

# IR9319/IR9319N High Speed Dual Comparator

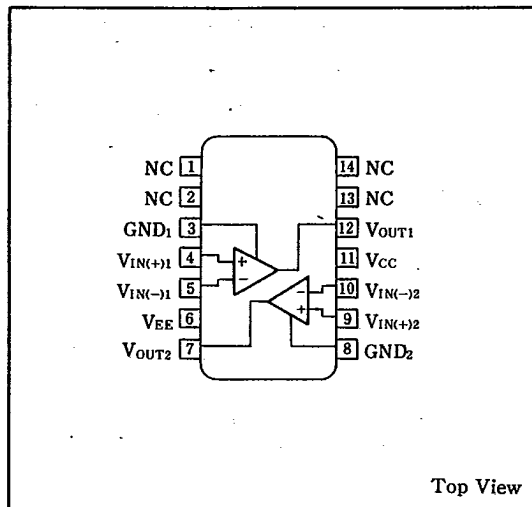
## Description

The IR9319/IR9319N is a high speed dual comparator, which is designed to operate from a wide range of supply voltage as well as a signal 5V supply. It's outputs are compatible with DTL, TTL and MOS logic circuits.

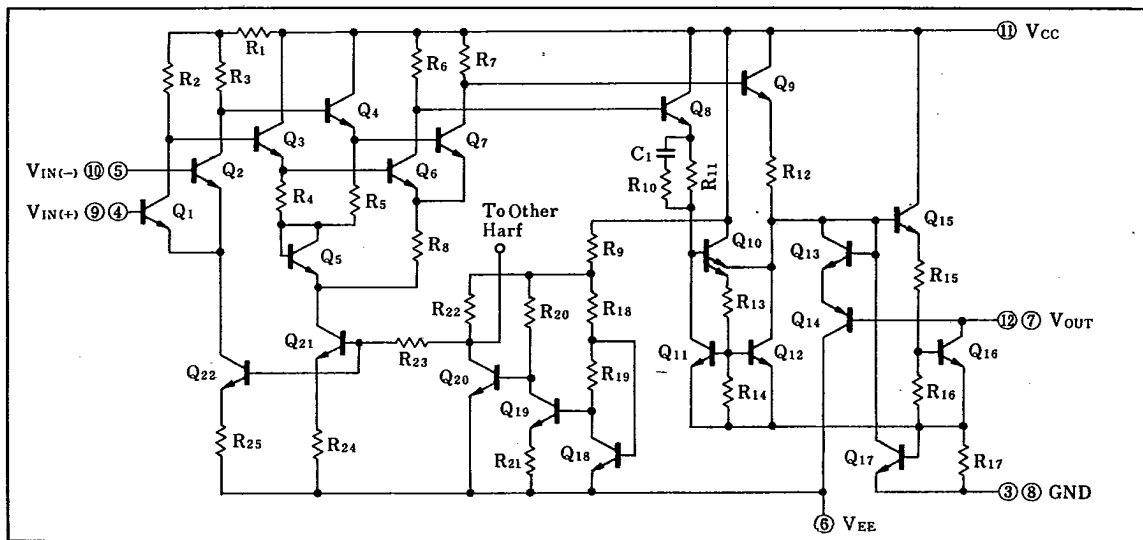
## Features

1. Fast response time
2. Operates from a single 5V supply
3. Output current to 25mA
4. 14-pin dual-in-line package (IR9319)  
14-pin small-outline package (IR9319N)

## Pin Connections



## Equivalent Circuit



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High Speed Dual Comparator

IR9319/IR9319N

**Absolute Maximum Ratings**

Parameter	Symbol	Condition	Rating	Unit	
Supply voltage	$V_{CC}-V_{EE}$		36	V	
Output-negative supply voltage	$V_{OUT}-V_{EE}$		36	V	
Ground-negative supply voltage	$GND-V_{EE}$		25	V	
Differential input voltage	$V_{ID}$		$\pm 5$	V	
In-phase input voltage*1	$V_{ICM}$		$\pm 15$	V	
Output short -circuit time			10	s	
Power dissipation	$P_D$	$T_a \leq 25^\circ C$	IR9319	500	mW
			IR9319N	400	
$P_D$ derating ratio	$\Delta P_D/^\circ C$	$T_a > 25^\circ C$	IR9319	5	mW/°C
			IR9319N	4	
Operating temperature	$T_{opr}$		-20 ~ +70	°C	
Storage temperature	$T_{stg}$		-55 ~ +150	°C	

\*1 If supply voltage falls below 15V,  $V_{ICM}=V_{CC}, V_{EE}$

**Electrical Characteristics**

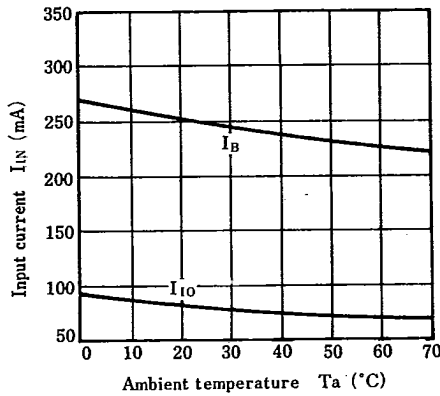
( $V_{CC}=15V, V_{EE}=-15V, T_a=25^\circ C$ )



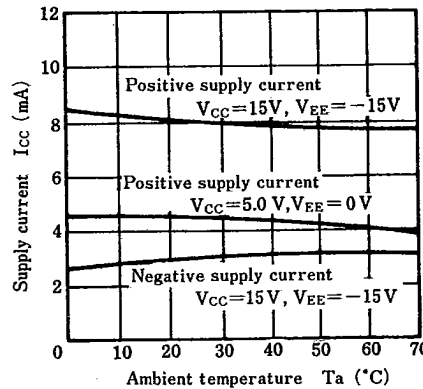
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input offset voltage	$V_{IO}$	$R_S \leq 5k\Omega$		2.0	8.0	mV
Input offset current	$I_{IO}$			80	200	nA
Input bias current	$I_B$			250	1,000	nA
Major amplitude voltage gain	$A_V$		78	92		dB
Response time				80		ns
Saturation voltage	$V_{SAT}$	$V_{IN} = -10mV, I_{OUT} = 25mA$		0.75	1.5	V
Output leakage current		$V_{IN} \geq 10mV, V_{OUT} = 35V$		0.2	10	$\mu A$

**Electrical Characteristic Curves** (Unless otherwise specified,  $V_{CC}=15V, V_{EE}=-15V, T_a=25^\circ C$ )

Input current—Ambient temperature Characteristics

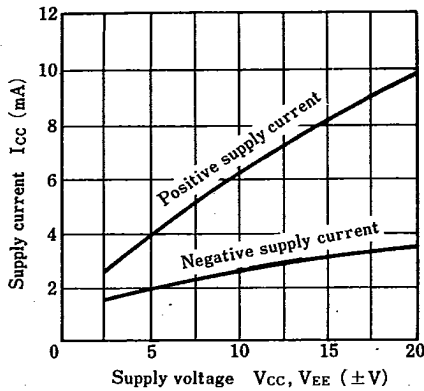


Supply current—Ambient temperature Characteristics

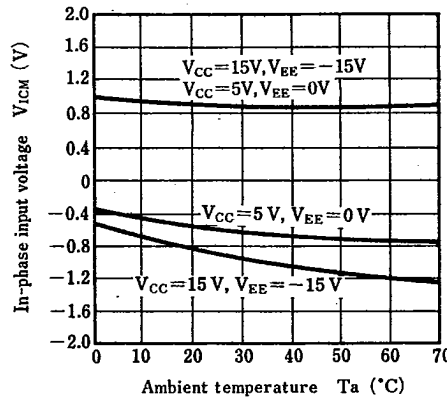


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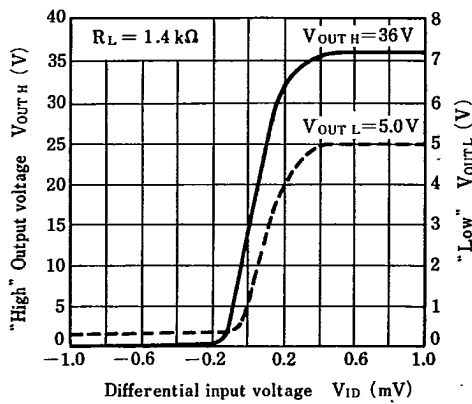
Supply current — Supply voltage Characteristics



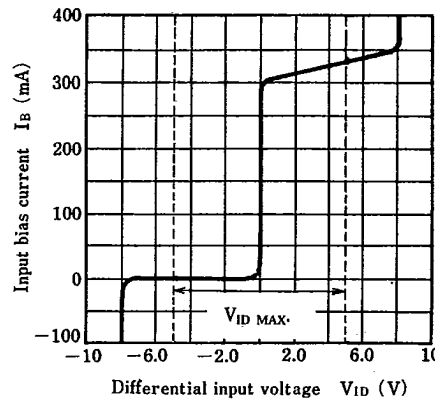
In-phase input voltage — Ambient temperature Characteristics



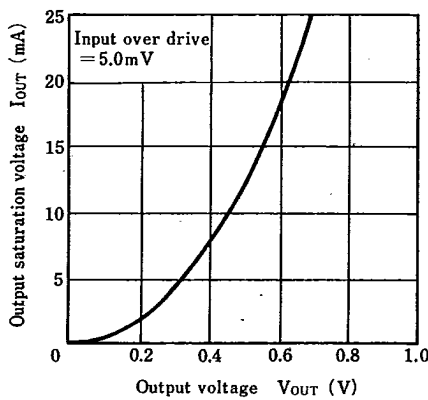
Transmission function Characteristics



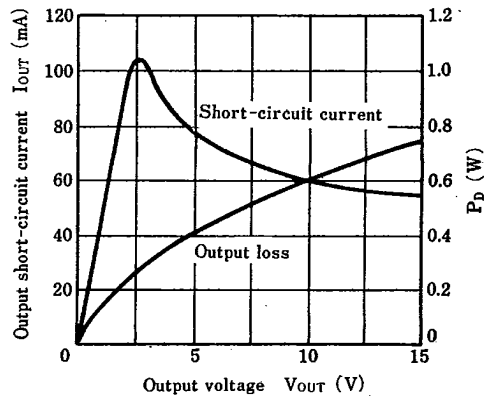
Input bias current — Differential input voltage Characteristics



Output saturation voltage Characteristics



Output limit Characteristics

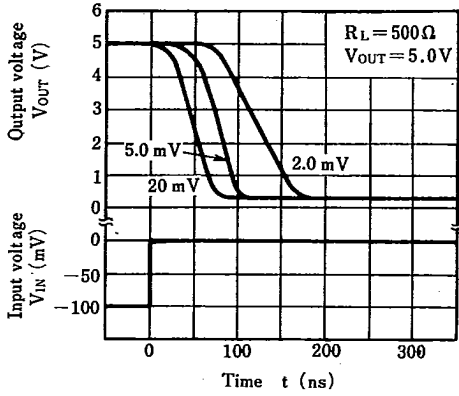


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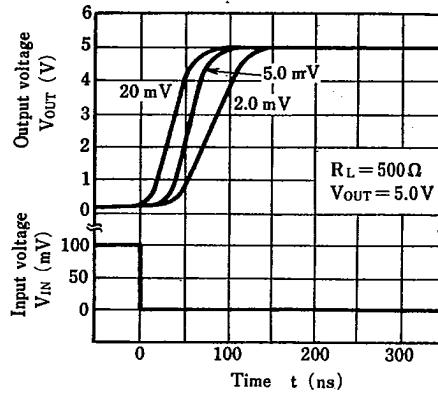
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IR9319/IR9319N

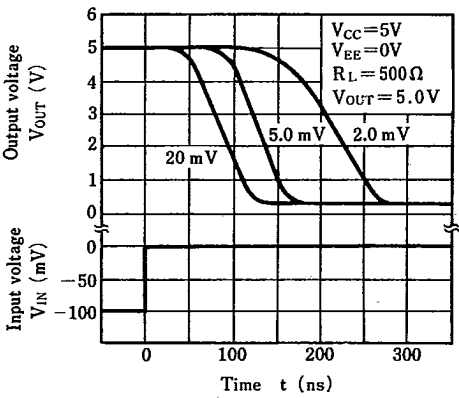
Response time — Over drive Characteristics



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