ZHEJIANG UNIU-NE Technology CO.,LTD

浙 江 宇 力 微 新 能 源 科 技 有 限 公 司

SD06 Data Sheet

V 1.1

Feature

- **Stable 6MHz GBWP with Low I_Q of Only 480μA Typical per Amplifier**
- **Offset Voltage: +/-2mV Maximum**
- **High Slew Rate: 3.7V/μs**
- **Input Bias Current: 1pA Typical**
- **CMRR/PSRR:100dB/100dB**
- **Settling time to 0.1% with 2V Step: 0.46us**
- **Beyond the Rails Input Common-Mode Range**
- **Output Swing to within 10mV Typical of each Rail**
- **No Phase Reversal for Overdriven Inputs**
- **Supply Voltage Range: 2.1V to 5.5V**
- **-40℃ to 125℃ Operation Range**
- **Green, Popular Type Package**

Applications

- **Active Filters, ASIC Input or Output Amplifier**
- **Sensor Interface**
- **Smoke/Gas/Environment Sensors**
- **Portable Instruments and Mobile Device**
- **Audio Output**
- **PCMCIA Cards**
- **Battery or Solar Power Systems**
- **Medical Equipment**
- **Piezo Electrical Transducer Amplifier**

General Description

The SD06 is CMOS dual op-amps with low offset, stable high frequency response, low power, low supply voltage, and rail-to-rail inputs and outputs.

SD06 has a high gain-bandwidth product of 6MHz, 3.7V/μs slew rate while consuming only 480μA of supply current per amplifier. The maximum input offset voltage is 2mV for SD06. Beyond the rail input and rail-to-rail output characteristics allow the full power-supply voltage to be used for signal range. The operating range is from 2.5V to 5.5V.

This combination of features makes the SD06 superior among rail-to-rail input/output CMOS op amps in its power class. It is specified over the extended industrial temperature rang -40 ℃ to +125℃.

The SD06 can be used as cost-effective plug-in replacements for many commercially available op amps to reduce power and improve input/output range and performance.

Package

The package of SD06 is SOIC-8

Absolute Maximum Ratings

(If out of these ratings, the filter may be fail or damaged)

Table 1

Symbol	parameter	rating	units
VDD	Power supply	5.5	V
T_A	Operating ambient Temperature Range	-40~+125	℃
T_{STG}	Storage Temperature	-65~+150	℃

Recommended Operating Conditions

Table 2

Symbol	parameter	rating	units
VDD	Power supply	2.5~5.5	V
T_A	Operating ambient Temperature Range	-40~+125	℃

Electrical Characteristics

Specifications are at VDD=5V V_{CM}=V_{OUT}=VDD/2 RL=10Kohm CL=100pF

Symbol	Parameter		Spec			Units
			Min	Typ	Max	
VCC	Operating Supply Voltage		2.5	5	5.5	V
V_{OS}	Input Offset Voltage		-2	+/-0.6	+2	mV
V_{OS_TC}	Input Offset voltage Temp Drift			1.6		μV/℃
en	Input Voltage Noise Density: f=1KHz			25		nV/√Hz
C_{IN}	Input Capacitance	Differential		1.5		pF
		Common Mode		3.0		
R_{IN}	Input Resistance		>100			GΩ
I_Q	Quiescent Current			480	790	uA
I_{out}	Output Current			50		mA
Vin_cm	Common mode Input voltage		0		VDD-0.1	V
V_{OL}	Output Voltage from supply Swing			10		mV
CMRR	Common Mode Rejection Ratio			100		dB
I_{SC}	Output short-circuit current			80		mA
PM	Phase Margin			65		°
GM	Gain Margin			-10		dB
GBWP	Gain-Bandwidth Product			6		MHz
PSRR	Power supply rejection ratio: 1Hz 1KHz			100 72		dB
ts	Settling time, 1.5V to 3.5V, Unity Gain: 0.1%			0.46		μs
SR	Slew Rate			3.7		μs

PAD Definition

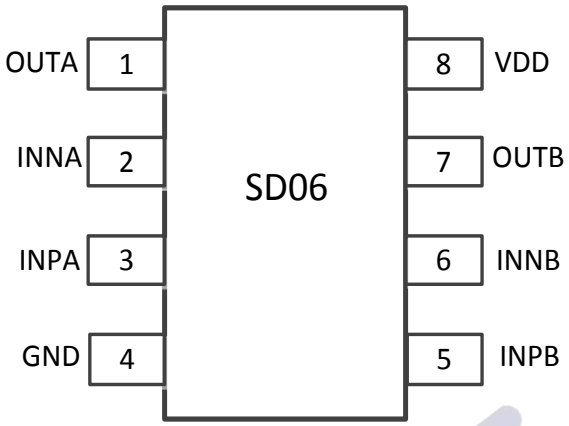


Fig 2. Pad definition of SD06

Table 7. Pad definition

Name	I/O	Analog/Digital	Description
INP	I	A	Non-Inverting Input of Amplifier. Voltage range of this pin can go from 0 to VDD.
GND	GROUND	GROUND	Ground pin. Connect to the most negative supply, ALL GND pads are connected on die.
INN	I	A	Inverting Input of Amplifier. This pin has same voltage range as INP.
OUT	O	A	Amplifier Output. The voltage range extends to within millivolts of each supply rail.
VDD	POWER	POWER	Power supply (5V) ,connect to positive voltage supply

Application Circuits

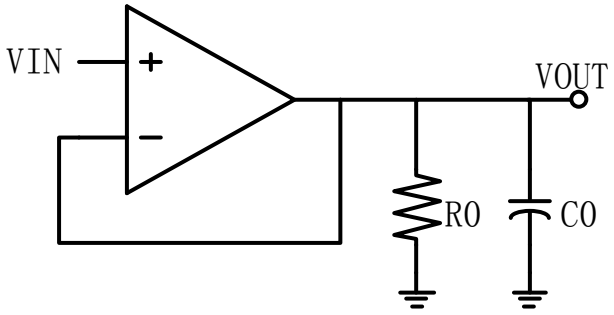
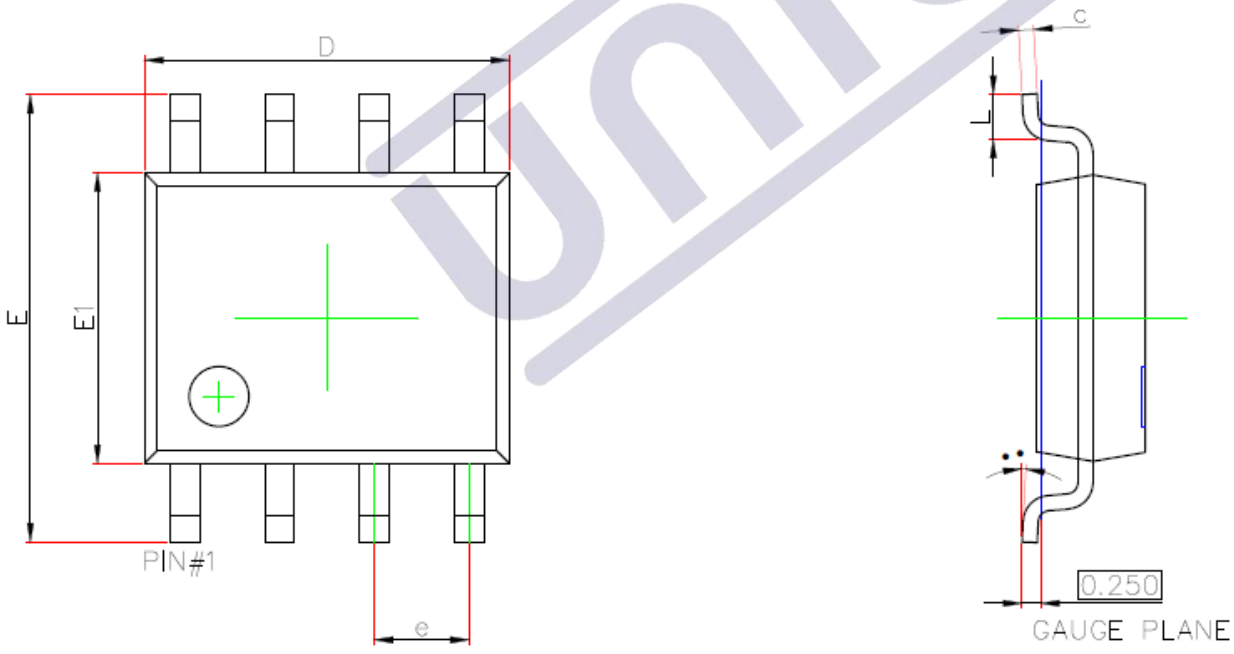


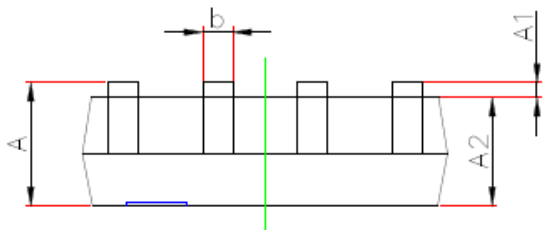
Fig.3 Applications Circuits of SD06

Package

SOIC-8

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.190	0.250	0.007	0.010
D	4.780	5.000	0.188	0.197
E	3.800	4.000	0.150	0.157
E1	5.800	6.300	0.228	0.248
e	1.270TYP		0.050TYP	
L	0.400	1.270	0.016	0.050
θ	0°	0°	0°	0°





1.版本记录

DATE	REV.	DESCRIPTION
2018/04/19	1.0	First Release
2021/12/11	1.1	Layout adjustment

2.免责声明

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