

High Speed Dual Comparator

IR9319/IR9319N

IR9319/IR9319N High Speed Dual Comparator

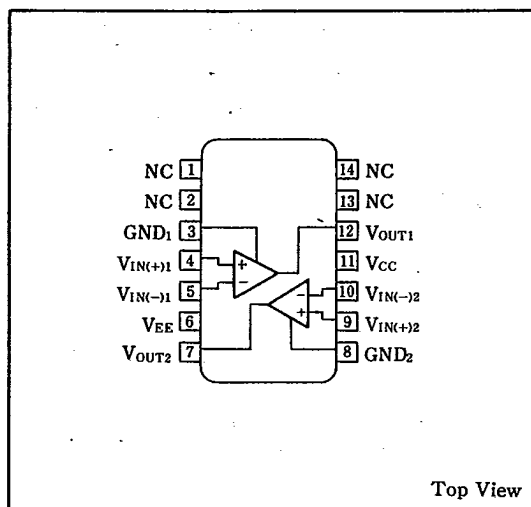
Description

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.

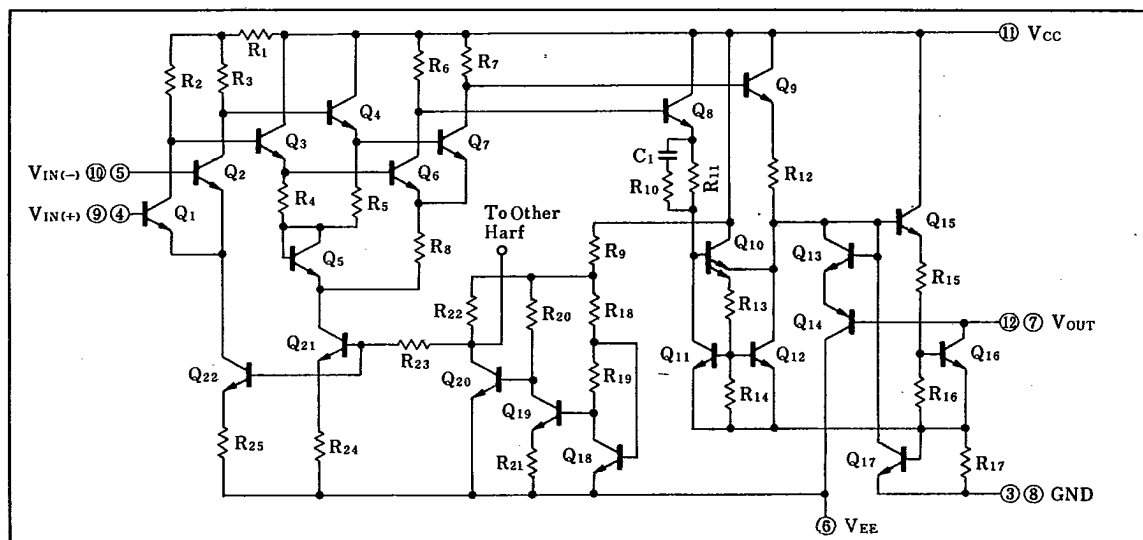
Features

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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Absolute Maximum Ratings

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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}			± 5	V
In-phase input voltage ^{*1}	V_{ICM}			± 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/ $^{\circ}C$
			IR9319N	4	
Operating temperature	T_{opr}			$-20 \sim +70$	$^{\circ}C$
Storage temperature	T_{stg}			$-55 \sim +150$	$^{\circ}C$

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

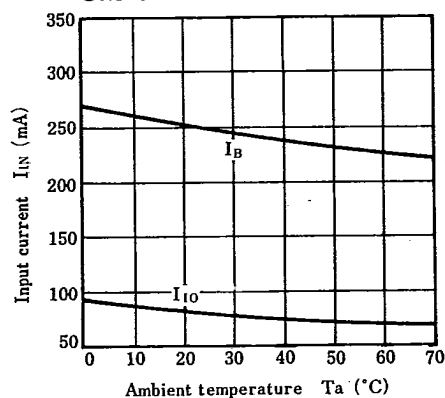
Electrical Characteristics

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

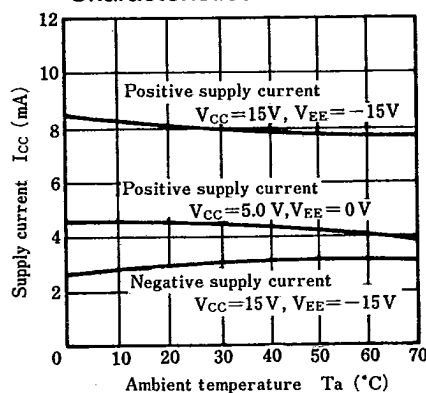
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input offset voltage	V_{IO}	$R_S \leq 5\text{k}\Omega$		2.0	8.0	mV
Input offset current	I_{IO}			80	200	nA
Input bias current	I_B			250	1,000	nA
Major amplitude voltage gain	A_V		78	92		dB
Response time				80		ns
Saturation voltage	V_{SAT}	$V_{IN} = -10\text{mV},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

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

Input current—Ambient temperature Characteristics



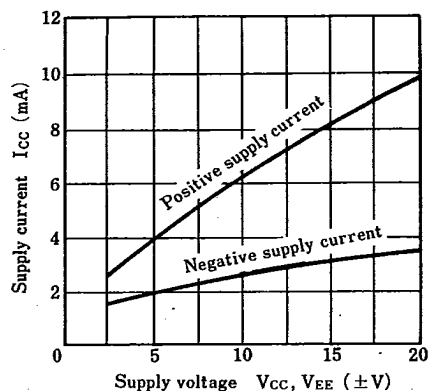
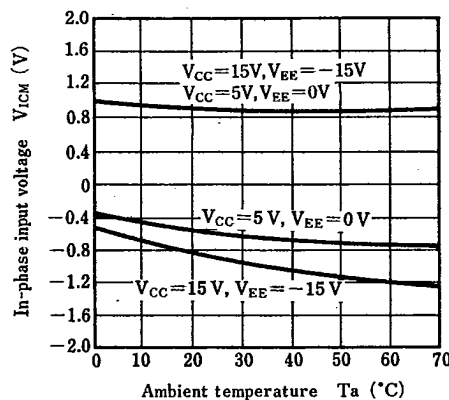
Supply current—Ambient temperature Characteristics



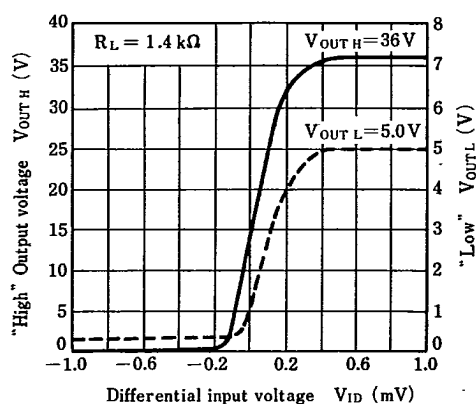
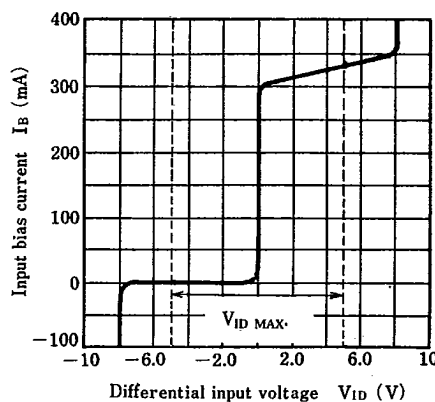
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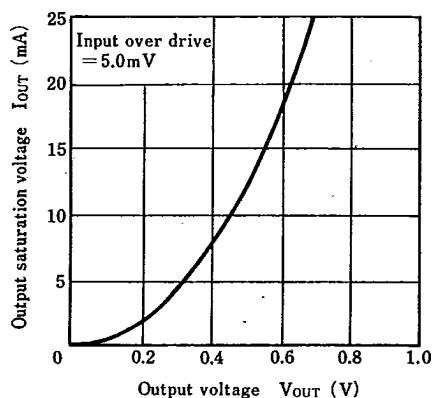
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Supply current — Supply voltage
CharacteristicsIn-phase input voltage — Ambient temperature
Characteristics

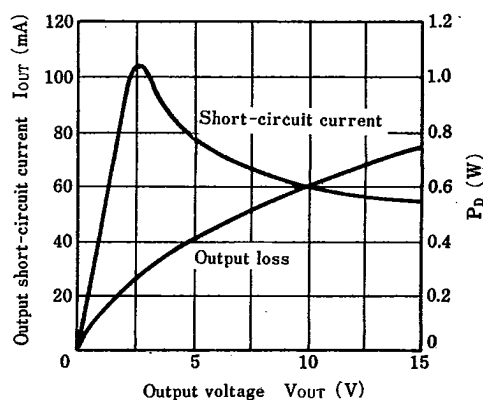
Transmission function Characteristics

Input bias current — Differential input voltage
Characteristics

Output saturation voltage Characteristics



Output limit Characteristics

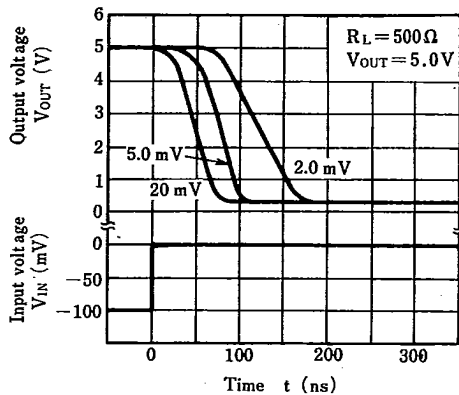


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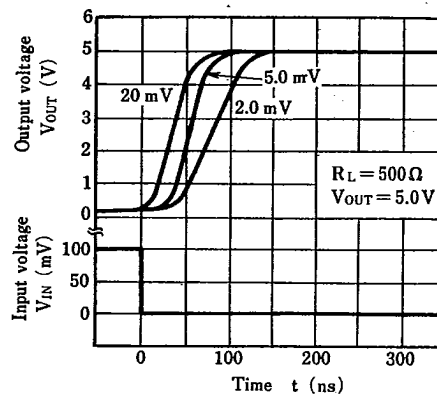
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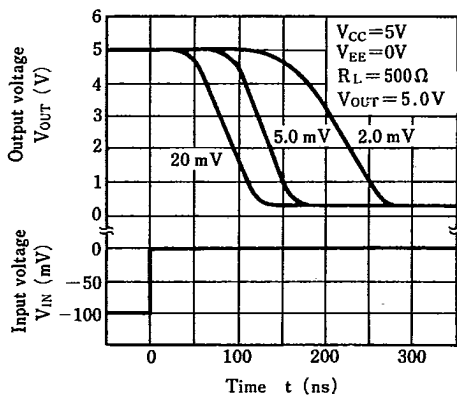
Response time — Over drive Characteristics



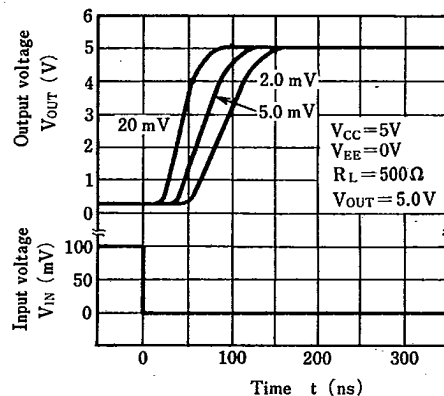
Response time — Over drive Characteristics



Response time — Over drive Characteristics



Response time — Over drive Characteristics



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