



LOW-VOLTAGE OPERATION TINY SINGLE C-MOS OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJU7017 is a low voltage single-power-supply and low operating current single C-MOS operational amplifier.

The input bias current is as low as less than 1pA, consequently the very small signal around the ground level can be amplified.

The minimum operating voltage is 1V and the output stage permits output signals to swing between both of the supply rails.

Furthermore, the NJU7017 is packaged with very small MTP-5, therefore it can be especially applied to portable items.

■ PACKAGE OUTLINE



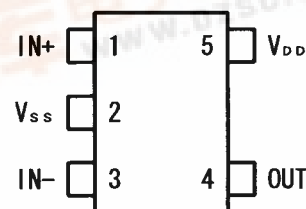
NJU7017F

■ FEATURES

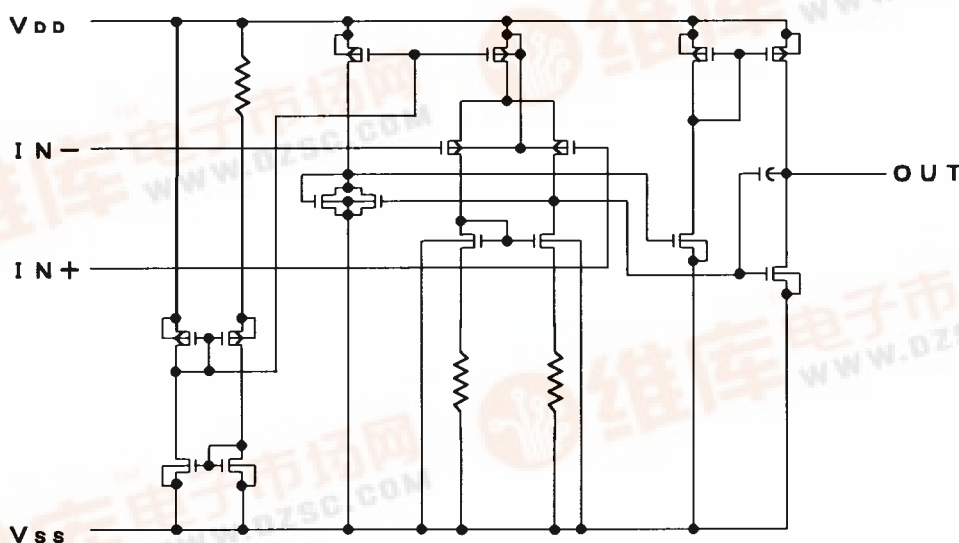
- Single-Power-Supply
- Wide Operating Voltage $V_{DD}=1\sim 5.5V$
- Wide Output Swing Range $V_{OM}=2.9V \text{ min @ } 3.0V$
- Low Operating Current $I_{DD}=0.75mA \text{ typ.}$
- Low Bias Current $I_{IB}=1pA \text{ typ.}$
- Compensation Capacitor Incorporated
- C-MOS Technology
- Package Outline MTP-5

■ 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

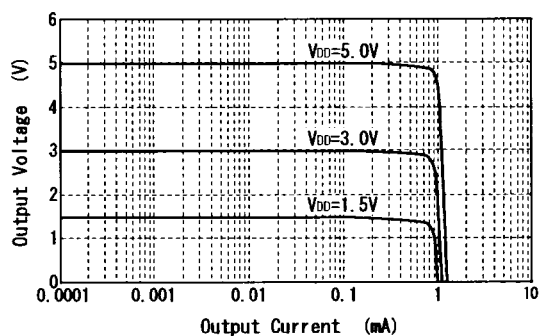
(Ta=25°C, $V_{DD}=3.0V$, $R_L=\infty$)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Input Offset Voltage	V_{IO}	$V_{IN}=1/2V_{DD}$	—	—	10	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}	$R_L=16k\Omega$	$V_{DD}-0.1$	—	—	V
	V_{OM2}	$R_L=16k\Omega$	—	—	$V_{SS}+0.1$	V
Common Mode Rejection Ratio	CMR	$V_{IN}=1/2V_{DD}$	55	65	—	dB
Supply Voltage Rejection Ratio	SVR	$V_{DD}=1.5\sim 5.5V$	60	70	—	dB
Operating Current	I_{DD}		—	0.75	1.5	mA
Slew Rate	SR		—	3.7	—	V/μs
Unity Gain Bandwidth	Ft	$A_v=40dB$, $C_L=10pF$	—	1.0	—	MHz

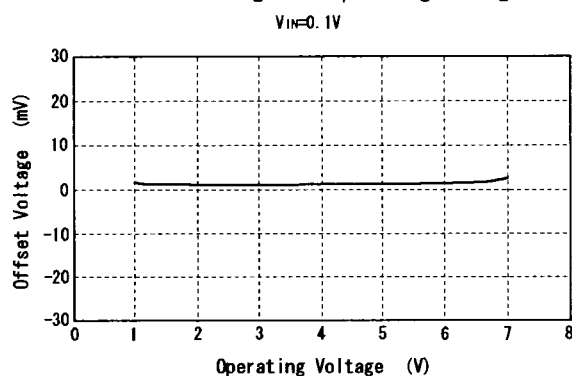
Note3) The source current is less than 181μA (at $V_{OM}/R_L=2.9V/16k\Omega$).

TYPICAL CHARACTERISTICS

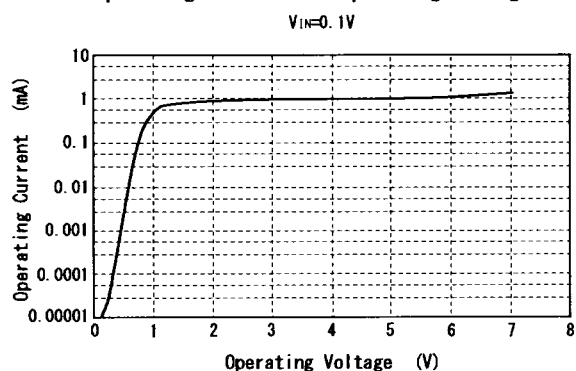
Output Voltage vs. Output Current (SOURCE)



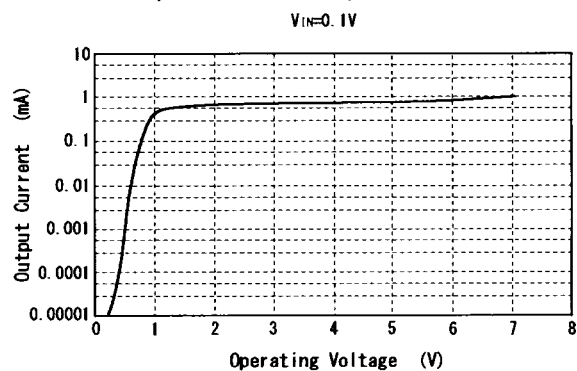
Offset Voltage vs. Operating Voltage



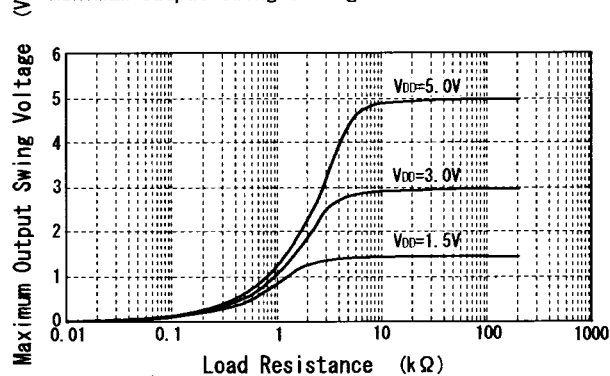
Operating Current vs. Operating Voltage



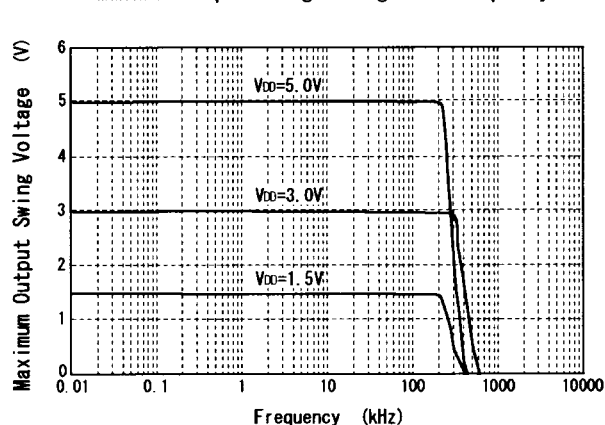
Output Current vs. Operating Voltage

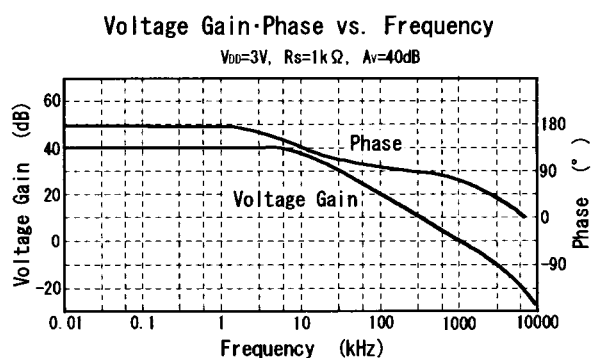


Maximum Output Swing Voltage vs. Load Resistance



Maximum Output Swing Voltage vs. Frequency



**[CAUTION]**

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