

DESCRIPTION

The μA711 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.

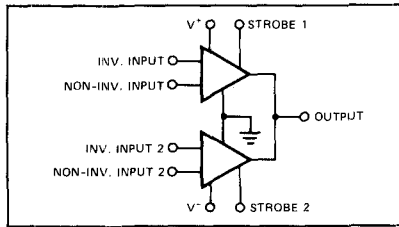
Due to fast response and strobe control capabilities the μA711 performs well as a sense amplifier in core memory systems.

The μA711 is specified over the military temperature range of -55°C to +125°C. The μA711C is specified over the commercial/industrial temperature range of 0°C to +75°C.

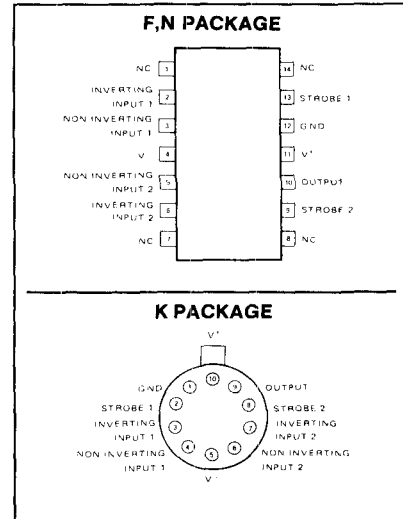
FEATURES

- Fast response—40ns
- High sensitivity—1.5V/mV
- Low offset voltage temperature coefficient—5μV/°C
- High input voltage range—±5.0V
- Mil std 883A,B,C available

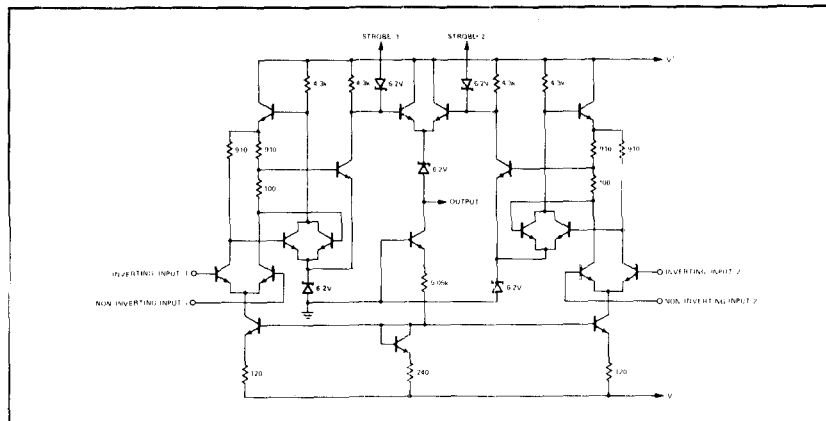
LOGIC DIAGRAM



PIN CONFIGURATION



CIRCUIT SCHEMATIC



ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING	UNIT
Positive supply voltage	+14.0	V
Negative supply voltage	-7.0	V
Peak output current	50	mA
Differential input voltage	±5.0	V
Internal power dissipation ⁴	300	mW
Operating temperature range		
μA711	-55 to +125	°C
μA711C	0 to +75	°C
Storage temperature range	-65 to +150	°C
Lead temperature (soldering, 60sec)	300	°C

DC ELECTRICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$, $V_+ = 12.0\text{V}$, $V_- = -6.0\text{V}$ unless otherwise specified.

PARAMETER	TEST CONDITIONS	μA711			μA711C			UNIT
		Min	Typ	Max	Min	Typ	Max	
Input offset voltage	$V_{OUT} = +1.4\text{V}$, $R_S \leq 200\Omega$, $V_{CM} = 0$ $V_{OUT} = +1.4\text{V}$, $R_S \leq 200\Omega$		1.0	3.5		1.0	5.0	mV
			1.0	5.0		1.0	7.5	mV
Input offset current	$V_{OUT} = +1.4\text{V}$		0.5	10.0		0.5	15.0	μA
Input bias current			25	75		25	100	μA
Voltage gain		750	1500		700	1500		
Response time 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	5.0		4.5	5.0	V
Loaded positive output level	$V_{IN} \geq 10\text{mV}$, $I_O = 5\text{mA}$	2.5	3.5		2.5	3.5		V
Negative output level	$V_{IN} \geq 10\text{mV}$	-1.0	-0.5	0	-1.0	-0.5	0	V
Strobed output level	$V_{STROBE} < 0.3\text{V}$	-1.0		0	-1.0		0	V
Output sink current	$V_{IN} \geq 10\text{mV}$, $V_{OUT} \geq 0$	0.5	0.8		0.5	0.8		mA
Strobe current	$V_{STROBE} = 100\text{mV}$		1.2	2.5		1.2	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	200		130	230	mW
The following specifications apply over the temperature range of: $-55^\circ\text{C} \leq T_A \leq +125^\circ\text{C}$ for the μA711 $0^\circ\text{C} \leq T_A \leq +75^\circ\text{C}$ for the μA711C								
Input offset voltage ³	$R_S \leq 200\Omega$, $V_{CM} = 0$ $R_S \leq 200\Omega$			4.5 6.0			6.0 10.0	mV mV
Input offset current ³				20			25	μA
Input bias current				150			150	μA
Temperature coefficient of input			5.0			5.0		μV/°C
Offset voltage								
Voltage gain		500			500			

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:

μA711	μA711C
1.8V at -55°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: μA711 — $+125^\circ\text{C}$
μA711C — $+75^\circ\text{C}$