



SUPER LOW OPERATING CURRENT AND LOW OFFSET VOLTAGE TINY SINGLE C-MOS OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJU7006 is a super low operating current and low offset voltage tiny single C-MOS operational amplifier.

The input offset voltage is lower than 2mV(max) and the input bias current is as low as less than 1pA(typ), consequently the very small signal around the ground level can be amplified.

The operating current is 3uA(typ), and the output stage permits output signals to swing between both of the supply rails.

Furthermore, the NJU7006 is packaged with very small MTP-5, therefore it can be especially applied to battery operated portable items.

■ PACKAGE OUTLINE



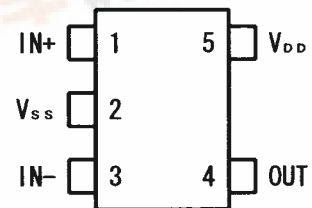
NJU7006F

■ FEATURES

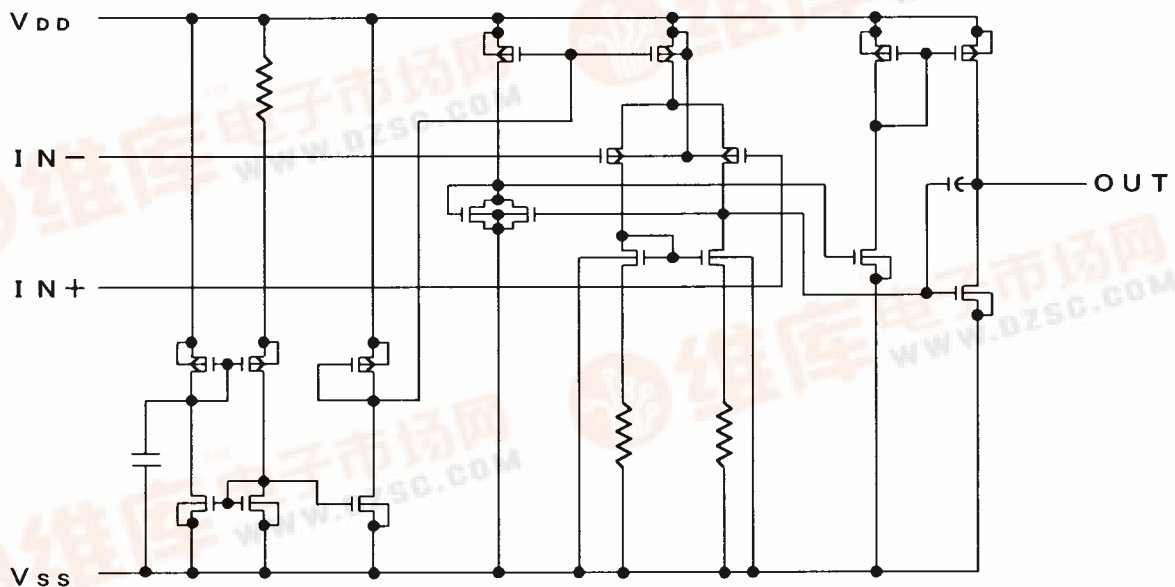
- Super Low Operating Current $I_{DD}=3.0\mu A$ typ.
- Single Power Supply $V_{DD}=1.8\sim 3.6V$
- Low Offset Voltage $V_{IO}=2mV$ max. @3.0V
- Wide Output Swing Range $V_{OM}=2.9V$ min. @3.0V
- Low Bias Current $I_{IB}=1pA$ typ.
- Compensation Capacitor Incorporated
- Package Outline MTP-5
- C-MOS Technology

■ PIN CONFIGURATION

(Top View)



■ EQUIVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{IN}	7	V
Differential Input Voltage	V_{ID}	± 7 Note1	V
Common Mode Input Voltage	V_{IC}	- 0.3 ~ 7	V
Power Dissipation	P_D	200	mW
Operating Temperature	T_{opr}	- 40 ~ + 85	°C
Storage Temperature	T_{stg}	- 55 ~ +125	°C

Note1) If the supply voltage (V_{DD}) is less than 7V, the input voltage must not over the V_{DD} level though 7V is limit specified.

Note2) Decoupling capacitor should be connected between V_{DD} and V_{SS} due to the stabilized operation for the circuit.

■ ELECTRICAL CHARACTERISTICS

(Ta=25°C, $V_{DD}=3.0V$, $R_L=\infty$)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Input Offset Voltage	V_{IO}	$V_{IN}=1/2V_{DD}$	—	—	2	mV
Input Offset Current	I_{IO}		—	1	—	pA
Input Bias Current	I_{IB}		—	1	—	pA
Input Impedance	R_{IN}		—	1	—	TΩ
Large Signal Voltage Gain	A_{VD}		60	70	—	dB
Input Common Mode Voltage Range	V_{ICM}		0~2.5	—	—	V
Maximum Output Swing Voltage	V_{OM1}	$R_L=10M\Omega$	$V_{DD}-0.1$	—	—	V
	V_{OM2}	$R_L=10M\Omega$	—	—	$V_{SS}+0.1$	V
Common Mode Rejection Ratio	CMR	$V_{IN}=1/2V_{DD}$	55	65	—	dB
Supply Voltage Rejection Ratio	SVR	$V_{DD}=3.0\sim 3.6V$	60	70	—	dB
Operating Current	I_{DD}		—	3.0	4.5	uA
Slew Rate	SR	$C_L=10pF$	0.02	0.04	—	V/us
Unity Gain Bandwidth	Ft	$A_v=40dB$, $C_L=10pF$	—	95	—	kHz

Note3) The source current is less than 0.29uA (at $V_{OM}/R_L=2.9V/10M\Omega$).

Note4) The load capacitance(C_L) is less than 200pF.

[CAUTION]

The specifications on this data book are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this data book are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.