AN1081, AN1081S, AN6583

Single J-FET Input Operational Amplifiers

■ Overview

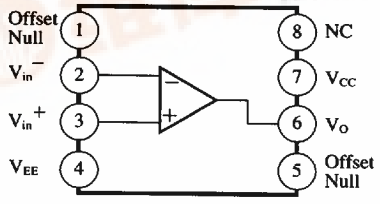
The AN1081, the AN1081S and the AN6583 are single operational amplifiers with input stages consisiting of P-ch J-FET adopting the ion implantation process, realizing high speed response, high input impedance and low input bias current. Therefore, they can be applied widely to general control equipments and medical equipments such as integrators, sample & hold circuits and high input impedance buffers.

■ Features

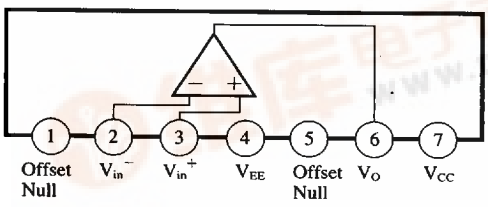
- High slew rate : SR = 11V/μs typ.
- Low input bias current : I_{Bias} = 30pA typ.
- Low offset current : I_{IO} = 5pA typ.
- High impedance : $10^{12}\Omega$
- High voltage gain : G_V = 106dB typ.
- Wide range of supply voltage : ±5V to ±18V
- Built-in phase compensation circuit
- Offset null

■ Block Diagrams

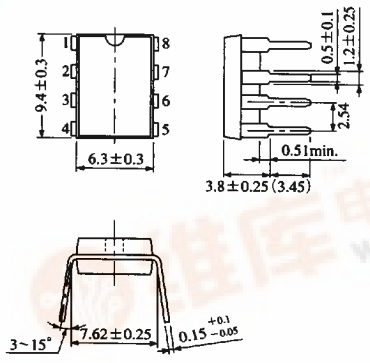
AN1081
AN1081S



AN6583

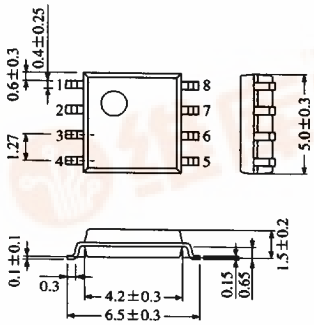


AN1081 Unit : mm



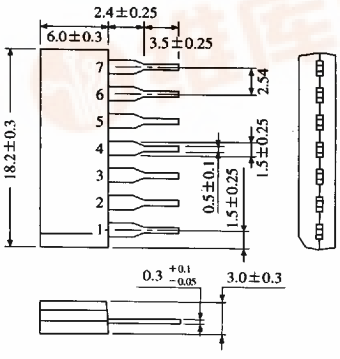
8-pin DIL Plastic Package (D1P008-P-0300B)

AN1081S Unit : mm



8-pin PANAFLAT Plastic Package (SOP008-P-225A)

AN6583 Unit : mm



7-pin SIL Plastic Package (SIP007-P-0000)

■ Pin Descriptions

〈AN1081, AN1081S〉

Pin No.	Pin name
1	Offset null
2	Inverting input
3	Non inverting input
4	V_{EE}
5	Offset null
6	Output
7	V_{CC}
8	NC

〈AN6583〉

Pin No.	Pin name
1	Offset null
2	Inverting input
3	Non inverting input
4	V_{EE}
5	Offset null
6	Output
7	V_{CC}

■ Absolute Maximum Ratings (Ta=25℃)

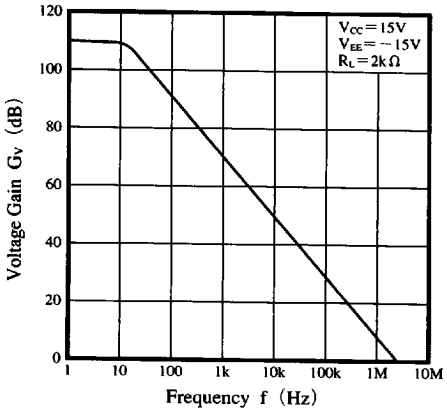
Parameter		Symbol	Rating	Unit
Voltage	Supply voltage	V_{CC}	±18	V
	Differential input voltage	V_{ID}	±30	V
	Common-mode input voltage	V_{ICM}	±15	V
Power dissipation	AN1081, AN6583	P_D	500	mW
	AN1081S		360	
Operating ambient temperature		T_{opr}	−20 to +75	℃
Storage temperature	AN1081, AN6583	T_{stg}	−55 to +150	℃
	AN1081S		−55 to +125	

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

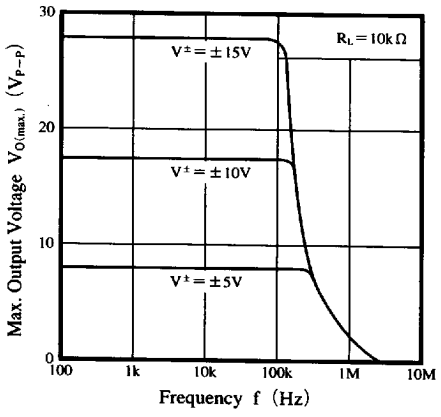
Parameter	Symbol	Condition	min	typ	max	Unit
Input offset voltage	$V_{I(offset)}$	$R_S \leq 50\Omega$	—	2	10	mV
Input offset current	I_{IO}		—	5	200	pA
Input bias current	I_{Bias}		—	30	400	pA
Voltage gain	G_V	$R_L=2k\Omega$, $V_O=\pm10V$	88	106	—	dB
Maximum output voltage	$V_{O(max.)}$	$R_L \geq 10k\Omega$	±12	±14	—	V
Maximum output voltage	$V_{O(max.)}$	$R_L \geq 2k\Omega$	±10	±12.5	—	V
Common-mode input voltage range	V_{CM}		±10	—	—	V
Common-mode rejection ratio	CMR		70	76	—	dB
Supply voltage rejection ratio	SVR		70	76	—	dB
Power consumption	P_C	$R_L=\infty$	—	60	84	mW
Slew rate	SR	$R_L \geq 2k\Omega$	—	11	—	V/μs
Zero-cross frequency	$f_{(T)}$	$A_V=1$	—	3	—	MHz
Equivalent input noise voltage	V_{ni}	$R_S=100\Omega$, B=10Hz to 30kHz	—	4	—	μVrms

■ Characteristics Curve

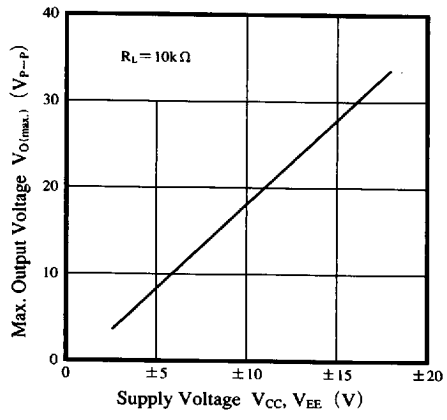
$G_V - f$



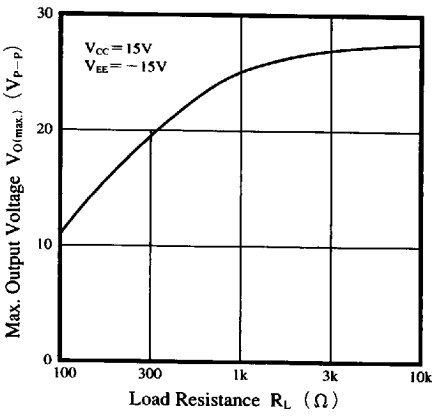
$V_{O(max.)} - f$



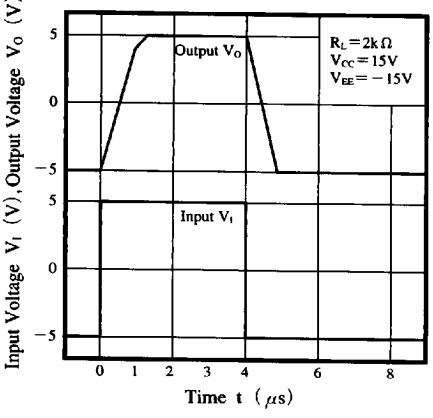
$V_{O(max.)} - V_{CC}, V_{EE}$



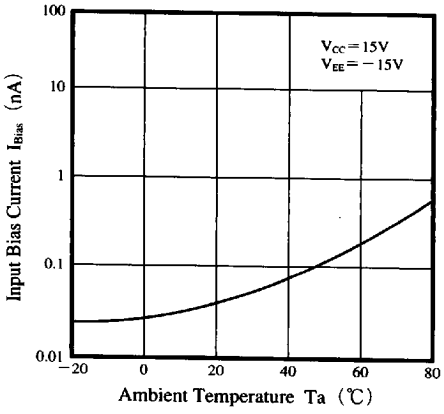
$V_{O(max.)} - R_L$



Transfer Characteristics

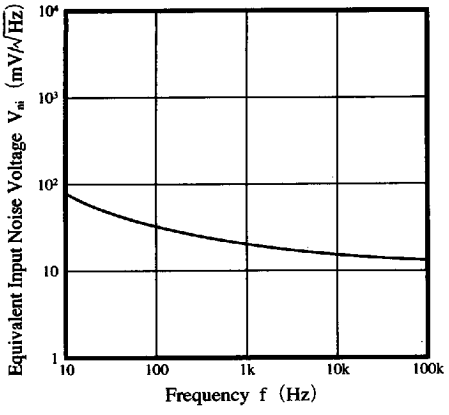


$I_{Bias} - Ta$



Operational Amplifiers

Noise Spectrum



$I_{CC} - V_{CC}$, V_{EE}