

LM5528/LM7528 and LM5529/LM7529
electrical characteristics

LM5528/LM5529: The following apply for $-55^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$, $V^+ = 5\text{V} \pm 5\%$, $V^- = -5\text{V} \pm 5\%$. (Note 1)

PARAMETER	MIN	TYP	MAX	UNIT	TEST CONDITIONS (EACH AMPLIFIER)					
					DIFF. INPUT	REF. INPUT	STROBE INPUT	LOGIC OUTPUT	SUPPLY VOLT.	COMMENTS
Differential Input Threshold Voltage (V_{TH}) (Note 2)	10(8)	15		mV	$\pm V_{TH}$	15 mV	+5V	+16 mA	$\pm 5V \pm 5\%$	Logic Output $< 0.4V$
		15	20(22)	mV	$\pm V_{TH}$	15 mV	+5V	-400 μA	$\pm 5V \pm 5\%$	Logic Output $> 2.4V$
	35(33)	40		mV	$\pm V_{TH}$	40 mV	+5V	+16 mA	$\pm 5V \pm 5\%$	Logic Output $< 0.4V$
		40	45(47)	mV	$\pm V_{TH}$	40 mV	+5V	-400 μA	$\pm 5V \pm 5\%$	Logic Output $> 2.4V$
Differential & Reference Input Bias Current		30	100	μA	0V	0V	+5.25V		$\pm 5.25V$	

LM7528/LM7529: The following apply for $0^{\circ}\text{C} \leq T_A \leq 70^{\circ}\text{C}$, $V^+ = 5\text{V} \pm 5\%$, $V^- = -5\text{V} \pm 5\%$

Differential Input Threshold Voltage (V_{TH}) (Note 3)	11(8)	15		mV	$\pm V_{TH}$	15 mV	+5V	+16 mA	$\pm 5\text{V} \pm 5\%$	Logic Output $< 0.4\text{V}$	
		15	19(22)	mV	$\pm V_{TH}$	15 mV	+5V	-400 μA	$\pm 5\text{V} \pm 5\%$	Logic Output $> 2.4\text{V}$	
	36(33)	40		mV	$\pm V_{TH}$	40 mV	+5V	+16 mA	$\pm 5\text{V} \pm 5\%$	Logic Output $< 0.4\text{V}$	
		40	44(47)	mV	$\pm V_{TH}$	40 mV	+5V	-400 μA	$\pm 5\text{V} \pm 5\%$	Logic Output $> 2.4\text{V}$	
Differential & Reference Input Bias Current		30	75	μA	0V	0V	+5.25V		$\pm 5.25\text{V}$		

LM5528/LM5529: The following apply for $-55^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$, $V^+ = 5\text{V} \pm 5\%$, $V^- = -5\text{V} \pm 5\%$

LM7528/LM7529: The following apply for $0^{\circ}\text{C} \leq T_A \leq 70^{\circ}\text{C}$, $V^+ = 5\text{V} \pm 5\%$, $V^- = -5\text{V} \pm 5\%$

Diff. Input Offset Current		0.5		μA	0V	0V	+5.25V		$\pm 5.25\text{V}$		
Logic "1" Input Voltage	2			V	40 mV	20 mV	+2V	-400 μA	$\pm 4.75\text{V}$	Logic Output $> 2.4\text{V}$	
Logic "0" Input Voltage			0.8	V	40 mV	20 mV	+0.8V	+16 mA	$\pm 4.75\text{V}$	Logic Output $< 0.4\text{V}$	
Logic "0" Input Current		-1	-1.6	mA	40 mV	20 mV	+0.4V		$\pm 5.25\text{V}$		
Logic "1" Input Current		5	40	μA	0V	20 mV	+2.4V		$\pm 5.25\text{V}$		
		0.02	1	mA	0V	20 mV	+5.25V		$\pm 5.25\text{V}$		
Logic "1" Output Voltage	2.4	3.9		V	40 mV	20 mV	+2.0V	-400 μA	$\pm 4.75\text{V}$		
Logic "0" Output Voltage		0.25	0.40	V	40 mV	20 mV	+0.8V	+16 mA	$\pm 4.75\text{V}$		
Output Short Circuit Current	-2.1	-2.8	-3.5	mA	40 mV	20 mV	+5.25V	0V	$\pm 5.25\text{V}$		
V^+ Supply Current		29	40	mA	0V	20 mV	0V		$\pm 5.25\text{V}$		
V^- Supply Current		-13	-18	mA	0V	20 mV	0V		$\pm 5.25\text{V}$		

LM5528/LM5529 and LM7528/LM7529: The following apply for $T_A = 25^{\circ}\text{C}$, $V^+ = 5\text{V}$, $V^- = -5\text{V}$

AC Common-Mode Input Firing Voltage		± 2.5		V	PULSE	20 mV	+5V	SCOPE			
Propagation Delays:											
Differential Input to Logical "1" Output		20	40	ns		20 mV				AC Test Circuit	
Differential Input to Logical "0" Output		28		ns		20 mV				AC Test Circuit	
Strobe Input to Logical "1" Output		10	30	ns		20 mV				AC Test Circuit	
Strobe Input to Logical "0" Output		20		ns		20 mV				AC Test Circuit	
Differential Input Overload Recovery Time		10		ns							
Common-Mode Input Overload Recovery Time		5		ns							
Min. Cycle Time		200		ns							

Note 1: For $0^{\circ}\text{C} \leq T_A \leq 70^{\circ}\text{C}$ operation, electrical characteristics for LM5528 and LM5529 are guaranteed the same as LM7528 and LM7529 respectively.

Note 2: Limits in parentheses pertain to LM5529, other limits pertain to LM5528.

Note 3: Limits in parentheses pertain to LM7529, other limits pertain to LM7528.

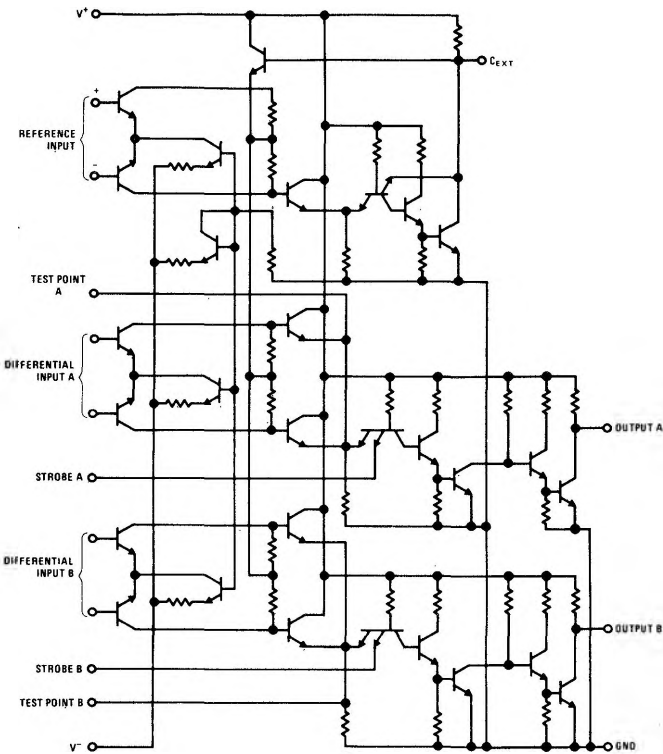
Note 4: Positive current is defined as current into the referenced pin.

Note 5: Pin 1 to have $\geq 100\text{ pF}$ capacitor connected to ground.

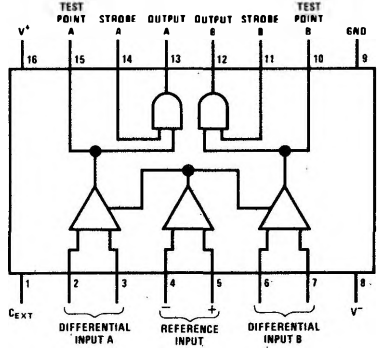
Note 6: Each test point to have $\leq 15\text{ pF}$ capacitive load to ground.

LM5528/LM7528 and LM5529/LM7529

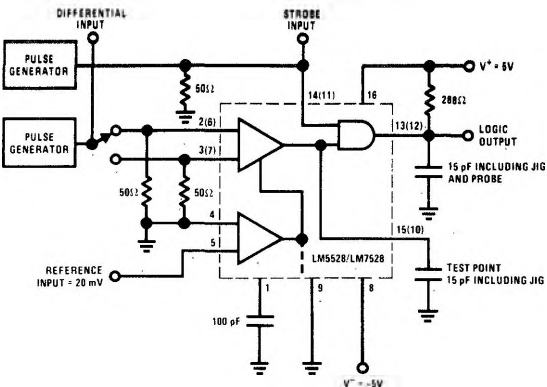
schematic diagram



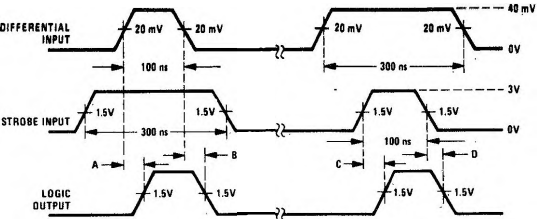
connection diagram



AC test circuit



voltage waveforms



- 1. Pulse generator characteristics:
 $Z_{OUT} = 50\Omega$, $t_r = t_f = 15-5$ ns, PRR = 1 MHz
- 2. Propagation delays:
A = Differential input to logical "1" output
B = Differential input to logical "0" output
C = Strobe input to logical "1" output
D = Strobe input to logical "0" output