36-V, 3-MHz, 4-V/µs, Precision Operational Amplifier

Features

- Supply Voltage: 4.5 V to 36 V
- Offset Voltage: ±75 µV Maximum
- Differential Input Voltage Range to Supply Rail, can Work as Comparator
- Rail-to-Rail Input and Output
- Bandwidth: 3 MHz
- Slew Rate: 4 V/µs
- Low Noise: 21 nV/√Hz at 1 kHz
- High Capacitive Load Drive Capability: 10 nF
- Operation Temperature Range: −40℃ to 125℃

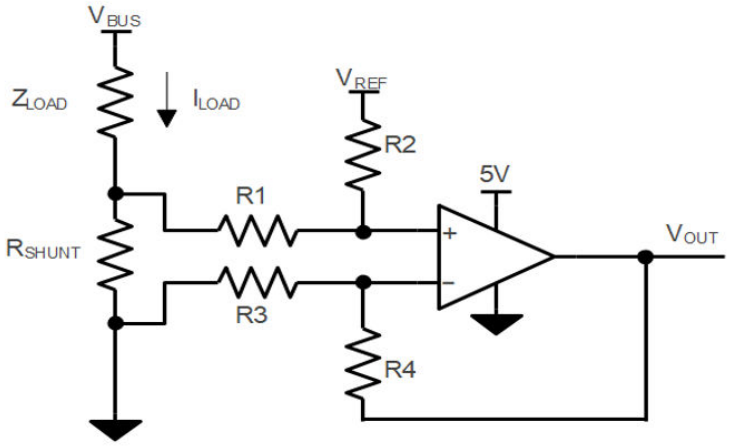
Applications

- Instrumentation
- Active Filters, ASIC Input, or Output Amplifier
- Sensor Interface
- Motor Control
- Industrial Control

Description

The TPA173x family is the newest high supply voltage amplifiers with low offset, low power, and stable high-frequency response. These devices incorporate the proprietary and patented design techniques of the 3PEAK to achieve very good AC performance with 3-MHz bandwidth, 4-V/µs slew rate, and low distortion while drawing only 710 µA of quiescent current per amplifier. The input common-mode voltage range extends to V– and V+, and the outputs swing rail-to-rail. The TPA173x family can be used as plug-in replacements for many commercially available op-amps to reduce power and improve the range and performance of the input and output.

Typical Application Circuit



$V_{OUT} = (I_{LOAD} \times R_{SHUNT}) \times (R2 / R1) + V_{REF}$

When R3 = R1, R2 = R4, $R_{SHUNT} << R1$

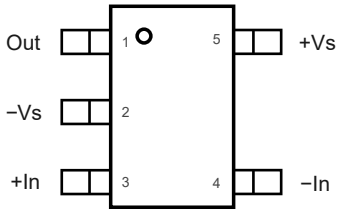
Table of Contents

Revision History

Date	Revision	Notes
2025-06-11	Rev.A.0	Released version.

Pin Configuration and Functions

TPA1731
SOT23-5 Package
Top View



TPA1731
SOP8 Package
Top View

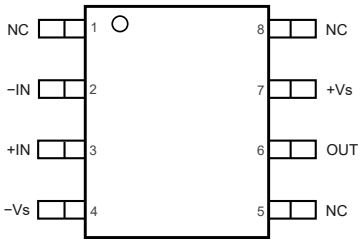
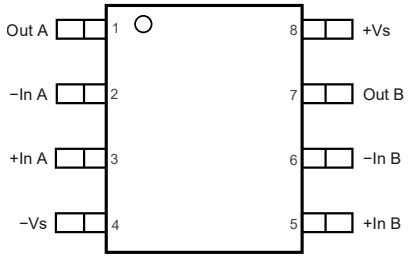


Table 1. Pin Functions TPA1731:

Pin		Name	I/O	Description
SOT23-5	SOP8			
1	6	Out	Output	Output
2	4	$-V_S$		Negative power supply
3	3	+In	Input	Non-inverting input
4	2	−In	Input	Inverting input
5	7	$+V_S$		Positive power supply
-	1, 5, 8	NC		Not connected

TPA1732
SOP8 Package
Top View



TPA1732
MSOP8 Package
Top View

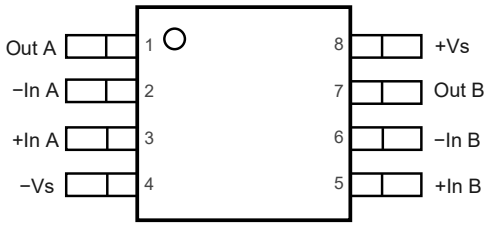
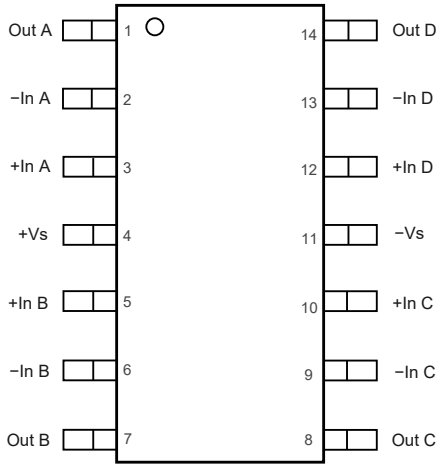


Table 2. Pin Functions: TPA1732

Pin		Name	I/O	Description
SOP8	MSOP8			
1	1	Out A	Output	Output
2	2	−In A	Input	Inverting input
3	3	+In A	Input	Non-inverting input
4	4	$-V_S$		Negative power supply
5	5	+In B	Input	Non-inverting input
6	6	−In B	Input	Inverting input
7	7	Out B	Output	Output
8	8	$+V_S$		Positive power supply

TPA1734
SOP14 Package
Top View



TPA1734
TSSOP14 Package
Top View

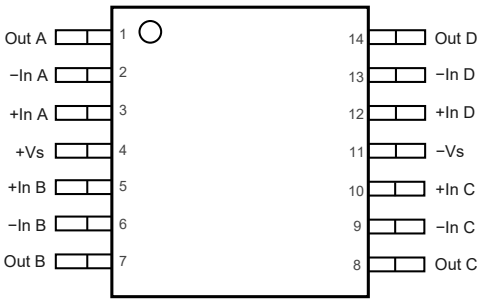


Table 3. Pin Functions: TPA1734

Pin		Name	I/O	Description
SOP14	TSSOP14			
1	1	Out A	Output	Output
2	2	−In A	Input	Inverting input
3	3	+In A	Input	Non-inverting input
4	4	$+V_S$		Positive power supply
5	5	+In B	Input	Non-inverting input
6	6	−In B	Input	Inverting input
7	7	Out B	Output	Output
8	8	Out C	Output	Output
9	9	−In C	Input	Inverting input
10	10	+In C	Input	Non-inverting input
11	11	$-V_S$		Negative power supply
12	12	+In D	Input	Non-inverting input
13	13	−In D	Input	Inverting input
14	14	Out D	Output	Output

Specifications

Absolute Maximum Ratings (1)

Parameter		Min	Max	Unit
	Supply Voltage, $(+V_S) - (-V_S)$		40	V
	Input Voltage	$(-V_S) - 0.3$	$(+V_S) + 0.3$	V
	Differential Input Voltage	$(-V_S) - (+V_S)$	$(+V_S) - (-V_S)$	V
	Input Current: +IN, −IN (2)	−10	10	mA
	Output Short-Circuit Duration (3)		Infinite	
T_J	Maximum Junction Temperature		150	°C
T_A	Operating Temperature Range	−40	125	°C
T_{STG}	Storage Temperature Range	−65	150	°C
T_L	Lead Temperature (Soldering, 10 sec)		260	°C

(1) Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. Exposure to any Absolute Maximum Rating condition for extended periods may affect device reliability and lifetime.
(2) The inputs and outputs are protected by ESD protection diodes to the power supply. If the input or output extends more than 500 mV beyond the positive or negative power supply, the current should be limited to less than 10 mA.
(3) A heat sink may be required to keep the junction temperature below the absolute maximum. This depends on the power supply voltage and how many comparators are shorted. Thermal resistance varies with the amount of PC board metal connected to the package. The specified values are for short traces connected to the leads.

ESD, Electrostatic Discharge Protection

Symbol	Parameter	Condition	Minimum Level	Unit
HBM	Human Body Model ESD	ANSI/ESDA/JEDEC JS-001 (1)	2	kV
CDM	Charged Device Model ESD	ANSI/ESDA/JEDEC JS-002 (2)	1	kV

(1) JEDEC document JEP155 states that 500-V HBM allows safe manufacturing with a standard ESD control process.
(2) JEDEC document JEP157 states that 250-V CDM allows safe manufacturing with a standard ESD control process.

Recommended Operating Conditions

Parameter		Min	Typ	Max	Unit
V_S	Supply Voltage, $(+V_s) - (-V_s)$	4.5		36	V
T_A	Operating Temperture Range	−40		125	°C

Thermal Information

Package Type	θ_{JA}	θ_{JC}	Unit
SOT23-5	250	81	°C/W
SOP8	158	43	°C/W

Package Type	θ_{JA}	θ_{JC}	Unit
MSOP8	210	45	°C/W
SOP14	120	36	°C/W
TSSOP14	180	35	°C/W

Electrical Characteristics

All test conditions: V_S = 36 V, T_A = 25°C, R_L = 10 kΩ, unless otherwise noted.

Symbol	Parameter	Conditions	TA	Min	Typ	Max	Unit
Power Supply							
V_S	Supply Voltage Range			4.5		36	V
I_Q	Quiescent Current per Amplifier	V_S = 36 V		0.6	0.71	0.83	mA
			−40℃ to 125℃	0.55		0.92	mA
PSRR	Power Supply Rejection Ratio	V_S = 8 V to 36 V V_{CM} = 0.5 V_S		127	145		dB
			−40℃ to 125℃	125	145		dB
Input Characteristics							
V_{OS}	Input Offset Voltage Drift	V_S = 36 V, V_{CM} = 18 V		−75	5	75	μV
			−40℃ to 125℃	−250	10	250	μV
		V_S = 36 V, V_{CM} = 34.5 V		−125	10	125	μV
			−40℃ to 125℃	−350	50	350	μV
V_{OS} TC	Input Offset Voltage				0.5		μV/°C
I_B	Input Bias Current			−200	20	200	pA
			−40℃ to 125℃	−20000		20000	pA
I_{OS}	Input Offset Current			−200	20	200	pA
			−40℃ to 125℃	−3000		3000	pA
CID	Input Capacitor	Differential mode			7.8		pF
CIC	Input Capacitor	Common mode			6.9		pF
A_V	Open-Loop Voltage Gain	(V−) + 0.6 V < VO < (V+) − 0.6V, RLOAD = 2 kΩ		128.5	132		dB
			−40℃ to 125℃	104			dB
		(V−) + 0.3 V < VO < (V+) − 0.3V, RLOAD = 10 kΩ		133	135		dB
			−40℃ to 125℃	107			dB
V_{CMR}	Common-Mode Input Voltage Range			−0.1		36.1	V
CMRR	Common-Mode Rejection Ratio	(V−) − 0.1 V < VCM < (V+) − 3V		117	138		dB
			−40℃ to 125℃	115			dB
		(V+) − 1.5 V < VCM < (V+) − 0.1V		102	122		dB
			−40℃ to 125℃	98			dB
Output Characteristics							
V_{OH}	Output Swing from Positive Rail	R_{LOAD} = 10 kΩ to V_S / 2				60	mV
			−40℃ to 125℃			80	mV
		R_{LOAD} = 2 kΩ to V_S / 2				300	mV
			−40℃ to 125℃			350	mV
		No Load				8	mV

Symbol	Parameter	Conditions	TA	Min	Typ	Max	Unit
			−40℃ to 125℃			10	mV
V_{OL}	Output Swing from Negative Rail	R_{LOAD} = 10 kΩ to V_S / 2				60	mV
			−40℃ to 125℃			80	mV
		R_{LOAD} = 2 kΩ to V_S / 2				300	mV
			−40℃ to 125℃			350	mV
		No Load				8	mV
			−40℃ to 125℃			10	mV
I_{SC}	Output Short-Circuit Current	Source Current			62		mA
		Sink Current			72		mA
AC Specifications							
GBW	Gain-Bandwidth Product				3		MHz
SR	Slew Rate	G = 1, 10 V step			4		V/μs
t_{OR}	Overload Recovery				2		μs
t_S	Settling Time, 0.01%	G = 1, 10 V step			5.1		μs
	Settling Time, 0.001%				2.2		μs
ZO	Open-loop Output Impedance	f = 1 MHz, IO = 0 A			135		Ω
C_{LOAD}	Capacitive Load Drive					10	nF
Noise Performance							
E_N	Input Voltage Noise	(V−) − 0.1 V < VCM < (V+) − 3V, f = 0.1 Hz to 10 Hz			9.4		μV_{PP}
		(V+) − 1.5 V < VCM < (V+) − 0.1V, f = 0.1 Hz to 10 Hz			14.4		μV_{PP}
e_N	Input Voltage Noise Density	(V−) − 0.1 V < VCM < (V+) − 3V, f = 100 Hz			51		nV/√Hz
		(V−) − 0.1 V < VCM < (V+) − 3V, f = 1 kHz			21		nV/√Hz
		(V+) − 1.5 V < VCM < (V+) − 0.1V, f = 100 Hz			125		nV/√Hz
		(V+) − 1.5 V < VCM < (V+) − 0.1V, f = 1 kHz			47		nV/√Hz
i_N	Input Current Noise	f = 1 kHz			1.5		fA/√Hz
THD+N	Total Harmonic Distortion and Noise	f = 1 kHz, G = 1, R_L = 10 kΩ, V_{OUT} = 3.5 V_{RMS}			0.00042		%

All test conditions: V_S = 8 V, T_A = 25°C, R_L = 10 kΩ, unless otherwise noted.

Symbol	Parameter	Conditions	TA	Min	Typ	Max	Unit
Input Characteristics							
V_{OS}	Input Offset Voltage Drift	V_S = 8 V, V_{CM} = 4 V		−75	5	75	μV
			−40℃ to 125℃	−250	10	250	μV
		V_S = 8 V, V_{CM} = 6.5 V		−125	10	125	μV
			−40℃ to 125℃	−350	50	350	μV
V_{OS} TC	Input Offset Voltage				0.5		μV/°C
I_B	Input Bias Current			−200	20	200	pA
			−40℃ to 125℃	−20000		20000	pA
I_{OS}	Input Offset Current			−200	20	200	pA
			−40℃ to 125℃	−3000		3000	pA
CID	Input Capacitor	Differential mode			7.8		pF
CIC	Input Capacitor	Common mode			6.9		pF
A_V	Open-Loop Voltage Gain	(V−) + 0.6 V < VO < (V+) − 0.6V, RLOAD = 2 kΩ		124	136		dB
			−40℃ to 125℃	114			dB
		(V−) + 0.3 V < VO < (V+) − 0.3V, RLOAD = 10 kΩ		126	140		dB
			−40℃ to 125℃	122			dB
V_{CMR}	Common-Mode Input Voltage Range			−0.1		8.1	V
CMRR	Common-Mode Rejection Ratio	(V−) − 0.1 V < VCM < (V+) − 3V		104	122		dB
			−40℃ to 125℃	101			dB
		(V+) − 1.5 V < VCM < (V+) − 0.1V		101	114		dB
			−40℃ to 125℃	195			dB
Output Characteristics							
V_{OH}	Output Swing from Positive Rail	R_{LOAD} = 10 kΩ to V_S / 2				20	mV
			−40℃ to 125℃			25	mV
		R_{LOAD} = 2 kΩ to V_S / 2				60	mV
			−40℃ to 125℃			80	mV
		No Load				10	mV
			−40℃ to 125℃			12	mV
V_{OL}	Output Swing from Negative Rail	R_{LOAD} = 10 kΩ to V_S / 2				20	mV
			−40℃ to 125℃			25	mV
		R_{LOAD} = 2 kΩ to V_S / 2				60	mV
			−40℃ to 125℃			80	mV
		No Load				10	mV
			−40℃ to 125℃			12	mV

Symbol	Parameter	Conditions	TA	Min	Typ	Max	Unit
I_{SC}	Output Short-Circuit Current	Source Current			62		mA
		Sink Current			72		mA
AC Specifications							
GBW	Gain-Bandwidth Product				3		MHz
SR	Slew Rate	G = 1, 10 V step			4		V/μs
t_{OR}	Overload Recovery				2		μs
ZO	Open-loop Output Impedance	f = 1 MHz, IO = 0 A			220		Ω
C_{LOAD}	Capacitive Load Drive				10		nF
Noise Performance							
E_N	Input Voltage Noise	(V−) − 0.1 V < VCM < (V+) − 3V, f = 0.1 Hz to 10 Hz			9.4		μV_{PP}
		(V+) − 1.5 V < VCM < (V+) − 0.1V, f = 0.1 Hz to 10 Hz			14.4		μV_{PP}
e_N	Input Voltage Noise Density	(V−) − 0.1 V < VCM < (V+) − 3V, f = 100 Hz			51		$nV/\sqrt{Hz}$
		(V−) − 0.1 V < VCM < (V+) − 3V, f = 1 kHz			21		$nV/\sqrt{Hz}$
		(V+) − 1.5 V < VCM < (V+) − 0.1V, f = 100 Hz			125		$nV/\sqrt{Hz}$
		(V+) − 1.5 V < VCM < (V+) − 0.1V, f = 1 kHz			47		$nV/\sqrt{Hz}$
i_N	Input Current Noise	f = 1 kHz			1.5		$fA/\sqrt{Hz}$

All test conditions: V_S = 4.5 V, T_A = 25°C, R_L = 10 kΩ, unless otherwise noted.

Symbol	Parameter	Conditions	TA	Min	Typ	Max	Unit
Power Supply							
I_Q	Quiescent Current per Amplifier	V_S = 4.5 V		0.56	0.64	0.75	mA
			−40℃ to 125℃	0.51		0.82	mA
Input Characteristics							
V_{OS}	Input Offset Voltage Drift	V_S = 4.5 V, V_{CM} = 1.5 V		−75	5	75	μV
			−40℃ to 125℃	−250	10	250	μV
		V_S = 4.5 V, V_{CM} = 3 V		−125	10	125	μV
			−40℃ to 125℃	−350	50	350	μV
V_{OS} TC	Input Offset Voltage				0.5		μV/°C
I_B	Input Bias Current			−200	20	200	pA
			−40℃ to 125℃	−20000		20000	pA
I_{OS}	Input Offset Current			−200	20	200	pA
			−40℃ to 125℃	−3000		3000	pA
CID	Input Capacitor	Differential mode			7.8		pF
CIC	Input Capacitor	Common mode			6.9		pF
A_V	Open-Loop Voltage Gain	(V−) + 0.6 V < VO < (V+) − 0.6V, RLOAD = 2 kΩ		116	136		dB
			−40℃ to 125℃	114			dB
		(V−) + 0.3 V < VO < (V+) − 0.3V, RLOAD = 10 kΩ		124	140		dB
			−40℃ to 125℃	122			dB
V_{CMR}	Common-Mode Input Voltage Range			−0.1		4.6	V
CMRR	Common-Mode Rejection Ratio	(V−) − 0.1 V < VCM < (V+) − 3V		96	114		dB
			−40℃ to 125℃	93			dB
		(V+) − 1.5 V < VCM < (V+) − 0.1V		104	122		dB
			−40℃ to 125℃	101			dB
Output Characteristics							
V_{OH}	Output Swing from Positive Rail	R_{LOAD} = 10 kΩ to V_S / 2				20	mV
			−40℃ to 125℃			25	mV
		R_{LOAD} = 2 kΩ to V_S / 2				60	mV
			−40℃ to 125℃			80	mV
		No Load				10	mV
			−40℃ to 125℃			12	mV
V_{OL}	Output Swing from Negative Rail	R_{LOAD} = 10 kΩ to V_S / 2				20	mV
			−40℃ to 125℃			25	mV
		R_{LOAD} = 2 kΩ to V_S / 2				60	mV
			−40℃ to 125℃			80	mV

Symbol	Parameter	Conditions	TA	Min	Typ	Max	Unit
		No Load				10	mV
			−40℃ to 125℃			12	mV
I_{SC}	Output Short-Circuit Current	Source Current			62		mA
		Sink Current			72		mA
AC Specifications							
GBW	Gain-Bandwidth Product				3		MHz
SR	Slew Rate	G = 1, 10 V step			4		V/μs
t_{OR}	Overload Recovery				2		ns
ZO	Open-loop Output Impedance	f = 1 MHz, IO = 0 A			220		Ω
CLOAD	Capacitive Load Drive				10		nF
Noise Performance							
E_N	Input Voltage Noise	(V−) − 0.1 V < VCM < (V+) − 3V, f = 0.1 Hz to 10 Hz			9.4		μV_{PP}
		(V+) − 1.5 V < VCM < (V+) − 0.1V, f = 0.1 Hz to 10 Hz			14.4		μV_{PP}
e_N	Input Voltage Noise Density	(V−) − 0.1 V < VCM < (V+) − 3V, f = 100 Hz			51		$nV/\sqrt{Hz}$
		(V−) − 0.1 V < VCM < (V+) − 3V, f = 1 kHz			21		$nV/\sqrt{Hz}$
		(V+) − 1.5 V < VCM < (V+) − 0.1V, f = 100 Hz			125		$nV/\sqrt{Hz}$
		(V+) − 1.5 V < VCM < (V+) − 0.1V, f = 1 kHz			47		$nV/\sqrt{Hz}$
i_N	Input Current Noise	f = 1 kHz			1.5		$fA/\sqrt{Hz}$

Typical Performance Characteristics

All test conditions: V_S = ±15 V, V_{CM} = 0 V, R_L = 10 kΩ, unless otherwise noted.

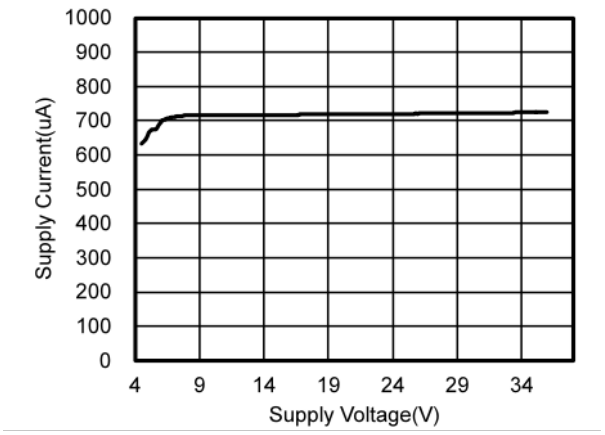


Figure 1. Quiescent Current vs. Supply Voltage

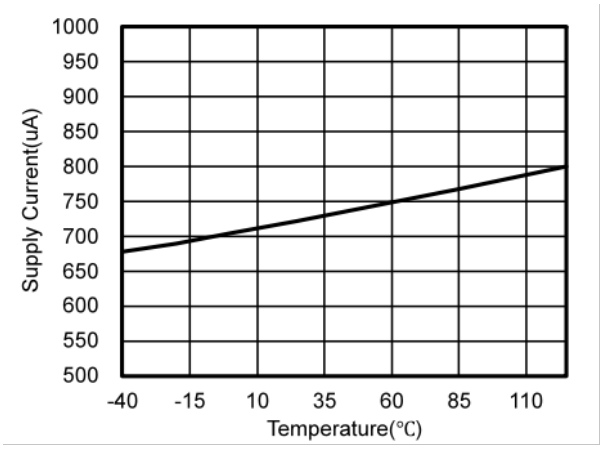


Figure 2. Quiescent Current vs. Temperature

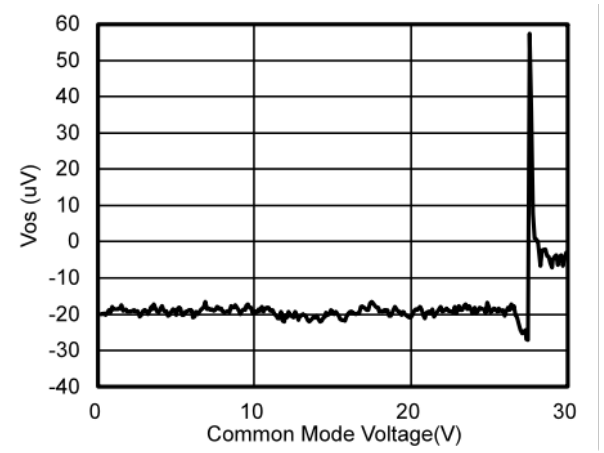


Figure 3. Offset Voltage vs. Common-Mode Voltage

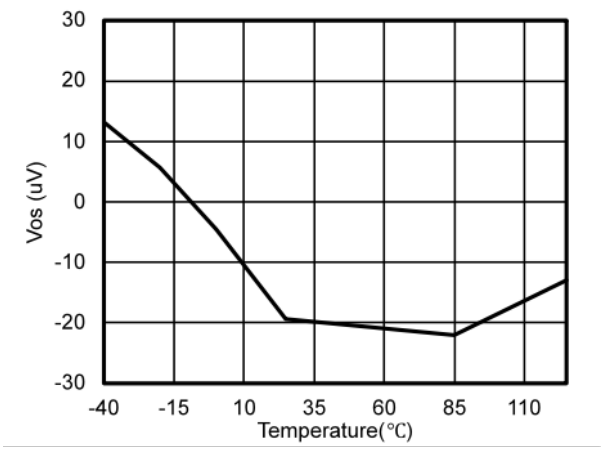


Figure 4. V_{OS} vs. Temperature

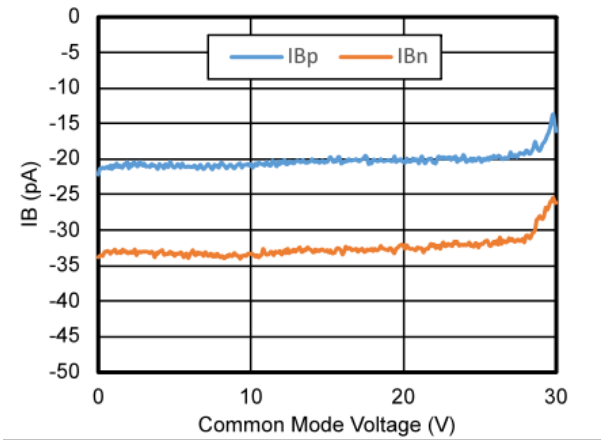


Figure 5. I_B vs. Common-Mode Voltage

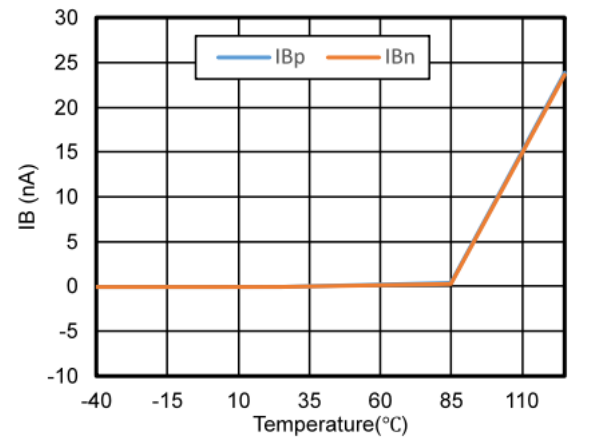


Figure 6. I_B vs. Temperature, −40 to 125℃

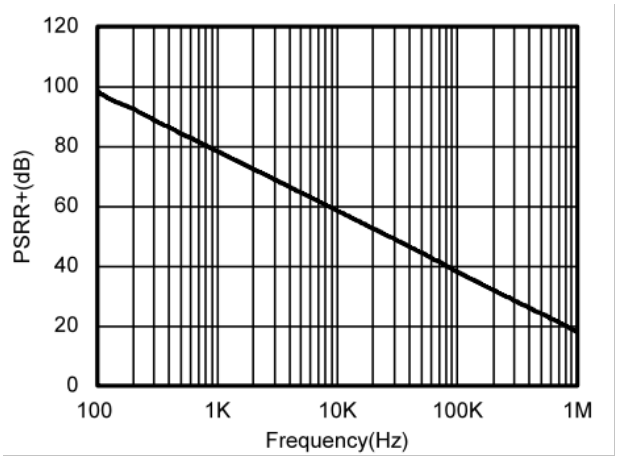


Figure 7. PSRR+ vs. Frequency

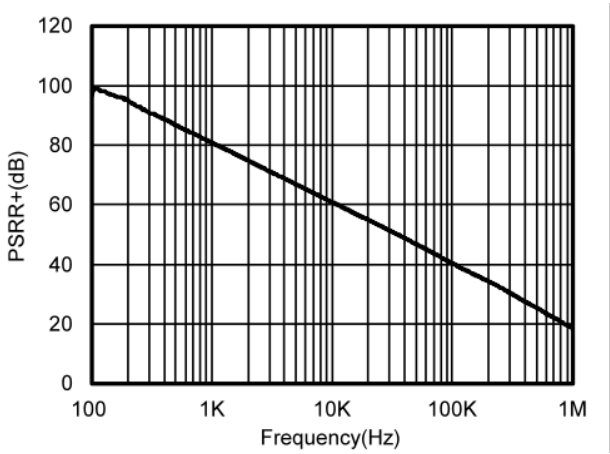


Figure 8. PSRR− vs. Frequency

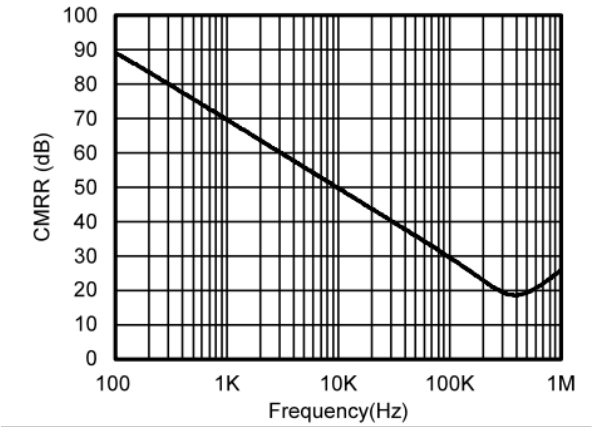


Figure 9. CMRR vs. Frequency

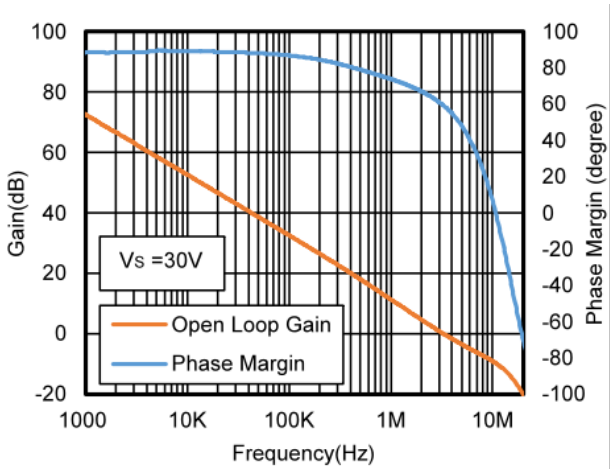


Figure 10. Open Loop Gain and Phase vs. Frequency
R_{LOAD} = 10 K, C_{LOAD} = 100 pF

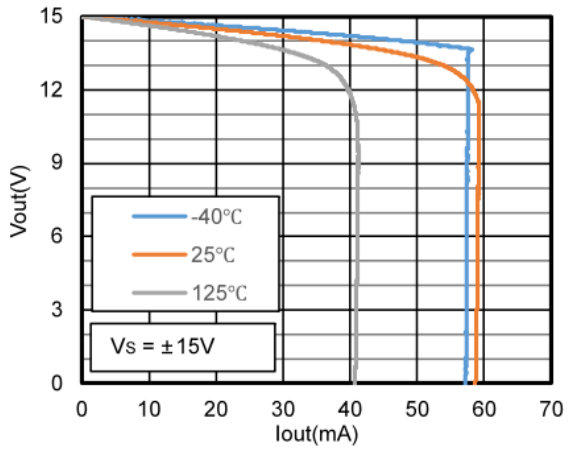


Figure 11. Output Voltage vs. Output Current, Source

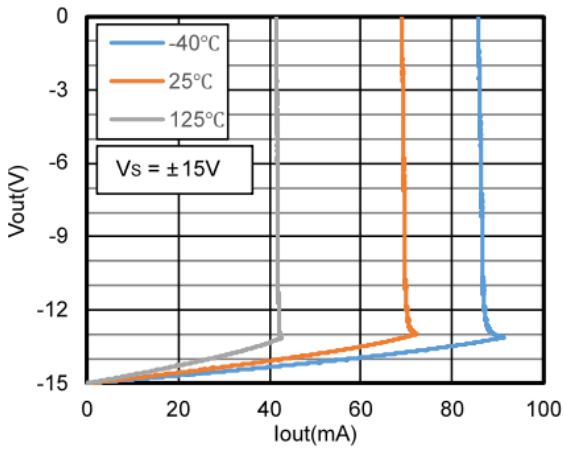


Figure 12. Output Voltage vs. Output Current, Sink

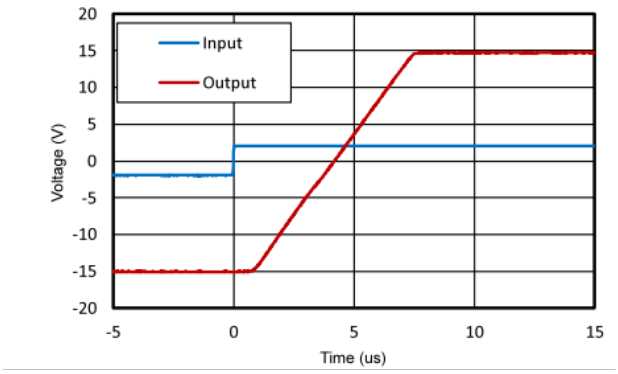


Figure 13. Positive Overload Recovery

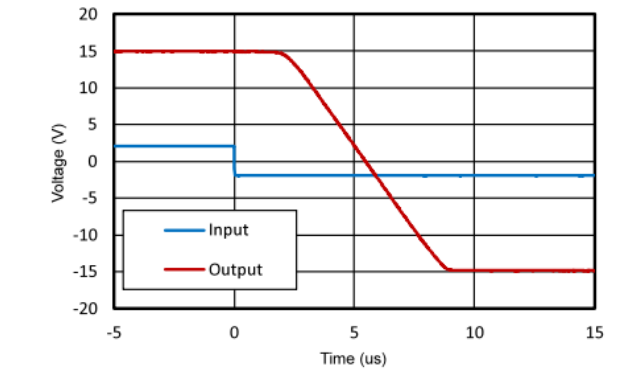


Figure 14. Negative Overload Recovery

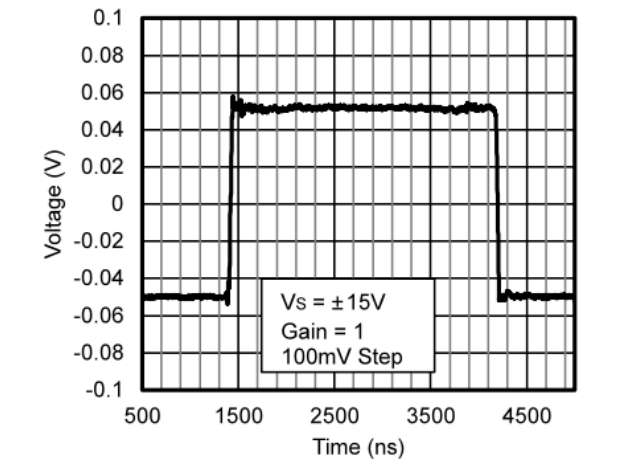


Figure 15. 100-mV Signal Step Response

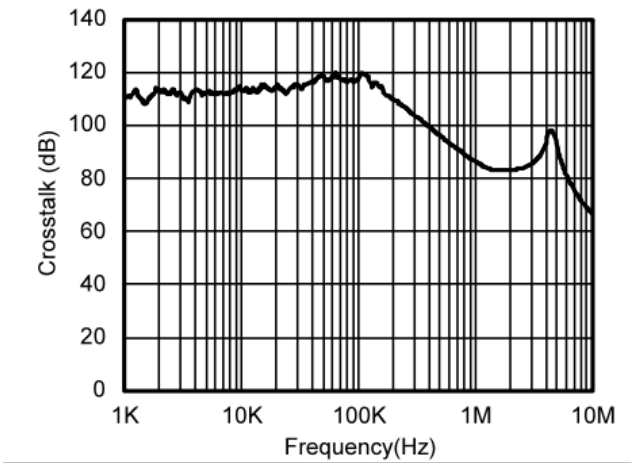


Figure 16. Crosstalk

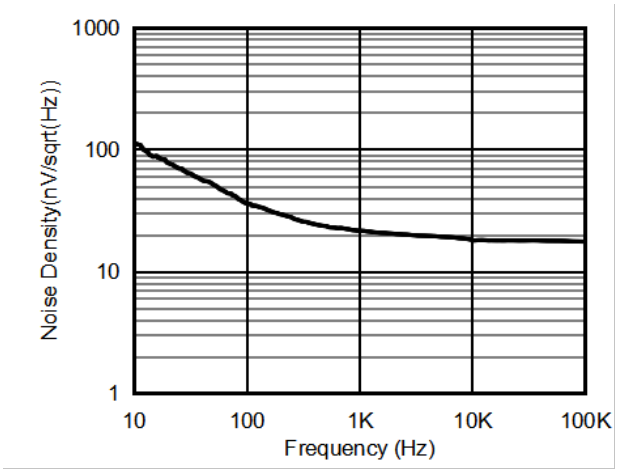


Figure 17. Voltage Noise Spectral Density vs. Frequency

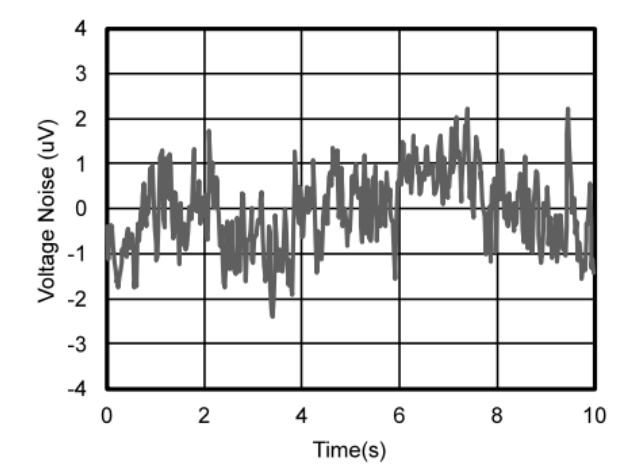


Figure 18. 0.1-Hz to 10-Hz Voltage Noise

Detailed Description

Overview

The TPA173x series is a new family of low-power, rail-to-rail input and output op amplifiers. These devices operate from 4.5 V to 36 V, and are unity-gain stable and designed for a wide range of general-purpose applications.

Functional Block Diagram

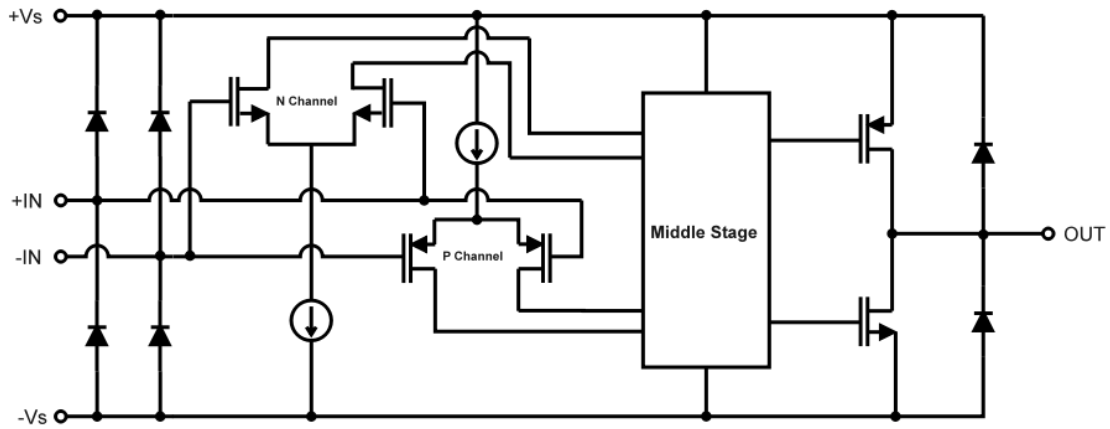
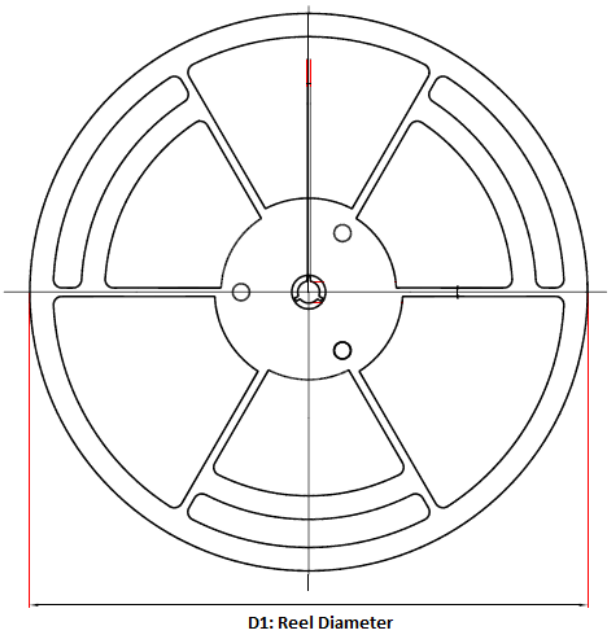
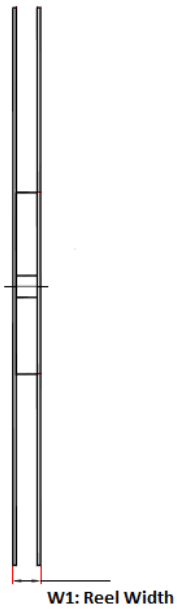
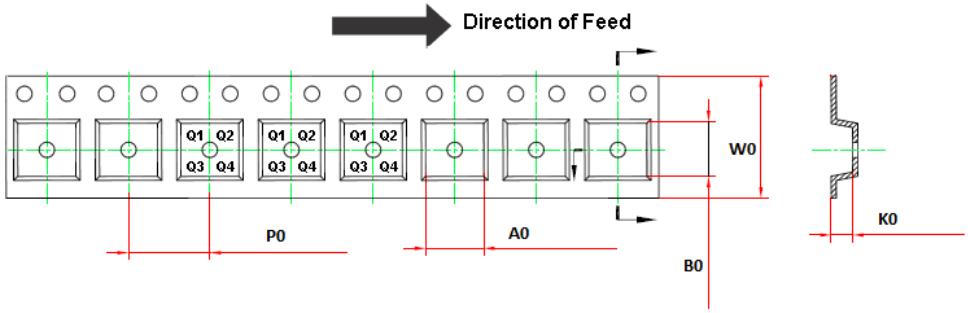


Figure 19. Functional Block Diagram

Tape and Reel Information







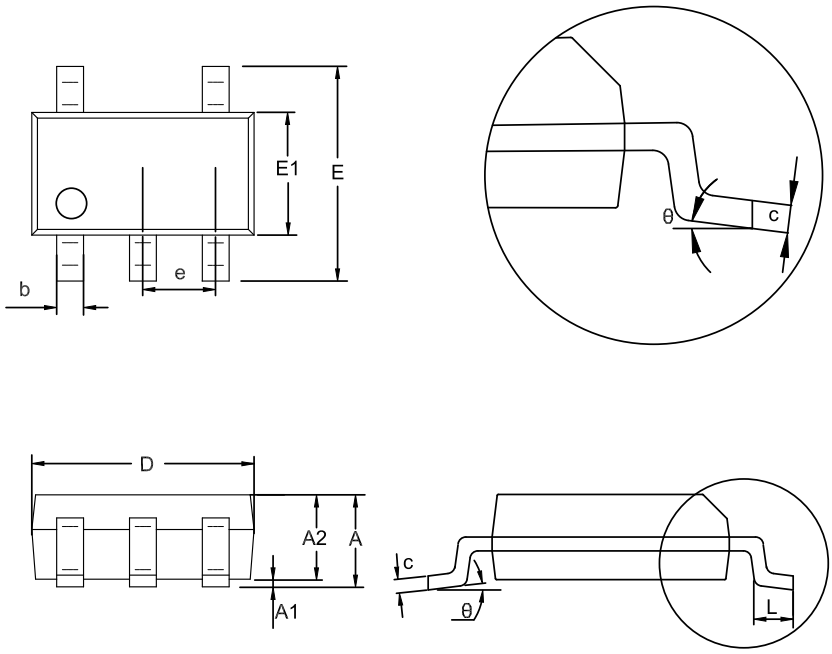
Order Number	Package	D1 (mm)	W1 (mm)	A0 (mm) (1)	B0 (mm) (1)	K0 (mm) (1)	P0 (mm)	W0 (mm)	Pin1 Quadrant
TPA1731-S5TR	SOT23-5	180	12	3.3	3.25	1.4	4	8	Q3
TPA1731-SO1R	SOP8	330	17.6	6.5	5.4	2	8	12	Q1
TPA1732-VS1R	MSOP8	330	17.6	5.3	3.4	1.3	8	12	Q1
TPA1732-SO1R	SOP8	330	17.6	6.5	5.4	2	8	12	Q1
TPA1734-TS2R	TSSOP14	330	17.6	6.8	5.5	1.5	8	12	Q1
TPA1734-SO2R	SOP14	330	21.6	6.5	9.0	2.1	8	16	Q1

(1) The value is for reference only. Contact the 3PEAK factory for more information.

Package Outline Dimensions

SOT23-5

Package Outline Dimensions S5T(SOT23-5-A)



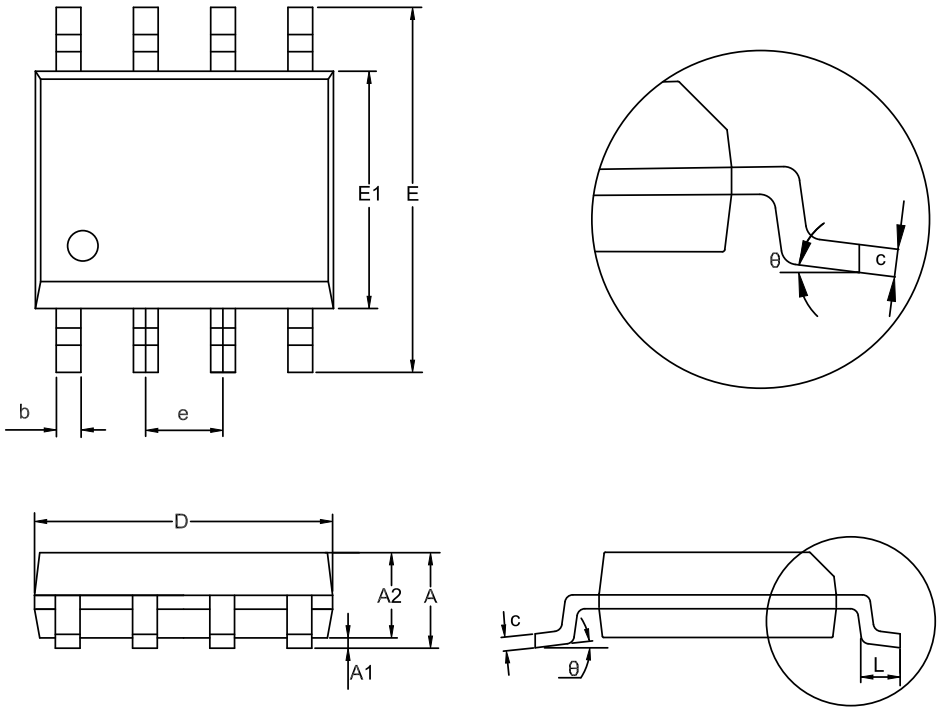
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.150	0.000	0.006
A2	1.000	1.200	0.039	0.047
b	0.280	0.500	0.011	0.020
c	0.100	0.230	0.004	0.009
D	2.820	3.020	0.111	0.119
E	2.600	3.000	0.102	0.118
E1	1.500	1.720	0.059	0.068
e	0.950 BSC		0.037 BSC	
L	0.300	0.600	0.012	0.024
θ	0	8°	0	8°

NOTES

1. Do not include mold flash or protrusion.
2. This drawing is subject to change without notice.

SOP8

Package Outline Dimensions SO1(SOP-8-A)



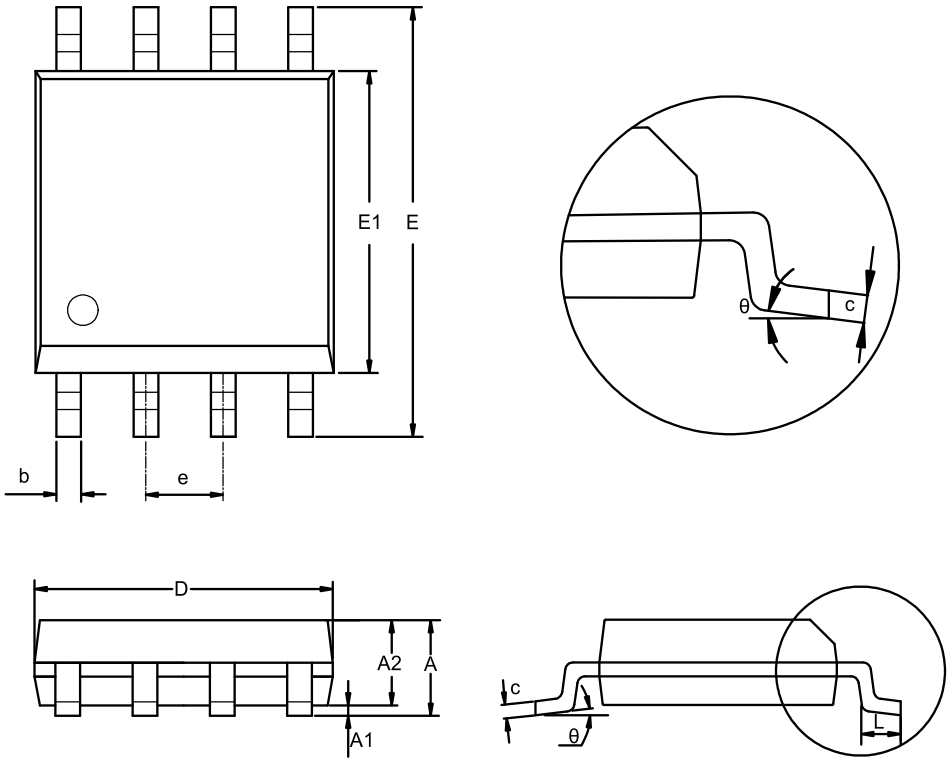
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.350	1.750	0.053	0.069
A1	0.050	0.250	0.002	0.010
A2	1.250	1.550	0.049	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.201
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
e	1.270 BSC		0.050 BSC	
L	0.400	1.000	0.016	0.039
θ	0	8°	0	8°

NOTES

1. Do not include mold flash or protrusion.
2. This drawing is subject to change without notice.

MSOP8

Package Outline Dimensions VS1(MSOP-8-A)



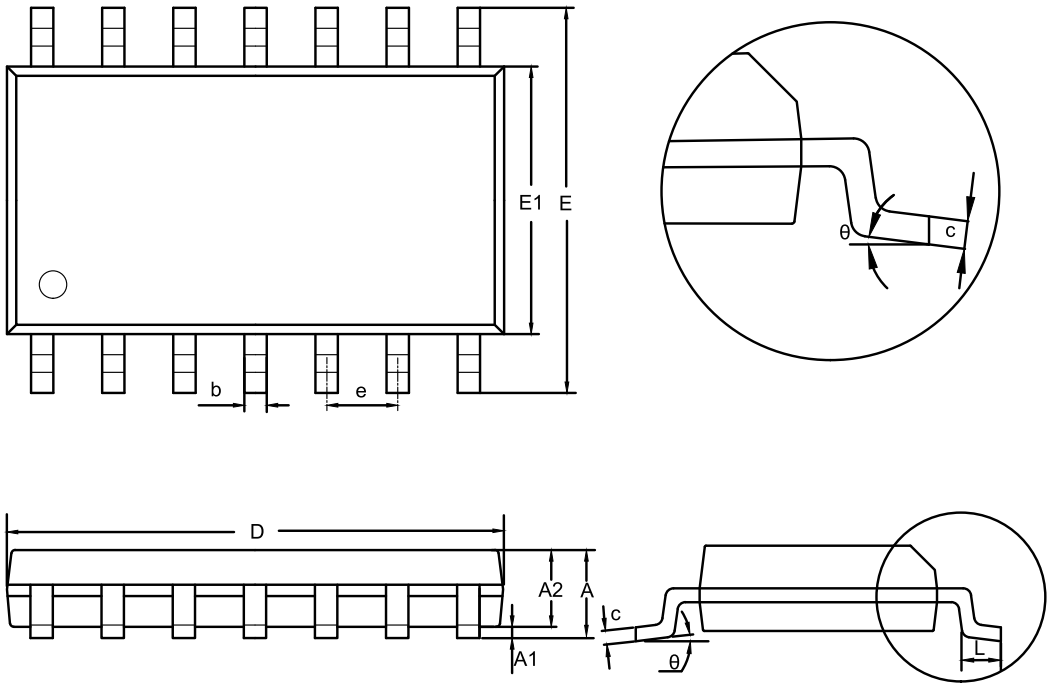
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.800	1.100	0.031	0.043
A1	0.020	0.150	0.001	0.006
A2	0.750	0.950	0.030	0.037
b	0.250	0.380	0.010	0.015
c	0.090	0.230	0.004	0.009
D	2.900	3.100	0.114	0.122
E	4.700	5.100	0.185	0.201
E1	2.900	3.100	0.114	0.122
e	0.650 BSC		0.026 BSC	
L	0.400	0.800	0.016	0.031
θ	0	8°	0	8°

NOTES

1. Do not include mold flash or protrusion.
2. This drawing is subject to change without notice.

SOP14

Package Outline Dimensions SO2(SOP-14-A)



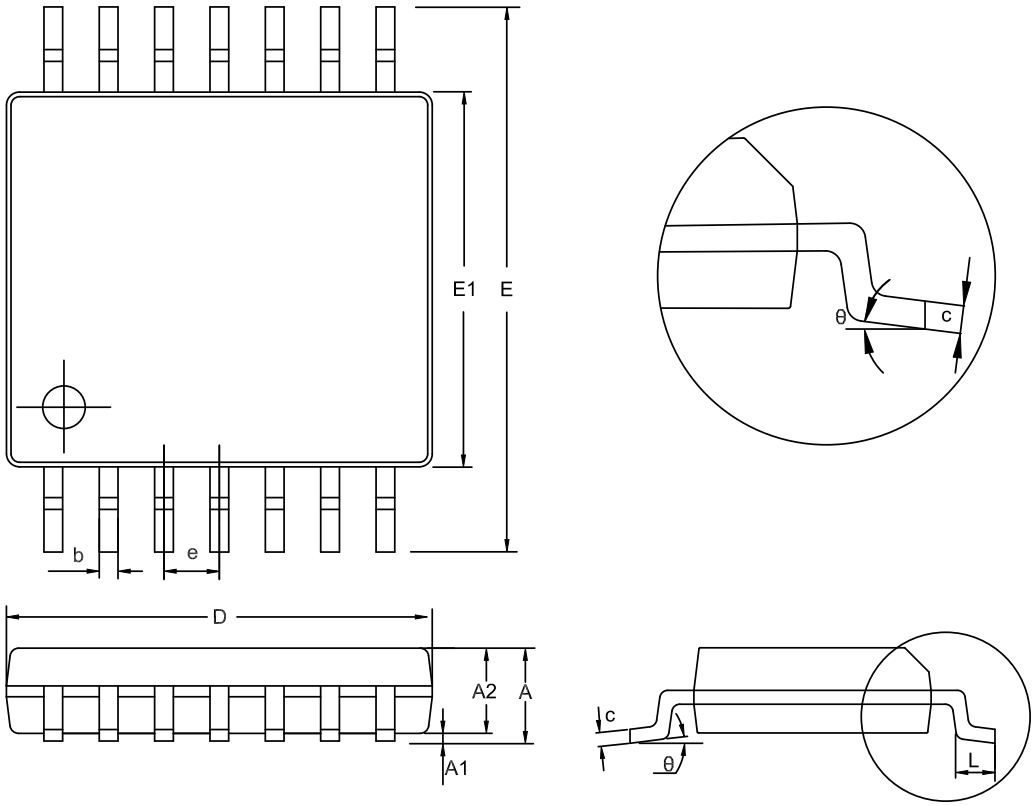
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.350	1.750	0.053	0.069
A1	0.050	0.250	0.002	0.010
A2	1.250	1.650	0.049	0.065
b	0.310	0.510	0.012	0.020
c	0.100	0.250	0.004	0.010
D	8.450	8.850	0.333	0.348
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
e	1.270 BSC		0.050 BSC	
L	0.400	1.270	0.016	0.050
θ	0	8°	0	8°

NOTES

1. Do not include mold flash or protrusion.
2. This drawing is subject to change without notice.

TSSOP14

Package Outline Dimensions TS2(TSSOP-14-A)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.900	1.200	0.035	0.047
A1	0.050	0.150	0.002	0.006
A2	0.800	1.050	0.031	0.041
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
D	4.900	5.100	0.193	0.201
E	6.200	6.600	0.244	0.260
E1	4.300	4.500	0.169	0.177
e	0.650 BSC		0.026 BSC	
L	0.450	0.750	0.018	0.030
θ	0	8°	0	8°

NOTES

1. Do not include mold flash or protrusion.
2. This drawing is subject to change without notice.

Order Information

Order Number	Operating Temperature Range	Package	Marking Information	MSL	Transport Media, Quantity	Eco Plan
TPA1731-SO1R (1)	−40 to 125°C	SOP8	1731	1	Tape and Reel, 4000	Green
TPA1731-S5TR	−40 to 125°C	SOT23-5	173	3	Tape and Reel, 3000	Green
TPA1732-SO1R	−40 to 125°C	SOP8	1732	1	Tape and Reel, 4000	Green
TPA1732-VS1R	−40 to 125°C	MSOP8	1732	3	Tape and Reel, 3000	Green
TPA1734-SO2R (1)	−40 to 125°C	SOP14	1734	1	Tape and Reel, 2500	Green
TPA1734-VS2R (1)	−40 to 125°C	TSSOP14	1734	1	Tape and Reel, 3000	Green

(1) For future products, contact the 3PEAK factory for more information and samples.

Green: 3PEAK defines "Green" to mean RoHS compatible and free of halogen substances.

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