

OP601VHV

GENERAL DESCRIPTION

The OP601VHV is a PNP input operational amplifier capable of operation from power supplies up to $\pm 60\text{V}$ or up to 120V single supply. It is useful in a wide variety of applications requiring high input and output voltages.

FEATURES

- High supply voltage range of $\pm 60\text{V}$ or 120V single supply
- Common Mode Input voltage range up to 118V .
- Very low quiescent current of less than $200\mu\text{A}$
- Common Mode Rejection Ratio of more than 110dB
- Low offset voltage

ABSOLUTE MAXIMUM RATINGS

PARAMETER	Symbol	CONDITIONS	MAX	UNITS
Total Supply Voltage	V_{CC} to V_{EE}	$T=25^\circ\text{C}$	120V	V
Differential Input Voltage	V_{ind}	$T=25^\circ\text{C}$	± 5	V
Common Mode Input Voltage	V_{in}		$V_{CC}-2$	V
			$V_{EE}+1.5$	V
Output Voltage Range	V_{out}		$V_{CC}-1$	V
			$V_{EE}+1$	V
Output Current	I_{out}		± 1.5	mA
Junction Temperature	T_J		150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS

AC Characteristics, Test conditions: $18^{\circ}\text{C} < T_A < 28^{\circ}\text{C}$

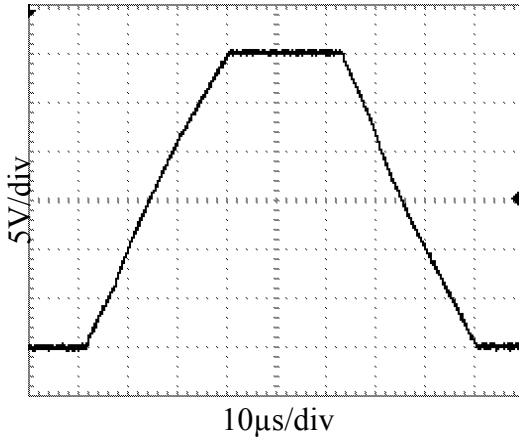
PARAMETER	SYMBOL	CONDITIONS	TYP	UNITS
Slew Rate (low to high)	SR	$V_{CC}=120\text{V}$, $R_L=60\text{k}\Omega$ $C_L=300\text{pF}$, $G=-30$ $I_{\text{Bias}}=2\mu\text{A}$ $I_{\text{Bias}}=6\mu\text{A}$	1.5 4.0	$\text{V}/\mu\text{s}$ $\text{V}/\mu\text{s}$
		$V_{CC}=120\text{V}$, $R_L=15\text{k}\Omega$ $C_L=100\text{pF}$, $G=1$ $I_{\text{Bias}}=6\mu\text{A}$	1.4	$\text{V}/\mu\text{s}$
Slew Rate (high to low)	SR	$V_{CC}=120\text{V}$, $R_L=60\text{k}\Omega$ $C_L=300\text{pF}$, $G = -30$ $I_{\text{Bias}}=2\mu\text{A}$ $I_{\text{Bias}}=6\mu\text{A}$	1.4 3.8	$\text{V}/\mu\text{s}$ $\text{V}/\mu\text{s}$
		$V_{CC}=120\text{V}$, $R_L=15\text{k}\Omega$ $C_L=100\text{pF}$, $G=1$ $I_{\text{Bias}}=6\mu\text{A}$	1.4	$\text{V}/\mu\text{s}$
Gain Bandwidth Product	GBW	$V_{CC}=\pm 5\text{V}$, $R_L=10\text{k}$, $C_L=33\text{pF}$ $I_{\text{Bias}}=2\mu\text{A}$ $I_{\text{Bias}}=4\mu\text{A}$ $I_{\text{Bias}}=6\mu\text{A}$	1.2	MHz
			2.4	MHz
			3.8	MHz
Open-Loop Gain	A_{OL}	$V_{CC}=\pm 5\text{V}$, $R_L=10\text{k}$, $C_L=33\text{pF}$	76	dB

DC Characteristics, Test conditions: $18^{\circ}\text{C} < T_A < 28^{\circ}\text{C}$

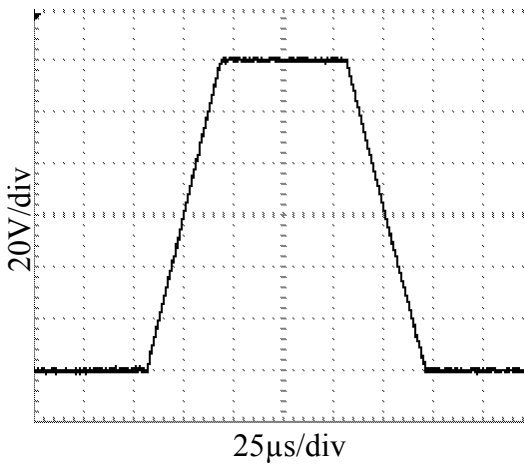
PARAMETER	SYMBOL	CONDITIONS		TYP	UNITS
Quiescent Current	I_Q	$V_{CC}=120\text{V}$	$I_{Bias}=2\mu\text{A}$	0.18	mA
			$I_{Bias}=4\mu\text{A}$	0.15	mA
			$I_{Bias}=6\mu\text{A}$	0.15	mA
Input Offset Voltage	V_{IO}	$V_{CC}=120\text{V}$	$I_{Bias}=2\mu\text{A}$		μV
			$I_{Bias}=4\mu\text{A}$		μV
			$I_{Bias}=6\mu\text{A}$		μV
Input Current	I_B	$V_{CC}=120\text{V}$	$I_{Bias}=6\mu\text{A}$	40	nA
Input Offset Current	I_{OS}	$V_{CC}=120\text{V}$	$I_{Bias}=6\mu\text{A}$		nA
Common Mode Rejection Ratio	CMRR	$f = 0\text{Hz}$	$I_{Bias}=6\mu\text{A}$	118	dB
Supply Voltage Rejection Ratio	PSRR	$f = 0\text{Hz}$	$I_{Bias}=6\mu\text{A}$	123	dB

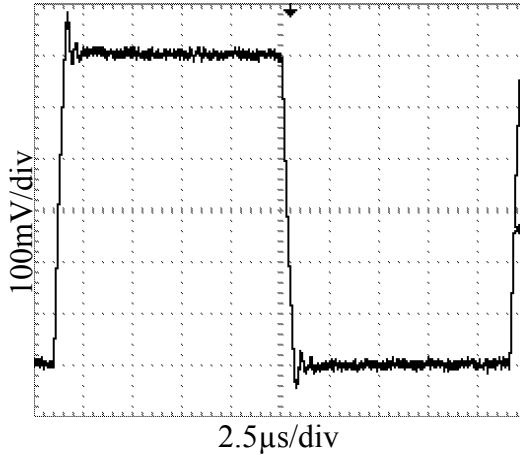
TYPICAL PERFORMANCE CHARACTERISTICS

Large Signal Step Response $G=1, C_L = 100\text{pF}$



Large Signal Step Response $G=-30, C_L = 100\text{pF}$



Small Signal Step Response, $G=1$, $C_L=33\text{pF}$ **GENERAL INFORMATION**

The OP601VHV is not a standard component, but can be part of an ASIC developed for a custom-specific IC. Features like a short circuit or temperature protection or a current limitation can be additionally integrated if desired.

This specification concerns a new designed component, all data are preliminary. Measurements have been made on a few samples only. PREMA reserves the right to change the specification without notice.