National Semiconductor

PRELIMINARY
April 1995

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

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)

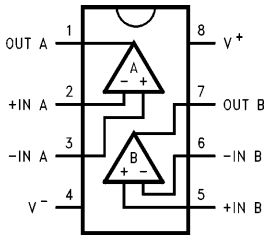
- Rail-to-rail input CMVR −0.25V to 5.25V (max/min)
- Rail-to-rail output swing 0.01V to 4.99V (max/min)
- Wide gain-bandwidth: 45 MHz (typ) @ 50 kHz
- Slew rate 30 V/μs (typ)
- Low supply current 1.5/Amp (typ)
- Wide supply range 1.8V to 24V
- Fast settling time:
  — Gain 108 dB (typ) with R_L = 10k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

Applications

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

Connection Diagrams

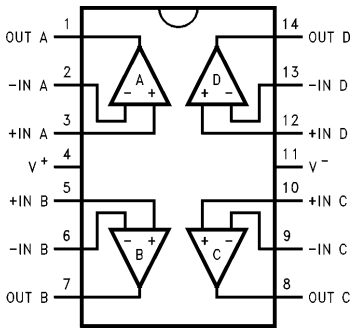
8-Pin DIP/SO



TL/H/12350–1

Top View

14-Pin DIP/SO



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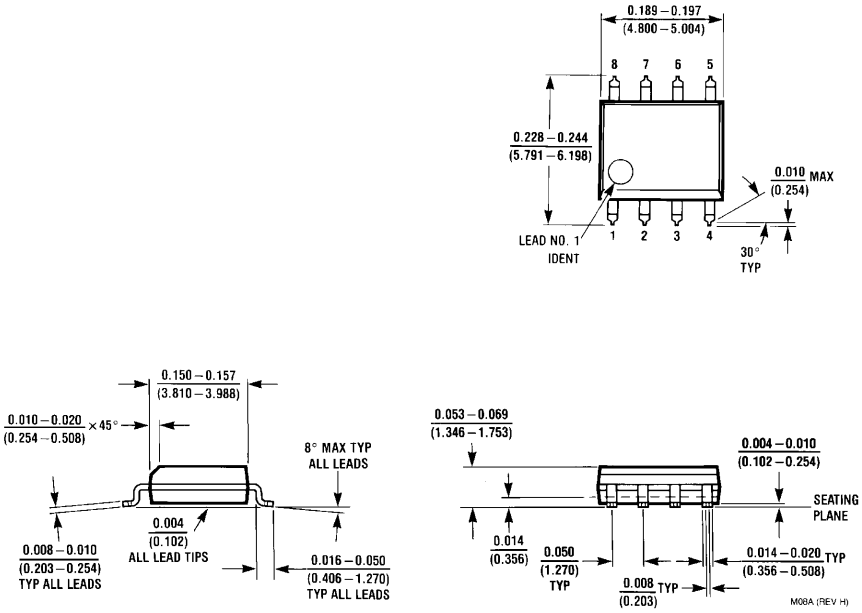
Top View

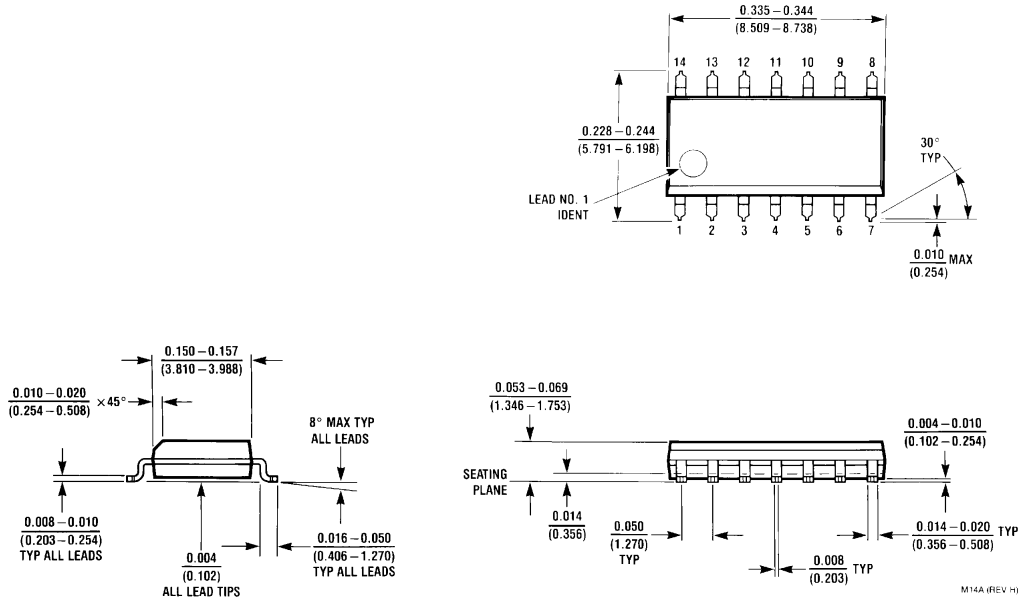
Ordering Information

Package	Temperature Range	NSC Drawing
	Industrial −40°C to +85°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

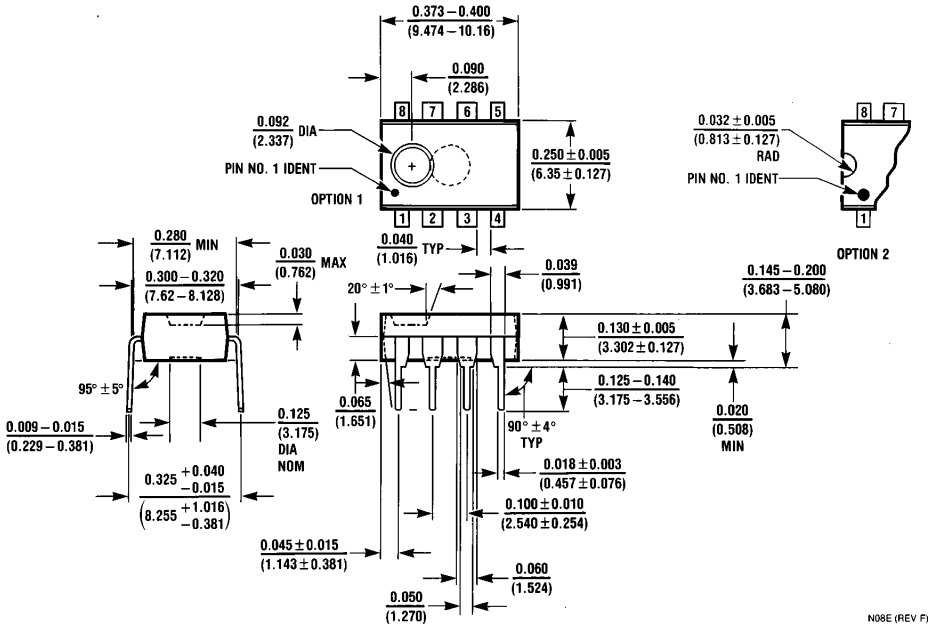


Order Number LM6142AIM or LM6142BIM
8-Lead (0.150″ Wide) Molded Small Outline Package, JEDEC
NS Package Number M08A



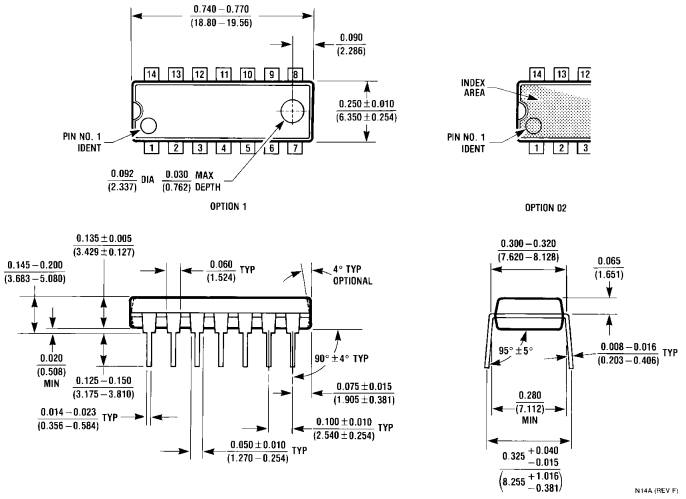
Order Number LM6144AIM or LM6144BIM
16-Lead (0.150″ Wide) Molded Small Outline Package, JEDEC
NS Package Number M16A

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



8-Lead (0.300″ Wide) Molded Dual-In-Line Package, JEDEC
NS Package Number N08E

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



14-Lead (0.300″ Wide) Molded Dual-In-Line Package, JEDEC
NS Package Number N14A

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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.

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