AN1319, AN1319S

High-Speed Dual Comparators

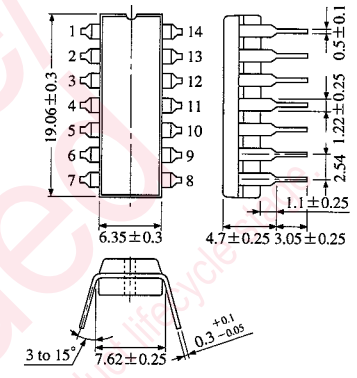
■ Overview

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

■ Features

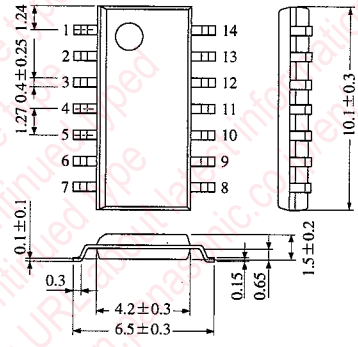
- Operating supply voltage : +5 to ±18V
- Response time : 80ns
- Open collector output stage
- Large output sink current
- Built-in short-circuit protector

AN1319 Unit : mm



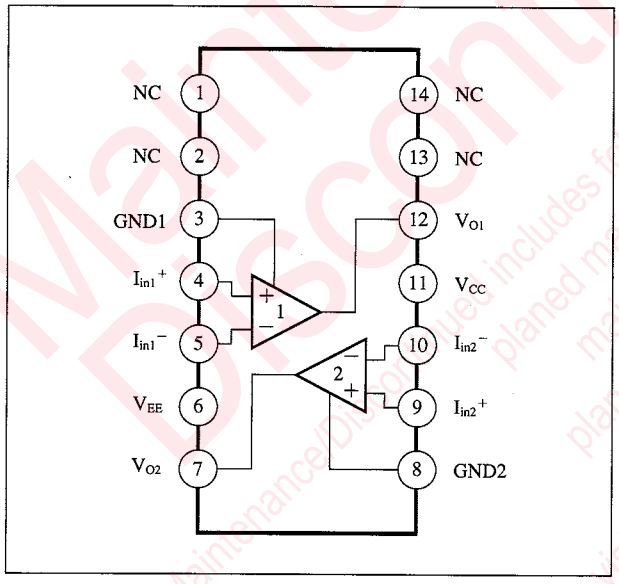
14-pin DIL Plastic Package (DIP014-P-0300B)

AN1319S Unit : mm



14-pin PANAFLAT Plastic Package (SOP014-P-0225)

■ 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

■ 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 grouud		$V_{CC}-V_{GND}$	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	

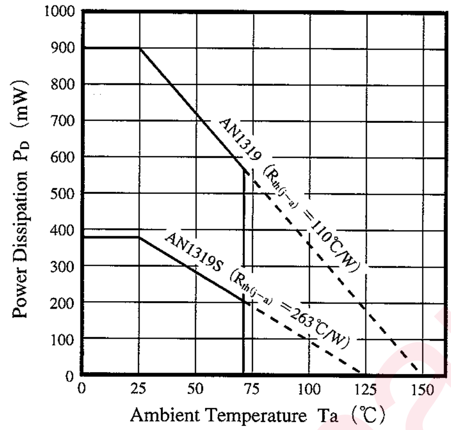
* This is the value at V_{CC}, V_{EE} = ±15V. It is allowable up to the power supply range.

■ Electrical Characteristics ($V_{CC}=V_{EE}=\pm15V$, Ta=25℃)

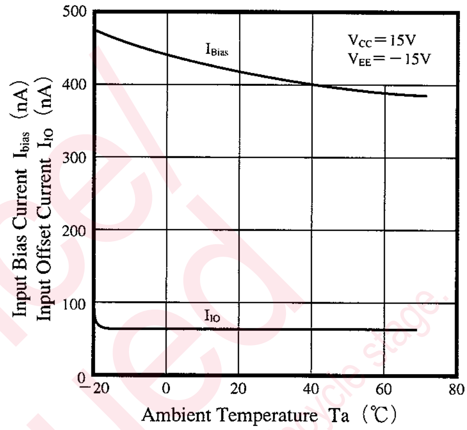
Parameter	Symbol	Condition	min	typ	max	Unit
Input offset voltage	$V_{I(offset)}$	V_{CC}, V_{EE} = +5 to ±15V, $R_S \leqq 5k\Omega$	—	2.0	8.0	mV
Input offset current	I_{IO}	V_{CC}, V_{EE} = +5 to ±15V, $R_S \leqq 5k\Omega$	—	80	200	nA
Input bias current	I_{bias}	V_{CC}, V_{EE} = +5 to ±15V, $R_S \leqq 5k\Omega$	—	400	1000	nA
Voltage gain	G_V		8	40	—	V/mV
Respose time	t_r	Step input = 100mV Overdrive = 5mV	—	80	—	ns
Saturation voltage	$V_{O(sat)}$	$V_{IN} \leqq -10mV$, I_O = 25mA	—	0.75	1.5	V
Output leakage current	$I_{O(Leak)}$	$V_{IN} \geqq 10mV$, 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	$V_{O(sat)}$	$V_{CC} \geqq +4.5V$, V_{EE} = 0V $V_{IN} \leqq -10mV$, $I_O \leqq 3.2mA$	—	0.3	0.4	V

■ Characteristics Curve

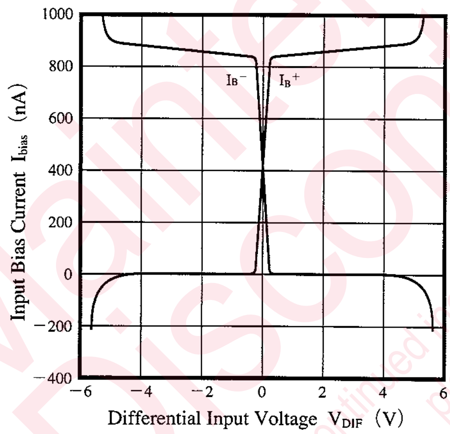
P_D — Ta



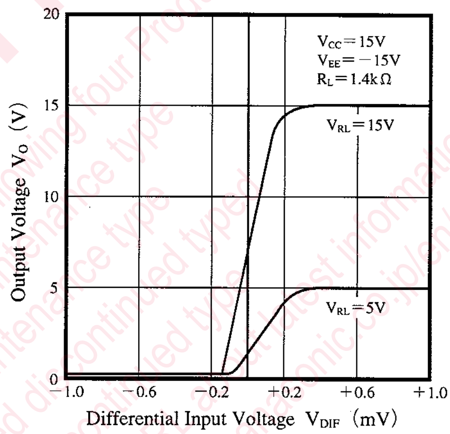
I_{Bias}, I_{IO} — Ta



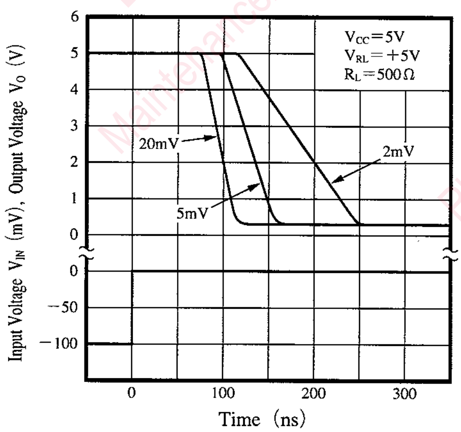
I_{Bias} — V_{DIF}



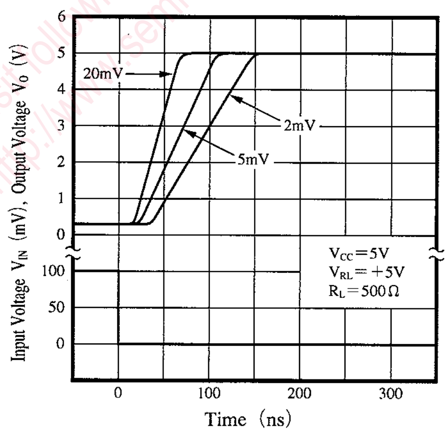
V_O — V_{DIF}



Response Time



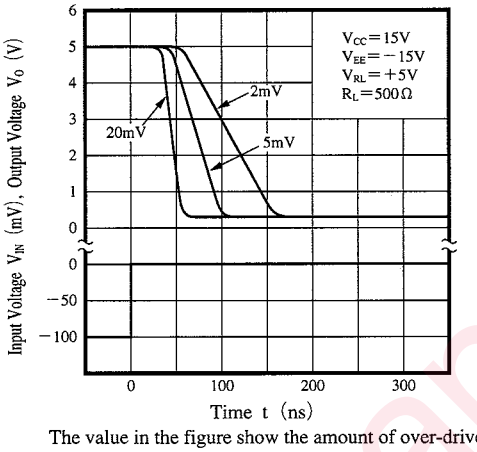
Response Time



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

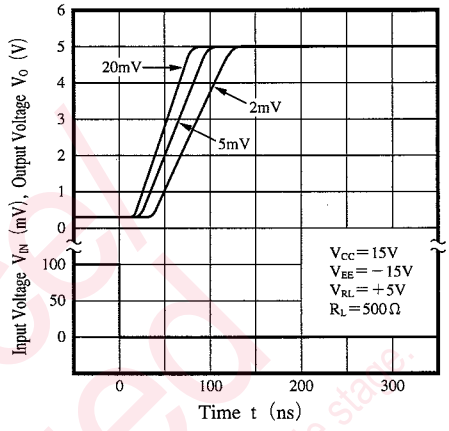
Compa-rators

Response Time

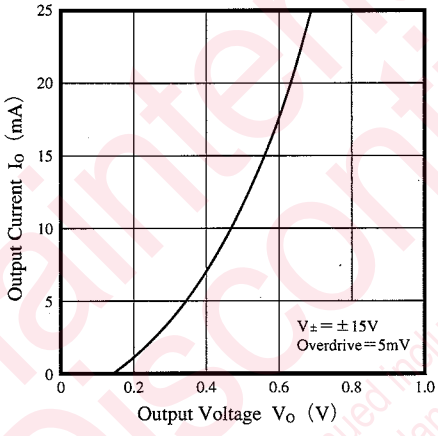


The value in the figure show the amount of over-drive.

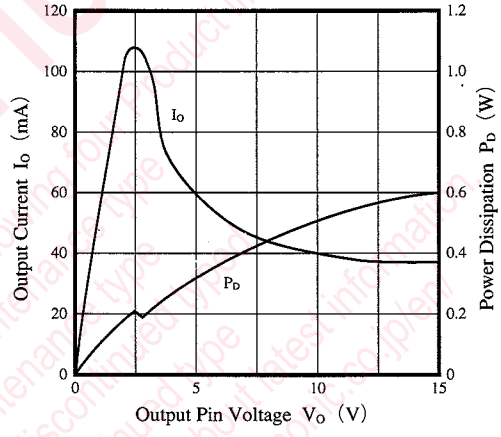
Response Time



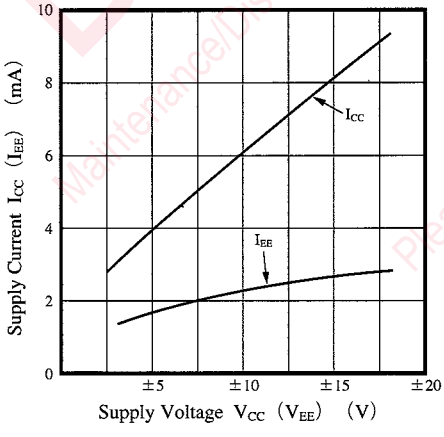
$I_O - V_O$



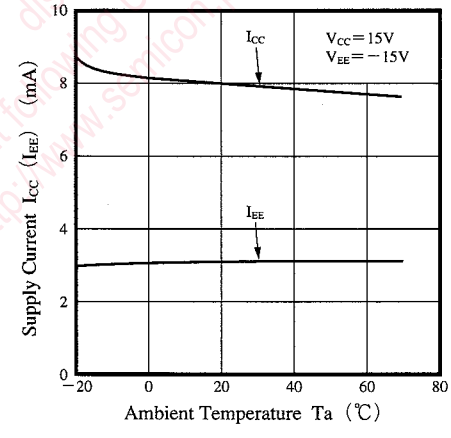
Output Limiting Characteristics



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

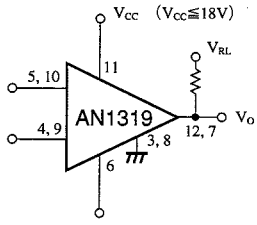


I_{CC} (I_{EE}) $-$Ta



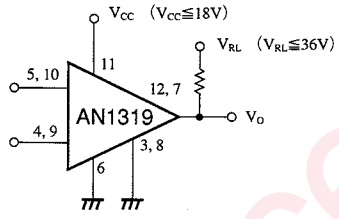
■ Operating Supply Voltage

• Dual Power Supply

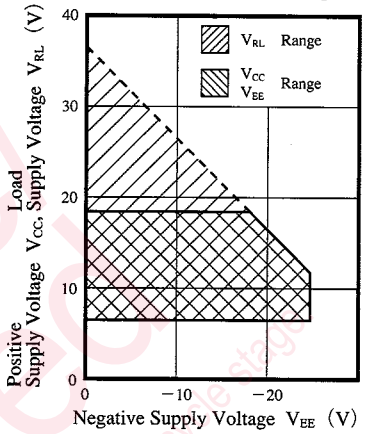


V_{EE} (V_{EE}≧−25V)
(V_{CC}−V_{EE}≦36V)
(V_{RL}−V_{EE}≦36V)

• Single Power Supply



Supply Voltage Range



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