High Temperature, Precision Rail-to-Rail Input & Output, Dual Operational Amplifier

FEATURES

- Single-Supply Operation
- Wide Bandwidth: 4 MHz
- Low Offset Voltage: 65 uV
- Unity-Gain Stable
- High Slew Rate: 4.0 V/us
- Low Noise: 3.9 nV √ Hz
- 8 pin Ceramic Hermetic DIP package
- Operation to 200 C°

APPLICATIONS

- Battery Powered Instrumentation
- Power Supply Control and Protection
- DAC Output Amplifier
- ADC Input Buffer
- Down hole Instrumentation
- Engine Instrumentation

DESCRIPTION

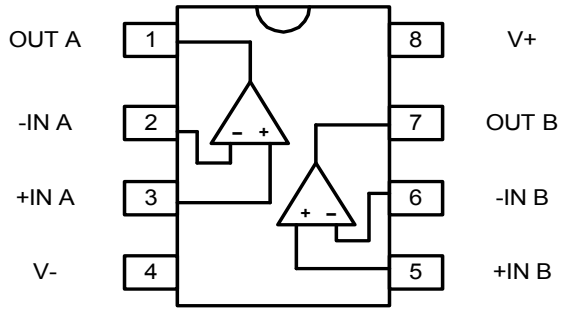
The TX284 is a dual, single supply, 4 MHz amplifier featuring rail-to-rail inputs and outputs. It is guaranteed to operate from + 3 to + 36 (± 1.5 to ± 18) volts and will function with a single supply as low as + 1.5 Volts.

This amplifier is superb for single supply applications requiring both AC and precision DC performance. The combination of bandwidth, low noise and precision makes the TX284 useful in a wide variety of applications, including filters and instrumentation.

Featuring the ability to swing rail-to-rail at both the input and output, the TX284 enables the configuration of complex circuits in single-supply systems while maintaining high analog performance and operation at extended temperatures.

The TX284 is specified to operate over the range of – 50 C° to + 200 C° and is supplied in an 8 pin Ceramic Hermetic Dual Inline package.

TX284 8 Lead Ceramic



Absolute Maximum Ratings

Supply Voltage ..... ± 18 V (36 V total)
Input Voltage ..... ± 18 V
Differential Input Voltage ..... ± 0.5 V
(For differential input voltages > 0.6 v, the input protection diode current should be limited to less than 5 mA to prevent degradation or destruction of the part. Please note that this differential voltage will become less as the part temperature increases)

Output Short-Circuit Duration to GND: Indefinite

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TX284– Specifications

ELECTRICAL CHARACTERISTICS
V_S = 5.0 V, V_{CM} = 2.5 V, T_A = 25°C, unless otherwise noted.

Table 1.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
INPUT CHARACTERISTICS						
Offset Voltage	V_{OS}	−40°C ≤ T_A ≤ +200°C	65	165	200	µV
Input Bias Current	I_B	–40°C ≤ T_A ≤ +200°C	60	80	450	nA
Input Offset Current	I_{OS}	–40°C ≤ T_A ≤ +200°C	10	20	120	nA
Input Voltage Range		+5V	0	5	5.05	V
Common-Mode Rejection Ratio	CMRR	V_{CM} = 0 V to 5 V, −40°C ≤ T_A ≤ +200°C	86	90		d
Offset Voltage Drift	ΔVos/ΔT			02	2.0	µV/°C
Bias Current Drift	$\Delta I_B/\Delta T$			150		pA/°C
Thermal Resistance	θ_{JA}			110		°C/W
OUTPUT CHARACTERISTICS						
Output Voltage High	V_{OH}	I_L = 1.0 mA	4.85			V
Output Voltage Low	V_{OL}	I_L = 1.0 mA			125	mV
Output Current	I_{OUT}		±6.5			mA
POWER SUPPLY						
Power Supply Rejection Ratio	PSRR	V_S = 2.0 V to 10 V, −40°C ≤ T_A ≤ +200°C	85			dB
Supply Current	I_{SY}	V_O = 2.5 V, 25°C ≤ T_A ≤ +200°C	1.45	2.15	2.5	mA
Supply Voltage Range	V_S		3		36	V
DYNAMIC PRFORMANCE						
Slew Rate	SR	R_L = 2 kΩ, −40°C ≤ T_A ≤ +200°C	2.4	4	6	V/µs
Settling Time	t_S	To 0.01%, 1.0 V step		2.5		µs
Rise Time	trise	10% To 90%		2.0		µs
Gain Bandwidth Product	GBP		3.25	4		MHz
Phase Margin	Φ_M				45	Degrees
NOISE PERFORMNCE						
Voltage Noise	e_np-p	0.1 Hz t 10 Hz			0.3	µV p-p
Voltage Noise Density	e_n	f = 1 kHz			3.9	nV/√Hz
Current Noise Density	i_n				0.4	pA/√Hz

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