

ULTRA HIGH SPEED SINGLE OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The **NJM2726** is a high speed voltage feedback amplifier. It provides a very high slew rate at 500V/μs. On a single 5V supply the output swings from 0.3V to 3.8V with a 500Ω load connect to 2.5V reference. It is suitable for high speed differential signal processing.

■ PACKAGE OUTLINE



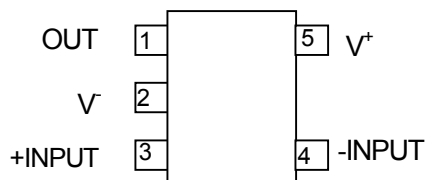
NJM2726F

■ FEATURES

- Operating Voltage (±2.25 to ±2.75V)
- Operating Current (16mA typ. at $V^+V^- = \pm 2.5V$)
- High Slew Rate (500V/μs typ.)
- Unity Gain Bandwidth (150MHz typ.)
- Input Offset Voltage (2mV typ.)
- Output Voltage (V_{OH} : +1.3V typ. at $V^+V^- = \pm 2.5V$, $R_L = 500\Omega$)
(V_{OL} : -2.2V typ. at $V^+V^- = \pm 2.5V$, $R_L = 500\Omega$)
- Bipolar Technology
- Package Outline MTP-5

■ PIN CONFIGURATION

NJM2726F
(Top View)



PIN FUNCTION

1. OUTPUT
2. V^-
3. +INPUT
4. -INPUT
5. V^+

NJM2726

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+V^-	±3	V
Differential Input Voltage	V_{ID}	±3	V
Input Voltage	V_{IC}	±3	V
Power Dissipation	P_D	480(Note)	mW
Operating Temperature Range	T_{opr}	-40 to +85	°C
Storage Temperature Range	T_{stg}	-50 to +150	°C

(Note) On glass epoxy board (76.2×114.3×1.6mm)

■ RECOMMENDED OPERATING CONDITION

(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Operating Voltage Range	V^+V^-		2.25	2.5	2.75	V

■ DC CHARACTERISTICS

($V^+V^- = \pm 2.5V$, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Operating Current	I_{CC}	No Signal	-	16	24	mA
Input Offset Voltage	V_{IO}		-	2	16	mV
Input Bias Current	I_B		-	15	50	μA
Input Offset Current	I_{IO}		-	200	950	nA
Open Loop Voltage Gain	A_v	$R_L = 2k\Omega$	40	50	-	dB
Input Common Mode Voltage Range	V_{ICM}		1.6	1.8	-	V
			-1.2	-1.3	-	
Common Mode Rejection	CMR	$-1V \leq V_{CM} \leq +1V$	60	80	-	dB
Supply Voltage Rejection	SVR	$\pm 2.25V \leq V^+V^- \leq \pm 2.75V$	50	60	-	dB
Output Voltage	V_{OH}	$R_L = 500\Omega$	1.1	1.3	-	V
	V_{OL}	$R_L = 500\Omega$	-2	-2.2	-	

■ AC CHARACTERISTICS

($V^+V^- = \pm 2.5V$, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Unity Gain Bandwidth	f_T	$A_v = 40dB, R_g = 20\Omega, R_f = 1.98k\Omega, R_L = \infty, C_L = 5pF$	-	150	-	MHz
Phase Margin	ϕ_M	$A_v = 40dB, R_g = 20\Omega, R_f = 1.98k\Omega, R_L = \infty, C_L = 5pF$	-	60	-	deg

■ TRANSIENT CHARACTERISTICS

($V^+V^- = \pm 2.5V$, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Slew Rate	SR	$A_v = 0dB, R_f = 0\Omega, R_g = \infty\Omega, R_L = 500\Omega, C_L = 1.5pF$	-	500	-	V/μs

■ Note:

Non-inverting amplifier

1. Unity gain follower application may cause the oscillation.
Recommended the total load capacitance is less than 3pF.
2. When the closed gain is lower than 20dB, place a compensation capacitor (CF: recommended from 1pF to 5pF), in parallel with the feedback resistor RF to avoid oscillation.
3. Recommended feedback resistor is less than 2k-ohm to keep the flatness of the frequency response.
4. Minimize the load capacitor for the better performance.
A large load capacitor CL reduces the frequency response and causes oscillation or ringing.

Inverting amplifier

1. When the closed gain is lower than 20dB, place a compensation capacitor (CF; recommended more than 1pF), in parallel with the feedback resistor RF to avoid oscillation.
2. Minimize the feedback resistor to keep the frequency response and the slew rate. (Recommended about 2k-ohm)
The proper compensation capacitor CF can counteract oscillation even with a large feedback resistor RF.
3. Total load capacitance should be not more than 10pF.
The oscillation margin may be affected by the total load capacitance.

[CAUTION]

The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook 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.