

FEATURES

Computes

- True rms value
- Average rectified value
- Absolute value

Provides

- 200 mV full-scale input range (larger inputs with input attenuator)
- High input impedance: $10^{12} \Omega$
- Low input bias current: 25 pA maximum
- High accuracy: $\pm 0.3 \text{ mV} \pm 0.3\%$ of reading
- RMS conversion with signal crest factors up to 5
- Wide power supply range: +2.8 V, -3.2 V to $\pm 16.5 \text{ V}$
- Low power: 200 mA maximum supply current
- Buffered voltage output
- No external trims needed for specified accuracy

AD737—an unbuffered voltage output version with chip power-down also available

GENERAL DESCRIPTION

The AD736 is a low power, precision, monolithic true rms-to-dc converter. It is laser trimmed to provide a maximum error of $\pm 0.3 \text{ mV} \pm 0.3\%$ of reading with sine wave inputs. Furthermore, it maintains high accuracy while measuring a wide range of input waveforms, including variable duty cycle pulses and triac (phase) controlled sine waves. The low cost and small size of this converter make it suitable for upgrading the performance of non-rms precision rectifiers in many applications. Compared to these circuits, the AD736 offers higher accuracy at an equal or lower cost.

The AD736 can compute the rms value of both ac and dc input voltages. It can also be operated as an ac-coupled device by adding one external capacitor. In this mode, the AD736 can resolve input signal levels of 100 μV rms or less, despite variations in temperature or supply voltage. High accuracy is also maintained for input waveforms with crest factors of 1 to 3. In addition, crest factors as high as 5 can be measured (introducing only 2.5% additional error) at the 200 mV full-scale input level.

The AD736 has its own output buffer amplifier, thereby providing a great deal of design flexibility. Requiring only 200 μA of power supply current, the AD736 is optimized for use in portable multimeters and other battery-powered applications.

FUNCTIONAL BLOCK DIAGRAM

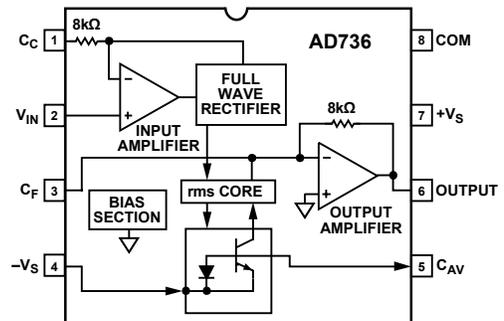


Figure 1.

The AD736 allows the choice of two signal input terminals: a high impedance FET input ($10^{12} \Omega$) that directly interfaces with High-Z input attenuators and a low impedance input (8 k Ω) that allows the measurement of 300 mV input levels while operating from the minimum power supply voltage of +2.8 V, -3.2 V. The two inputs can be used either single ended or differentially.

The AD736 has a 1% reading error bandwidth that exceeds 10 kHz for the input amplitudes from 20 mV rms to 200 mV rms while consuming only 1 mW.

The AD736 is available in four performance grades. The AD736J and AD736K grades are rated over the 0°C to +70°C and -20°C to +85°C commercial temperature ranges. The AD736A and AD736B grades are rated over the -40°C to +85°C industrial temperature range. The AD736 is available in three low cost, 8-lead packages: PDIP, SOIC, and Cerdip.

PRODUCT HIGHLIGHTS

1. The AD736 is capable of computing the average rectified value, absolute value, or true rms value of various input signals.
2. Only one external component, an averaging capacitor, is required for the AD736 to perform true rms measurement.
3. The low power consumption of 1 mW makes the AD736 suitable for many battery-powered applications.
4. A high input impedance of $10^{12} \Omega$ eliminates the need for an external buffer when interfacing with input attenuators.
5. A low impedance input is available for those applications that require an input signal up to 300 mV rms operating from low power supply voltages.

Rev. G

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REVISION HISTORY

2/06—Rev. F to Rev. G

Updated Format.....	Universal
Changes to Features.....	1
Added Table 3.....	6
Changes to Figure 21 and Figure 22.....	14
Changes to Figure 23, Figure 24, and Figure 25	15
Updated Outline Dimensions	16
Changes to Ordering Guide	17

5/04—Rev. E to Rev. F

Changes to Specifications	2
Replaced Figure 18	10
Updated Outline Dimensions	16
Changes to Ordering Guide	16

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Changes to General Description	1
Changes to Specifications.....	3
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11/02—Rev. C to Rev. D

Changes to Functional Block Diagram.....	1
Changes to Pin Configuration	3
Figure 1 Replaced	6
Changes to Figure 2.....	6
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Outline Dimensions Updated.....	8

SPECIFICATIONS

At 25°C ± 5 V supplies, ac-coupled with 1 kHz sine wave input applied, unless otherwise noted. Specifications in **bold** are tested on all production units at final electrical test. Results from those tests are used to calculate outgoing quality levels.

Table 1.

Parameter	Conditions	AD736J/AD736A			AD736K/AD736B			Unit
		Min	Typ	Max	Min	Typ	Max	
TRANSFER FUNCTION		$V_{OUT} = \sqrt{Avg(V_{IN}^2)}$						
CONVERSION ACCURACY	1 kHz sine wave							
Total Error, Internal Trim ¹	Using C _C							
All Grades	0 mV rms to 200 mV rms		0.3/0.3	0.5/0.5		0.2/0.2	0.3/0.3	±mV/±% of reading
	200 mV to 1 V rms		-1.2	±2.0		-1.2	±2.0	% of reading
T _{MIN} to T _{MAX}								
A and B Grades	@ 200 mV rms		0.7/0.7				0.5/0.5	±mV/±% of reading
J and K Grades	@ 200 mV rms		0.007				0.007	±% of reading/°C
vs. Supply Voltage								
@ 200 mV rms Input	V _S = ±5 V to ±16.5 V	0	+0.06	+0.1	0	+0.06	+0.1	%/V
	V _S = ±5 V to ±3 V	0	-0.18	-0.3	0	-0.18	-0.3	%/V
DC Reversal Error, DC-Coupled	@ 600 mV dc		1.3	2.5		1.3	2.5	% of reading
Nonlinearity ² , 0 mV to 200 mV	@ 100 mV rms	0	0.25	0.35	0	0.25	0.35	% of reading
Total Error, External Trim	0 mV rms to 200 mV rms		0.1/0.5				0.1/0.3	±mV/±% of reading
ERROR VS. CREST FACTOR ³								
Crest Factor = 1 to 3	C _{AV} , C _F = 100 μF		0.7				0.7	% additional error
Crest Factor = 5	C _{AV} , C _F = 100 μF		2.5				2.5	% additional error
INPUT CHARACTERISTICS								
High Impedance Input (Pin 2)								
Signal Range								
Continuous RMS Level	V _S = +2.8 V, -3.2 V		200				200	mV rms
	V _S = ±5 V to ±16.5 V		1				1	V rms
Peak Transient Input	V _S = +2.8 V, -3.2 V	±0.9				±0.9		V
	V _S = ±5 V		±2.7				±2.7	V
	V _S = ±16.5 V	±4.0				±4.0		V
Input Resistance			10 ¹²				10 ¹²	Ω
Input Bias Current	V _S = ±3 V to ±16.5 V		1	25		1	25	pA
Low Impedance Input (Pin 1)								
Signal Range								
Continuous RMS Level	V _S = +2.8 V, -3.2 V		300				300	mV rms
	V _S = ±5 V to ±16.5 V		1				1	V rms
Peak Transient Input	V _S = +2.8 V, -3.2 V		±1.7				±1.7	V
	V _S = ±5 V		±3.8				±3.8	V
	V _S = ±16.5 V		±11				±11	V
Input Resistance		6.4	8	9.6	6.4	8	9.6	kΩ
Maximum Continuous Nondestructive Input	All supply voltages		±12				±12	V p-p
Input Offset Voltage ⁴								
J and K Grades			±3				±3	mV
A and B Grades			±3				±3	mV
vs. Temperature			8	30		8	30	μV/°C
vs. Supply	V _S = ±5 V to ±16.5 V		50	150		50	150	μV/V
	V _S = ±5 V to ±3 V		80				80	μV/V

AD736

Parameter	Conditions	AD736J/AD736A			AD736K/AD736B			Unit
		Min	Typ	Max	Min	Typ	Max	
OUTPUT CHARACTERISTICS								
Output Offset Voltage								
J and K Grades			±0.1	±0.5		±0.1	±0.3	mV
A and B Grades				±0.5			±0.3	mV
vs. Temperature			1	20		1	20	μV/°C
vs. Supply	$V_S = \pm 5\text{ V to } \pm 16.5\text{ V}$		50	130		50	130	μV/V
	$V_S = \pm 5\text{ V to } \pm 3\text{ V}$		50			50		μV/V
Output Voltage Swing								
2 kΩ Load	$V_S = +2.8\text{ V, } -3.2\text{ V}$	0 to	1.7		0 to	1.7		V
		1.6			1.6			
	$V_S = \pm 5\text{ V}$	0 to	3.8		0 to	3.8		V
		3.6			3.6			
	$V_S = \pm 16.5\text{ V}$	0 to 4	5		0 to 4	5		V
No Load	$V_S = \pm 16.5\text{ V}$	0 to 4	12		0 to 4	12		V
Output Current		2			2			mA
Short-Circuit Current			3			3		mA
Output Resistance	@ dc		0.2			0.2		Ω
FREQUENCY RESPONSE								
High Impedance Input (Pin 2)	Sine wave input							
for 1% Additional Error								
$V_{IN} = 1\text{ mV rms}$			1			1		kHz
$V_{IN} = 10\text{ mV rms}$			6			6		kHz
$V_{IN} = 100\text{ mV rms}$			37			37		kHz
$V_{IN} = 200\text{ mV rms}$			33			33		kHz
±3 dB Bandwidth	Sine wave input							
$V_{IN} = 1\text{ mV rms}$			5			5		kHz
$V_{IN} = 10\text{ mV rms}$			55			55		kHz
$V_{IN} = 100\text{ mV rms}$			170			170		kHz
$V_{IN} = 200\text{ mV rms}$			190			190		kHz
Low Impedance Input (Pin 1)	Sine wave input							
for 1% Additional Error								
$V_{IN} = 1\text{ mV rms}$			1			1		kHz
$V_{IN} = 10\text{ mV rms}$			6			6		kHz
$V_{IN} = 100\text{ mV rms}$			90			90		kHz
$V_{IN} = 200\text{ mV rms}$			90			90		kHz
±3 dB Bandwidth	Sine wave input							
$V_{IN} = 1\text{ mV rms}$			5			5		kHz
$V_{IN} = 10\text{ mV rms}$			55			55		kHz
$V_{IN} = 100\text{ mV rms}$			350			350		kHz
$V_{IN} = 200\text{ mV rms}$			460			460		kHz
POWER SUPPLY								
Operating Voltage Range		+2.8, -3.2 ± 5		±16.5	+2.8, -3.2 ± 5		±16.5	V
Quiescent Current	Zero signal		160	200		160	200	μA
200 mV rms, No Load	Sine wave input		230	270		230	270	μA
TEMPERATURE RANGE								
Operating, Rated Performance								
Commercial	0°C to 70°C		AD736JN, AD736JR			AD736KN, AD736KR		
Industrial	-40°C to +85°C		AD736AQ, AD736AR			AD736BQ, AD736BR		

¹ Accuracy is specified with the AD736 connected as shown in Figure 18 with Capacitor C_c.

² Nonlinearity is defined as the maximum deviation (in percent error) from a straight line connecting the readings at 0 mV rms and 200 mV rms. Output offset voltage is adjusted to zero.

³ Error vs. crest factor is specified as additional error for a 200 mV rms signal. Crest factor = V_{PEAK}/V_{RMS} .

⁴ DC offset does not limit ac resolution.

ABSOLUTE MAXIMUM RATINGS

Table 2.

Parameter	Rating
Supply Voltage	± 16.5 V
Internal Power Dissipation ¹	200 mW
Input Voltage	$\pm V_S$
Output Short-Circuit Duration	Indefinite
Differential Input Voltage	$+V_S$ and $-V_S$
Storage Temperature Range (Q)	-65°C to $+150^\circ\text{C}$
Storage Temperature Range (N, R)	-65°C to $+125^\circ\text{C}$
Lead Temperature (Soldering 60 sec)	300°C
ESD Rating	500 V

¹ 8-Lead PDIP: $\theta_{JA} = 165^\circ\text{C}/\text{W}$,
 8-Lead CERDIP: $\theta_{JA} = 110^\circ\text{C}/\text{W}$, and
 8-Lead SOIC: $\theta_{JA} = 155^\circ\text{C}/\text{W}$

Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. This is a stress rating only; functional operation of the device at these or any other conditions above those indicated in the operational section of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ESD CAUTION

ESD (electrostatic discharge) sensitive device. Electrostatic charges as high as 4000 V readily accumulate on the human body and test equipment and can discharge without detection. Although this product features proprietary ESD protection circuitry, permanent damage may occur on devices subjected to high energy electrostatic discharges. Therefore, proper ESD precautions are recommended to avoid performance degradation or loss of functionality.



AD736

PIN CONFIGURATION AND FUNCTION DESCRIPTIONS



Figure 2. Pin Configuration

Table 3. Pin Function Descriptions

Pin No.	Mnemonic	Description
1	C_C	Coupling Capacitor. If dc coupling is desired at Pin 2, connect a coupling capacitor to this pin. If the coupling at Pin 2 is ac, connect this pin to ground. Note that this pin is also an input, with an input impedance of 8 k Ω . Such an input is useful for applications with high input voltages and low supply voltages.
2	V_{IN}	High Input Impedance Pin.
3	C_F	Connect an Auxiliary Low-Pass Filter Capacitor from the Output.
4	$-V_S$	Negative Supply Voltage if Dual Supplies Are Used, or Ground if Connected to a Single-Supply Source.
5	C_{AV}	Connect the Averaging Capacitor Here.
6	OUTPUT	DC Output Voltage.
7	$+V_S$	Positive Supply Voltage.
8	COM	Common.

TYPICAL PERFORMANCE CHARACTERISTICS

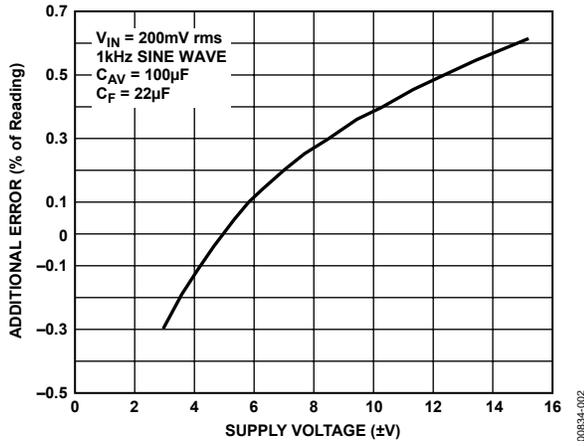


Figure 3. Additional Error vs. Supply Voltage

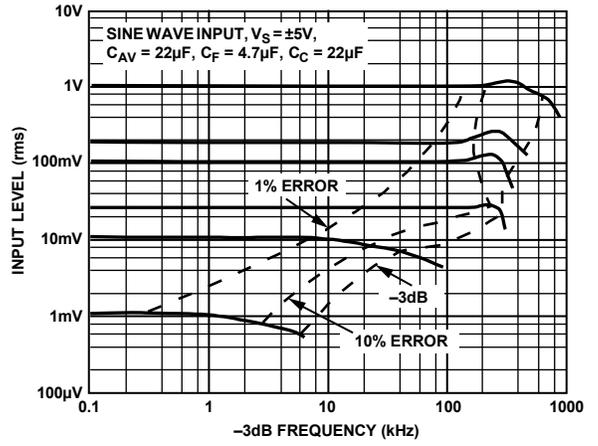


Figure 6. Frequency Response Driving Pin 1

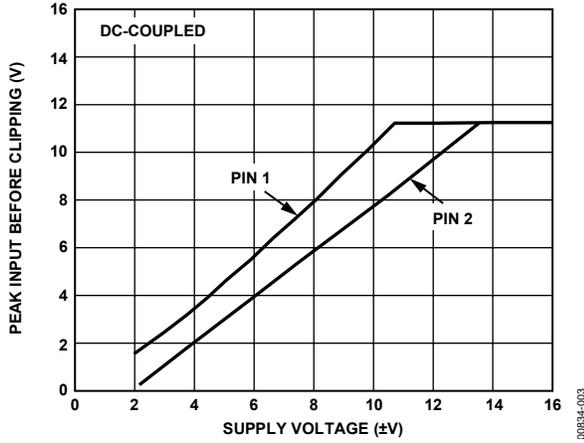


Figure 4. Maximum Input Level vs. Supply Voltage

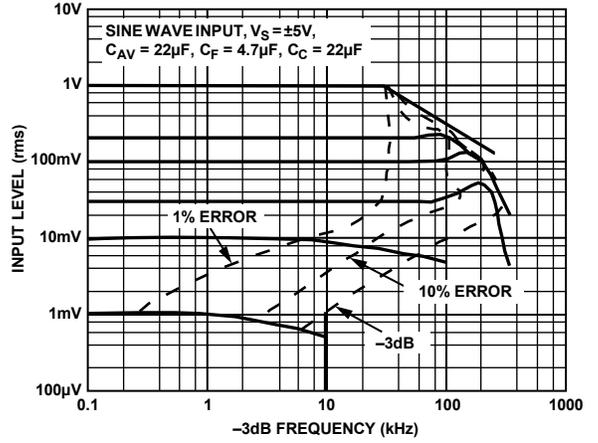


Figure 7. Frequency Response Driving Pin 2

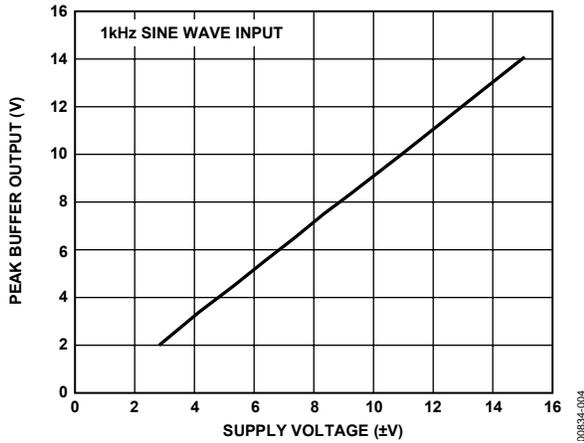


Figure 5. Peak Buffer Output vs. Supply Voltage

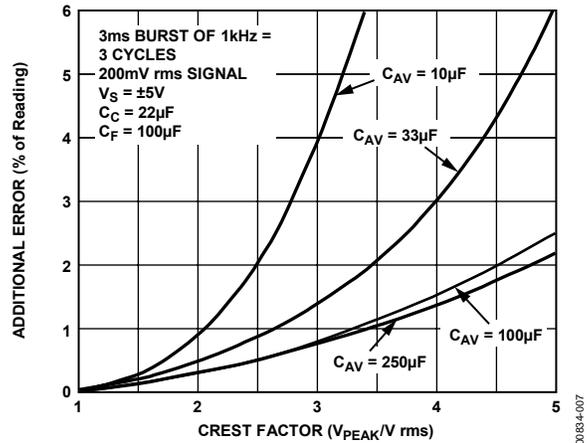


Figure 8. Additional Error vs. Crest Factor with Various Values of C_{AV}

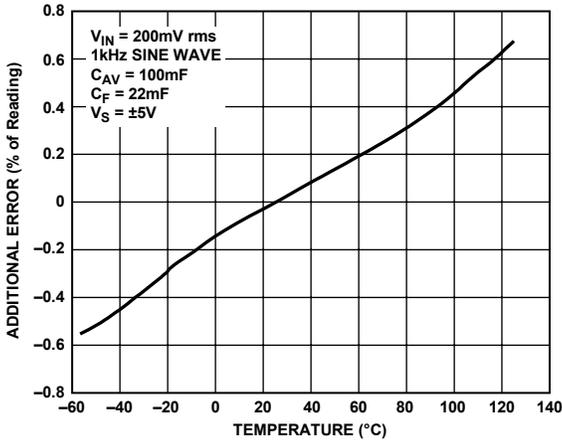


Figure 9. Additional Error vs. Temperature

00834-008

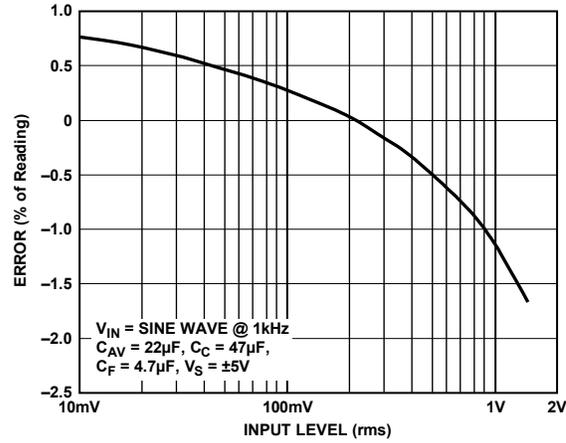


Figure 12. Error vs. RMS Input Voltage (Pin 2), Output Buffer Offset Is Adjusted to Zero

00834-011

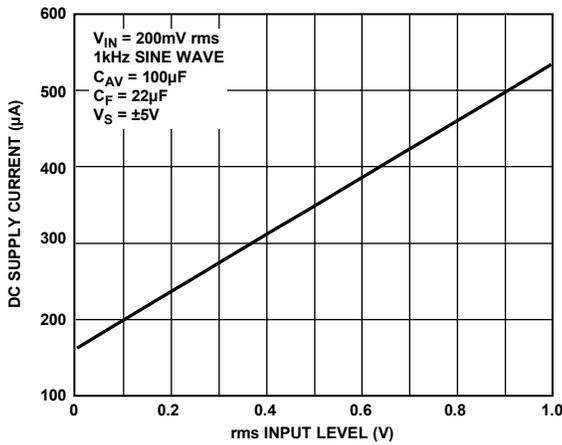


Figure 10. DC Supply Current vs. RMS Input Level

00834-009

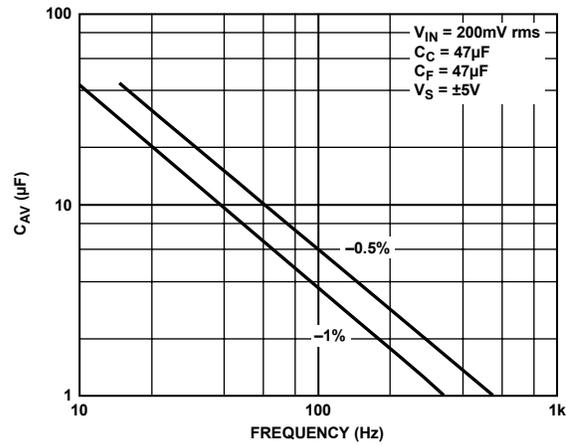


Figure 13. C_{AV} vs. Frequency for Specified Averaging Error

00834-012

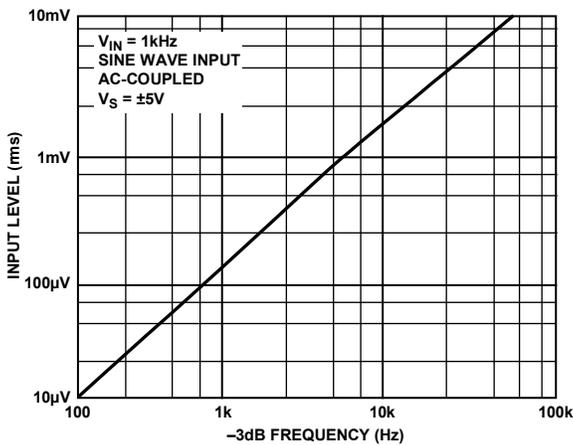


Figure 11. RMS Input Level (Pin 2) vs. -3 dB Frequency

00834-010

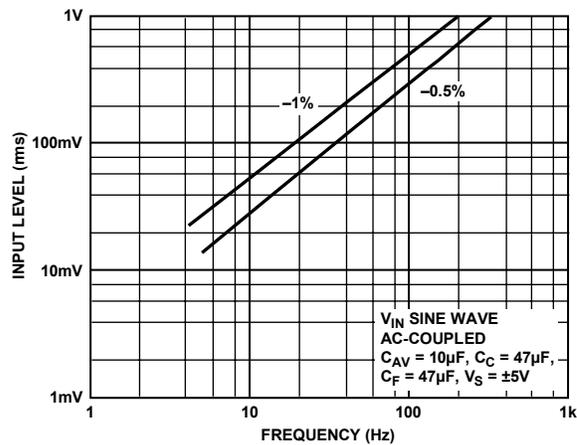


Figure 14. RMS Input Level vs. Frequency for Specified Averaging Error

00834-013

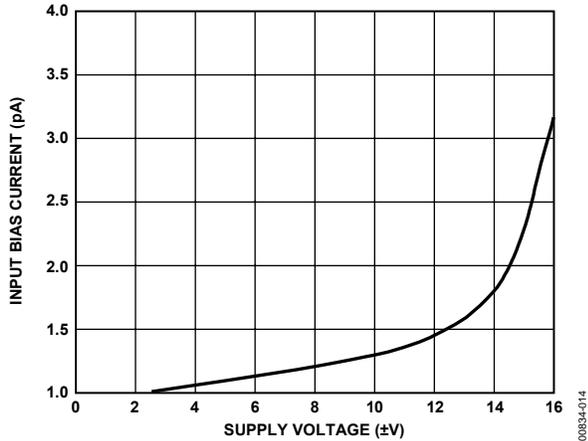


Figure 15. Pin 2 Input Bias Current vs. Supply Voltage

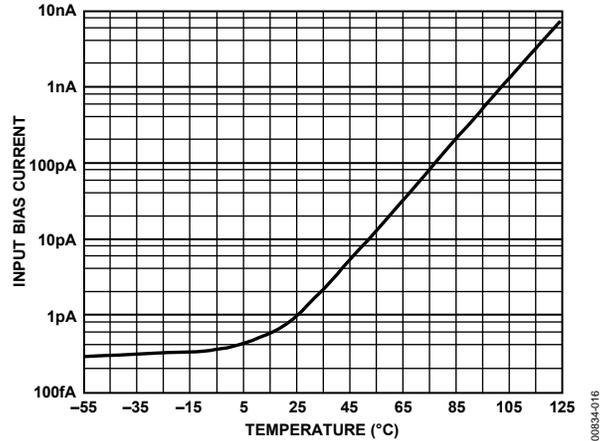


Figure 17. Pin 2 Input Bias Current vs. Temperature

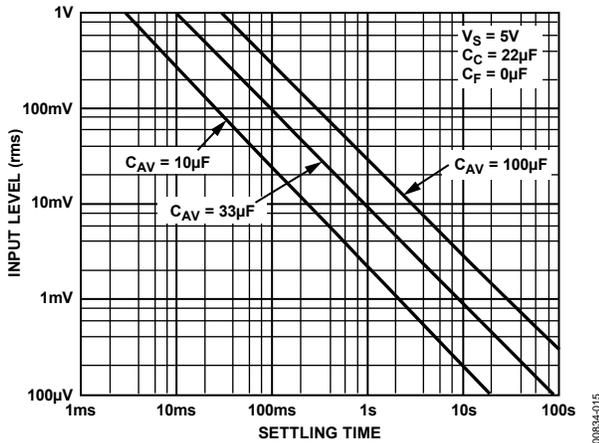


Figure 16. RMS Input Level for Various Values of C_{AV} vs. Settling Time

CALCULATING SETTling TIME USING FIGURE 16

Figure 16 can be used to closely approximate the time required for the AD736 to settle when its input level is reduced in amplitude. The net time required for the rms converter to settle is the difference between two times extracted from the graph—the initial time minus the final settling time. As an example, consider the following conditions: a 33 μF averaging capacitor, a 100 mV initial rms input level, and a final (reduced) 1 mV input level. From Figure 16, the initial settling time (where the 100 mV line intersects the 33 μF line) is approximately 80 ms.

The settling time corresponding to the new or final input level of 1 mV is approximately 8 seconds. Therefore, the net time for the circuit to settle to its new value is 8 seconds minus 80 ms, which is 7.92 seconds. Note that because of the smooth decay characteristic inherent with a capacitor/diode combination, this is the total settling time to the final value (that is, not the settling time to 1%, 0.1%, and so on, of the final value). In addition, this graph provides the worst-case settling time because the AD736 settles very quickly with increasing input levels.

TYPES OF AC MEASUREMENT

The AD736 is capable of measuring ac signals by operating as either an average responding converter or a true rms-to-dc converter. As its name implies, an average responding converter computes the average absolute value of an ac (or ac and dc) voltage or current by full-wave rectifying and low-pass filtering the input signal; this approximates the average. The resulting output, a dc average level, is then scaled by adding (or reducing) gain; this scale factor converts the dc average reading to an rms equivalent value for the waveform being measured. For example, the average absolute value of a sine wave voltage is 0.636 times that of V_{PEAK} ; the corresponding rms value is 0.707 times V_{PEAK} . Therefore, for sine wave voltages, the required scale factor is 1.11 (0.707 divided by 0.636).

In contrast to measuring the average value, true rms measurement is a universal language among waveforms, allowing the magnitudes of all types of voltage (or current) waveforms to be compared to one another and to dc. RMS is a direct measure of the power or heating value of an ac voltage compared to that of a dc voltage; an ac signal of 1 V rms produces the same amount of heat in a resistor as a 1 V dc signal.

Mathematically, the rms value of a voltage is defined (using a simplified equation) as

$$V_{rms} = \sqrt{Avg(V^2)}$$

This involves squaring the signal, taking the average, and then obtaining the square root. True rms converters are smart rectifiers; they provide an accurate rms reading regardless of the type of waveform being measured. However, average responding converters can exhibit very high errors when their input signals deviate from their precalibrated waveform; the magnitude of the error depends on the type of waveform being measured. For example, if an average responding converter is calibrated to measure the rms value of sine wave voltages and then is used to measure either symmetrical square waves or dc voltages, the converter has a computational error 11% (of reading) higher than the true rms value (see Table 4).

Table 4. Error Introduced by an Average Responding Circuit when Measuring Common Waveforms

Waveform Type 1 V Peak Amplitude	Crest Factor (V_{PEAK}/V_{rms})	True RMS Value (V)	Average Responding Circuit Calibrated to Read RMS Value of Sine Waves (V)	% of Reading Error Using Average Responding Circuit
Undistorted Sine Wave	1.414	0.707	0.707	0
Symmetrical Square Wave	1.00	1.00	1.11	+11.0
Undistorted Triangle Wave	1.73	0.577	0.555	-3.8
Gaussian Noise (98% of Peaks <1 V)	3	0.333	0.295	-11.4
Rectangular	2	0.5	0.278	-44
Pulse Train	10	0.1	0.011	-89
SCR Waveforms				
50% Duty Cycle	2	0.495	0.354	-28
25% Duty Cycle	4.7	0.212	0.150	-30

THEORY OF OPERATION

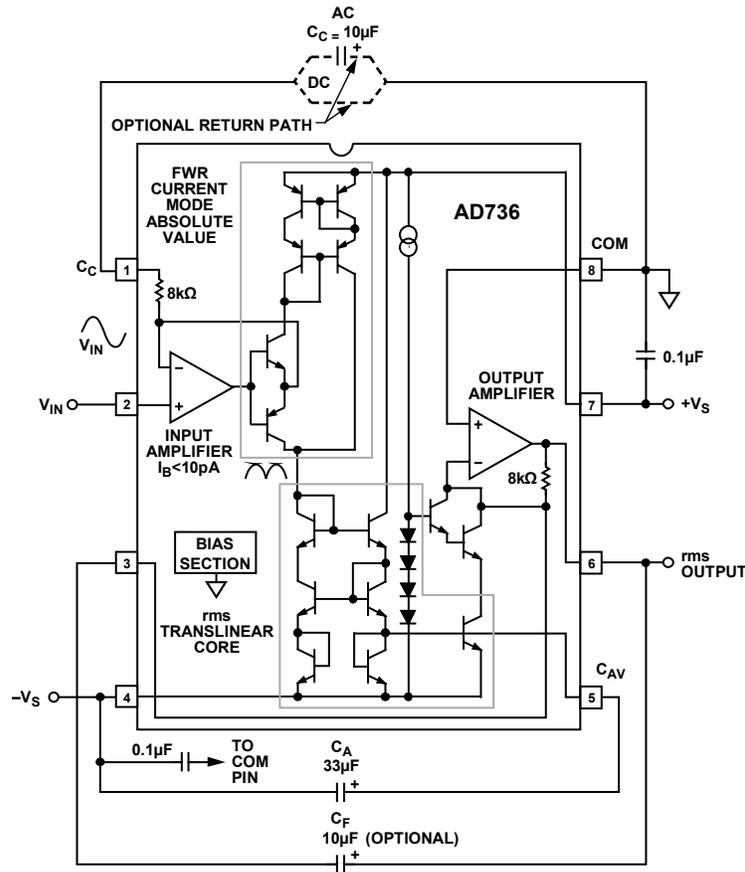


Figure 18. AD736 True RMS Circuit

As shown by Figure 18, the AD736 has five functional subsections: the input amplifier, full-wave rectifier (FWR), rms core, output amplifier, and bias section. The FET input amplifier allows both a high impedance, buffered input (Pin 2) and a low impedance, wide dynamic range input (Pin 1). The high impedance input, with its low input bias current, is well suited for use with high impedance input attenuators.

The output of the input amplifier drives a full-wave precision rectifier, that in turn, drives the rms core. The essential rms operations of squaring, averaging, and square rooting are performed in the core using an external averaging capacitor, C_{AV} . Without C_{AV} , the rectified input signal travels through the core unprocessed, as is done with the average responding connection (see Figure 19).

A final subsection, an output amplifier, buffers the output from the core and allows optional low-pass filtering to be performed via the external capacitor, C_F , which is connected across the feedback path of the amplifier. In the average responding connection, this is where all of the averaging is carried out. In the rms circuit, this additional filtering stage helps reduce any output ripple that was not removed by the averaging capacitor, C_{AV} .

RMS MEASUREMENT—CHOOSING THE OPTIMUM VALUE FOR C_{AV}

Because the external averaging capacitor, C_{AV} , holds the rectified input signal during rms computation, its value directly affects the accuracy of the rms measurement, especially at low frequencies. Furthermore, because the averaging capacitor appears across a diode in the rms core, the averaging time constant increases exponentially as the input signal is reduced. This means that as the input level decreases, errors due to nonideal averaging decrease while the time required for the circuit to settle to the new rms level increases. Therefore, lower input levels allow the circuit to perform better (due to increased averaging) but increase the waiting time between measurements. Obviously, when selecting C_{AV} , a trade-off between computational accuracy and settling time is required.

Table 5. Capacitor Selection Chart

Application	RMS Input Level	Low Frequency Cutoff (-3 dB)	Max Crest Factor	C _{AV} (μF)	C _F (μF)	Settling Time ¹ to 1%	
General-Purpose RMS Computation	0 V to 1 V	20 Hz	5	150	10	360 ms	
		200 Hz	5	15	1	36 ms	
	0 mV to 200 mV	20 Hz	5	33	10	360 ms	
		200 Hz	5	3.3	1	36 ms	
General Purpose Average Responding	0 V to 1 V	20 Hz		None	33	1.2 sec	
		200 Hz		None	3.3	120 ms	
SCR Waveform Measurement	0 mV to 200 mV	20 Hz		None	33	1.2 sec	
		200 Hz		None	3.3	120 ms	
	0 mV to 100 mV	50 Hz	5	100	33	1.2 sec	
		60 Hz	5	82	27	1.0 sec	
Audio Applications	0 mV to 200 mV	50 Hz	5	50	33	1.2 sec	
		60 Hz	5	47	27	1.0 sec	
	Speech	0 mV to 200 mV	300 Hz	3	1.5	0.5	18 ms
	Music	0 mV to 100 mV	20 Hz	10	100	68	2.4 sec

¹ Settling time is specified over the stated rms input level with the input signal increasing from zero. Settling times are greater for decreasing amplitude input signals.

APPLICATION CIRCUITS

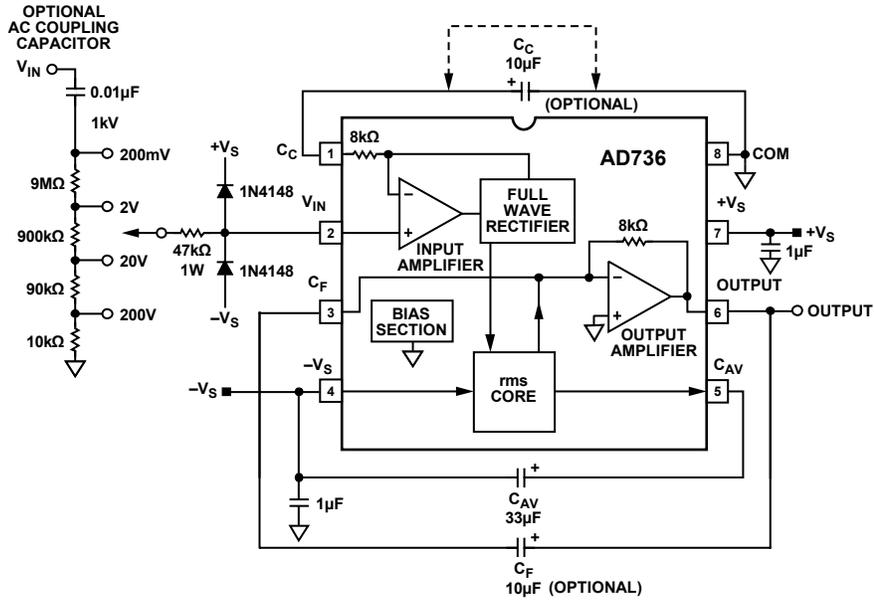


Figure 21. AD736 with a High Impedance Input Attenuator

00834-020

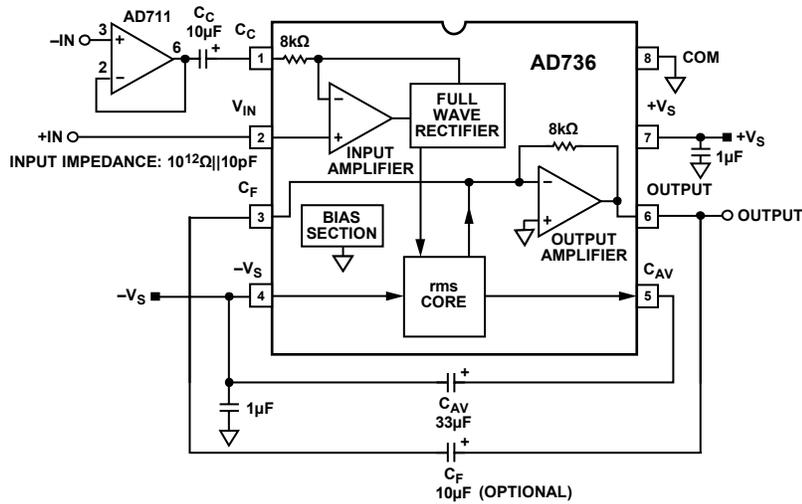


Figure 22. Differential Input Connection

00834-021

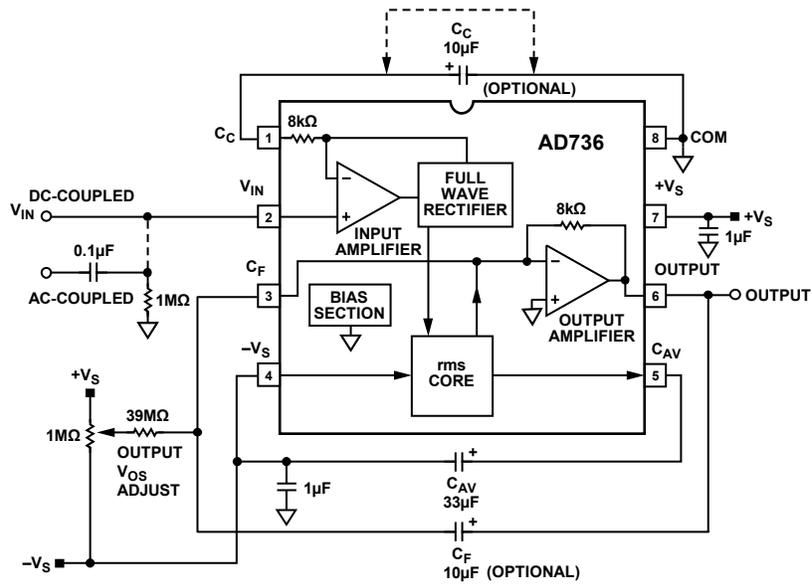


Figure 23. External Output V_{0s} Adjustment

00834-022

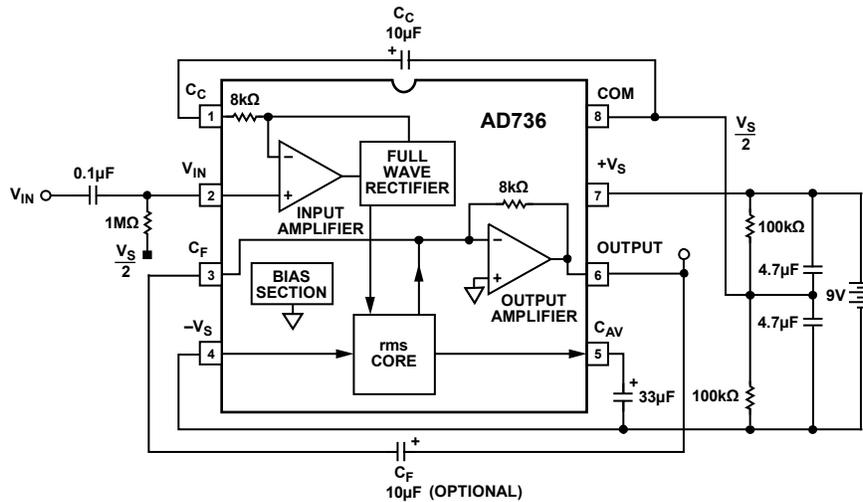


Figure 24. Battery-Powered Option

00834-023

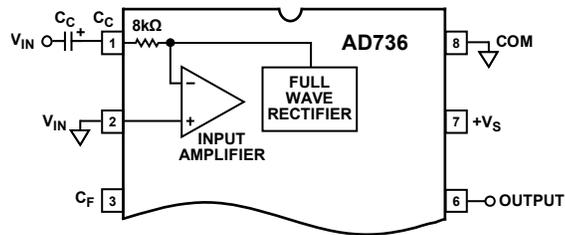
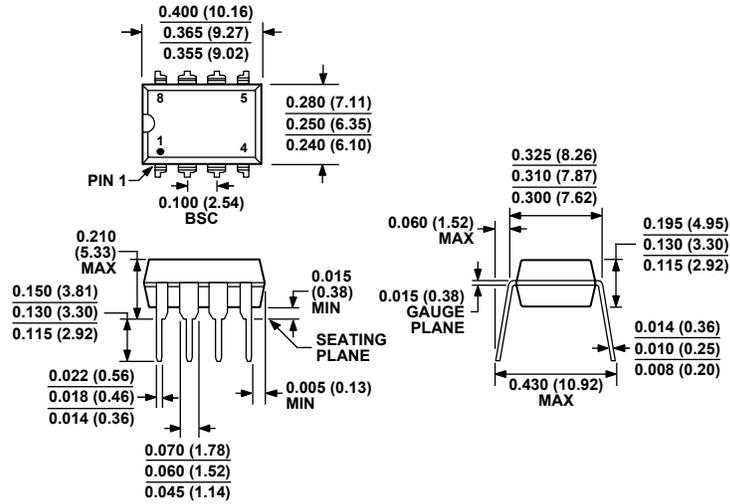


Figure 25. Low-Z, AC-Coupled Input Connection

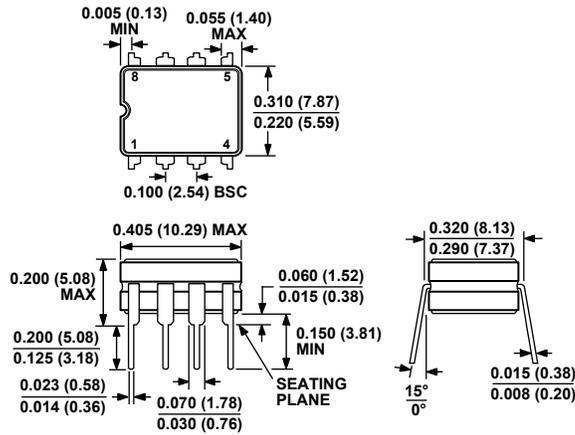
00834-024

OUTLINE DIMENSIONS



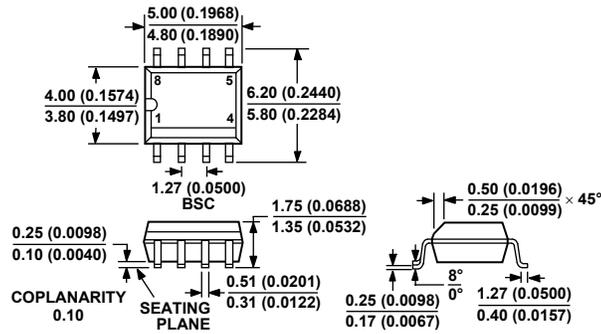
COMPLIANT TO JEDEC STANDARDS MS-001-BA
 CONTROLLING DIMENSIONS ARE IN INCHES; MILLIMETER DIMENSIONS
 (IN PARENTHESES) ARE ROUNDED-OFF INCH EQUIVALENTS FOR
 REFERENCE ONLY AND ARE NOT APPROPRIATE FOR USE IN DESIGN.
 CORNER LEADS MAY BE CONFIGURED AS WHOLE OR HALF LEADS.

Figure 26. 8-Lead Plastic Dual In-Line Package [PDIP]
 Narrow Body
 (N-8)
 Dimensions shown in inches and (millimeters)



CONTROLLING DIMENSIONS ARE IN INCHES; MILLIMETER DIMENSIONS
 (IN PARENTHESES) ARE ROUNDED-OFF INCH EQUIVALENTS FOR
 REFERENCE ONLY AND ARE NOT APPROPRIATE FOR USE IN DESIGN.

Figure 27. 8-Lead Ceramic Dual In-Line Package [CERDIP]
 (Q-8)
 Dimensions shown in inches and (millimeters)



COMPLIANT TO JEDEC STANDARDS MS-012-AA
 CONTROLLING DIMENSIONS ARE IN MILLIMETERS; INCH DIMENSIONS
 (IN PARENTHESES) ARE ROUNDED-OFF MILLIMETER EQUIVALENTS FOR
 REFERENCE ONLY AND ARE NOT APPROPRIATE FOR USE IN DESIGN.

Figure 28. 8-Lead Standard Small Outline Package [SOIC_N]
 Narrow Body
 (R-8)

Dimensions shown in millimeters and (inches)

ORDERING GUIDE

Model	Temperature Range	Package Description	Package Option
AD736AQ	-40°C to +85°C	8-Lead Cerdip	Q-8
AD736BQ	-40°C to +85°C	8-Lead Cerdip	Q-8
AD736AR	-40°C to +85°C	8-Lead SOIC_N	R-8
AD736AR-REEL	-40°C to +85°C	8-Lead SOIC_N	R-8
AD736AR-REEL7	-40°C to +85°C	8-Lead SOIC_N	R-8
AD736ARZ	-40°C to +85°C	8-Lead SOIC_N	R-8
AD736ARZ-R7	-40°C to +85°C	8-Lead SOIC_N	R-8
AD736ARZ-RL	-40°C to +85°C	8-Lead SOIC_N	R-8
AD736BR	-40°C to +85°C	8-Lead SOIC_N	R-8
AD736BR-REEL	-40°C to +85°C	8-Lead SOIC_N	R-8
AD736BR-REEL7	-40°C to +85°C	8-Lead SOIC_N	R-8
AD736BRZ ¹	-40°C to +85°C	8-Lead SOIC_N	R-8
AD736BRZ-R7 ¹	-40°C to +85°C	8-Lead SOIC_N	R-8
AD736BRZ-RL ¹	-40°C to +85°C	8-Lead SOIC_N	R-8
AD736JN	0°C to +70°C	8-Lead PDIP	N-8
AD736JNZ ¹	0°C to +70°C	8-Lead PDIP	N-8
AD736KN	0°C to +70°C	8-Lead PDIP	N-8
AD736KNZ ¹	0°C to +70°C	8-Lead PDIP	N-8
AD736JR	0°C to +70°C	8-Lead SOIC_N	R-8
AD736JR-REEL	0°C to +70°C	8-Lead SOIC_N	R-8
AD736JR-REEL7	0°C to +70°C	8-Lead SOIC_N	R-8
AD736JRZ ¹	0°C to +70°C	8-Lead SOIC_N	R-8
AD736JRZ-RL ¹	0°C to +70°C	8-Lead SOIC_N	R-8
AD736JRZ-R7 ¹	0°C to +70°C	8-Lead SOIC_N	R-8
AD736KR	0°C to +70°C	8-Lead SOIC_N	R-8
AD736KR-REEL	0°C to +70°C	8-Lead SOIC_N	R-8
AD736KR-REEL7	0°C to +70°C	8-Lead SOIC_N	R-8
AD736KRZ ¹	0°C to +70°C	8-Lead SOIC_N	R-8
AD736KRZ-RL ¹	0°C to +70°C	8-Lead SOIC_N	R-8
AD736KRZ-R7 ¹	0°C to +70°C	8-Lead SOIC_N	R-8

¹ Z = Pb-free part.

AD736

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AD736

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