

## DESCRIPTION

The  $\mu A740$  is a special purpose high performance operational amplifier utilizing a FET input stage for high input impedance and low input current.

The device features internal compensation, standard pinout, wide differential and common mode input voltage range, high slew rate and high output drive capability.

## FEATURES

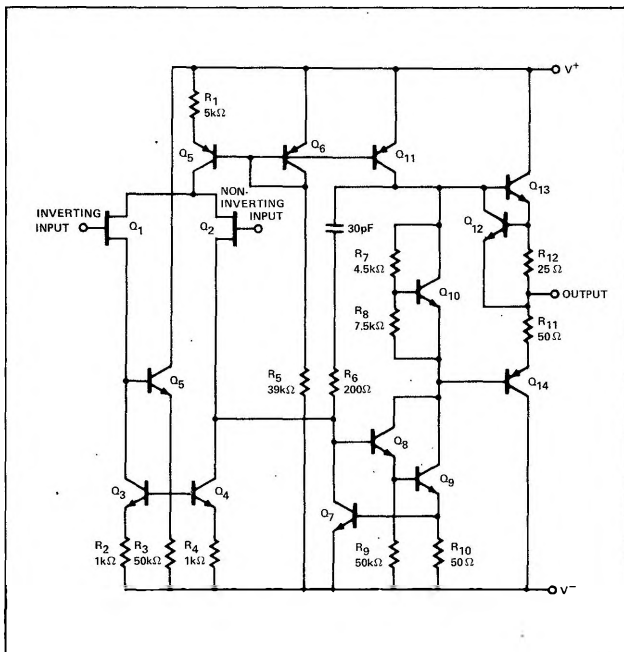
- 0.1 nA INPUT BIAS CURRENT
- INPUT AND OUTPUT PROTECTION
- OFFSET NULL CAPABILITY
- INTERNALLY COMPENSATED
- 6V/ $\mu$ sec SLEW RATE
- STANDARD PINOUT
- NO LATCH UP

## ABSOLUTE MAXIMUM RATING

Supply Voltage	$\pm 22V$
Differential Input Voltage Range	$\pm 30V$
Common Mode Input Voltage Range	$\pm V_S$
Power Dissipation (Note 1)	500mW
Operating Temperature Range	$0^\circ C$ to $+70^\circ C$
Storage Temperature Range	$-65^\circ C$ to $+150^\circ C$
Lead Temperature (Solder, 60 sec)	$300^\circ C$
Output short Circuit Duration (Note 2)	Indefinite

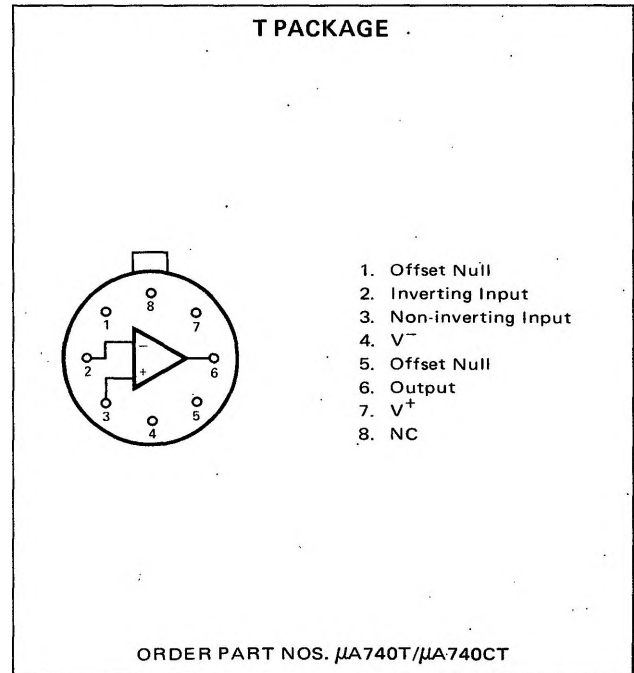
1. Rating applies for case temperatures to  $+25^\circ C$ ; derate linearly at  $6.5mW/^\circ C$  for ambient temperatures above  $75^\circ C$ .
2. Short circuit may be to ground or either supply. Rating applies to  $+125^\circ C$  case temperature or  $+75^\circ C$  ambient temperature.

## EQUIVALENT CIRCUIT

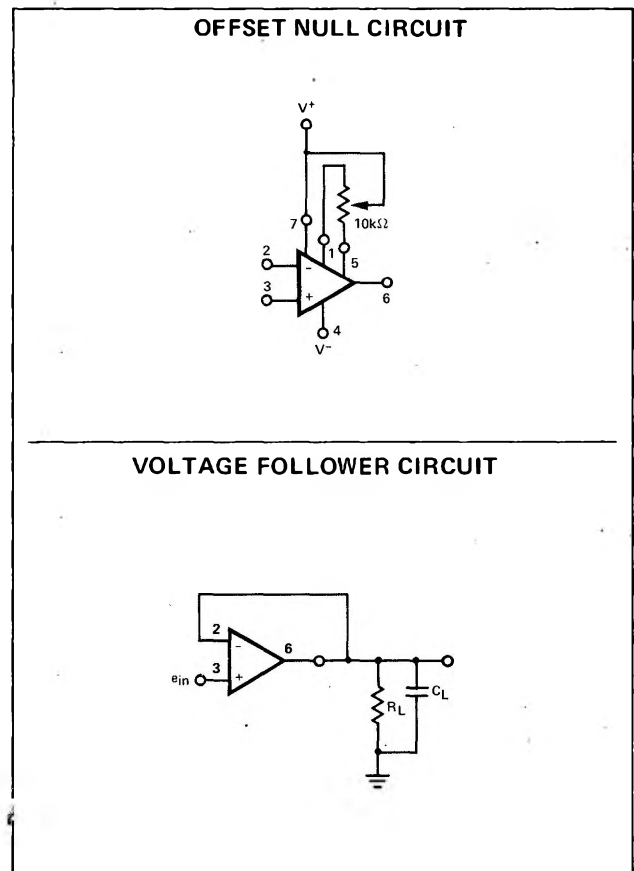


## LINEAR INTEGRATED CIRCUITS

### PIN CONFIGURATION (Top View)



## TEST CIRCUITS



**SIGNETICS ■  $\mu$ A740 – FET OPERATIONAL AMPLIFIER**

**ELECTRICAL CHARACTERISTICS ( $V_S = \pm 15$  V,  $T_C = 25^\circ\text{C}$  unless otherwise specified)**

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS	
Input Offset Voltage	$R_S \leq 100$ k $\Omega$		30		mV	
Input Offset Current			60		pA	
Input Current (either input)			0.1		2.0	nA
Input Resistance	$R_L \geq 2$ k $\Omega$ , $V_{out} = \pm 10$ V		1,000,000		M $\Omega$	
Large Signal Voltage Gain			1,000,000			
Output Resistance				75		$\Omega$
Output Short-Circuit Current				20		mA
Supply Current				4.2	3.0	mA
Power Consumption			126	240	mW	
Slew Rate			6.0		V/ $\mu$ s	
Unity Gain Bandwidth			1.0		MHz	
Transient Response (Unity Gain)	$C_L \leq 100$ pF, $R_L = 2$ k $\Omega$ , $V_{in} = 100$ mV					
Risetime			300		ns	
Overshoot				10		%
The following specifications apply for $0^\circ\text{C} \leq T_A \leq +70^\circ\text{C}$						
Input Voltage Range			$\pm 12$		V	
Common Mode Rejection Ratio			80		db	
Supply Voltage Rejection Ratio			70		$\mu$ V/V	
Large Signal Voltage Gain			500,000			
Output Voltage Swing	$R_L \geq 10$ k $\Omega$	$\pm 12$	$\pm 14$		V	
	$R_L \geq 2$ k $\Omega$	$\pm 10$	$\pm 13$		V	
Input Offset Voltage			30		mV	
Input Offset Current			60		pA	
Input Current (either input)			1.1	10	nA	

**TYPICAL CHARACTERISTIC CURVES**

