

## Quad Operational Amplifiers

**TAA 4762**  
**TAA 4765**

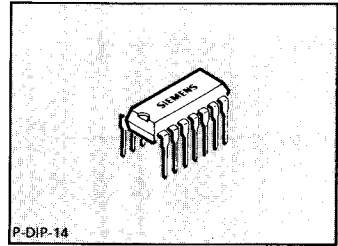
**Bipolar IC**

### Features

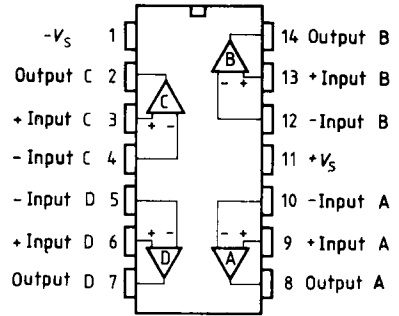
- Wide common-mode range
- Large supply voltage range
- Comprehensive protection against destruction
- High output current
- Large control range
- Internal frequency compensation
- Wide temperature range (TAA 4762 A)
- Open collector output

### Applications

- Amplifier
- Comparator
- Level converter
- Driver



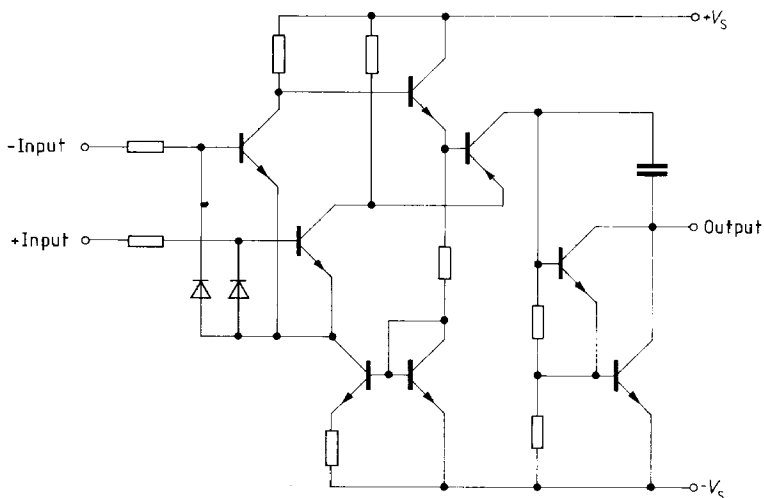
**Pin Configuration (top view)**



Type	Ordering Code	Package
☒ TAA 4762 A	Q67000-A2502	P-DIP-14
☒ TAA 4765 A	Q67000-A1033	P-DIP-14

These op amps are particularly economic and versatile. Owing to their excellent performance qualities, they are well suited for a wide scope of applications, as in control engineering, automotive electronics, AF circuits, analog computers, etc.

**Circuit Diagram of one Op Amp**



**Absolute Maximum Ratings (TAA 4762, TAA 4765)**

Parameter	Symbol	Limit Values	Unit
Supply voltage	$V_S$	$\pm 15$	V
Output current	$I_Q$	70	mA
Differential input voltage	$V_{ID}$	$\pm V_S$	V
Junction temperature	$T_j$	150	$^{\circ}\text{C}$
Storage temperature range	$T_{stg}$	-55 to 125	$^{\circ}\text{C}$
Thermal resistance system – air	$R_{th SA}$	80	K/W

**Operating Range (TAA 4762, TAA 4765)**

Supply voltage	$V_S$	$\pm 2$ to $\pm 15$	V
Ambient temperature	TAA 4762 A TAA 4765 A	$T_A$ $T_A$	$^{\circ}\text{C}$ $^{\circ}\text{C}$
		-55 to 125 -25 to 85	

**Characteristics (TAA 4762)**

$V_S = \pm 5\text{ V}$  to  $\pm 15\text{ V}$ ;  $R_L = 2\text{ k}\Omega$ , unless otherwise specified

Parameter	Symbol	Limit Values $T_A = 25^\circ\text{C}$			Limit Values $T_A = -55$ to $125^\circ\text{C}$		Unit
		min.	typ.	max.	min.	max.	
Open-loop supply current consumption, total	$I_S$		1	3		3	mA
Input offset voltage, $R_G = 50\ \Omega$	$V_{IO}$	-4			-6	6	mV
Input offset current	$I_{IO}$	-100	$\pm 50$	100	-300	300	nA
Input current	$I_I$		0.3	0.7		1.0	$\mu\text{A}$
Control range $V_S = \pm 15\text{ V}$	$V_{Q\text{pp}}$	14.9		-14	14.8	-14	V
$R_L = 620\ \Omega$ , $V_S = \pm 15\text{ V}$	$V_{Q\text{pp}}$	14.9		-12.5	14.8	-12	V
Input impedance, $f = 1\text{ kHz}$	$Z_I$		200				k $\Omega$
Open-loop voltage gain $f = 100\text{ Hz}$	$G_{V0}$	85	87		80		dB
$R_L = 10\ \Omega$ , $f = 100\text{ Hz}$	$G_{V0}$		92				dB
Output reverse current	$I_{QR}$			1		5	$\mu\text{A}$
Common-mode input voltage range	$V_{IC}$	$-V_2+2$		$V_S-2$	$-V_S+3$	$V_S-3$	V
Common-mode rejection	$k_{CMR}$	80	85		75		dB
Supply voltage rejection, $G_V = 100$	$k_{SVR}$		25	100		100	$\mu\text{V/V}$
Temperature coefficient of $V_{IO}$ $R_G = 50\ \Omega$	$\alpha_{VIO}$		1	15		25	$\mu\text{V/K}$
Temperature coefficient of $I_{IO}$ $R_G = 50\ \Omega$	$\alpha_{IIO}$		0.3	1.5		1.5	nA/K
Noise voltage (in acc. with DIN 45405, referred to input $R_S = 2.5\ \Omega$ )	$V_n$		3				$\mu\text{V}$
Output saturation voltage $I_Q = 10\text{ mA}$	$V_{Qsat}$			1			V
Slew rate for non-inverting operation <sup>1)</sup>	SR		0.5				V/ $\mu\text{s}$
Slew rate for inverting operation <sup>1)</sup>	SR		0.5				V/ $\mu\text{s}$

**Characteristics (TAA 4762)**

$V_S = \pm 2\text{ V}$ ,  $R_L = 2\text{ k}\Omega$

Input offset voltage, $R_G = 50\ \Omega$	$V_{IO}$	-4		4	-6	6	mV
Input offset current	$I_{IO}$	-70		70	-200	200	nA
Input current	$I_I$		0.2	0.5		0.8	$\mu\text{A}$
Open-loop voltage gain; $f = 100\text{ Hz}$	$G_{V0}$	80			75		dB

<sup>1)</sup> For the relationship between power bandwidth and slew rate refer to "Introduction to Operational Amplifiers"

**Characteristics (TAA 4765)**

$V_S = \pm 5 \text{ V}$  to  $\pm 15 \text{ V}$ ;  $R_L = 2 \text{ k}\Omega$ , unless otherwise specified

Parameter	Symbol	Limit Values $T_A = 25^\circ\text{C}$			Limit Values $T_A = -25$ to $85^\circ\text{C}$		Unit
		min.	typ.	max.	min.	max.	
Open-loop supply current consumption, total	$I_S$		1	3		3	mA
Input offset voltage, $R_G = 50 \Omega$	$V_{IO}$	-5.5		5.5	-7	7	mV
Input offset current	$I_{IO}$	-200	$\pm 80$	200	-300	300	nA
Input current	$I_I$		0.5	0.8		1.0	$\mu\text{A}$
Control range $V_S = \pm 15 \text{ V}$	$V_{O\text{pp}}$	14.9		-14	14.8	-14	V
$R_L = 620 \Omega$ , $V_S = \pm 15 \text{ V}$	$V_{O\text{pp}}$	14.9		-12.5	14.8	-12	V
Input impedance, $f = 1 \text{ kHz}$	$Z_I$		200				k $\Omega$
Open-loop voltage gain $f = 100 \text{ Hz}$	$G_{V0}$	80	85		80		dB
$R_L = 10 \text{ k}\Omega$ , $f = 100 \text{ Hz}$	$G_{V0}$		90				dB
Output reverse current	$I_{QR}$			10		20	$\mu\text{A}$
Common-mode input voltage range	$V_{IC}$	$-V_S+2$		$V_S-2$	$-V_S+3$	$V_S-3$	V
Common-mode rejection	$k_{CMR}$	75	83		75		dB
Supply voltage rejection, $G_V = 100$	$k_{SVR}$		25	100		100	$\mu\text{V/V}$
Temperature coefficient of $V_{IO}$ $R_G = 50 \Omega$	$\alpha_{VIO}$		1	15		25	$\mu\text{V/K}$
Temperature coefficient of $I_{IO}$ $R_G = 50 \Omega$	$\alpha_{IIO}$		0.3				nA/K
Noise voltage (in acc. with DIN 45405, referred to input $R_S = 2.5 \Omega$ )	$V_n$		3				$\mu\text{V}$
Output saturation voltage $I_O = 10 \text{ mA}$	$V_{Qsat}$			1			V
Slew rate for non-inverting operation <sup>1)</sup>	SR		0.5				V/ $\mu\text{s}$
Slew rate for inverting operation <sup>1)</sup>	SR		0.5				V/ $\mu\text{s}$

**Characteristics (TAA 4765)**

$V_S = \pm 2 \text{ V}$ ,  $R_L = 2 \text{ k}\Omega$

Input offset voltage, $R_G = 50 \Omega$	$V_{IO}$	-6		6	-7.5	7.5	mV
Input offset current	$I_{IO}$	-150		150	-200	200	nA
Input current	$I_I$		0.2	0.6		0.8	$\mu\text{A}$
Open-loop voltage gain; $f = 100 \text{ Hz}$	$G_{V0}$	75			75		dB

<sup>1)</sup> For the relationship between power bandwidth and slew rate refer to "Introduction to Operational Amplifiers"