

AN1319, AN1319S

High-Speed Dual Comparators

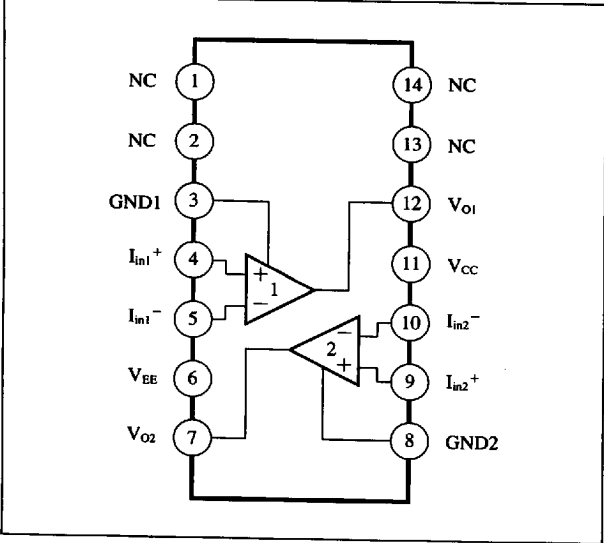
■ Overview

The AN1319 and the AN1319S are high-speed dual comparators with input characteristics equal to the general purpose operational amplifiers, allowing direct drive of standard logic circuits such as TTL and CMOS.

■ Features

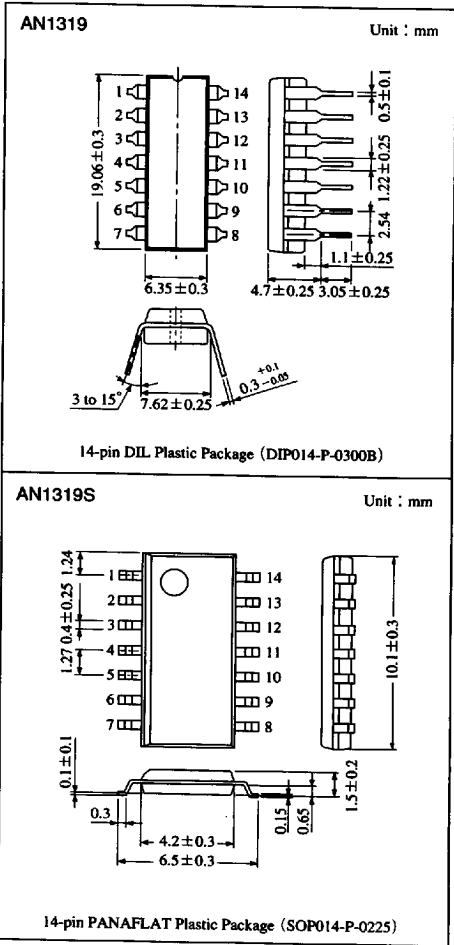
- Operating supply voltage : +5 to ±18V
- Response time : 80ns
- Open collector output stage
- Large output sink current
- Built-in short-circuit protector

■ Block Diagram



■ Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	NC	8	Ch.2 GND
2	NC	9	Ch.2 non inverting input
3	Ch.1 GND	10	Ch.2 inverting input
4	Ch.1 non inverting input	11	V _{CC}
5	Ch.1 inverting input	12	Ch.1 output
6	V _{EE}	13	NC
7	Ch.2 output	14	NC



Comparators

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■ Absolute Maximum Ratings (Ta=25℃)

Parameter		Symbol	Condition	Unit
Voltage	Supply voltage	$V_{CC}-V_{EE}$	36	V
	Supply current	I_{CC}	12.5	mA
Voltage between output and negative power supply		V_O-V_{EE}	36	V
Voltage between ground and negative power supply		$V_{GND}-V_{EE}$	25	V
Voltage between positive power supply and ground		$V_{CC}-V_{GND}$	18	V
Differential input voltage		V_{ID}	± 5	V
Commom-mode input voltage width		V_{CM}^*	± 15	V
Output short-circuit duration		t_{OS}	10	s
Power dissipation	AN1319	P_D	900	mW
	AN1319S		380	
Operating ambient temperature		T_{opr}	-20 to +70	℃
Storage temperature	AN1319	T_{stg}	-55 to +150	℃
	AN1319S		-55 to +125	

* This is the value at $V_{CC}, V_{EE} = \pm 15V$. It is allowable up to the power supply range.

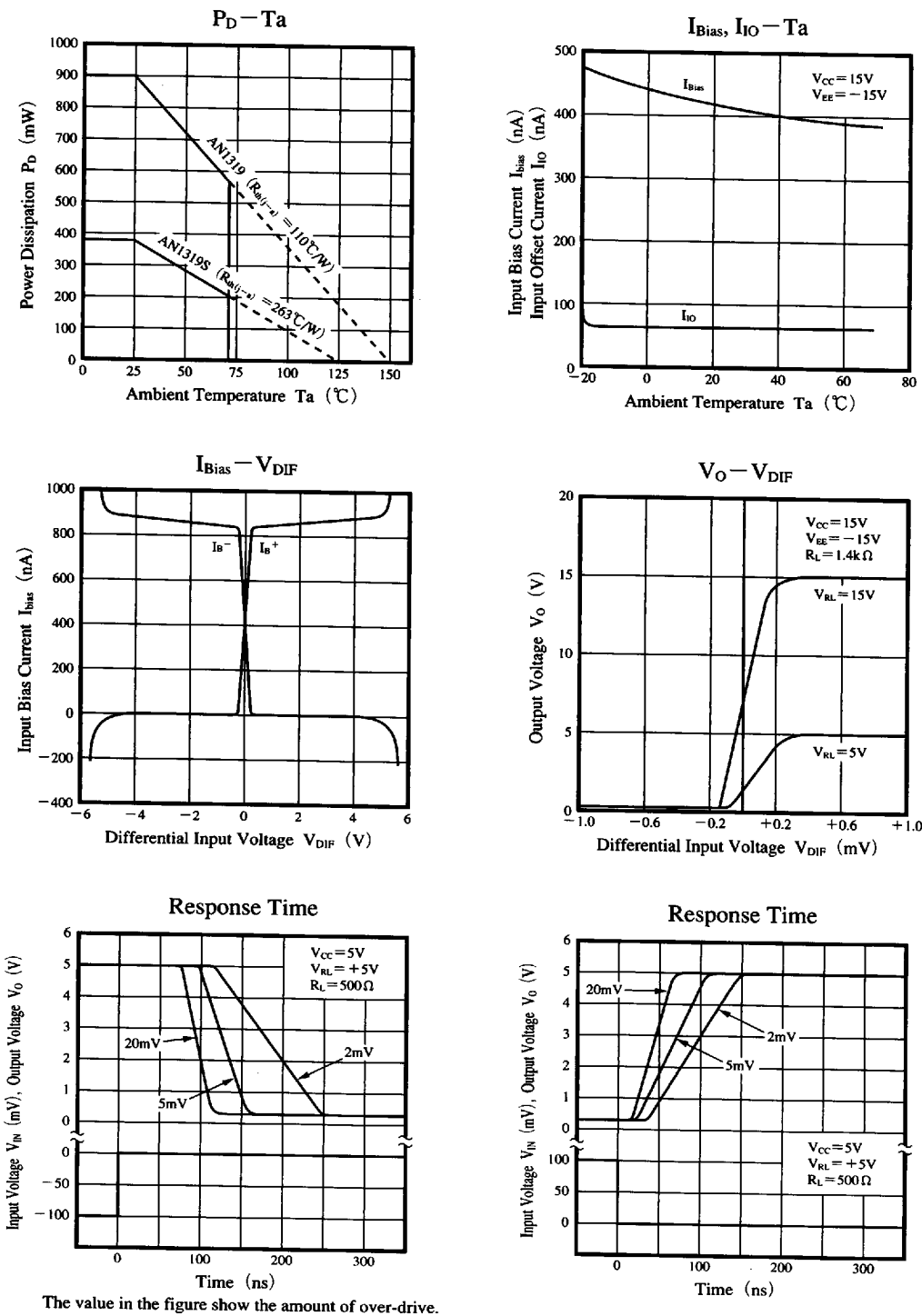
■ Electrical Characteristics ($V_{CC}=V_{EE} = \pm 15V, Ta=25℃$)

Parameter	Symbol	Condition	min	typ	max	Unit
Input offset voltage	$V_{I(offset)}$	$V_{CC}, V_{EE} = +5 \text{ to } \pm 15V, R_s \leq 5k\Omega$	—	2.0	8.0	mV
Input offset current	I_{IO}	$V_{CC}, V_{EE} = +5 \text{ to } \pm 15V, R_s \leq 5k\Omega$	—	80	200	nA
Input bias current	I_{bias}	$V_{CC}, V_{EE} = +5 \text{ to } \pm 15V, R_s \leq 5k\Omega$	—	400	1000	nA
Voltage gain	G_V		8	40	—	V/mV
Respose time	t_r	Step input=100mV Overdrive=5mV	—	80	—	ns
Saturation voltage	$V_{O(sat)}$	$V_{IN} \leq -10mV, I_O = 25mA$	—	0.75	1.5	V
Output leakage current	$I_{O(Leak)}$	$V_{IN} \geq 10mV, V_O = 35V$	—	0.2	10	μA
Positive supply current	I_{CC}	$V_{CC} = +5V, V_{EE} = 0V$	—	4.3	—	mA
Positive supply current	I_{CC}		—	8.0	12.5	mA
Negative supply current	I_{EE}		—	3.0	5.0	mA
Input voltage range	V_I		—	± 13	—	V
Saturation voltage	$V_{O(sat)}$	$V_{CC} \geq +4.5V, V_{EE} = 0V$ $V_{IN} \leq -10mV, I_O \leq 3.2mA$	—	0.3	0.4	V

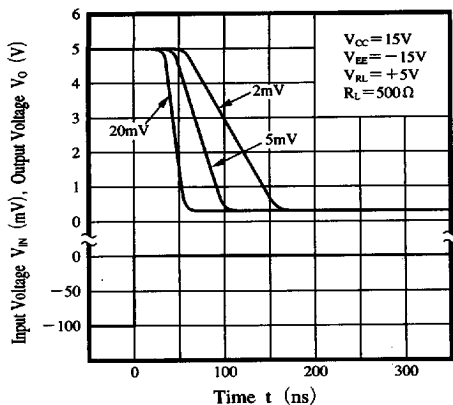
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■ Characteristics Curve

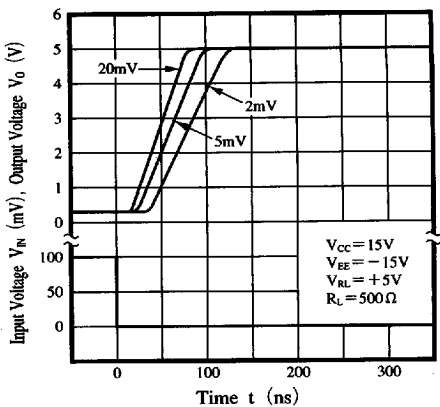


Response Time

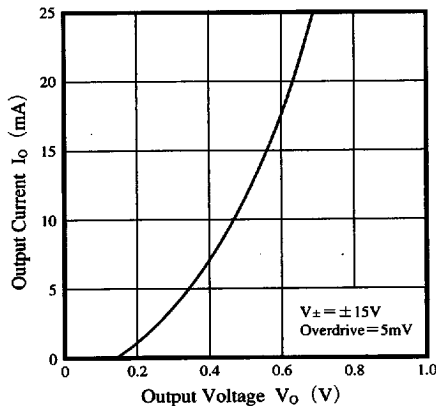


The value in the figure show the amount of over-drive.

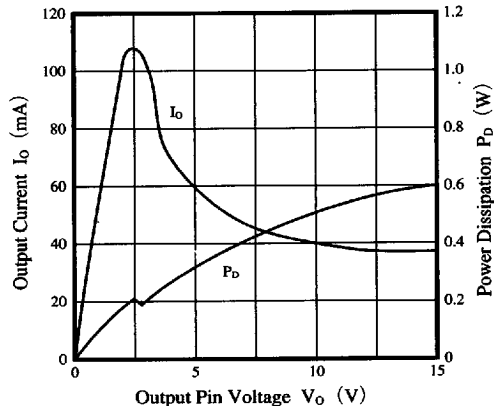
Response Time



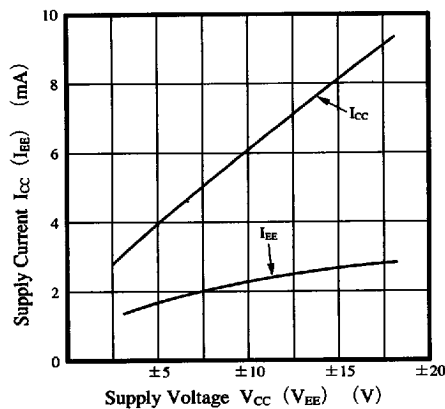
$I_O - V_O$



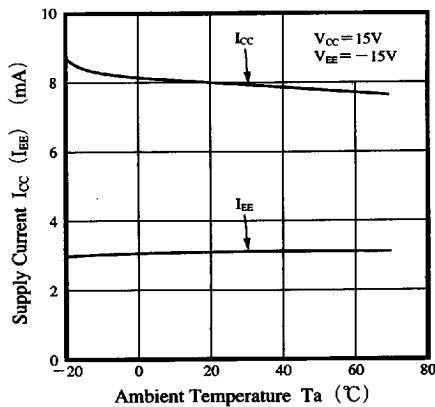
Output Limiting Characteristics



$I_{CC} (I_{EE}) - V_{CC} (V_{EE})$



$I_{CC} (I_{EE}) - T_a$

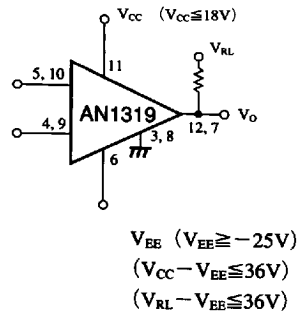


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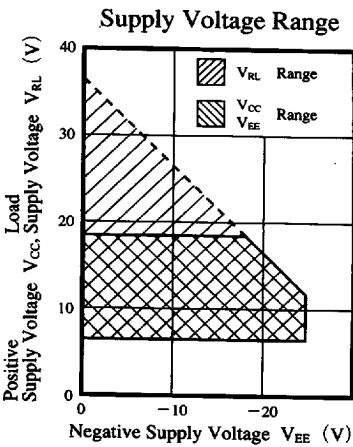
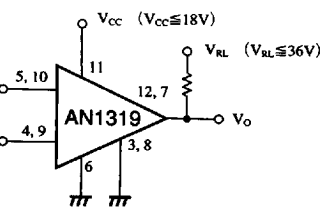
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■ Operating Supply Voltage

• Dual Power Supply



• Single Power Supply



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