



Voltage comparator

FEATURES

- Pin-to-pin compatible with industry standard NE527
- 15 ns propagation delay
- Complementary output gates
- TTL or ECL compatible outputs
- Wide common-mode and differential voltage range
- Typical gain of 5000

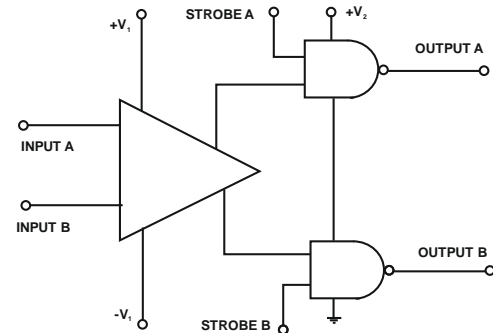
DESCRIPTION

AS527 is a high-speed analog voltage comparator which mates Schottky diode technology with the conventional linear process. This allows simultaneous fabrication of high speed TTL gates with a precision linear amplifier on a single monolithic chip.

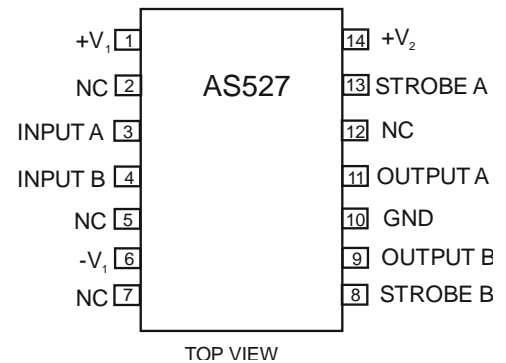
APPLICATIONS

- A/D conversion
- ECL-to-TTL interface
- TTL-to-ECL interface
- Memory sensing
- Optical data coupling

Block diagram AS527



CONNECTION DIAGRAM SOIC-14 Package



ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNIT
+V ₁	Positive supply voltage	+15	V
-V ₁	Negative supply voltage	-15	V
+V ₂	Gate supply voltage	+7	V
V _{OUT}	Output voltage	+7	V
V _{IN}	Differential input voltage	+5	V
P _{MAX}	Max power dissipation ¹ 25 °C ambient (still air)	1000	mW
T _{amb}	Operating temperature range	0 to +70	°C
T _{stg}	Storage temperature range	-65 to +150	°C
T _{sl}	Lead soldering temperature (10sec max)	+230	°C

NOTE: 1. Derate above 25 °C, at the following rates 8.3 mW/°C



DC ELECTRICAL CHARACTERISTICS

$V_{1+} = 10V$; $V_{1-} = -10V$; $V_{2+} = +5.0V$; unless otherwise specified.

SYMBOL	PARAMETR	Test conditions	AS527		UNIT
			Min	Max	
Input characteristics					
V_{OS}	Input offset voltage @ 25 over temperature range			5 10	mV
I_{BIAS}	Input bias current @ 25 °C over temperature range			2 4	μA
I_{OS}	Input offset current @ 25 °C over temperature range	$V_{IN} = 0V$		0,75 1	μA
V_{CM}	Common-mode voltage range		-5	+5	V
Gate characteristics					
V_{OUT}	Output Voltage "1" State "0" State	$V_{2+} = 4.75V$; $I_{SOURCE} = -1mA$ $V_{2+} = 4.75V$; $I_{SINK} = 10mA$	2,9		V
				0,49	V
	Strobe inputs "0" Input current ¹ "1" Input current @ 25 °C ¹ Over temperature range "0" Input voltage "1" Input voltage	$V_{2+} = 5.25V$; $V_{STROBE} = 0.5V$ $V_{2+} = 5.25V$; $V_{STROBE} = 2,7V$ $V_{2+} = 5.25V$; $V_{STROBE} = 2,7V$ $V_{2+} = 4.75V$ $V_{2+} = 4.75V$		-2 120 200 0,8	mA μA μA V
I_{SC}	Short-circuit output current	$V_{2+} = 5.25V$; $V_{OUT} = 0V$	-18	-70	mA
Power supply requirements					
V_{1+} V_{1-} V_{2+}	Supply voltage		5 -6 4,75	10 -10 5,25	V V V
I_{1+} I_{1-} I_{2+}	Supply current	$V_{1+} = 10V$; $V_{1-} = -10V$; $V_{2+} = 5.25V$ Over temp. Over temp. Over temp.		3,6 7 14	mA mA mA

NOTE: 1. See Logic Function Table.

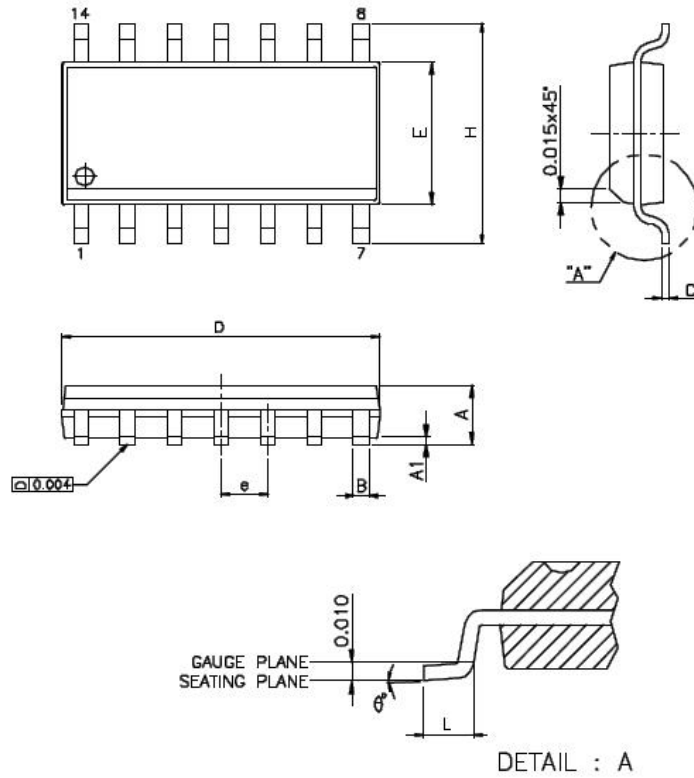
AC ELECTRICAL CHARACTERISTICS

$T_{amb} = 25\text{ °C}$, unless otherwise specified.

SYMBOL	PARAMETR	Test conditions	AS527		UNIT
			Min	Max	
t_{PLH} t_{PLH}	Transient response propagation delay time Low-to-High High-to-Low	$V_{IN} = \pm 100mV$ step		26 24	ns ns
	Delay between output A and B			5	ns
t_{ON} t_{OFF}	Strobe delay time Turn-on time Turn-off time			6(Typ) 6(Typ)	ns ns

LOGIC FUNCTION

$V_{ID}(A^+, B^-)$	STROBE A	STROBE B	OUTPUT A	OUTPUT B	COMMENT
$V_{ID} \leq -V_{OS}$	H	X	L	H	Read I_{IHA} , I_{ILB}
$-V_{OS} < V_{ID} < V_{OS}$	H	H	Undefined	Undefined	
$V_{ID} \geq V_{OS}$	X	H	H	L	Read I_{ILA} , I_{IHB}
X	L	L	H	H	



DETAIL : A

SYMBOLS	MIN.	NOM.	MAX.
A	0.058	0.064	0.068
A1	0.004	-	0.010
B	0.013	0.016	0.020
C	0.0075	0.008	0.0098
D	0.336	0.341	0.344
E	0.150	0.154	0.157
e	-	0.050	-
H	0.228	0.236	0.244
L	0.015	0.025	0.050
θ°	0°	-	B°

UNIT : INCH

SOIC-14