

LM6152 Dual and LM6154 Quad High Speed/Low Power 45 MHz Rail-to-Rail I/O Operational Amplifiers

General Description

Using patent pending circuit topologies, the LM6152/54 provides new levels of speed vs power performance in applications where low voltage supplies or power limitations made compromise necessary. With only 1.5 mA/amp supply current, the 45 MHz bandwidth of this device supports new portable applications where higher power devices unacceptably drain battery life.

In addition, the LM6152/54 can be driven by voltages that exceed both power supply rails, thus eliminating concerns over exceeding the common-mode voltage range. The rail-to-rail output swing capability provides the maximum possible dynamic range at the output. This is particularly important when operating on low supply voltages. The LM6152/54 can also drive capacitive loads without oscillating.

Operating on supplies of 1.8V to over 24V, the LM6152/54 is excellent for a very wide range of applications, from battery operated systems with large bandwidth requirements to high speed instrumentation.

Features

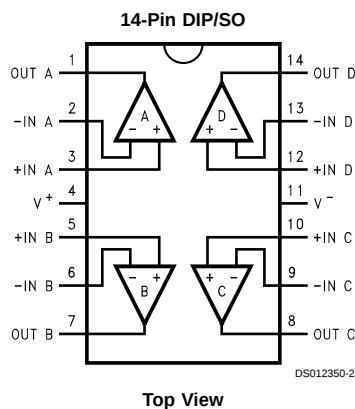
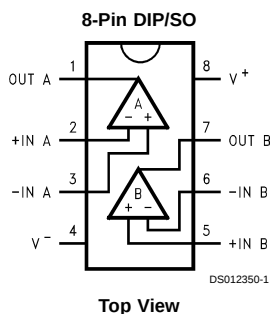
(For 5V Supply)

- Rail-to-rail input CMVR -0.25V to 5.25V (max/min)
- Rail-to-rail output swing 0.01V to 4.99V (max/min)
- Wide gain-bandwidth: 45 MHz (typ) @ 50 kHz
- Slew rate 30 V/ μs (typ)
- Low supply current 1.5/Amp (typ)
- Wide supply range 1.8V to 24V
- Fast settling time:
 - Gain 108 dB (typ) with $R_L = 10\text{k}$
- PSRR 87 dB (typ)

Applications

- Portable high speed instrumentation
- 5V signal conditioning amplifiers/ADC buffers
- Bar code scanners
- Wireless communications

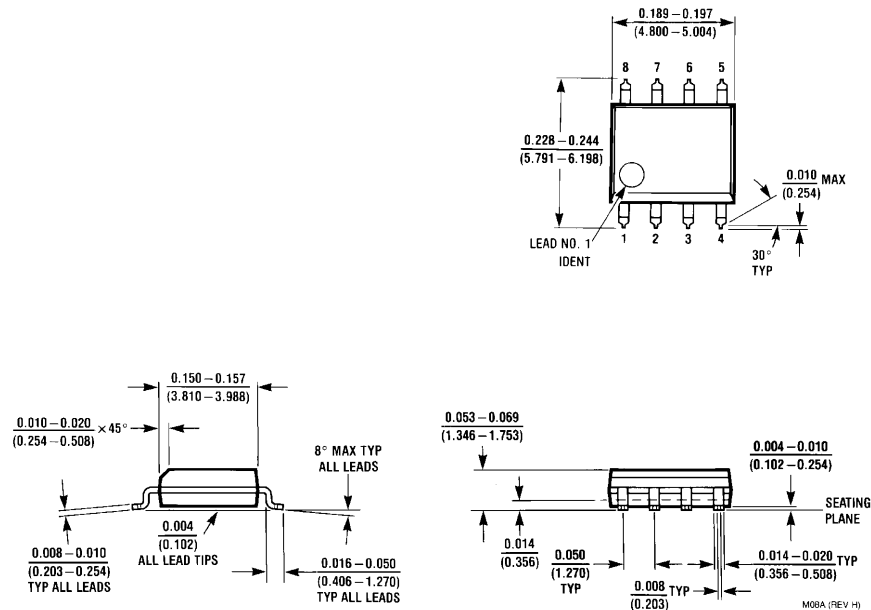
Connection Diagrams



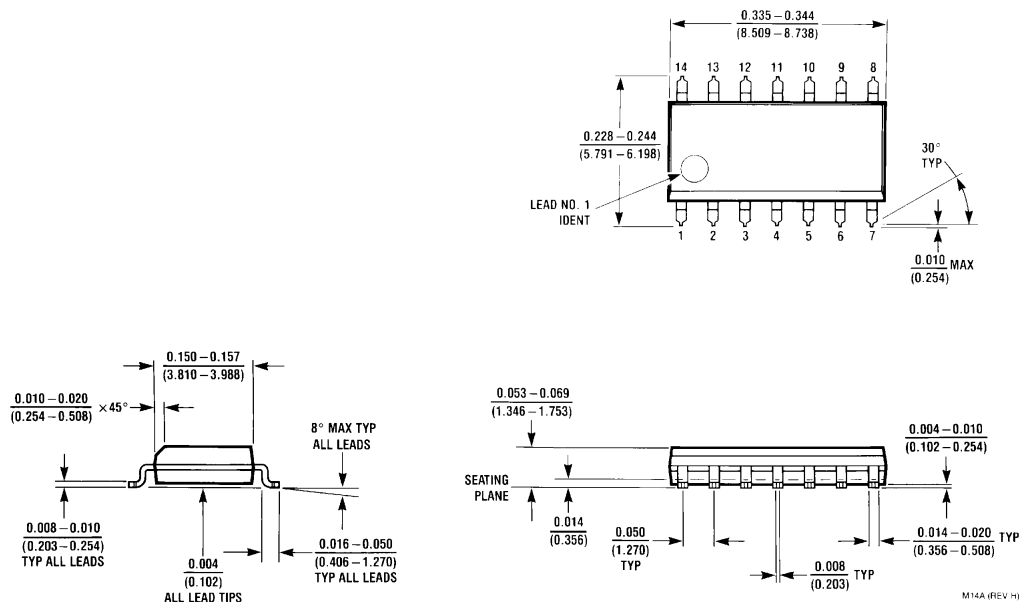
Ordering Information

Package	Temperature Range	NSC Drawing
	Industrial -40°C to $+85^{\circ}\text{C}$	
8-Pin Molded DIP	LM6142AIN, LM6142BIN	N08E
8-Pin Small Outline	LM6142AIM, LM6142BIM	M08A
14-Pin Molded DIP	LM6144AIN, LM6144BIN	N14A
14-Pin Small Outline	LM6144AIM, LM6144BIM	M14A

Physical Dimensions inches (millimeters) unless otherwise noted

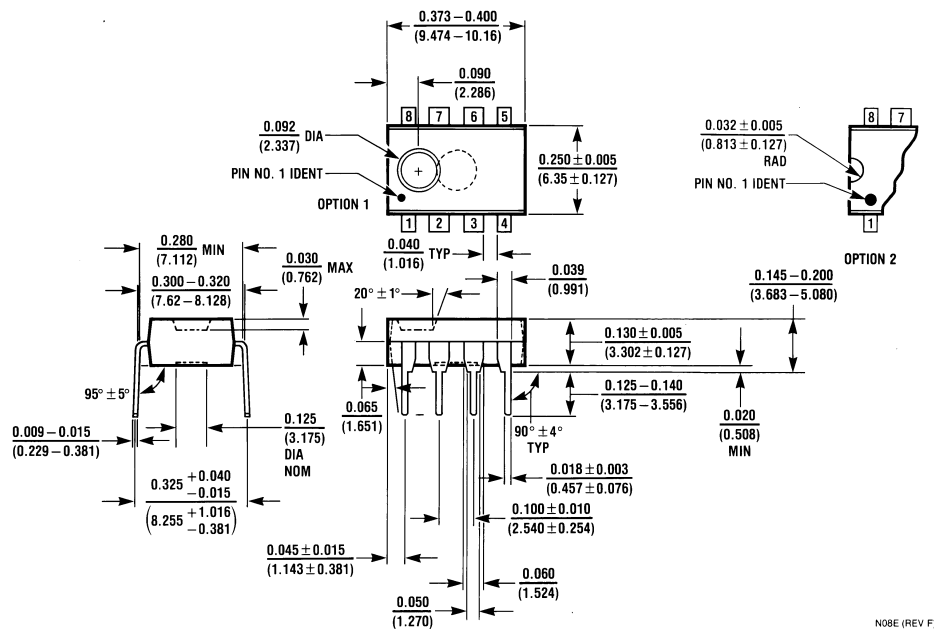


Order Number LM6142AIM or LM6142BIM
8-Lead (0.150" Wide) Molded Small Outline Package, JEDEC
NS Package Number M08A

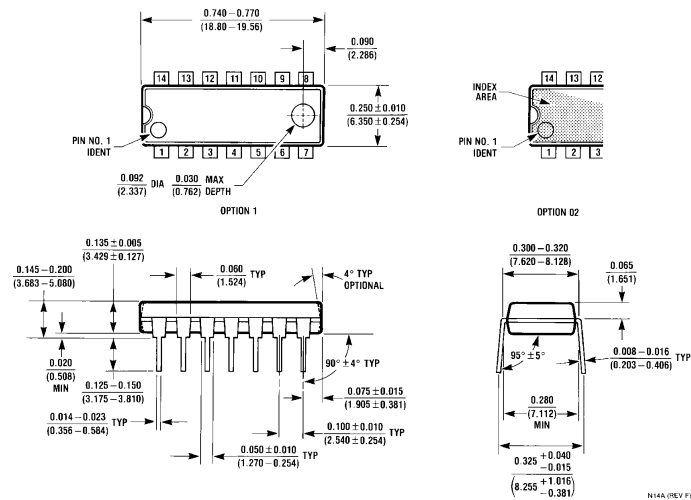


Order Number LM6144AIM or LM6144BIM
16-Lead (0.150" Wide) Molded Small Outline Package, JEDEC
NS Package Number M14A

Physical Dimensions inches (millimeters) unless otherwise noted (Continued)



Order Number LM6142AIN or LM6142BIN
8-Lead (0.300" Wide) Molded Dual-In-Line Package, JEDEC
NS Package Number N08E



Order Number LM6144AIN or LM6144BIN
14-Lead (0.300" Wide) Molded Dual-In-Line Package, JEDEC
NS Package Number N14A

Notes

LIFE SUPPORT POLICY

NATIONAL'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF NATIONAL SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.



National Semiconductor Corporation
Americas
Tel: 1-800-272-9959
Fax: 1-800-737-7018
Email: support@nsc.com

www.national.com

National Semiconductor Europe

Fax: +49 (0) 1 80-530 85 86
Email: europe.support@nsc.com
Deutsch Tel: +49 (0) 1 80-530 85 85
English Tel: +49 (0) 1 80-532 78 32
Français Tel: +49 (0) 1 80-532 93 58
Italiano Tel: +49 (0) 1 80-534 16 80

National Semiconductor Asia Pacific Customer Response Group

Tel: 65-2544466
Fax: 65-2504466
Email: sea.support@nsc.com

National Semiconductor Japan Ltd.

Tel: 81-3-5639-7560
Fax: 81-3-5639-7507