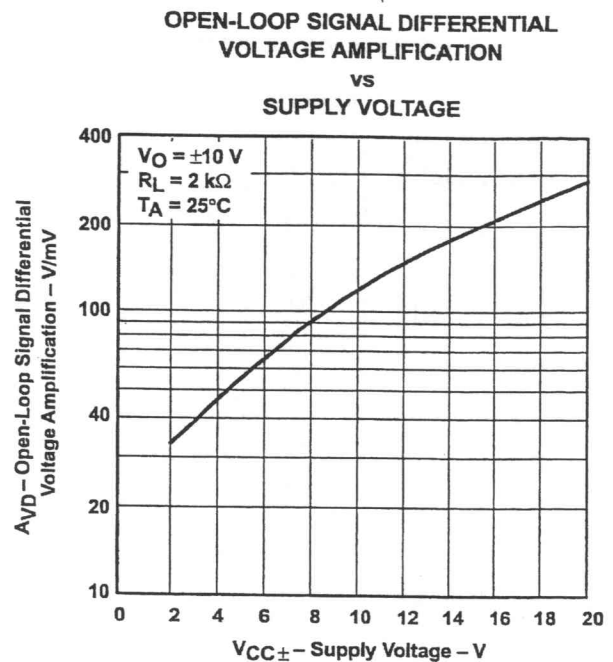
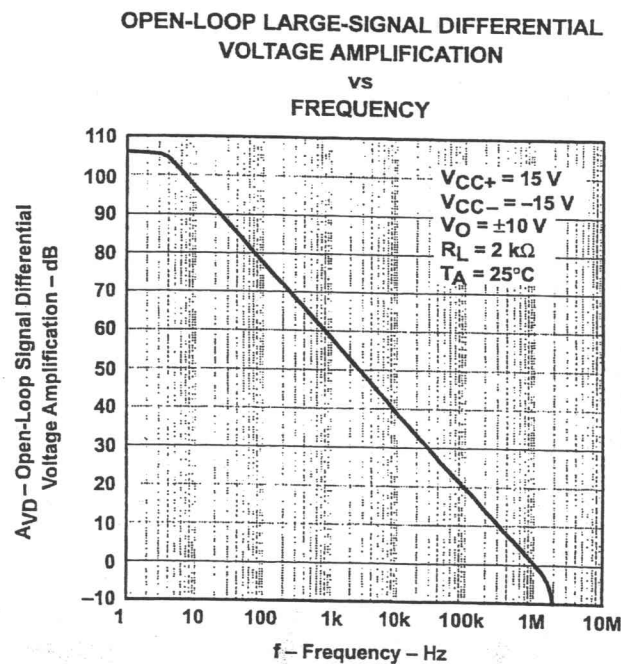


Figure 7




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TYPICAL CHARACTERISTICS

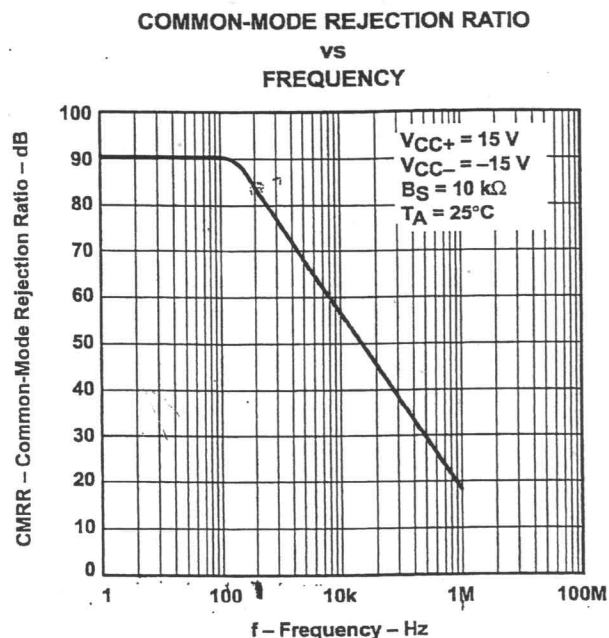


Figure 8

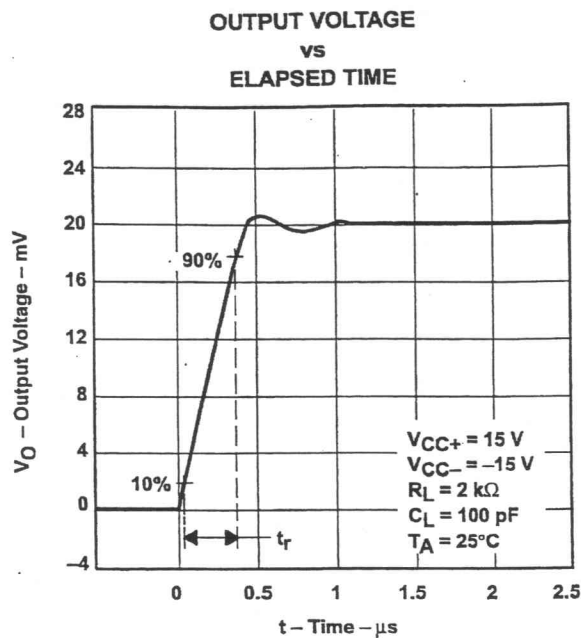


Figure 9

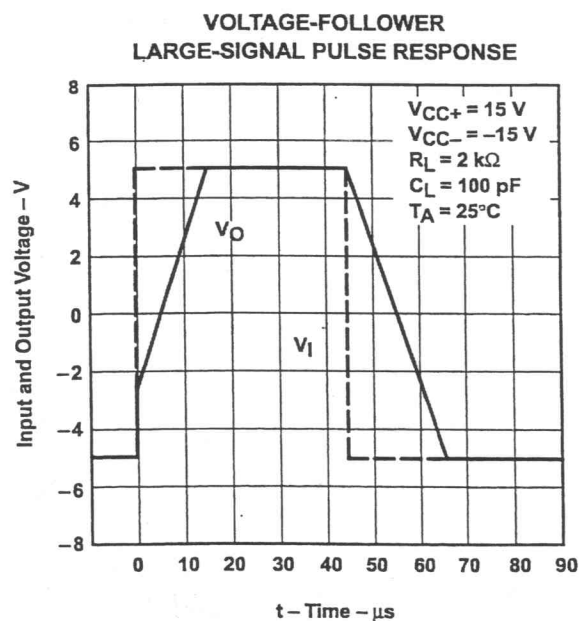


Figure 10