



Descriptions

The CA3140AMZ96 is integrated circuit operational amplifiers that combine the advantages of high voltage PMOS transistors with high voltage bipolar transistors on a single monolithic chip. The CA3140AMZ96 features gate protected MOSFET (PMOS) transistors in the input circuit to provide very high input impedance, very low input current, and high speed performance.

The use of PMOS field effect transistors in the input stage results in a wide common mode input voltage capability and an important attribute for single supply applications. These products are widely used in civil, commercial and industrial applications. Such as accelerometers signal processing, integrators, medical monitors, visible light photometers, single power amplifiers, sampling and holding amplifiers, photocurrent meters, active filters, interface circuits, handheld instruments, alarms, peak detectors, comparators, integrators, multi-frequency oscillators, function generators and all other standard amplifier applications.

Feature

- Applied Advanced BiMOS Technology
- MOSFET Input Stage
 - Very High Input Impedance (ZIN) 1.5TΩ (Typ)
 - Very Low Input Current (IIO) -10pA (Typ) at $\pm 15V$
 - Wide Common Mode Input Voltage Range (VICR) : - 15V~12V
- Large Swing of Output Voltage (VOPP) : - 14V~12V
- SOP-8(SOIC-8) Package
- Operating Temperature Range:-40°C~85°C

Applications

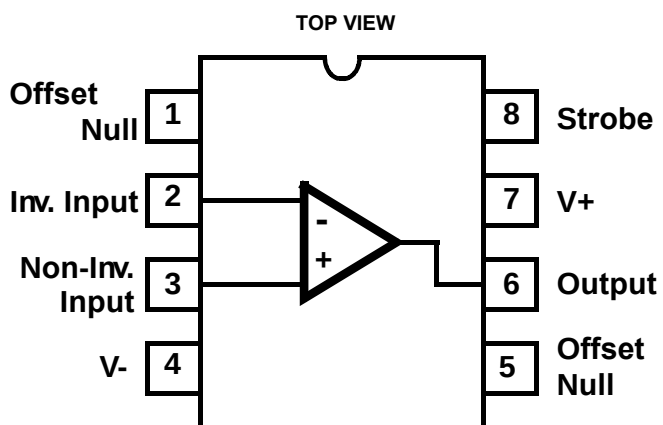
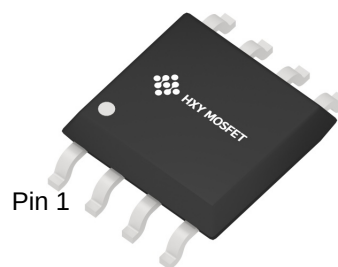
- Active Filter
- Compensation Amplifier
- Audio Preamplifier
- Electronic Instruments

Ordering Information

Product Model	Package Type	Packing	Packing Qty
CA3140AMZ96	SOP-8(SOIC-8)	Tape	2500Pcs/Reel



Pins Configuration

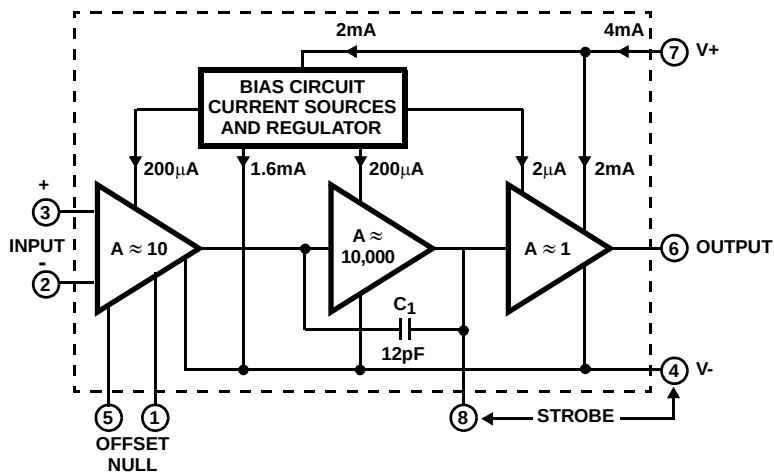


SOP-8(SOIC-8)

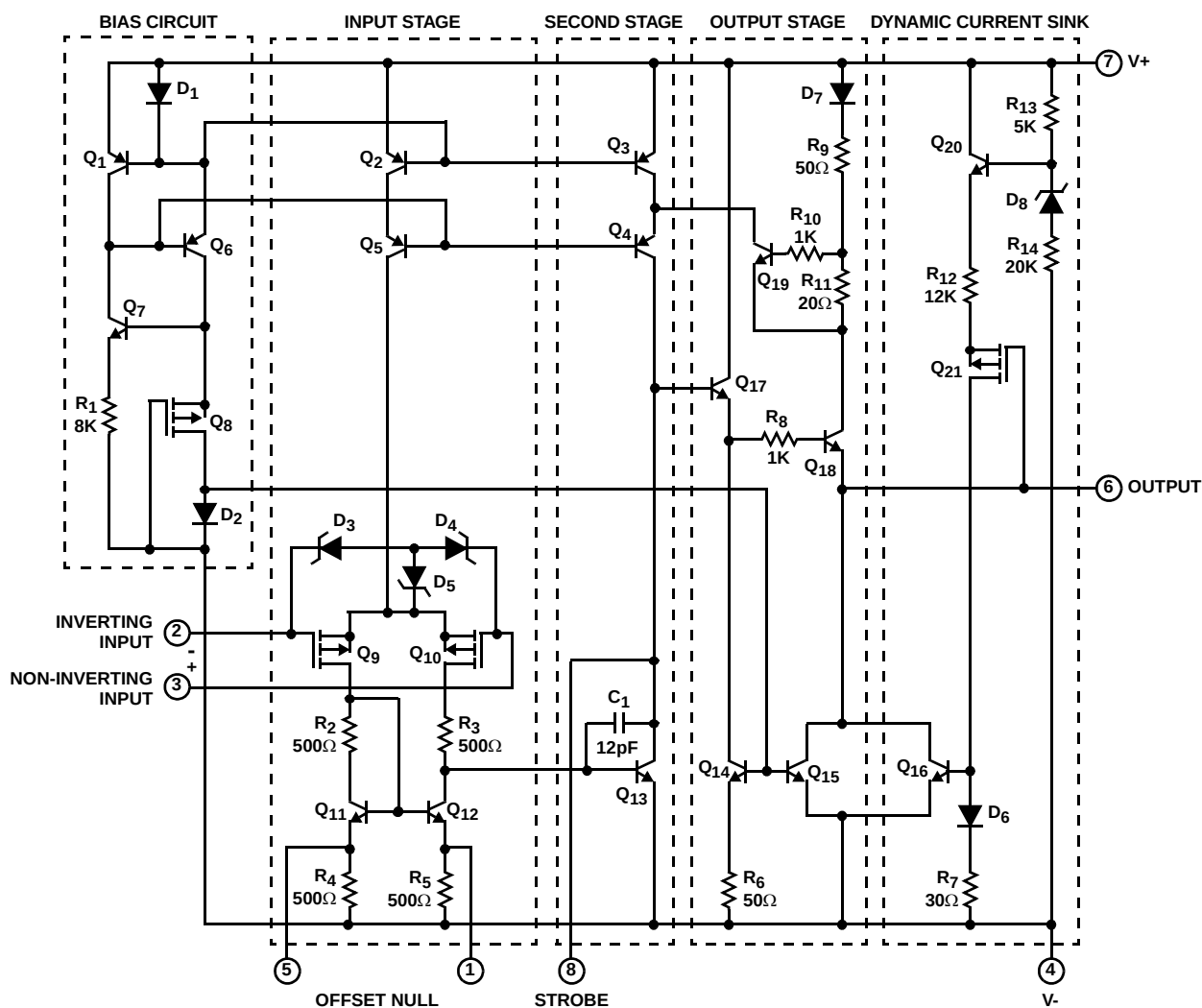
No.	Symbol	Function
1	OA1	Offset Null
2	IN-	Inverting Input
3	IN+	Noninverting Input
4	V-	Negative Power Supply
5	OA2	Offset Null
6	OUT	Output
7	V+	Positive Power Supply
8	ST	Strobe



Schematic Diagram



CA3140AMZ96 Block Diagram



CA3140AMZ96 Schematic Diagram



Absolute Maximum Ratings

The absolute maximum ratings are as follows (unless otherwise specified, at operating ambient temperature):

Parameter	Symbol	Rating
Supply Voltage	V_S	$\pm 18V$
DC Input Voltage	V_I	$(V_+ + 8V) \sim (V_- - 0.5V)$
Input Current	I_I	1mA
Common-Mode Input Voltage Range	V_{ICR}	$-15V \sim 12V$
Differential-Mode Input Voltage Range	V_{IDR}	$-8V \sim 8V$
Storage Temperature	T_{stg}	$-65^{\circ}C \sim 150^{\circ}C$
Lead Soldering Temperature (10s)	T_h	$300^{\circ}C$
Junction Temperature	T_j	$150^{\circ}C$

Recommended Operating Conditions

Parameter	Symbol	Rating
Supply Voltage	V_S	$\pm 15V$
Operating Ambient Temperature	T_A	$-25^{\circ}C \sim 125^{\circ}C$



Electrical Characteristics

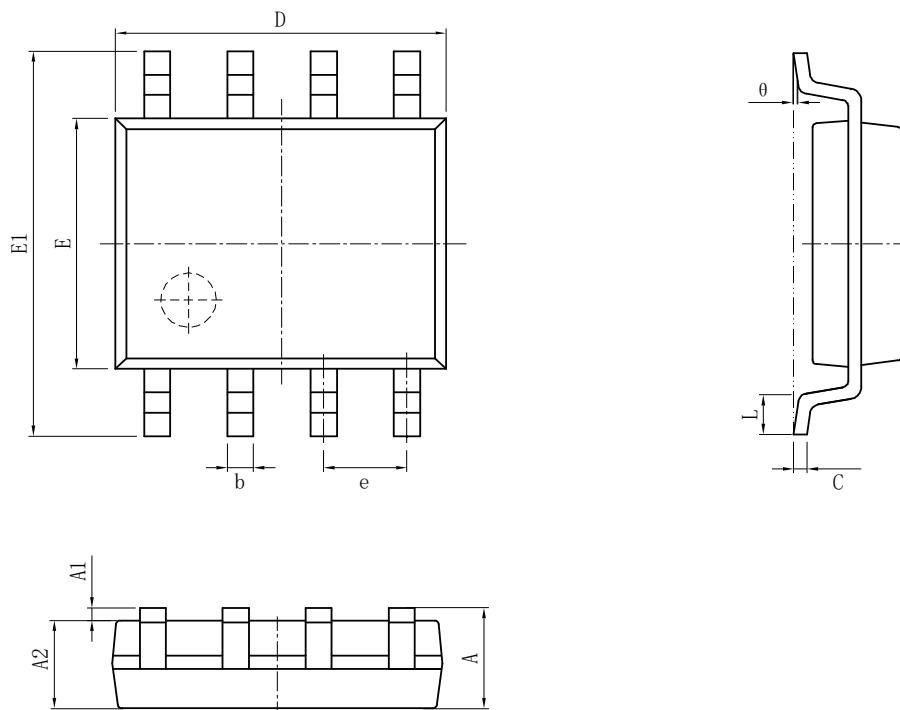
$V_{CC}=6V$, $T_{amb}=25^{\circ}C$, unless otherwise specified.

Parameter	Symbol	Test Conditions (Unless otherwise specified, $V_S = \pm 15V, -40^{\circ}C \leq T_A \leq 85^{\circ}C$)	Value			Unit
			TA	Min.	Max.	
Input Offset Voltage	$ V_{IO} $		25°C		5	mV
					6.5	
Input Offset Voltage Temperature Drift	$ \alpha V_{IO} $				24	$\mu V/^{\circ}C$
Input Offset Current	$ I_{IO} $		25°C		10	pA
					1000	
Input Bias Current	$ I_{IB} $		25°C		40	pA
					1500	
Open Loop Voltage Gain	A_{VO}	$V_O = -14V \sim 12V, R_L = 2k\Omega$	25°C	86		dB
				80		dB
Common Mode Rejection Ratio	K_{CMR}	$V_{CM} = -14V \sim 11V$	25°C	70		dB
				64		
Power Supply Rejection Ratio	K_{SVR}	$V_S = \pm 5V \sim \pm 15V$	25°C	76		dB
				70		
Output Voltage Peak	V_{OPP}^{+}	$R_L = 2k\Omega$	25°C	+12		V
				+11.5		
	V_{OPP}^{-}	$R_L = 2k\Omega$	25°C	-14		V
				-13.5		
Gain-Bandwidth Product	$G \cdot BW$	$R_L = 2k\Omega$	25°C	3.5		MHz
Slew Rate	SR	$R_L = 2k\Omega$	25°C	6.0		V/ μs
Sink Current (Terminal 8)	I_{SINK8}	Terminal 8 to V-	25°C	160		μA
Supply Current	I_S	$V_S = \pm 15V, R_L = \infty$			6	mA
Equivalent Input Noise Voltage	eN	$R_S = 100\Omega$ $f = 1kHz$ $f = 10kHz$		40		$nV/\sqrt{Hz}$
				12		
Equivalent Wideband Input Noise Voltage	eN	$BW = 140kHz, R_S = 1M\Omega$		48		μV
Short Circuit Current to Opposite Supply	I_{OM}^{+}	Source		40		mA
	I_{OM}^{-}	Sink		18		mA



Package Information

SOP-8(SOIC-8)



Size Symbol	Dimensions In Millimeters		Size Symbol	Dimensions In Inches	
	Min(mm)	Max(mm)		Min(in)	Max(in)
A	1.350	1.750	A	0.053	0.069
A1	0.100	0.250	A1	0.004	0.010
A2	1.350	1.550	A2	0.053	0.061
b	0.330	0.510	b	0.013	0.020
c	0.170	0.250	c	0.006	0.010
D	4.700	5.100	D	0.185	0.200
E	3.800	4.000	E	0.150	0.157
E1	5.800	6.200	E1	0.228	0.224
e	1.270(BSC)		e	0.050(BSC)	
L	0.400	1.270	L	0.016	0.050
θ	0°	8°	θ	0°	8°



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