



PRECISION VOLTAGE REFERENCE

F58-07

GENERAL DESCRIPTION

The ALD 1603 is a precision voltage reference with output voltage at 2.5V. Other output voltages can be selected by addition of external resistors. Input voltage range for precision voltage reference output is 6.5V to 12V. The output of the ALD 1603 is a buffered operational amplifier that can source and sink currents. Controlled through internal temperature compensated feedback network, the output voltage can be maintained stable over a wide range of temperature, input voltage and output load variations.

The ALD 1603 is manufactured with Advanced Linear Devices' enhanced AC MOS silicon gate CMOS process. It is designed to be usable as a linear element in Advanced Linear Devices "Function-Specific" custom ASIC program.

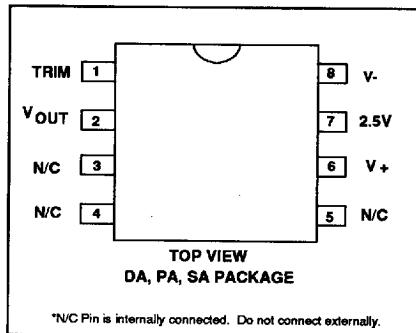
The ALD 1603 is recommended for use as a reference for 8 bit through 12 bit D/A or A/D converter systems where an external voltage reference is desired. It can also be used with or without an output buffer, as a voltage regulator for battery operated low power systems.

The ALD 1603 has been calibrated at 2.5V output pin. The trim pin is a high impedance node that is used for calibration and nominally has a voltage of 1.25V. This voltage can be used as a reference voltage but must be buffered through a high input impedance amplifier as loading can interfere with proper operation of the voltage reference.

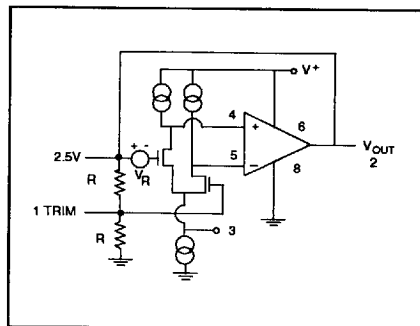
ORDERING INFORMATION

	Operating Temperature Range		
	-55°C to +125°C	0°C to +70°C	0°C to +70°C
Output Voltage Tempco (ppm/°C)	8-Pin CERDIP Package	8-Pin Small Outline Package (SOIC)	8-Pin Plastic Dip Package
50	ALD 1603 DA	ALD 1603 SA	ALD 1603 PA

PIN CONFIGURATION



BLOCK DIAGRAM



FEATURES

- Low power
- Buffered output voltage
- No external components required
- Factory trimmed and calibrated - No programming needed
- Symmetrical output drive - 0.5mA source or sink current

APPLICATIONS

- A/D reference
- D/A reference
- Transducer reference
- Amplifier reference
- Battery operated equipment

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## PRECISION VOLTAGE REFERENCE

ALD1603A/ALD1603B  
ALD1603

## DC AND OPERATING ELECTRICAL CHARACTERISTICS

Parameter	Symbol	1603			Unit	Conditions
		Min	Typ	Max		
Supply Voltage	V <sub>DD</sub>	6.5		12	V	
Output Voltage Error 2.500			10		mV	
Output Voltage Temperature Coefficient 2.500	T <sub>c</sub> V <sub>o</sub>		20		ppm/°C	
Line Regulation 6.5V ≤ V <sub>IN</sub> ≤ 12V V <sub>IN</sub> = 5V			.01 .4		%/V %/V	T <sub>MIN</sub> to T <sub>MAX</sub>
Load Regulation V <sub>OUT</sub> = 2.5V			4		ppm/μA	ΔI <sub>OUT</sub> = 100μA
Output Current I <sub>SOURCE</sub> I <sub>SINK</sub>		-500 500			μA μA	
Short Circuit Current	I <sub>SC</sub>		1		mA	
Temperature Range		0		70	°C	
Settling Time	t <sub>s</sub>		10		μs	to 0.1%
Long Term Stability			50		ppm/1000hrs	
Quiescent Supply Current	I <sub>DD</sub>		120		μA	V <sub>DD</sub> = 6.5V