

LINEAR INTEGRATED CIRCUITS

DESCRIPTION

The μ A711 High Speed Dual Voltage Comparator features low offset voltage, high sensitivity and a wide input voltage range. It is ideal for use as a bi-directional limit detector in automatic test equipment.

Due to fast response and strobe control capabilities the μ A711 performs well as a sense amplifier in core memory systems.

The μ A711 is specified over the military temperature range of -55°C to $+125^{\circ}\text{C}$. The μ A711 is specified over the commercial/industrial temperature range of 0°C to $+75^{\circ}\text{C}$.

FEATURES

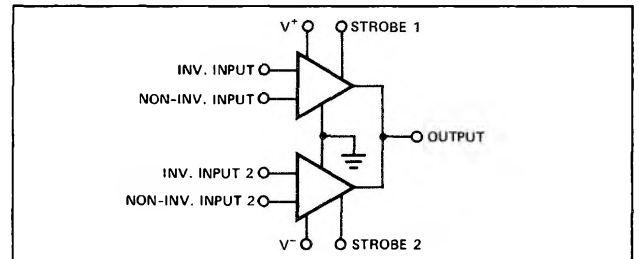
- FAST RESPONSE – 40ns
- HIGH SENSITIVITY – 1.5V/mV
- LOW OFFSET VOLTAGE TEMPERATURE COEFFICIENT – $5\mu\text{V}/^{\circ}\text{C}$
- HIGH INPUT VOLTAGE RANGE – $\pm 5.0\text{V}$

ABSOLUTE MAXIMUM RATINGS

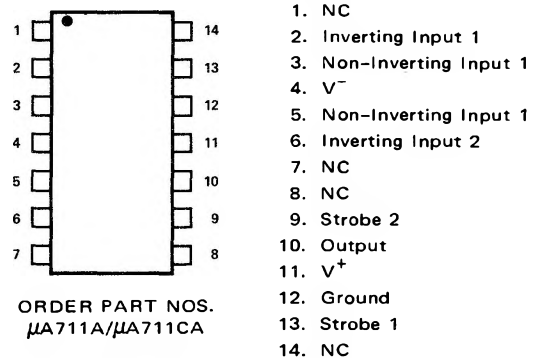
Positive Supply Voltage	+14.0V
Negative Supply Voltage	-7.0V
Peak Output Current	50mA
Differential Input Voltage	$\pm 5.0\text{V}$
Input Voltage	$\pm 7.0\text{V}$
Internal Power Dissipation (Note 4)	
TO-99	300mW
Operating Temperature Range	
μ A711	-55°C to $+125^{\circ}\text{C}$
μ A711C	0°C to $+75^{\circ}\text{C}$
Storage Temperature Range	-65°C to $+150^{\circ}\text{C}$
Lead Temperature (Soldering, 60 sec)	300°C

Maximum ratings are limiting values above which serviceability may be impaired.

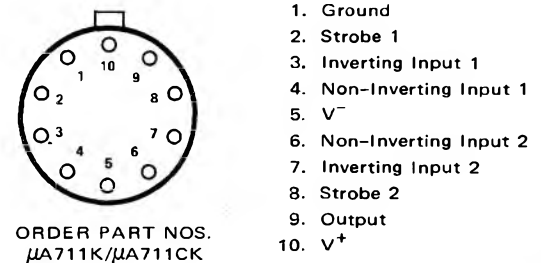
PIN CONFIGURATION



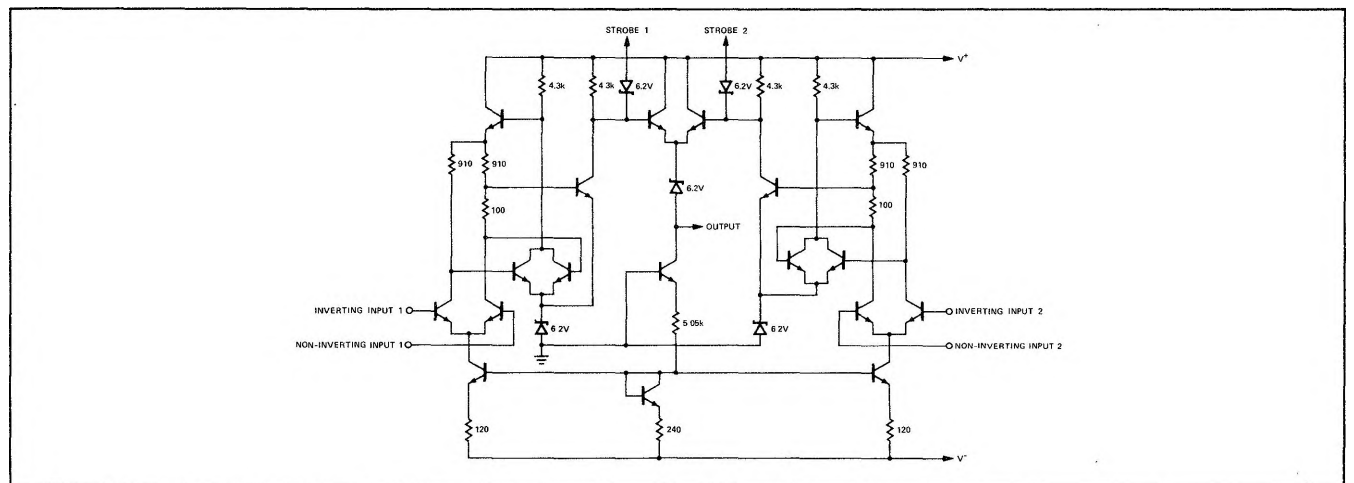
A PACKAGE (Top View)



K PACKAGE



BASIC CIRCUIT SCHEMATIC



SIGNETICS ■ μ A711 – DUAL VOLTAGE COMPARATOR

ELECTRICAL CHARACTERISTICS (Note 1)

(Standard Conditions: $T_A = +25^\circ\text{C}$, $V^+ = 12.0\text{V}$, $V^- = -6.0\text{V}$ unless otherwise specified)

PARAMETERS	TEST CONDITIONS	MIN		TYP		MAX		UNITS
		μ A711	711C	μ A711	711C	μ A711	711C	
Input Offset Voltage	$V_{out} = +1.4\text{V}$, $R_S \leq 200\Omega$, $V_{cm} = 0$			1.0	1.0	3.5	5.0	mV
Input Offset Current	$V_{out} = +1.4\text{V}$, $R_S \leq 200\Omega$			1.0	1.0	5.0	7.5	mV
Input Bias Current	$V_{out} = +1.4\text{V}$			0.5	0.5	10.0	15.0	μA
Voltage Gain		750	700	1500	1500			
Response Time	Note 2			40	40			ns
Strobe Release Time				12	12			ns
Input Common Mode Voltage Range	$V^- = -7.0\text{V}$	± 5.0	± 5.0					V
Differential Input Voltage Range		± 5.0	± 5.0					V
Output Resistance				200	200			Ω
Positive Output Level	$V_{in} \geq 10\text{mV}$			4.5	4.5	5.0	5.0	V
Loaded Positive Output Level	$V_{in} \geq 10\text{mV}$, $I_o = 5\text{mA}$	2.5	2.5	3.5	3.5			V
Negative Output Level	$V_{in} \geq 10\text{mV}$	-1.0	-1.0	-0.5	-0.5	0	0	V
Strobed Output Level	$V_{strobe} < 0.3\text{V}$	-1.0	-1.0			0	0	V
Output Sink Current	$V_{in} \geq 10\text{mV}$, $V_{out} \geq 0$	0.5	0.5	0.8	0.8			mA
Strobe Current	$V_{strobe} = 100\text{mV}$			1.2	1.2	2.5	2.5	mA
Positive Supply Current	$V_{out} \leq 0$			8.6	8.6			mA
Negative Supply Current				3.9	3.9			mA
Power Consumption				130	130	200	200	mW

The following specifications apply over the temperature ranges of: $-55^\circ\text{C} \leq T_A \leq +125^\circ\text{C}$ for the μ A711
 $0^\circ\text{C} \leq T_A \leq +75^\circ\text{C}$ for the μ A711C

Input Offset Voltage	$R_S \leq 200\Omega$, $V_{cm} = 0$, $R_S \leq 200\Omega$	Note 3				4.5	6.0	mV
Input Offset Current		Note 3				6.0	10.0	mV
Input Bias Current						20	25	μA
Temperature Coefficient of Input Offset Voltage				5.0	5.0			$\mu\text{V}/^\circ\text{C}$
Voltage Gain			500	500				

Recommended Operating Supply Voltages: $V^+ = 12\text{V}$, $V^- = -6\text{V}$

NOTES:

- All voltages are referenced to pin 1.
- The response time specified is for a 100mV input step, with a 5mV overdrive.
- The Input Offset Voltage and Input Offset Current are specified for a logic threshold voltage of: 1.8V at 0°C .

μ A711	μ A711C
1.8V at 0°C	1.5V at 0°C
1.4V at $+25^\circ\text{C}$	1.4V at $+25^\circ\text{C}$
1.0V at $+125^\circ\text{C}$	1.2V at $+75^\circ\text{C}$
- Rating applies for temperatures up to: μ A711 – $+125^\circ\text{C}$
 μ A711C – $+75^\circ\text{C}$