

NE/SE529 Voltage Comparator

Product Specification

Linear Products

DESCRIPTION

The NE/SE529 is a high-speed analog voltage comparator which, for the first time, mates state-of-the-art 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.

FEATURES

- 10ns propagation delay
- Complementary output gates
- TTL or ECL compatible inputs
- Wide common-mode and differential voltage range
- Typical gain 5000

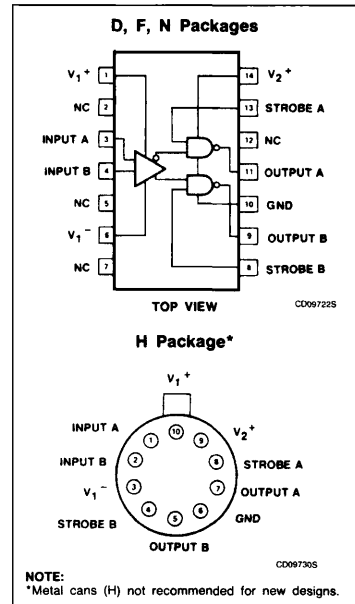
APPLICATIONS

- A/D conversion
- ECL-to-TTL interface
- TTL-to-ECL interface
- Memory sensing
- Optical data coupling
- MIL-STD-883A, B, C available

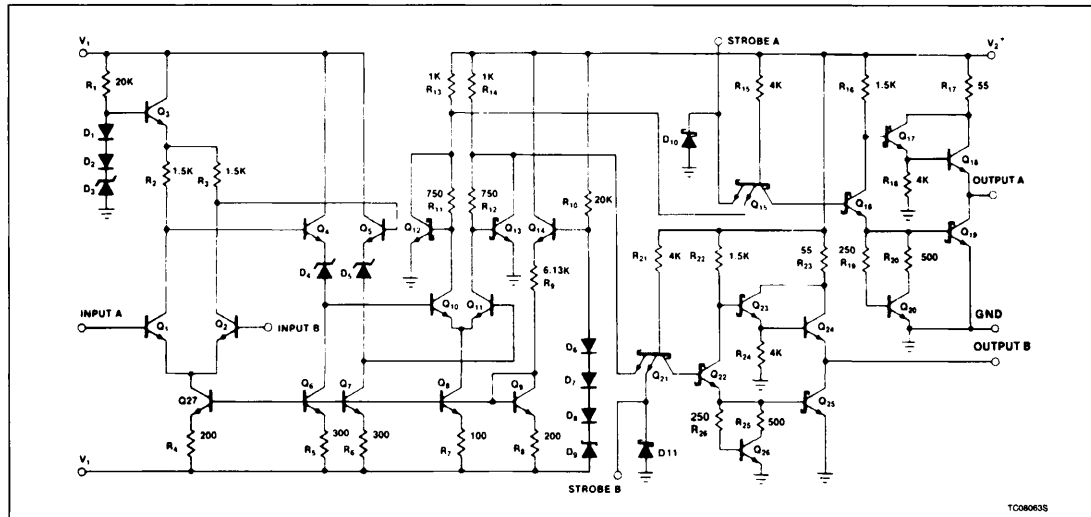
ORDERING INFORMATION

DESCRIPTION	TEMPERATURE RANGE	ORDER CODE
14-Pin Plastic DIP	0 to +70°C	NE529N
14-Pin Cerdip	0 to +70°C	NE529F
14-Pin Cerdip	-55°C to +125°C	SE529F
14-Pin SO	0 to +70°C	NE529D
10-Lead Metal Can	0 to +70°C	NE529H
10-Lead Metal Can	-55°C to +125°C	SE529H

PIN CONFIGURATIONS



EQUIVALENT SCHEMATIC



Voltage Comparator

NE/SE529

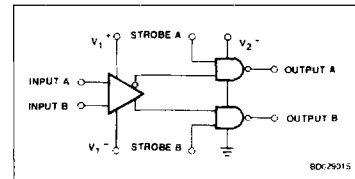
ABSOLUTE MAXIMUM RATINGS

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	
V_{CM}	Input common mode voltage	± 6	V	
P_D	Maximum power dissipation ¹			
	$T_A = 25^\circ\text{C}$ (still-air)			
	F package	1190	mW	
	N package	1420	mW	
	D package	1040	mW	
T_A	Operating temperature range	NE529	0 to +70	$^\circ\text{C}$
		SE529	-55 to +125	$^\circ\text{C}$
T_{STG}	Storage temperature range	-65 to +150	$^\circ\text{C}$	
T_{SOLD}	Lead soldering temperature (10 sec max)	+ 300	$^\circ\text{C}$	

NOTE:

- Derate above 25°C at the following rates:
 F package at $9.5\text{mW}/^\circ\text{C}$.
 N package at $11.5\text{mW}/^\circ\text{C}$.
 D package at $8.3\text{mW}/^\circ\text{C}$.

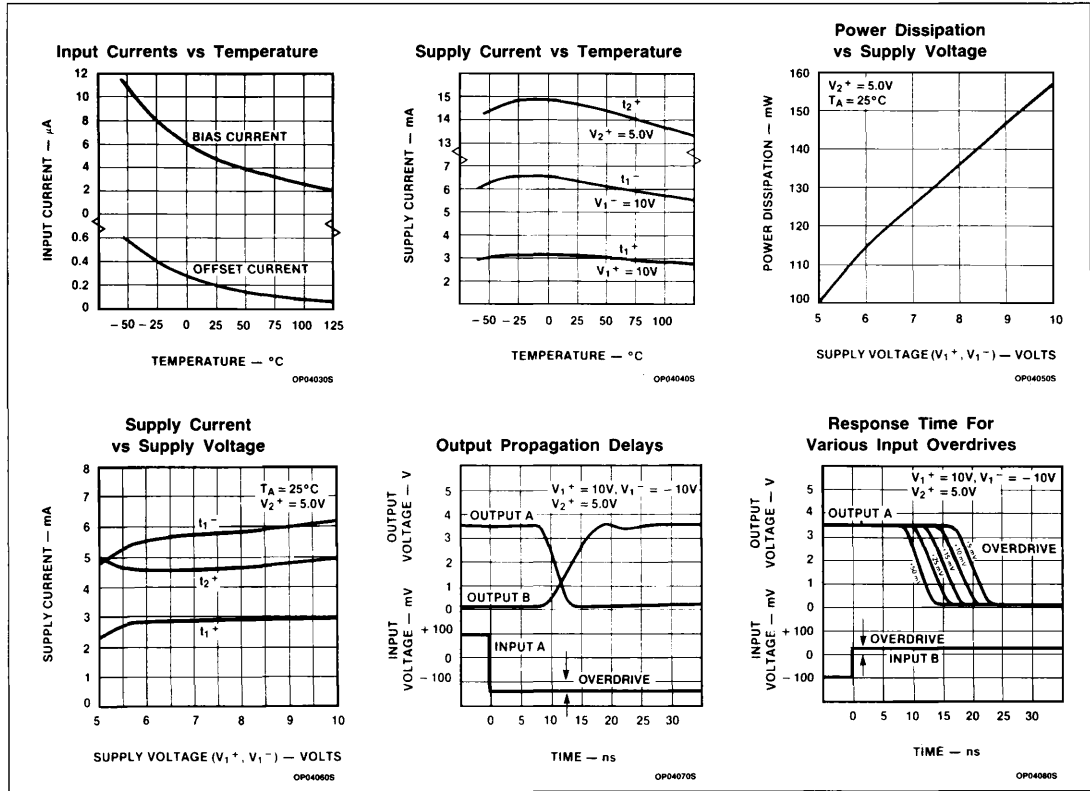
BLOCK DIAGRAM



Voltage Comparator

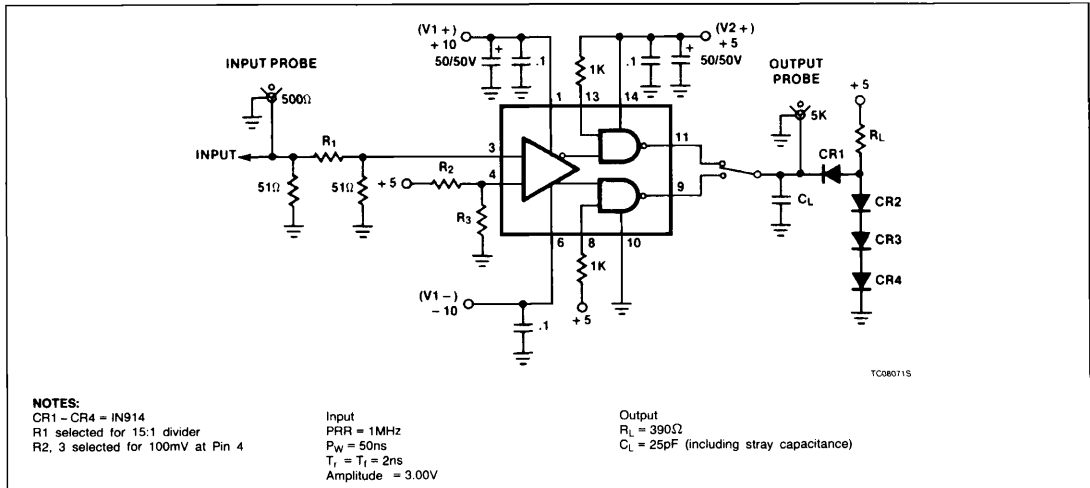
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TYPICAL PERFORMANCE CHARACTERISTICS



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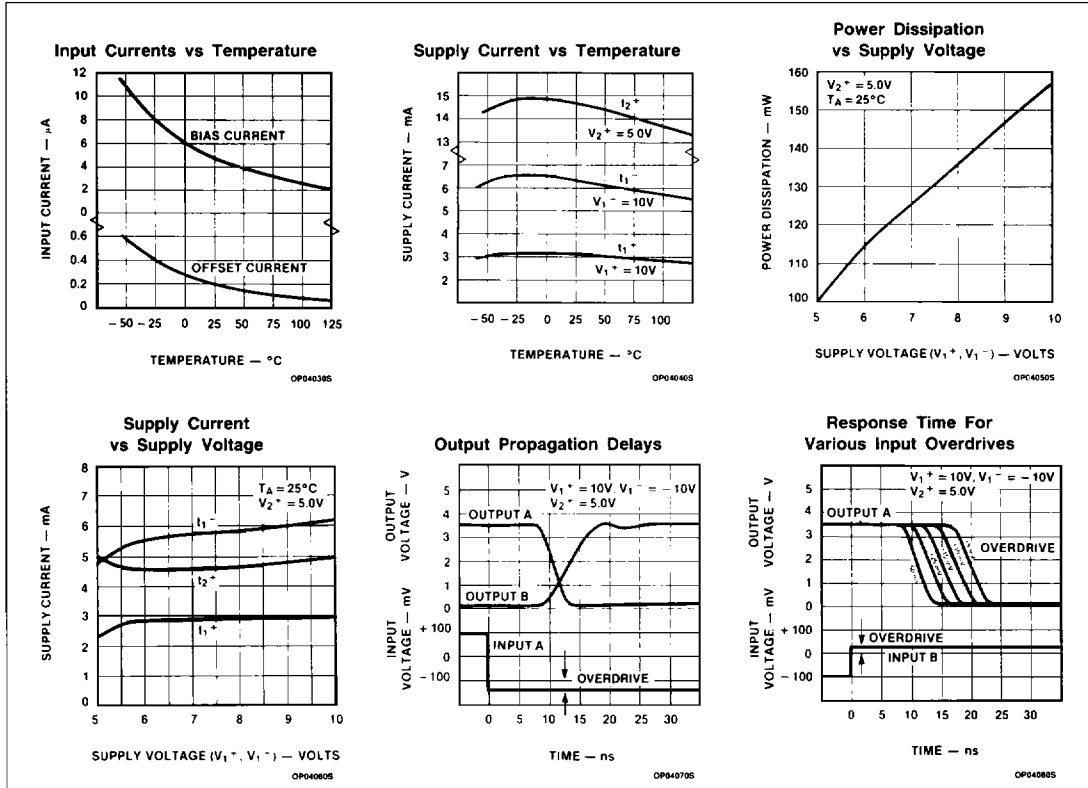
RESPONSE TIME TEST CIRCUIT



Voltage Comparator

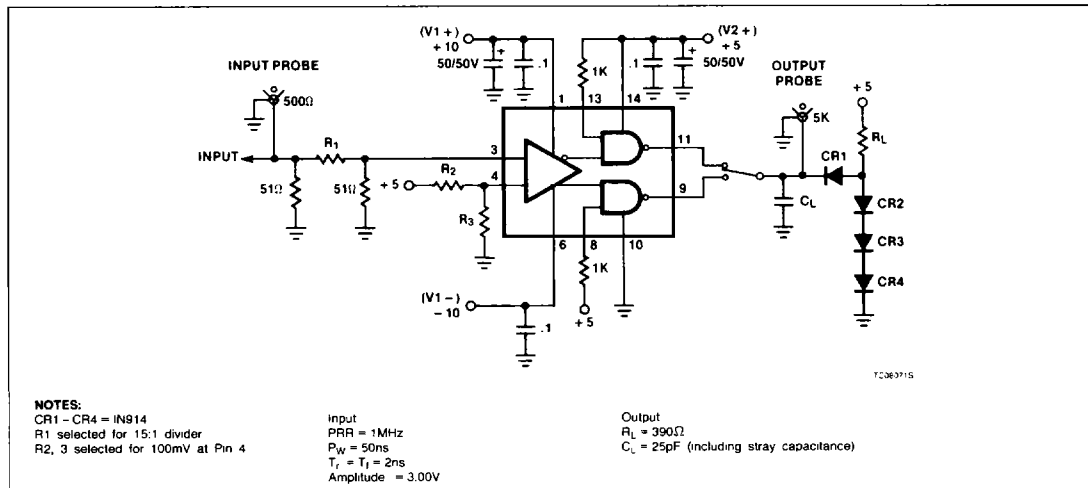
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TYPICAL PERFORMANCE CHARACTERISTICS



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RESPONSE TIME TEST CIRCUIT



Voltage Comparator

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APPLICATIONS

One of the main features of the device is that supply voltages ($V+$, $V-$) need not be balanced, as in the following diagrams. For proper operation, however, negative supply ($V-$) should always be at least 6V more than the ground terminal (pin 6). Input Common-Mode range should be limited to values of 2V less than the supply voltages ($V+$ and $V-$) up to a maximum of $\pm 6V$ as supply voltages are increased.

It is also important to note that Output A is in phase with Input A and Output B is in phase with Input B.

LOGIC FUNCTION

V_{ID} (A^+ , B^-)	STROBE A	STROBE B	OUTPUT A	OUTPUT B
$V_{ID} \leq -V_{OS}$	H	X	L	H
$-V_{OS} < V_{ID} < V_{OS}$	H	H	Undefined	Undefined
$V_{ID} \geq V_{OS}$	X	H	H	L
X	L	L	H	H

TYPICAL APPLICATIONS

