



Product Specification

XBLW TL082

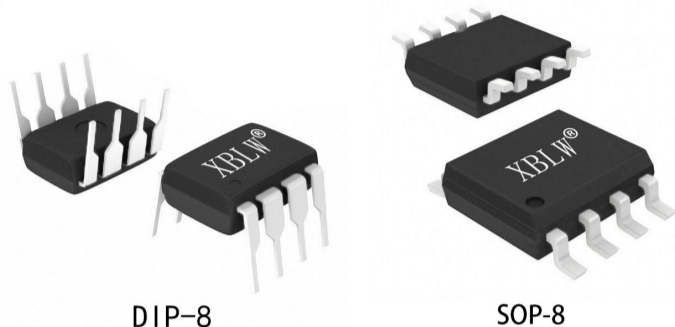
General Purpose JFET Dual Operational Amplifiers

WEB | www.xinboleic.com



Descriptions

Consisted of high voltage J-FET and bipolar transistors, the TL082 is a high speed J-FET dual- channel operational amplifier, featured with high slew rate, low input offset and bias current and low offset voltage temperature rate. The TL082 provides DIP8 and SOP8 package forms.



Feature

- Lower Power Consumption
- Wide Common-Mode And Differential Voltage Ranges
- Low Input Bias And Offset Currents
- Output Short-Circuit Protection
- High Input Impedance
- High Slew Rate
- High Gain-Bandwidth up to 4MHz

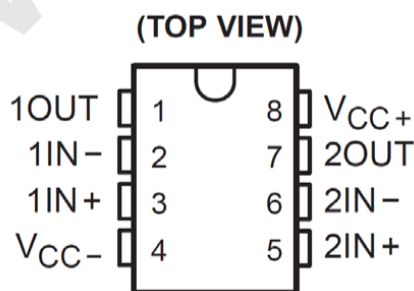
Applications

- Battery test equipment
- Pro audio mixers
- Single phase online UPS
- Solar energy: string and central inverter
- Three phase UPS
- Motor drives: AC and servo drive control and power stage modules

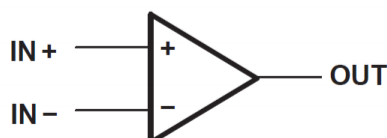
Ordering Information

Product Model	Package Type	Marking	Packing	Packing Qty
XBLW TL082CN	DIP-8	TL082CN	Tube	2000pcs/Box
XBLW TL082CDTR	SOP-8	TL082C	Tape	2500pcs/Reel

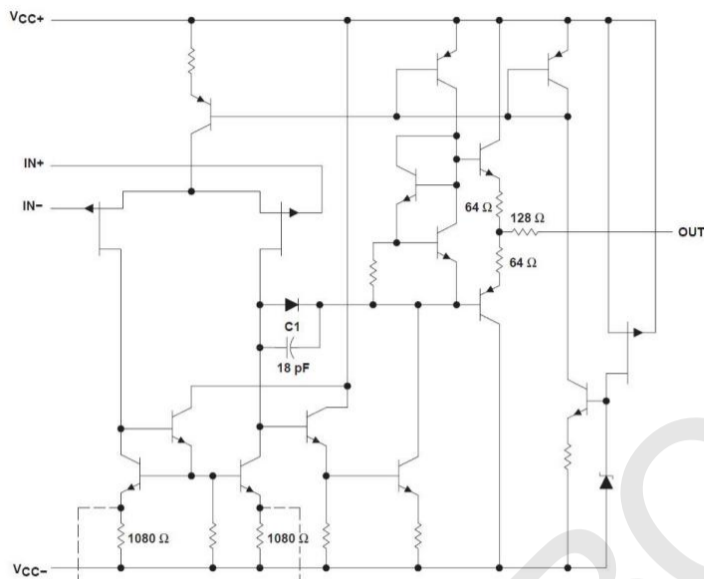
Pins Diagram



Symbol



Internal Diagram



Absolute Maximum Ratings

Symbol	Description	Parameter	Unit
V_{CC}	Supply Voltage	± 18	V
V_i	Input Voltage	± 14	V
V_{id}	Differential Input Voltage	± 28	V
T_{oper}	Operating Temperature Range	0~70	°C
T_{stg}	Storage Temperature Range	-65~+150	°C

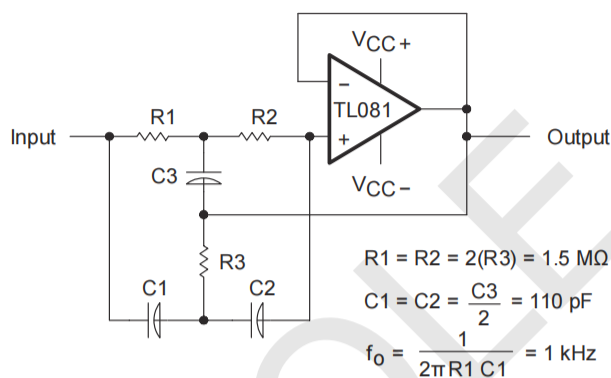
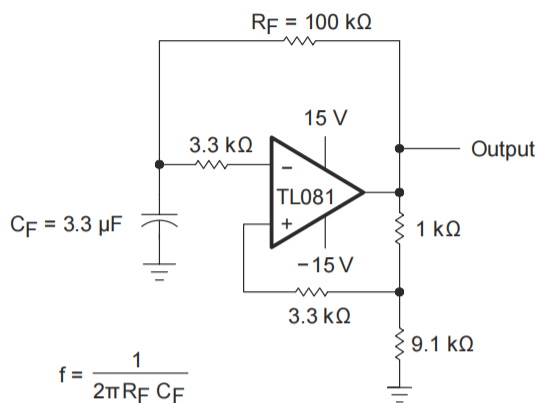
Electrical Parameter Characteristics

($V_{CC}=\pm 15$, $T_{amp}=25^\circ\text{C}$, Unless otherwise specified)

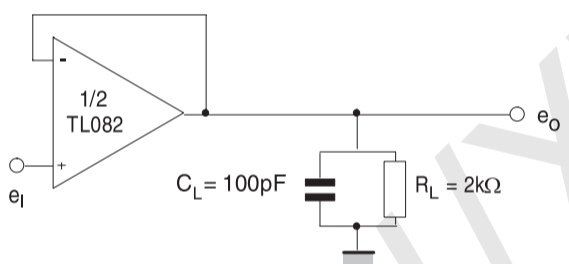
Symbol	Parameter Name	Test Conditions	Parameter			Unit
			Min.	Typ.	Max.	
V_{io}	Input Offset Voltage	$V_o=0\text{V}$		3	6	mV
I_o	Input Offset Current	$V_o=0\text{V}$			1.5	pA
I_{ib}	Input Bias Current	$V_o=0\text{V}$			2.5	nA
V_{icr}	Input Common Mode Voltage Range		-12	± 11	15	V
V_{OM}	Maximum Peak Output Voltage Swing	$R_L = 10\text{ k}\Omega$ $R_L \geq 2\text{ k}\Omega$	± 12 ± 10	± 13.5 ± 12.5		V
A_{VD}	Large-signal differential voltage amplification	$R_L \geq 2\text{ k}\Omega$, $V_o = \pm 10\text{ V}$	80	95		dB
B1	Gain Bandwidth			3		MHz
CMRR	Common Mode Rejection Ratio		70	85		dB
kSVR	Supply Voltage Rejection Ratio	$V_{CC} = \pm 15\text{ V to } \pm 9\text{ V}$, $V_o=0\text{V}$	70	86		dB
I_{CC}	Static Supply Current (each amplifier)			1.4	2.8	mA
SR	Slew Rate	$V_i = 10\text{ V}$	8	13		V/us
t_R	Rise time			0.05		us

Typical Application (Including One Amplifier)

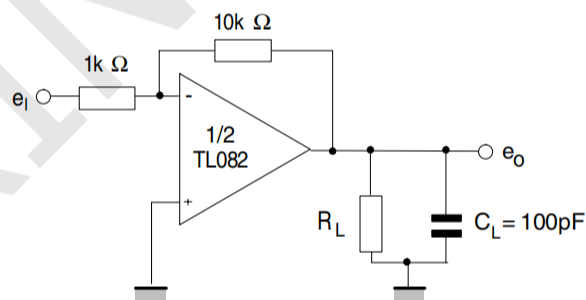
Typical lines



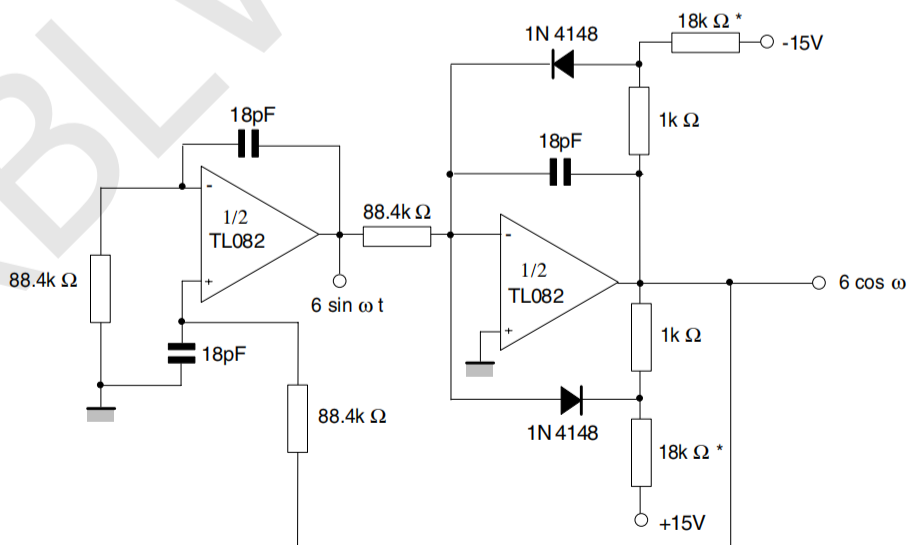
0.5-Hz Square-Wave Oscillator



High-Q Notch Filter



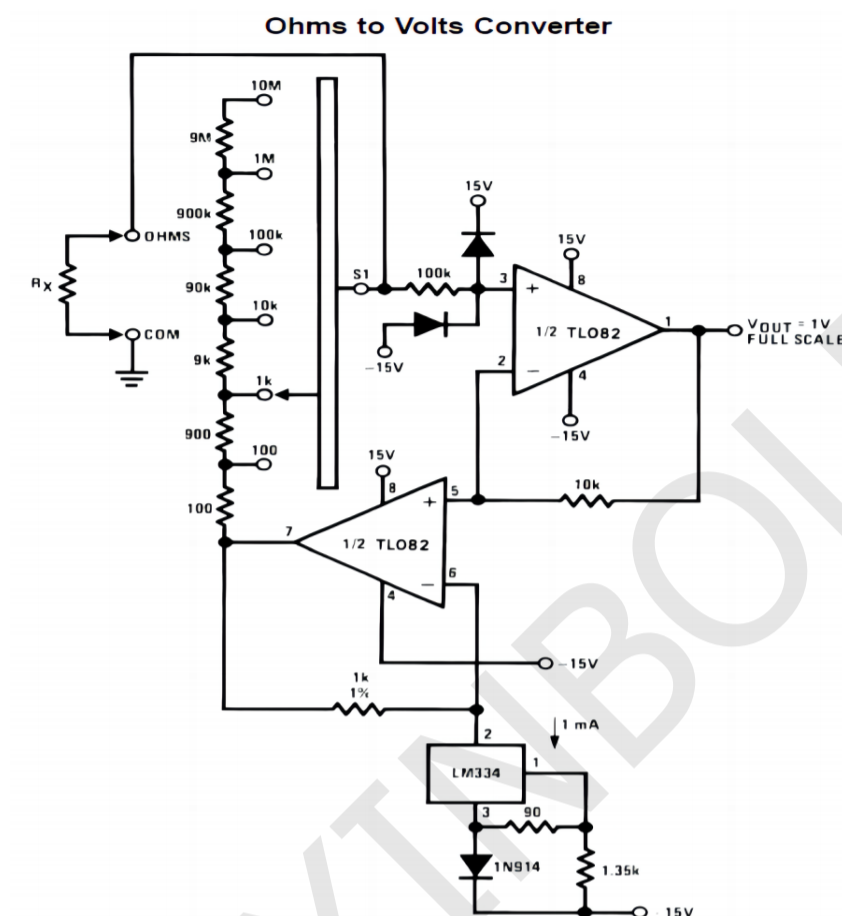
Voltage follower



Gain-of-10 inverting amplifier

* These resistor values may be adjusted for a symmetrical output

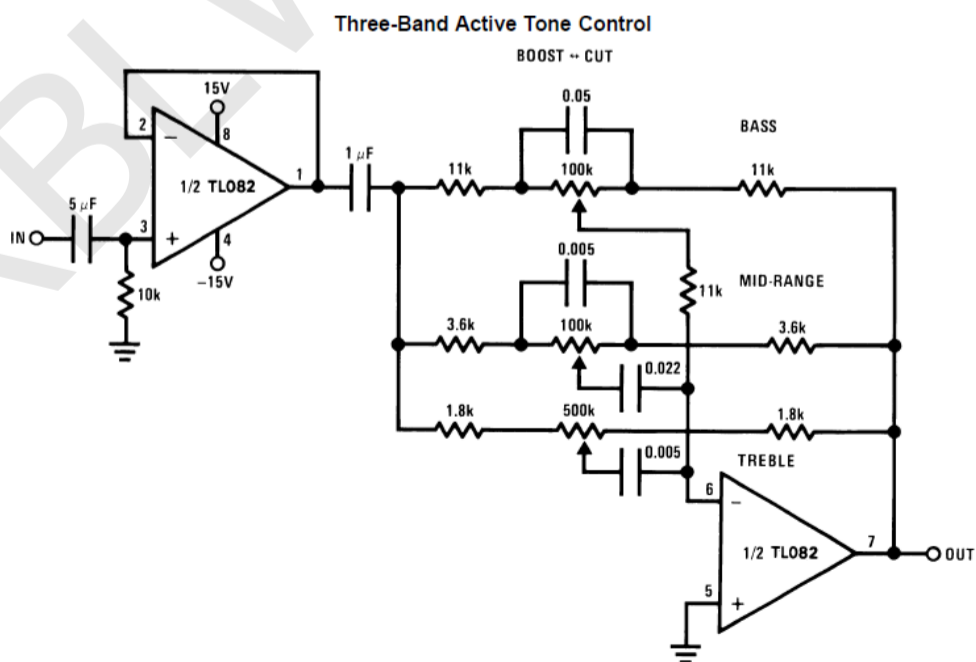
100kHz quadruple oscillator



$$V_O = \frac{1V}{R_{LADDER}} \times R_X$$

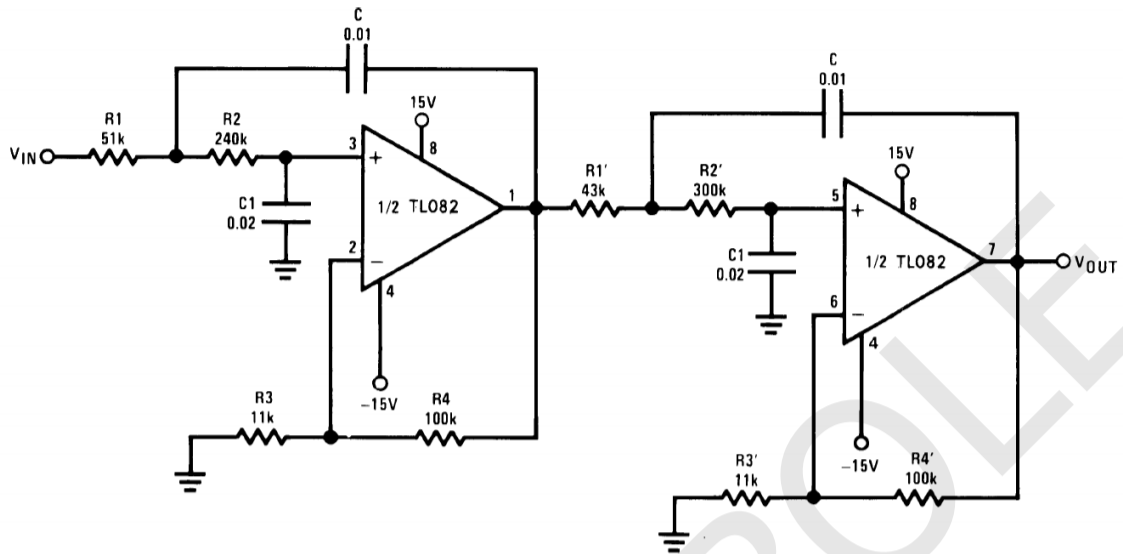
Where R_{LADDER} is the resistance from switch S1 pole to pin 7 of the TL082CN.

Resistance-to-Voltage Conversion



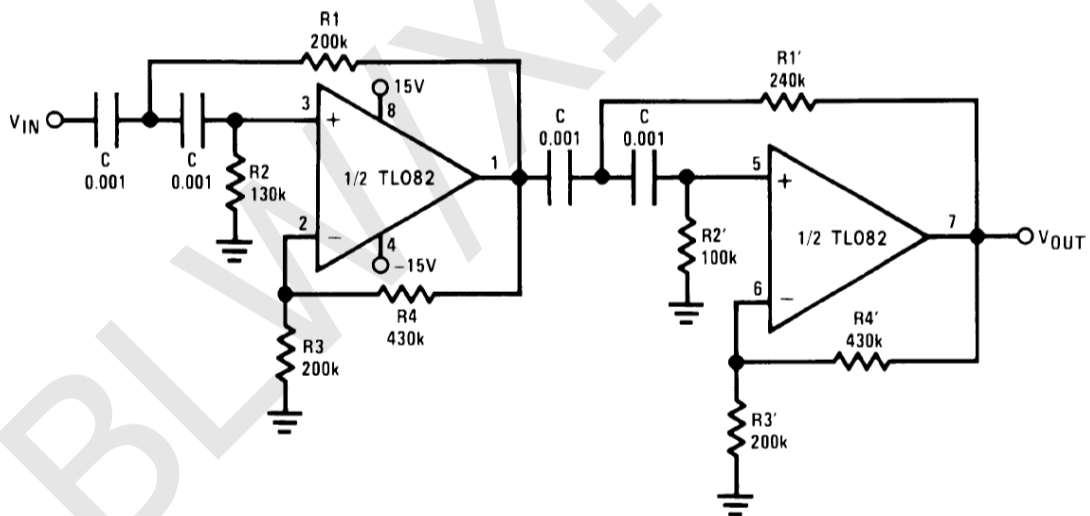
Three-Band Active Tone Control

Fourth Order Low Pass Butterworth Filter



Fourth-order Low Pass Butterworth Filter

Fourth Order High Pass Butterworth Filter



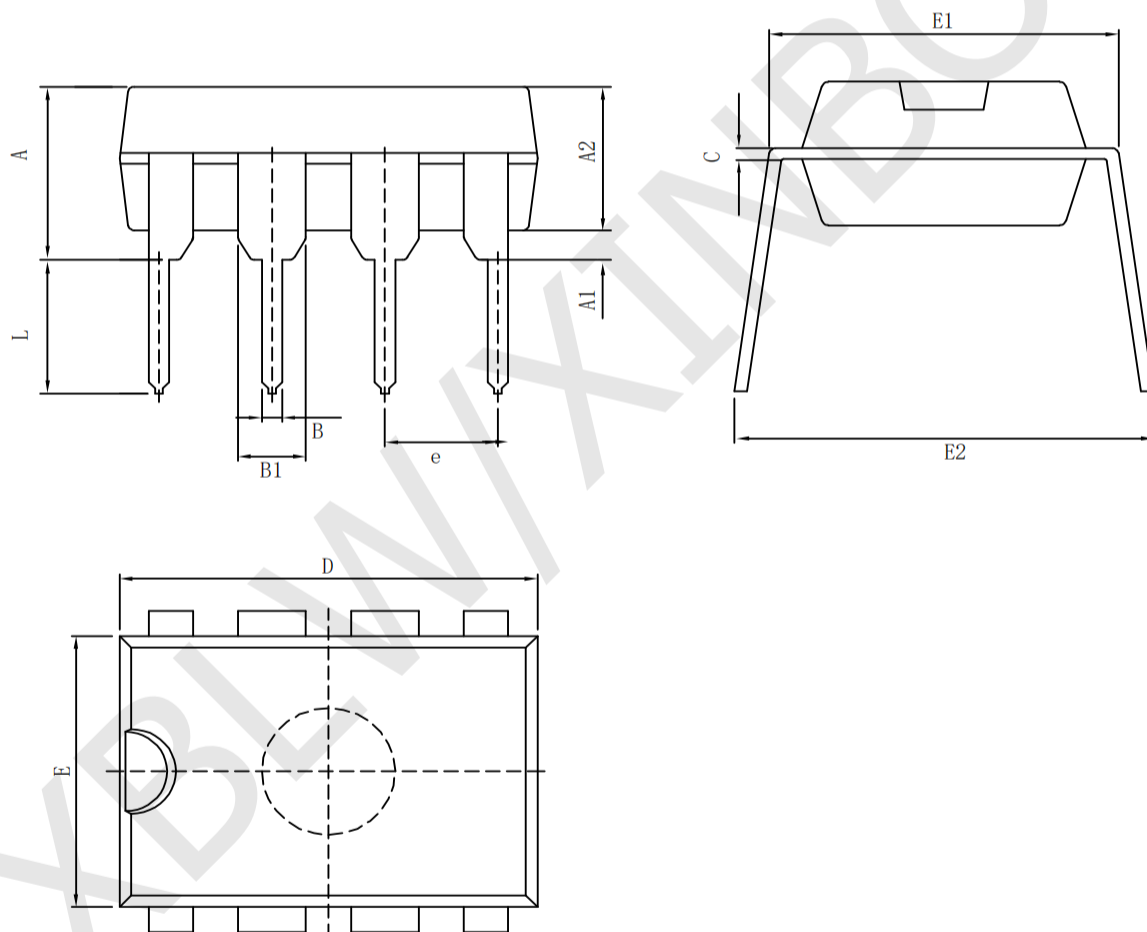
- Corner frequency (f_c) = $\sqrt{\frac{1}{R_1 R_2 C^2}} \cdot \frac{1}{2\pi} = \sqrt{\frac{1}{R_1' R_2' C^2}} \cdot \frac{1}{2\pi}$
- Passband gain (H_0) = $(1 + R_4/R_3) (1 + R_4'/R_3')$
- First stage $Q = 1.31$
- Second stage $Q = 0.541$
- Circuit shown uses closest 5% tolerance resistor values for a filter with a corner frequency of 1 kHz and a passband gain of 10

Fourth Order High Pass Butterworth Filter

Package Information

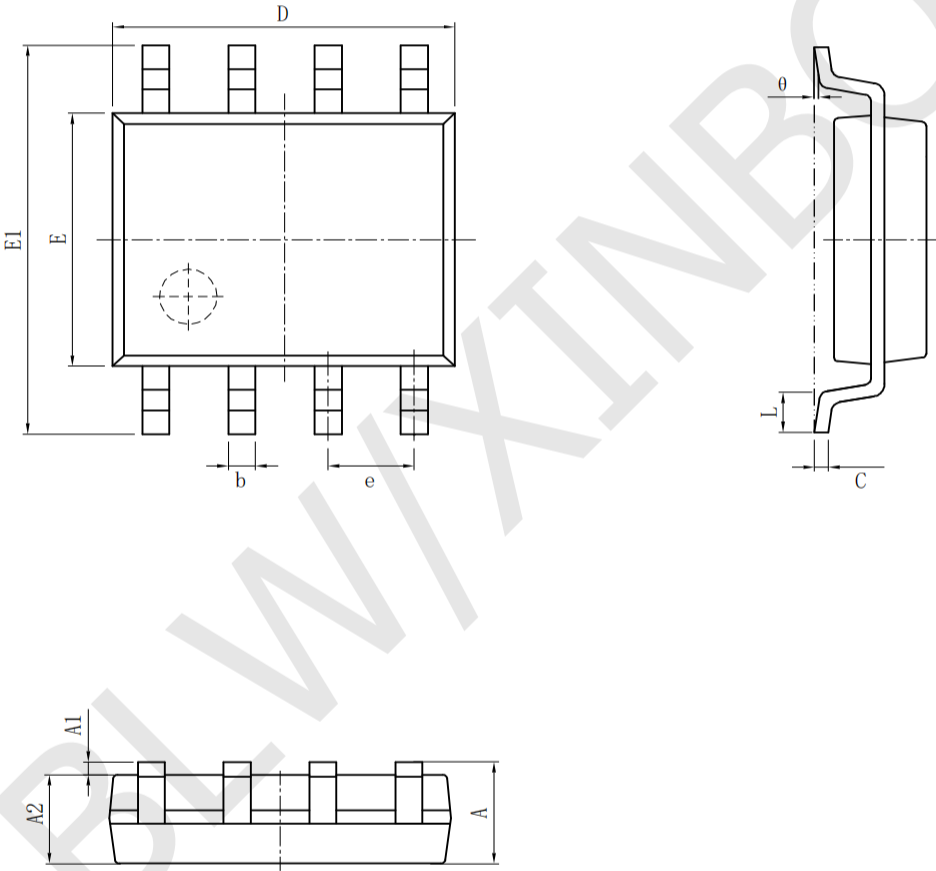
• DIP-8

Symbol	Size	Dimensions In Millimeters		Symbol	Size	Dimensions In Inches	
		Min (mm)	Max (mm)			Min (in)	Max (in)
A		3.710	4.310	A		0.146	0.170
A1		0.510		A1		0.020	
A2		3.200	3.600	A2		0.126	0.142
B		0.380	0.570	B		0.015	0.022
B1		1.524 (BSC)		B1		0.060 (BSC)	
C		0.204	0.360	C		0.008	0.014
D		9.000	9.400	D		0.354	0.370
E		6.200	6.600	E		0.244	0.260
E1		7.320	7.920	E1		0.288	0.312
e		2.540 (BSC)		e		0.100 (BSC)	
L		3.000	3.600	L		0.118	0.142
E2		8.400	9.000	E2		0.331	0.354



• SOP-8

Symbol	Dimensions In Millimeters		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°



Statement:

- XBLW reserves the right to modify the product manual without prior notice! Before placing an order, customers need to confirm whether the obtained information is the latest version and verify the completeness of the relevant information.
- Any semi-guide product is subject to failure or malfunction under specified conditions. It is the buyer's responsibility to comply with safety standards when using XBLW products for system design and whole machine manufacturing. And take the appropriate safety measures to avoid the potential in the risk of loss of personal injury or loss of property situation!
- XBLW products have not been licensed for life support, military, and aerospace applications, and therefore XBLW is not responsible for any consequences arising from the use of this product in these areas.
- If any or all XBLW products (including technical data, services) described or contained in this document are subject to any applicable local export control laws and regulations, they may not be exported without an export license from the relevant authorities in accordance with such laws.
- The specifications of any and all XBLW products described or contained in this document specify the performance, characteristics, and functionality of said products in their standalone state, but do not guarantee the performance, characteristics, and functionality of said products installed in Customer's products or equipment. In order to verify symptoms and conditions that cannot be evaluated in a standalone device, the Customer should ultimately evaluate and test the device installed in the Customer's product device.
- XBLW documentation is only allowed to be copied without any alteration of the content and with the relevant authorization. XBLW assumes no responsibility or liability for altered documents.
- XBLW is committed to becoming the preferred semiconductor brand for customers, and XBLW will strive to provide customers with better performance and better quality products.