

General Description

The LTA8261AQ is a micro-power, 42V wide supply voltage, rail-to-rail output operational amplifier capable of operating on supplies ranging from +4.5V to +42V. The LTA8261AQ offer outstanding dc precision and ac performance, including low offset ($\pm 4\text{mV}$ maximum), low offset drift ($\pm 3\mu\text{V}/^\circ\text{C}$ typically), 1.1 MHz bandwidth, and 22 nV/ $\sqrt{\text{Hz}}$ input voltage noise density at 1 kHz. Unique features such as differential input-voltage range to the negative supply rail, high output current ($\pm 45\text{mA}$), high capacitive load drive of up to 1 nF, and high slew rate ($0.8\text{V}/\mu\text{s}$) make the LTA8261AQ high-performance operational amplifier for high-voltage automotive applications.

The robust design of the LTA8261AQ provides ease-of-use to the circuit designer: integrated RF/EMI rejection filter, no phase reversal in overdrive conditions, and high electro-static discharge (ESD) protection. The LTA8261AQ is optimized for operation at voltages from +4.5V ($\pm 2.25\text{V}$) to +42V ($\pm 21\text{V}$) over the extended temperature range of -40°C to $+125^\circ\text{C}$.

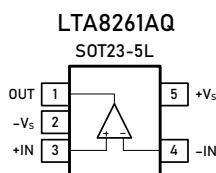
Features and Benefits

- Wide Supply: $\pm 2.25\text{ V}$ to $\pm 21\text{ V}$, 4.5 V to 42 V LowOffset
- Voltage: $\pm 4\text{ mV}$ Maximum
- Low Offset Voltage Drift: $\pm 3\text{ }\mu\text{V}/^\circ\text{C}$
- High Common-Mode Rejection: 108 dB
- Gain Bandwidth: 1.1 MHz
- Slew Rate: $0.8\text{ V}/\mu\text{s}$
- Low Noise: 22 nV/ $\sqrt{\text{Hz}}$ at 1 kHz
- Low Quiescent Current: 150 μA
- Low Bias Current: $\pm 10\text{ pA}$
- Rail-to-Rail Output
- Optimized for AEC-Q100 grade 1 applications

Applications

- Automotive headlighting
- On-Board Charger (OBC)
- Body Electronics
- Inverter and motor control
- Battery management system (BMS)

Pin Configuration (Top View)



Pin Description

Symbol	Description
-IN	Inverting input of the amplifier. The voltage range is from V_{S-} to $V_{S+} - 1.5$ V.
+IN	Non-inverting input of the amplifier. This pin has the same voltage range as -IN.
V_{S+}	Positive power supply. The voltage is from 4.5 V to 42 V. Split supplies are possible as long as the voltage between V_{S+} and V_{S-} is from 4.5 V to 42 V.
V_{S-}	Negative power supply. It is normally tied to ground. It can also be tied to a voltage other than ground as long as the voltage between V_{S+} and V_{S-} is from 4.5 V to 42 V.
OUT	Amplifier output.

Ordering Information ⁽¹⁾

Type Number	Package Name	Package Quantity	Eco Class ⁽²⁾	Marking Code ⁽³⁾
LTA8261AQT5/R6	SOT23-5L	Tape and Reel, 3 000	Green (RoHS & no Sb/Br)	W1

- (1) Please contact to your Linearin representative for the latest availability information and product content details.
- (2) Eco Class - The planned eco-friendly classification: Pb-Free (RoHS) or Green (RoHS & Halogen Free).
- (3) There may be multiple device markings, a varied marking character of "x", or additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

Limiting Value – In accordance with the Absolute Maximum Rating System (IEC 60134).

Parameter	Absolute Maximum Rating
Supply Voltage, V_{S+} to V_{S-}	48 V
Signal Input Terminals: Voltage, Current	$-V_S - 0.3$ V to $+V_S + 0.3$ V, ± 10 mA
Output Short-Circuit	Continuous
Storage Temperature Range, T_{stg}	-65 to $+150$ °C
Junction Temperature, T_J	150 °C
Lead Temperature Range (Soldering 10 sec)	260 °C

ESD Rating

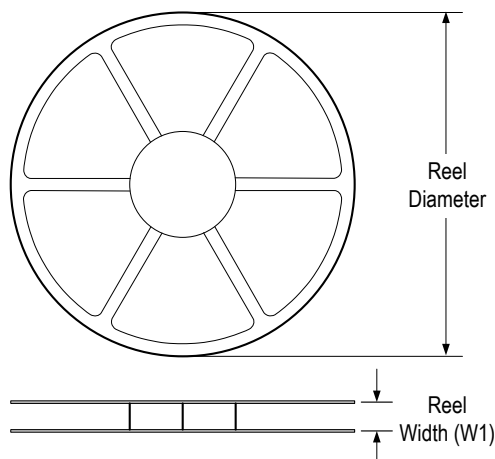
Parameter	Item	Value	Unit
Electrostatic Discharge Voltage	Human body model (HBM), per AEC-Q100-002-2013 ⁽¹⁾	2 000	V
	Charged device model (CDM), per AEC-Q100-011-2019 ⁽²⁾	2 000	

(1) For Electrostatic Discharge Sensitivity Testing Human Body Model (HBM) - Component Level.

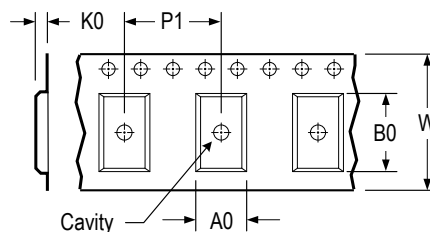
(2) For Electrostatic Discharge Sensitivity Testing Charged Device Model (CDM) - Device Level.

Tape and Reel Information

REEL DIMENSIONS

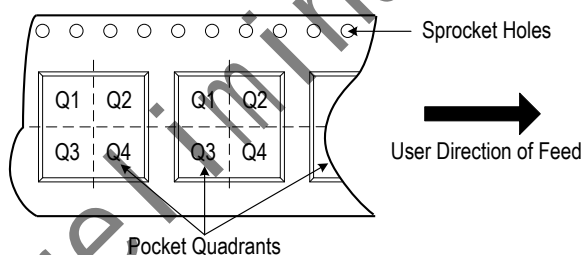


TAPE DIMENSIONS



A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE

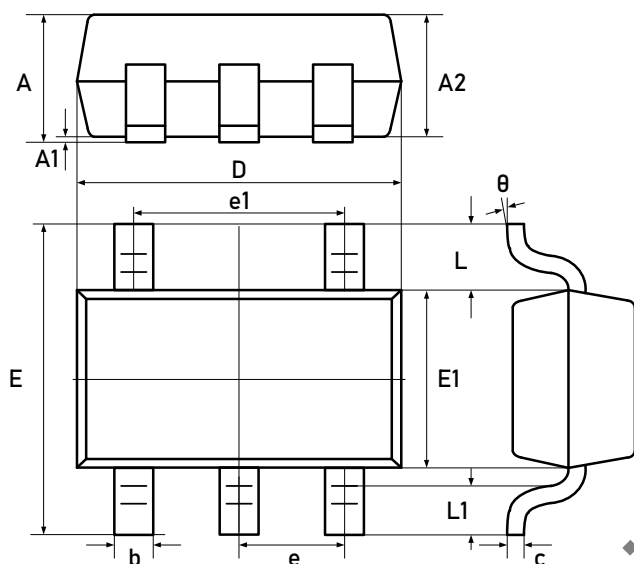


* All dimensions are nominal

Device	Package Type	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin 1 Quadrant
LTA8261AQT5/R6	SOT23	5	3 000	178	9.0	3.3	3.2	1.5	4.0	8.0	Q3

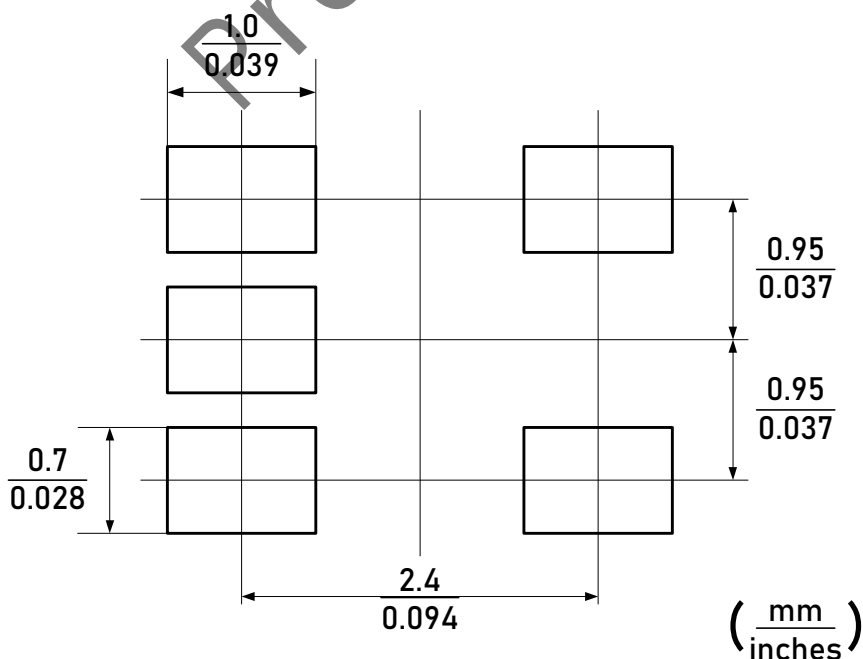
Package Outlines

DIMENSIONS, SOT23-5L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	-	1.25	-	0.049
A1	0.04	0.10	0.002	0.004
A2	1.00	1.20	0.039	0.047
b	0.33	0.41	0.013	0.016
c	0.15	0.19	0.006	0.007
D	2.820	3.02	0.111	0.119
E1	1.50	1.70	0.059	0.067
E	2.60	3.00	0.102	0.118
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.60 REF		0.024 REF	
L1	0.30	0.60	0.012	0.024
θ	0°	8°	0°	8°

RECOMMENDED SOLDERING FOOTPRINT, SOT23-5L



Important Notice

Linearin is a global fabless semiconductor company specializing in advanced high-performance high-quality analog/mixed-signal IC products and sensor solutions. The company is devoted to the innovation of high performance, analog-intensive sensor front-end products and modular sensor solutions, applied in multi-market of medical & wearable devices, smart home, sensing of IoT, intelligent industrial & smart factory (industrie 4.0), and automotives. Linearin's product families include widely-used standard catalog products, solution-based application specific standard products (ASSPs) and sensor modules that help customers achieve faster time-to-market products. Go to <http://www.linearin.com> for a complete list of Linearin product families.

For additional product information, or full datasheet, please contact with the Linearin's Sales Department or Representatives.

Preliminary