LOW-VOLTAGE OPERATION DUAL C-MOS OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJU7019 is a low voltage single-power-supply and low operating current dual 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 NJU7019 is packaged with a various small one therefore it can be especially applied to portable items.

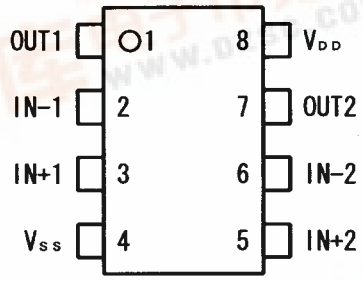
■ PACKAGE OUTLINE

NJU7019R

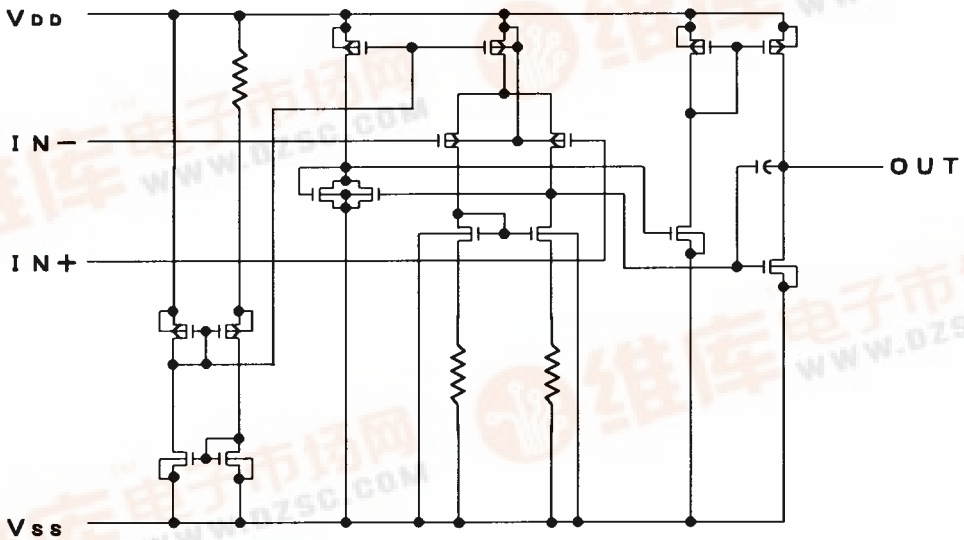
■ FEATURES

- Single-Power-Supply
- Wide Operating Voltage V_{DD}=1～5.5V
- Wide Output Swing Range V_{OM}=2.9V min.@3.0V
- Low Operating Current I_{DD}=20uA typ. / circuit
- Low Bias Current I_{IB}=1pA typ.
- Compensation Capacitor Incorporated
- C-MOS Technology
- Package Outline VSP-8

■ PIN CONFIGURATION



■ 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	320 (VSP-8)	mW
Operating Temperature	Topr	- 40 ~ + 85	°C
Storage Temperature	Tstg	- 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=∞)

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=500kΩ	V_{DD}-0.1	—	—	V
	V_{OM2}	R_L=500kΩ	—	—	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}=1.5~5.5V	60	70	—	dB
Operating Current	I_{DD}	Per Circuit	—	20	40	uA
Output Current	I_{OUT}	Source	10	18	—	uA
Slew Rate	SR		—	0.25	—	V/us
Unity Gain Bandwidth	Ft	A_V=40dB, C_L=10pF	—	0.4	—	MHz