



CD8031_CD8032_CD8034

670 nA, Rail-to-Rail Input/Output Op Amps

Version: Rev 1.0.0 Date: 2025-5-26

Features ■■

- Gain bandwidth : 15kHz
- Rail-to-rail input and output 0.5mV typical
- Input voltage range : -0.1V to +5.6V with V_s
- Supply range : +1.4V to +5.5V
- Specified up to +125°C
- Micro Size packages : SOT23-5

Application ■■

- Sensors
- Photo diode amplification
- Wearable products
- Temperature measurement
- Battery powered system

Description ■■■

The CD8031, CD8032, CD8034, families of products offer low voltage operation and rail-to-rail input and output, as well as excellent speed/power consumption ratio, providing an excellent bandwidth (15kHz) and slew rate of 7.5V/ms. The op-amps are unity gain stable and feature an ultra-low input bias current.

The devices are ideal for sensor interfaces, active filters and portable applications. The CD8031, CD8032, CD8034 families of operational amplifiers are specified at the full temperature range of -40°C to +125°C under single or dual power supplies of 1.4V to 5.5V.

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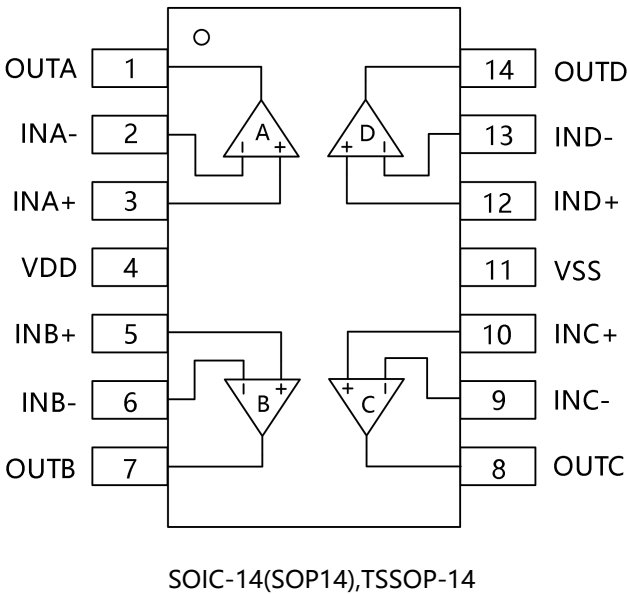
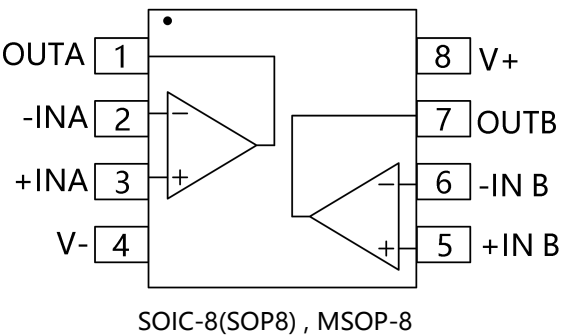
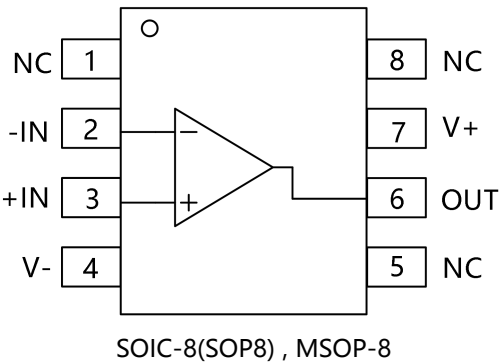
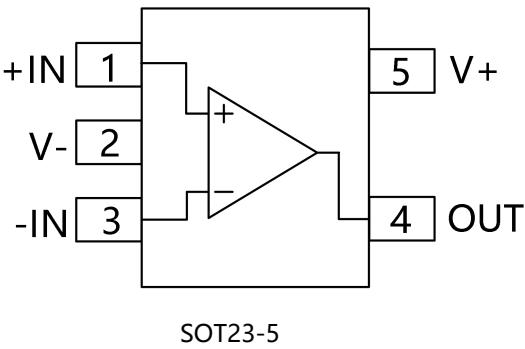
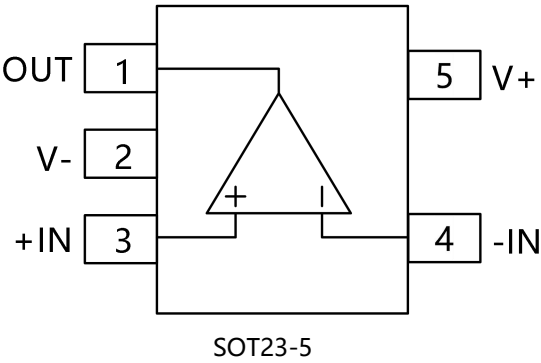
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Pin Configurations



提示：NC 表示没有内部连接

Absolute Maximum Ratings

参数	范围
Supply Voltage, V+ to V-	7.0V
Input Terminals, Voltage ⁽²⁾	- 0.5 to (V+) + 0.5V
Current Terminals, Voltage ⁽²⁾	±10mA
Storage Temperature	-65°C to +150°C
Operating Temperature	-40°C to +125°C
Junction Temperature	150°C
Lead Temperature (Soldering, 10s)	260°C
Package Thermal Resistance @ T_A = +25°C	
SOT23-5, SOT23-6	200°C/W
MSOP-10, SOIC-8, TSSOP-8	150°C/W
SOIC-14, TSSOP-14	100°C/W
HBM	5000V
MM	400V

Electrical characteristics

(At T_A = +25°C, V_S=5.0V, R_L = 1MΩ connected to V_S/2, and V_{OUT} = V_S/2, unless otherwise noted.)

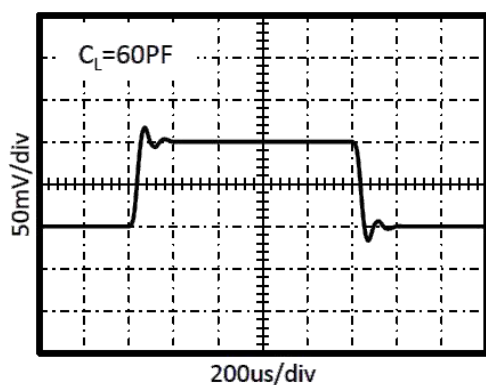
PARAMETER		CONDITIONS	CD8031, CD8032, CD8034			UNIT
			MIN	TYP	MAX	
POWER SUPPLY						
V _S	Operating Voltage Range		1.4		5.5	V
I _Q	Quiescent Current/Amplifier			670	1500	uA
PSRR	Power-Supply Rejection Ratio	V _S =2.5V to				dB
		5.5V,V _{CM} =(V-)+0.5V	62			
INPUT						
V _{OS}	Input Offset Voltage			0.5	3	mV
ΔVos/ΔT	Input Offset Voltage Average Drift	-40°C to 125°C		2.3		uV/°C
I _B	Input Bias Current			1	10	pA
I _{OS}	Input Offset Current			1	10	pA
V _{CM}	Common-Mode Voltage	V _S = 5.5V	-0.1		5.6	V

	Range					
C_{MRR}	Common-Mode Rejection Ratio	$V_S = 5.5V, V_{CM} = -0.1V \text{ to } 4V$	73	90		dB
		$V_S = 5.5V, V_{CM} = -0.1V \text{ to } 5.6V$	60	83		
OUTPUT						
A_{OL}	Open-Loop Voltage Gain	$R_L = 2K\Omega, V_O = 0.15V \text{ to } 4.85V$	85	102		dB
		$R_L = 10K\Omega, V_O = 0.05V \text{ to } 4.95V$	92	106		
	Output Swing From Rail	$R_L = 2K\Omega$		5		mV
I_{OUT}	Output Short-Circuit Current			11		mA
FREQUENCY RESPONSE						
SR	Slew Rate			7.5		V/ms
GBP	Gain-Bandwidth Product			15		kHz
PM	Phase Margin			60		°
NOISE						
$e_{n,p-p}$	Input Voltage Noise Density	$f = 1KHz$		2.4		μV_{pp}
e_n	Input Voltage Noise Density	$f = 10KHz$		160		$\frac{nV}{\sqrt{Hz}}$

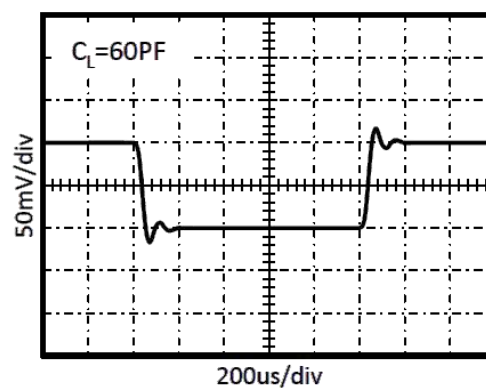
Typical Characteristics

At $T_A = +25^\circ\text{C}$, $V_S = 5\text{V}$, $R_L = 1\text{M}\Omega$ connected to $V_S/2$, $C_L = 60\text{pF}$, $V_{CM} = V_S/2$, unless otherwise noted.

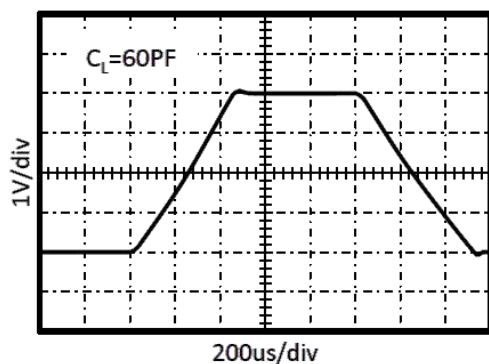
SMALL-SIGNAL STEP RESPONSE



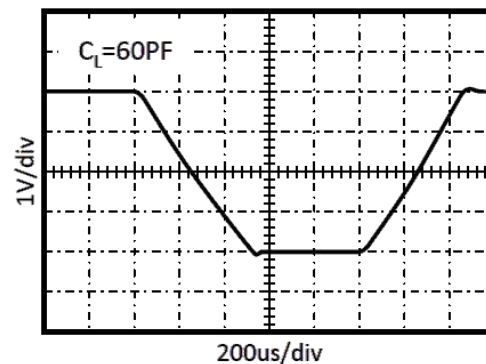
SMALL-SIGNAL STEP RESPONSE



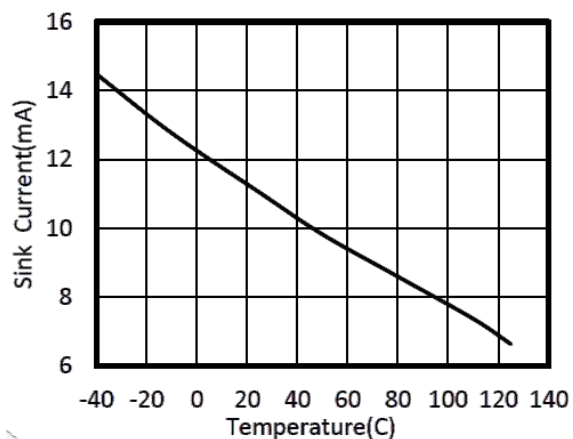
LARGE-SIGNAL STEP RESPONSE



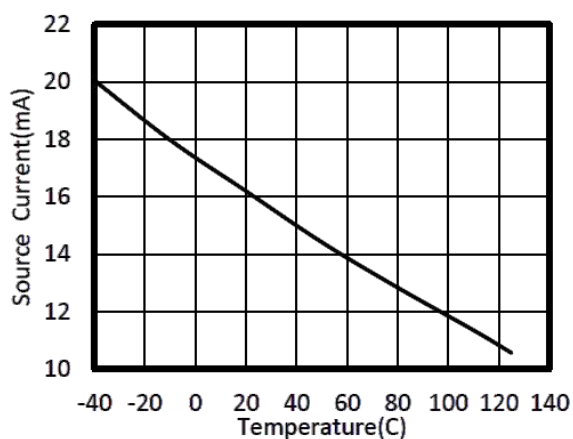
LARGE-SIGNAL STEP RESPONSE



SINK CURRENT vs TEMPERATURE

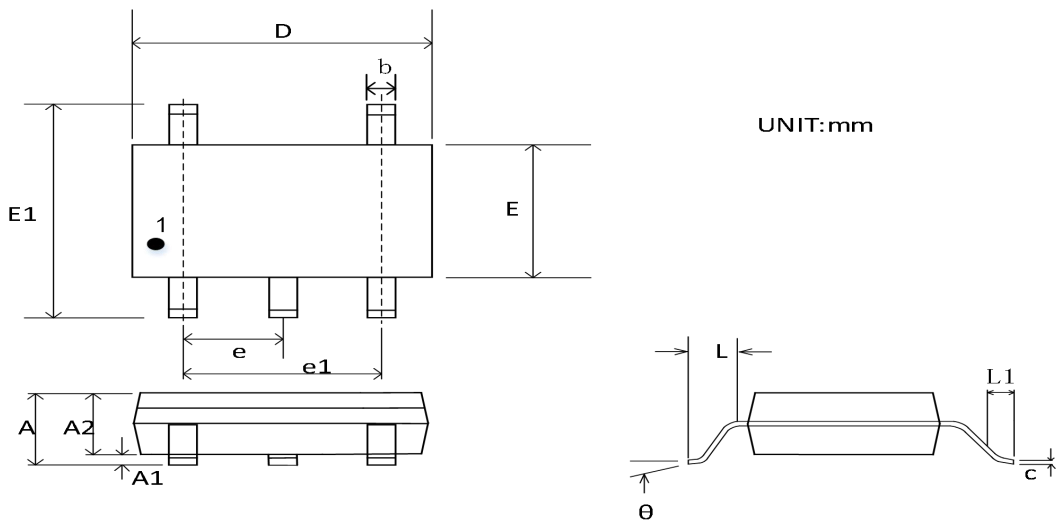


SOURCE CURRENT vs TEMPERATURE



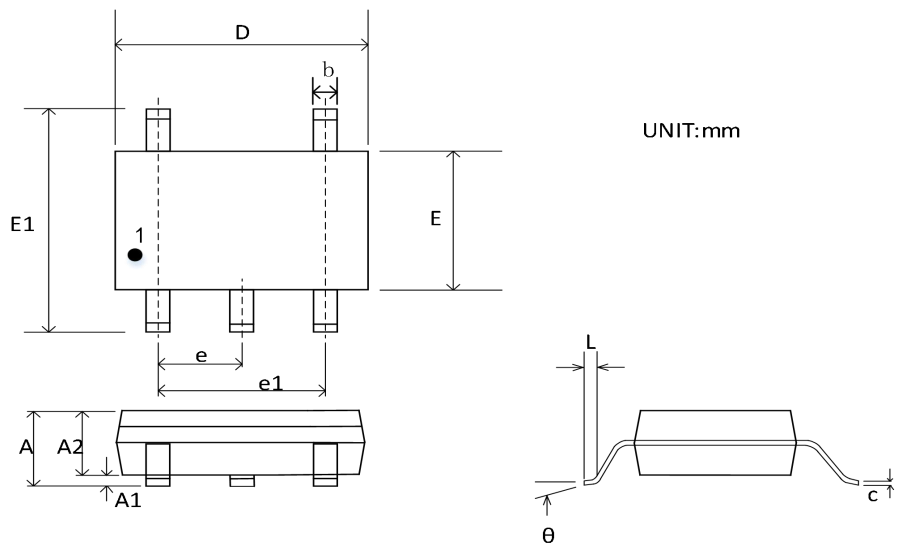
Package Outline Dimensions

SC70-5



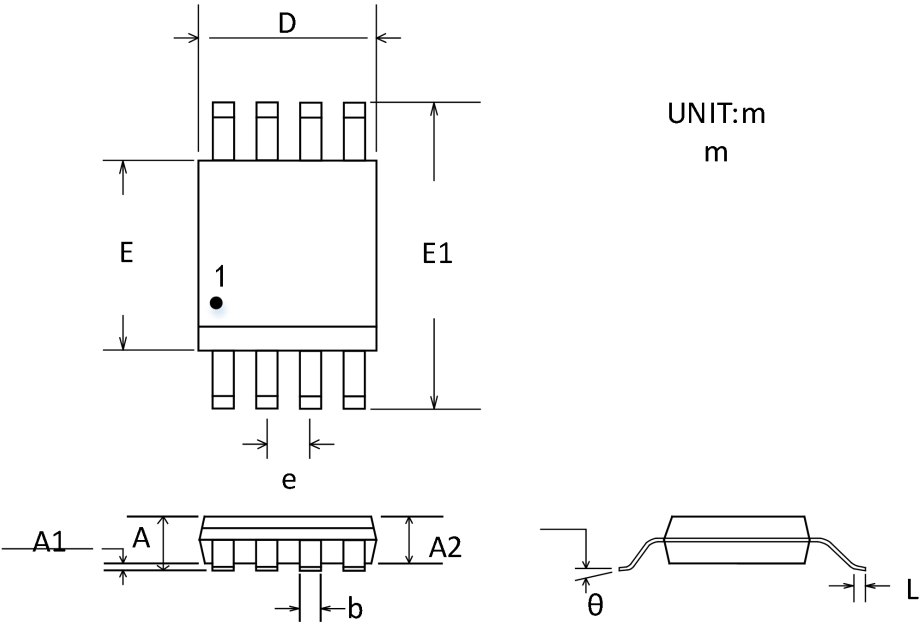
Symbol	Dimensions In Millimeters	
	Min	Max
A	0.800	1.100
A1	0.000	0.100
A2	0.700	1.000
b	0.150	0.300
c	0.080	0.220
D	1.800	2.200
E	1.150	1.350
E1	1.800	2.400
e	0.650 BSC	
e1	1.200	1.400
L	0.525 REF	
L1	0.260	0.460
θ	0°	8°

SOT23-5



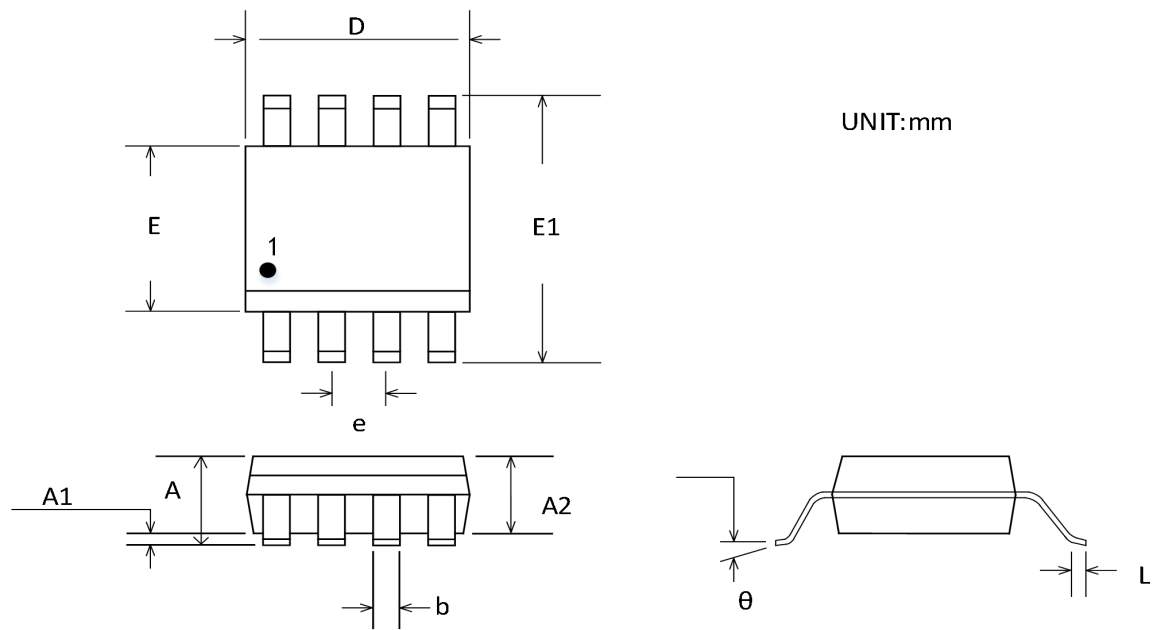
Symbol	Dimensions In Millimeters	
	Min	Max
A	--	1.450
A1	--	0.150
A2	0.900	1.300
b	0.300	0.500
c	0.080	0.220
D	2.900 BSC	
E	1.600 BSC	
E1	2.80 BSC	
e	0.950 BSC	
e1	1.900 BSC	
L	0.300	0.600
θ	0°	8°

MSOP-8



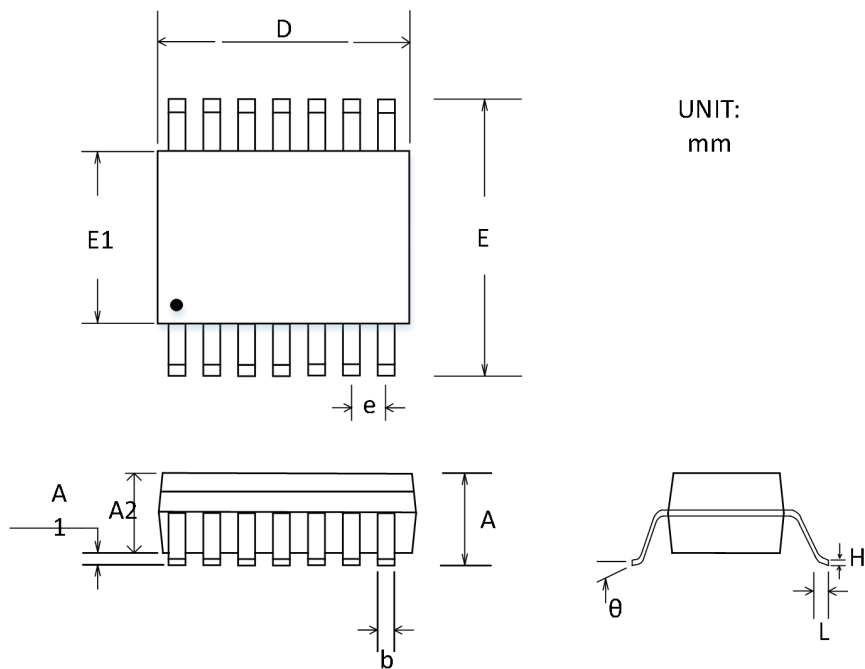
Symbol	Dimensions In Millimeters	
	Min	Max
A	0.820	1.100
A1	0.000	0.150
A2	0.750	0.950
b	0.220	0.380
D	2.800	3.200
E	2.800	3.200
E1	4.650	5.150
e	0.650 BSC	
L	0.400	0.800
θ	0°	8°

SOP-8



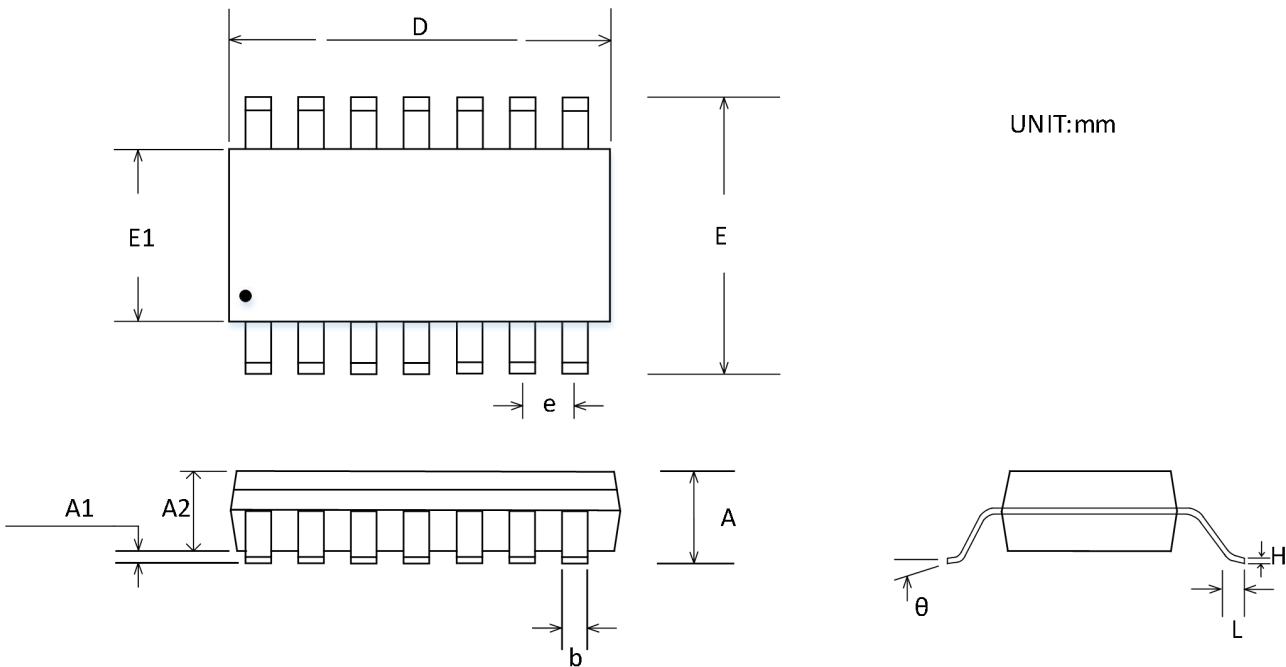
Symbol	Dimensions In Millimeters	
	Min	Max
A	1.350	1.750
A1	0.100	0.250
A2	1.350	1.550
b	0.310	0.510
D	4.800	5.000
E	3.800	4.000
E1	5.800	6.200
e	1.270 BSC	
L	0.400	1.270
θ	0°	8°

TSSOP-14



Symbol	Dimensions In Millimeters	
	Min	Max
A	1.20MAX	
A1	0.05	0.15
A2	0.80	1.05
b	0.19	0.30
D	4.90	5.10
E	6.40BSC	
E1	4.30	4.50
e	0.65BSC	
H	0.09	0.20
L	0.45	0.75
θ	0°	8°

SOP-14



Symbol	Dimensions In Millimeters	
	Min	Max
A	1.35	1.75
A1	0.10	0.25
A2	1.25	1.50
b	0.31	0.51
D	8.55	8.75
E	5.80	6.20
E1	3.80	4.00
e	1.27BSC	
H	0.17	0.25
L	0.40	1.27
θ	0°	8°

Package/Ordering Information

MODEL	TEMPERATURE	PACKAGE DESCRIPTION	PACKAGE OPTION
CD8031AS8	-40°C~125°C	SOIC-8(SOP8)	Tape and Reel, 2500
CD8031AS8-RL	-40°C~125°C	SOIC-8(SOP8)	Tape and Reel, 3000
CD8031AS8-REEL	-40°C~125°C	SOIC-8(SOP8)	Tape and Reel, 4000
CD8031AST5	-40°C~125°C	SOT23-5	Tape and Reel, 3000
CD8031BST5	-40°C~125°C	SOT23-5	Tape and Reel, 3000
CD8031AMS8	-40°C~125°C	MSOP-8	Tape and Reel, 3000
CD8032AS8	-40°C~125°C	SOIC-8(SOP8)	Tape and Reel, 2500
CD8032AS8-RL	-40°C~125°C	SOIC-8(SOP8)	Tape and Reel, 3000
CD8032AS8-REEL	-40°C~125°C	SOIC-8(SOP8)	Tape and Reel, 4000
CD8032AMS8	-40°C~125°C	MSOP-8	Tape and Reel, 3000
CD8034AS14	-40°C~125°C	SOIC-14(SOP14)	Tape and Reel, 2500
CD8034AS14-RL	-40°C~125°C	SOIC-14(SOP14)	Tape and Reel, 3000
CD8034AS14-REEL	-40°C~125°C	SOIC-14(SOP14)	Tape and Reel, 4000
CD8034ATS14	-40°C~125°C	TSSOP-14	Tape and Reel, 2500
CD8034ATS14-RL	-40°C~125°C	TSSOP-14	Tape and Reel, 3000
CD8034ATS14-REEL	-40°C~125°C	TSSOP-14	Tape and Reel, 4000

Revision Log

Version	Revision date	Change content	Reason for Change	Modified by	Reviewed By	Note
V1.0	2025.5.26	Initial version	Regular update	WW	LYL	