

Single Retriggerable Monostable Multivibrator: Schmitt Trigger Inputs

CJ74LVC1G123 Logic

1 Introduction

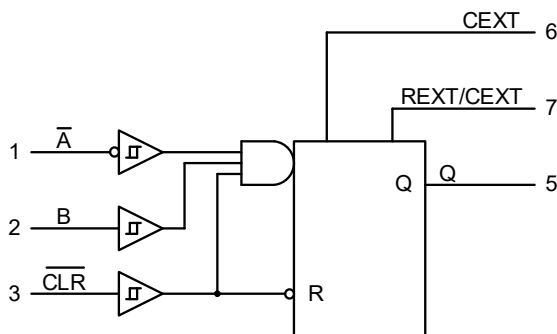
The CJ74LVC1G123 is a single retriggerable monostable multivibrator with Schmitt trigger inputs. Output pulse width is controlled by three methods:

1. The basic pulse is programmed by selection of an external resistor (REXT) and capacitor (CEXT).
2. Once triggered, the basic output pulse width may be extended by retriggering the gated active LOW-going edge input (/A) or the active HIGH-going edge input (B). By repeating this process, the output pulse period (Q = HIGH) can be made as long as desired.
3. An internal connection from /CLR to the input gates makes it possible to trigger the circuit by a HIGH-going signal at input /CLR.

2 Available Packages

PART NUMBER	PACKAGE
CJ74LVC1G123	TSSOP8
	VSSOP8
	DFN1.95x1-8L

Note: For all available packages, please refer to the part Orderable Information.



Logic diagram

3 Features

- Wide supply voltage range from 1.65V to 5.5V
- ±24mA output drive (V_{CC}=3.0V)
- CMOS low power consumption
- Retriggerable for very long pulses up to 100 % duty factor
- High-impedance when V_{CC}=0V
- Direct reset terminates output pulse
- Schmitt trigger on all inputs
- Power-on-reset on outputs
- Inputs accept voltages up to 5.5V
- Specified from -40°C to +125°C

4 Applications

- AV Receivers
- Blu-ray Players and Home Theaters
- DVD Recorders and Players
- Desktop PCs or Notebook PCs
- Digital Radio and Internet Radio Players
- Digital Video Cameras (DVC)
- Embedded PCs
- GPS: Personal Navigation Devices
- Mobile Internet Devices
- Network Attached Storage (NAS)
- Personal Digital Assistant (PDA)
- Server PSU
- Solid-State Drive (SSD): Client and Enterprise
- Video Analytics Servers
- Wireless Headsets, Keyboards, and Mice

5 Orderable Information

DEVICE	PACKAGE	OP TEMP	ECO PLAN	MSL	PACKING OPTION	SORT
CJ74LVC1G123BAN	TSSOP8	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 3000 Units / Reel	Active
CJ74LVC1G123VAN	VSSOP8	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 3000 Units / Reel	Active
CJ74LVC1G123DPN	DFN1.95x1-8L	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 5000 Units / Reel	Active

Note:

ECO PLAN: For the RoHS and Green certification standards of this product, please refer to the official report provided by JSCJ.

MSL: Moisture Sensitivity Level. Determined according to JEDEC industry standard classification.

SORT: Specifically defined as follows:

Active: Recommended for new products;

Customized: Products manufactured to meet the specific needs of customers;

Preview: The device has been released and has not been fully mass produced. The sample may or may not be available;

NoRD: It is not recommended to use the device for new design. The device is only produced for the needs of existing customers;

Obsolete: The device has been discontinued.

6 Pin Configuration and Marking Information

6.1 Pin Configuration

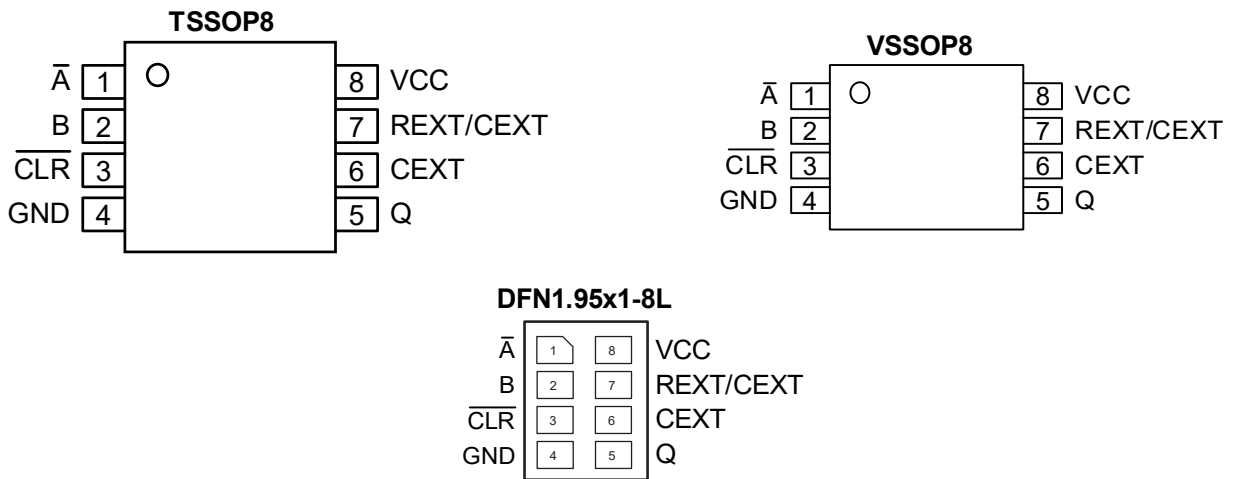


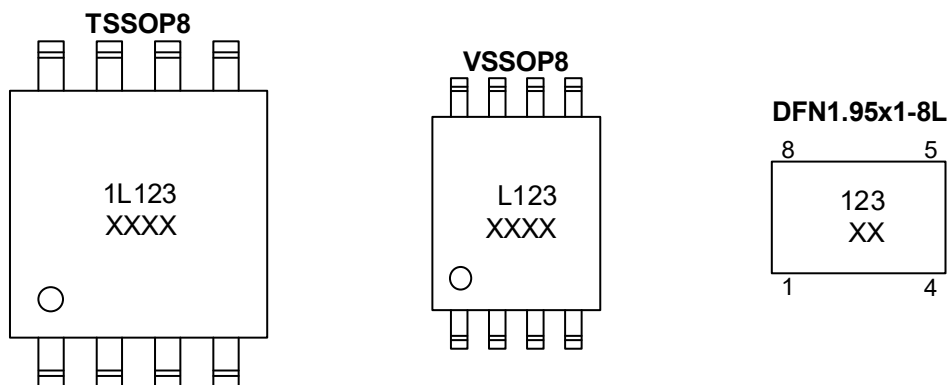
Figure 6-1 Pin configuration

6.2 Pin Function

PIN		I/O ⁽¹⁾	DESCRIPTION
No.	NAME		
1	\bar{A}	I	Negative-edge triggered input
2	B	I	Positive-edge triggered input
3	\overline{CLR}	I	Direct reset LOW and positive-edge triggered input
4	GND	G	Ground (0V)
5	Q	O	Active HIGH output
6	CEXT	-	External capacitor connection
7	REXT/CEXT	-	External resistor and capacitor connection
8	VCC	P	Supply voltage

(1) I-Input, O-Output, P-Power, G-Ground

6.3 Marking Information



XXXX or XX: Code, indicates weekly record information.

7 Specifications

7.1 Absolute Maximum Ratings

All voltage referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CC}	Supply voltage	-	-0.5	+6.5	V
V _I	Input voltage	-	-0.5	+6.5	V
V _O	Output voltage	Active mode	-0.5	V _{CC} +0.5	V
		Power-down mode	-0.5	+6.5	V
I _{IK}	Input clamping current	V _I < 0V	-50	-	mA
I _{OK}	Output clamping current	V _O <0V or V _O >V _{CC}	-	±50	mA
I _O	Output current	V _O =0V to V _{CC}	-	±50	mA
I _{CC}	Supply current	-	-	100	mA
I _{GND}	Ground current	-	-100	-	mA
T _{stg}	Storage temperature	-	-65	+150	°C
P _{tot}	Total power dissipation	-	-	300	mW
T _L	Soldering temperature	10s	-	260	°C

7.2 Recommended Operating Conditions

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V _{CC}	Supply voltage	-	1.65	-	5.5	V
V _I	Input voltage	-	0	-	5.5	V
V _O	Output voltage	Active mode	0	-	V _{CC}	V
		Power-down mode	0	-	5.5	V
T _{amb}	Operating temperature	-	-40	-	+125	°C

7.3 ESD Ratings

SYMBOL	ESD RATINGS		VALUE	UNIT
V _{ESD-HBM}	Electrostatic discharge	Human body model (HBM) ⁽¹⁾	±2000	V

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

7.4 Electrical Characteristics

7.4.1 DC Characteristics 1

T_{amb}=-40°C to +85°C, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
V _{T+}	Positive-going threshold voltage	V _{CC} =1.65V to 1.95V		0.72	0.85	1.22	V
		V _{CC} =2.3V to 2.7V		0.97	1.17	1.52	V
		V _{CC} =3.0V to 3.6V		1.20	1.53	1.90	V
		V _{CC} =4.5V to 5.5V		1.74	2.33	2.75	V
V _{T-}	Negative-going threshold voltage	V _{CC} =1.65V to 1.95V		0.56	0.81	1.04	V
		V _{CC} =2.3V to 2.7V		0.83	1.13	1.33	V
		V _{CC} =3.0V to 3.6V		1.08	1.50	1.70	V
		V _{CC} =4.5V to 5.5V		1.61	2.30	2.53	V
V _H	Hysteresis voltage	V _{CC} =1.65V to 1.95V		20	40	100	mV
		V _{CC} =2.3V to 2.7V		20	40	100	mV
		V _{CC} =3.0V to 3.6V		10	30	100	mV
		V _{CC} =4.5V to 5.5V		10	30	100	mV
V _{OH}	HIGH-level output voltage	V _I =V _{T+} or V _{T-}	I _O =-100uA; V _{CC} =1.65V to 5.5V	V _{CC} -0.1	-	-	V
			I _O =-4mA; V _{CC} =1.65V	1.2	-	-	V
			I _O =-8mA; V _{CC} =2.3V	1.9	-	-	V
			I _O =-12mA; V _{CC} =2.7V	2.2	-	-	V
			I _O =-24mA; V _{CC} =3.0V	2.4	-	-	V
			I _O =-32mA; V _{CC} =4.5V	3.8	-	-	V
V _{OL}	LOW-level output voltage	V _I =V _{T+} or V _{T-}	I _O =100uA; V _{CC} =1.65V to 5.5V	-	-	0.1	V
			I _O =4mA; V _{CC} =1.65V	-	-	0.45	V
			I _O =8mA; V _{CC} =2.3V	-	-	0.3	V
			I _O =12mA; V _{CC} =2.7V	-	-	0.4	V
			I _O =24mA; V _{CC} =3.0V	-	-	0.55	V
			I _O =32mA; V _{CC} =4.5V	-	-	0.55	V
I _I	Input leakage current	V _I =5.5V or GND; V _{CC} =0V to 5.5V		-	-	±2	uA
I _{OFF}	Power-off leakage current	V _I or V _O =5.5V; V _{CC} =0V		-	-	±2	uA
I _{CC}	Supply current	V _I =5.5V or GND	Quiescent; V _{CC} =1.65V to 5.5V; I _O =0A	-	-	10	uA
		Active state; REXT/CEXT=0.5V _{CC}	V _{CC} =1.65V	-	-	80	uA
			V _{CC} =2.3V	-	-	130	uA
			V _{CC} =3V	-	-	240	uA
			V _{CC} =4.5V	-	-	400	uA
			V _{CC} =5.5V	-	-	650	uA

7.4.2 DC Characteristics 2

T_{amb}=-40°C to +125°C, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
V _{T+}	Positive-going threshold voltage	V _{CC} =1.65V to 1.95V		0.72	-	1.22	V
		V _{CC} =2.3V to 2.7V		0.97	-	1.52	V
		V _{CC} =3.0V to 3.6V		1.20	-	1.90	V
		V _{CC} =4.5V to 5.5V		1.74	-	2.75	V
V _{T-}	Negative-going threshold voltage	V _{CC} =1.65V to 1.95V		0.56	-	1.04	V
		V _{CC} =2.3V to 2.7V		0.83	-	1.33	V
		V _{CC} =3.0V to 3.6V		1.08	-	1.70	V
		V _{CC} =4.5V to 5.5V		1.61	-	2.53	V
V _H	Hysteresis voltage	V _{CC} =1.65V to 1.95V		20	-	100	mV
		V _{CC} =2.3V to 2.7V		20	-	100	mV
		V _{CC} =3.0V to 3.6V		10	-	100	mV
		V _{CC} =4.5V to 5.5V		10	-	100	mV
V _{OH}	HIGH-level output voltage	V _I =V _{T+} or V _{T-}	I _O =-100μA; V _{CC} =1.65V to 5.5V	V _{CC} - 0.1	-	-	V
			I _O =-4mA; V _{CC} =1.65V	1.2	-	-	V
			I _O =-8mA; V _{CC} =2.3V	1.9	-	-	V
			I _O =-12mA; V _{CC} =2.7V	2.2	-	-	V
			I _O =-24mA; V _{CC} =3.0V	2.4	-	-	V
			I _O =-32mA; V _{CC} =4.5V	3.8	-	-	V
V _{OL}	LOW-level output voltage	V _I =V _{T+} or V _{T-}	I _O =100μA; V _{CC} =1.65V to 5.5V	-	-	0.1	V
			I _O =4mA; V _{CC} =1.65V	-	-	0.45	V
			I _O =8mA; V _{CC} =2.3V	-	-	0.3	V
			I _O =12mA; V _{CC} =2.7V	-	-	0.4	V
			I _O =24mA; V _{CC} =3.0V	-	-	0.55	V
			I _O =32mA; V _{CC} =4.5V	-	-	0.55	V
I _I	Input leakage current	V _I =5.5V or GND; V _{CC} =0V to 5.5V		-	-	±10	μA
I _{OFF}	Power-off leakage current	V _I or V _O =5.5V; V _{CC} =0V		-	-	±10	μA
I _{CC}	Supply current	V _I =5.5V or GND	Quiescent; V _{CC} =1.65V to 5.5V; I _O =0A	-	-	20	μA
		Active state; REXT/CEXT=0.5V _{CC}	V _{CC} =1.65V	-	-	80	μA
			V _{CC} =2.3V	-	-	130	μA
			V _{CC} =3V	-	-	240	μA
			V _{CC} =4.5V	-	-	400	μA
			V _{CC} =5.5V	-	-	650	μA

7.4.3 AC Characteristics 1

Tamb=-40°C to +85°C, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP. (1)	MAX.	UNIT	
t _{PHL} , t _{PLH}	Propagation delay	A, B to Q; See Figure 8-4	V _{CC} =1.65V to 1.95V C _L =15pF	2.5	7.1	16.3	ns
			V _{CC} =2.3V to 2.7V C _L =15pF	1.9	-	10.3	ns
			V _{CC} =2.7V C _L =15pF	1.9	-	8.5	ns
			V _{CC} =3.0V to 3.6V C _L =15pF	1.5	-	7.6	ns
			V _{CC} =4.5V to 5.5V C _L =15pF	1.2	-	5.3	ns
			V _{CC} =1.65V to 1.95V C _L =30pF or C _L =50pF	2.9	7.8	17.6	ns
			V _{CC} =2.3V to 2.7V C _L =30pF or C _L =50pF	2.2	-	11.3	ns
			V _{CC} =2.7V C _L =30pF or C _L =50pF	2.7	-	10.5	ns
			V _{CC} =3.0V to 3.6V C _L =30pF or C _L =50pF	2.0	-	9.5	ns
			V _{CC} =4.5V to 5.5V C _L =30pF or C _L =50pF	1.5	-	6.7	ns
		CLR to Q; See Figure 8-4	V _{CC} =1.65V to 1.95V C _L =15pF	3.0	6.9	16.2	ns
			V _{CC} =2.3V to 2.7V C _L =15pF	2.2	-	9.6	ns
			V _{CC} =2.7V C _L =15pF	2.2	-	8.2	ns
			V _{CC} =3.0V to 3.6V C _L =15pF	2.0	-	7.3	ns
			V _{CC} =4.5V to 5.5V C _L =15pF	1.5	-	5.1	ns
			V _{CC} =1.65V to 1.95V C _L =30pF or C _L =50pF	3.3	7.5	17.2	ns
			V _{CC} =2.3V to 2.7V C _L =30pF or C _L =50pF	2.5	-	10.3	ns
			V _{CC} =2.7V C _L =30pF or C _L =50pF	2.8	-	9.3	ns
			V _{CC} =3.0V to 3.6V C _L =30pF or C _L =50pF	1.5	-	8.4	ns
			V _{CC} =4.5V to 5.5V C _L =30pF or C _L =50pF	1.5	-	6.0	ns
t _{PHL} , t _{PLH}	Propagation delay	CLR to Q(trigger); See Figure 8-4	V _{CC} =1.65V to 1.95V C _L =15pF	2.7	7.6	17.4	ns
			V _{CC} =2.3V to 2.7V C _L =15pF	2.1	-	11.0	ns
			V _{CC} =2.7V C _L =15pF	2.1	-	9.2	ns
			V _{CC} =3.0V to 3.6V C _L =15pF	1.7	-	8.2	ns
			V _{CC} =4.5V to 5.5V C _L =15pF	1.4	-	5.9	ns
			V _{CC} =1.65V to 1.95V C _L =30pF or C _L =50pF	3.1	8.3	18.8	ns
			V _{CC} =2.3V to 2.7V C _L =30pF or C _L =50pF	2.5	-	12.0	ns
			V _{CC} =2.7V C _L =30pF or C _L =50pF	2.8	-	11.1	ns
			V _{CC} =3.0V to 3.6V C _L =30pF or C _L =50pF	2.0	-	10.1	ns

			$V_{CC}=4.5V$ to $5.5V$ $C_L=30pF$ or $C_L=50pF$	1.5	-	7.1	ns
tw	Pulse width	Input \bar{A} LOW; B HIGH; See Figure 8-4 and Figure 8-5	$V_{CC}=1.65V$ to $1.95V$	8.0	-	-	ns
			$V_{CC}=2.3V$ to $2.7V$	4.0	-	-	ns
			$V_{CC}=2.7V$	3.0	-	-	ns
			$V_{CC}=3.0V$ to $3.6V$	3.0	-	-	ns
			$V_{CC}=4.5V$ to $5.5V$	2.5	-	-	ns
		Input CLR LOW; See Figure 8-4 and Figure 8-6	$V_{CC}=1.65V$ to $1.95V$	8.0	-	-	ns
			$V_{CC}=2.3V$ to $2.7V$	4.0	-	-	ns
			$V_{CC}=2.7V$	3.0	-	-	ns
			$V_{CC}=3.0V$ to $3.6V$	3.0	-	-	ns
			$V_{CC}=4.5V$ to $5.5V$	2.5	-	-	ns
tw	Pulse width	Output Q HIGH; See Figure 8-4, Figure 8-5 and Figure 8-6; $R_{EXT}=10k\Omega$	$V_{CC}=1.65V$ to $1.95V$ $C_{EXT}=100pF$	-	1.4	2.2	us
			$V_{CC}=2.3V$ to $2.7V$ $C_{EXT}=100pF$	-	1.3	1.8	us
			$V_{CC}=2.7V$ $C_{EXT}=100pF$	-	1.2	1.8	us
			$V_{CC}=3.0V$ to $3.6V$ $C_{EXT}=100pF$	-	1.2	1.8	us
			$V_{CC}=4.5V$ to $5.5V$ $C_{EXT}=100pF$	-	1.2	1.8	us
			$V_{CC}=1.65V$ to $1.95V$ $C_{EXT}=0.01\mu F$	-	100	110	us
			$V_{CC}=2.3V$ to $2.7V$ $C_{EXT}=0.01\mu F$	-	100	110	us
			$V_{CC}=2.7V$ $C_{EXT}=0.01\mu F$	-	100	110	us
			$V_{CC}=3.0V$ to $3.6V$ $C_{EXT}=0.01\mu F$	-	100	110	us
			$V_{CC}=4.5V$ to $5.5V$ $C_{EXT}=0.01\mu F$	-	100	110	us
			$V_{CC}=1.65V$ to $1.95V$ $C_{EXT}=0.1\mu F$	-	1.0	1.05	ms
			$V_{CC}=2.3V$ to $2.7V$ $C_{EXT}=0.1\mu F$	-	1.0	1.05	ms
			$V_{CC}=2.7V$ $C_{EXT}=0.1\mu F$	-	1.0	1.05	ms
			$V_{CC}=3.0V$ to $3.6V$ $C_{EXT}=0.1\mu F$	-	1.0	1.05	ms
			$V_{CC}=4.5V$ to $5.5V$ $C_{EXT}=0.1\mu F$	-	1.0	1.05	ms
			t _{trig}	Retrigger time	\bar{A} , B; See Figure 8-5	$V_{CC}=1.65V$ to $1.95V$ $C_{EXT}=100pF$; $R_{EXT}=5k\Omega$	-
$V_{CC}=2.3V$ to $2.7V$ $C_{EXT}=100pF$; $R_{EXT}=5k\Omega$	-	59				-	ns
$V_{CC}=3.0V$ to $3.6V$ $C_{EXT}=100pF$; $R_{EXT}=1k\Omega$	-	32				-	ns
$V_{CC}=4.5V$ to $5.5V$ $C_{EXT}=100pF$; $R_{EXT}=1k\Omega$	-	20				-	ns
$V_{CC}=1.65V$ to $1.95V$ $C_{EXT}=100\mu F$; $R_{EXT}=5k\Omega$	-	14				-	ms

			$V_{CC}=2.3V$ to $2.7V$ $C_{EXT}=100\mu F$; $R_{EXT}=5k\Omega$	-	10	-	ms
			$V_{CC}=3.0V$ to $3.6V$ $C_{EXT}=100\mu F$; $R_{EXT}=1k\Omega$	-	10	-	ms
			$V_{CC}=4.5V$ to $5.5V$ $C_{EXT}=100\mu F$; $R_{EXT}=1k\Omega$	-	8	-	ms

(1) Typical values are measured at $T_{amb}=25^{\circ}C$ and $V_{CC}=1.8V, 2.5V, 3.3V$ and $5.0V$ respectively.

7.4.4 AC Characteristics 2

$T_{amb}=-40^{\circ}C$ to $+125^{\circ}C$, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
t_{PHL}, t_{PLH}	Propagation delay	\bar{A}, B to Q; See Figure 8-4	$V_{CC}=1.65V$ to $1.95V$ $C_L=15pF$	2.5	-	17.6	ns
			$V_{CC}=2.3V$ to $2.7V$ $C_L=15pF$	1.9	-	11.2	ns
			$V_{CC}=2.7V$ $C_L=15pF$	1.9	-	9.3	ns
			$V_{CC}=3.0V$ to $3.6V$ $C_L=15pF$	1.5	-	8.3	ns
			$V_{CC}=4.5V$ to $5.5V$ $C_L=15pF$	1.2	-	5.8	ns
			$V_{CC}=1.65V$ to $1.95V$ $C_L=30pF$ or $C_L=50pF$	2.9	-	19.0	ns
			$V_{CC}=2.3V$ to $2.7V$ $C_L=30pF$ or $C_L=50pF$	2.2	-	12.3	ns
			$V_{CC}=2.7V$ $C_L=30pF$ or $C_L=50pF$	2.7	-	11.4	ns
			$V_{CC}=3.0V$ to $3.6V$ $C_L=30pF$ or $C_L=50pF$	2.0	-	10.3	ns
			$V_{CC}=4.5V$ to $5.5V$ $C_L=30pF$ or $C_L=50pF$	1.5	-	7.2	ns
		\bar{CLR} to Q; See Figure 8-4	$V_{CC}=1.65V$ to $1.95V$ $C_L=15pF$	3.0	-	17.4	ns
			$V_{CC}=2.3V$ to $2.7V$ $C_L=15pF$	2.2	-	10.5	ns
			$V_{CC}=2.7V$ $C_L=15pF$	2.2	-	8.9	ns
			$V_{CC}=3.0V$ to $3.6V$ $C_L=15pF$	2.0	-	8.0	ns
			$V_{CC}=4.5V$ to $5.5V$ $C_L=15pF$	1.5	-	5.5	ns
			$V_{CC}=1.65V$ to $1.95V$ $C_L=30pF$ or $C_L=50pF$	3.3	-	18.6	ns
			$V_{CC}=2.3V$ to $2.7V$ $C_L=30pF$ or $C_L=50pF$	2.0	-	11.2	ns
			$V_{CC}=2.7V$ $C_L=30pF$ or $C_L=50pF$	2.8	-	10.2	ns
			$V_{CC}=3.0V$ to $3.6V$ $C_L=30pF$ or $C_L=50pF$	1.5	-	9.2	ns
			$V_{CC}=4.5V$ to $5.5V$ $C_L=30pF$ or $C_L=50pF$	1.5	-	6.6	ns
t_{PHL}, t_{PLH}	Propagation delay	\bar{CLR} to Q(trigger); See Figure 8-4	$V_{CC}=1.65V$ to $1.95V$ $C_L=15pF$	2.7	-	18.9	ns
			$V_{CC}=2.3V$ to $2.7V$ $C_L=15pF$	2.1	-	12.0	ns
			$V_{CC}=2.7V$ $C_L=15pF$	2.1	-	10.0	ns

			$V_{CC}=3.0V$ to $3.6V$ $C_L=15pF$	1.7	-	8.9	ns
			$V_{CC}=4.5V$ to $5.5V$ $C_L=15pF$	1.4	-	6.4	ns
			$V_{CC}=1.65V$ to $1.95V$ $C_L=30pF$ or $C_L=50pF$	3.3	-	20.3	ns
			$V_{CC}=2.3V$ to $2.7V$ $C_L=30pF$ or $C_L=50pF$	2.5	-	13.1	ns
			$V_{CC}=2.7V$ $C_L=30pF$ or $C_L=50pF$	2.8	-	12.1	ns
			$V_{CC}=3.0V$ to $3.6V$ $C_L=30pF$ or $C_L=50pF$	2.0	-	11.0	ns
			$V_{CC}=4.5V$ to $5.5V$ $C_L=30pF$ or $C_L=50pF$	1.5	-	7.7	ns
t_w	Pulse width	Input \bar{A} LOW; B HIGH; See Figure 8-4 and Figure 8-5	$V_{CC}=1.65V$ to $1.95V$	8.0	-	-	ns
			$V_{CC}=2.3V$ to $2.7V$	4.0	-	-	ns
			$V_{CC}=2.7V$	3.0	-	-	ns
			$V_{CC}=3.0V$ to $3.6V$	3.0	-	-	ns
			$V_{CC}=4.5V$ to $5.5V$	2.5	-	-	ns
		Input \bar{CLR} LOW; See Figure 8-4 and Figure 8-6	$V_{CC}=1.65V$ to $1.95V$	8.0	-	-	ns
			$V_{CC}=2.3V$ to $2.7V$	4.0	-	-	ns
			$V_{CC}=2.7V$	3.0	-	-	ns
			$V_{CC}=3.0V$ to $3.6V$	3.0	-	-	ns
			$V_{CC}=4.5V$ to $5.5V$	2.5	-	-	ns
t_w	Pulse width	Output Q HIGH; See Figure 8-4, Figure 8-5 and Figure 8-6; $R_{EXT}=10k\Omega$	$V_{CC}=1.65V$ to $1.95V$ $C_{EXT}=100pF$	-	-	2.2	us
			$V_{CC}=2.3V$ to $2.7V$ $C_{EXT}=100pF$	-	-	1.8	us
			$V_{CC}=2.7V$ $C_{EXT}=100pF$	-	-	1.8	us
			$V_{CC}=3.0V$ to $3.6V$ $C_{EXT}=100pF$	-	-	1.8	us
			$V_{CC}=4.5V$ to $5.5V$ $C_{EXT}=100pF$	-	-	1.8	us
			$V_{CC}=1.65V$ to $1.95V$ $C_{EXT}=0.01\mu F$	-	-	110	us
			$V_{CC}=2.3V$ to $2.7V$ $C_{EXT}=0.01\mu F$	-	-	110	us
			$V_{CC}=2.7V$ $C_{EXT}=0.01\mu F$	-	-	110	us
			$V_{CC}=3.0V$ to $3.6V$ $C_{EXT}=0.01\mu F$	-	-	110	us
			$V_{CC}=4.5V$ to $5.5V$ $C_{EXT}=0.01\mu F$	-	-	110	us
			$V_{CC}=1.65V$ to $1.95V$ $C_{EXT}=0.1\mu F$	-	-	1.05	ms
			$V_{CC}=2.3V$ to $2.7V$ $C_{EXT}=0.1\mu F$	-	-	1.05	ms
			$V_{CC}=2.7V$ $C_{EXT}=0.1\mu F$	-	-	1.05	ms
			$V_{CC}=3.0V$ to $3.6V$ $C_{EXT}=0.1\mu F$	-	-	1.05	ms
			$V_{CC}=4.5V$ to $5.5V$ $C_{EXT}=0.1\mu F$	-	-	1.05	ms

8 Detailed Description

8.1 Overview

The CJ74LVC1G123 is a single retriggerable monostable multivibrator with Schmitt trigger inputs. Output pulse width is controlled by three methods:

1. The basic pulse is programmed by selection of an external resistor (REXT) and capacitor (CEXT).
2. Once triggered, the basic output pulse width may be extended by retriggering the gated active LOW-going edge input (/A) or the active HIGH-going edge input (B). By repeating this process, the output pulse period (Q = HIGH) can be made as long as desired.
3. An internal connection from /CLR to the input gates makes it possible to trigger the circuit by a HIGH-going signal at input /CLR.

8.2 Functional Block Diagram

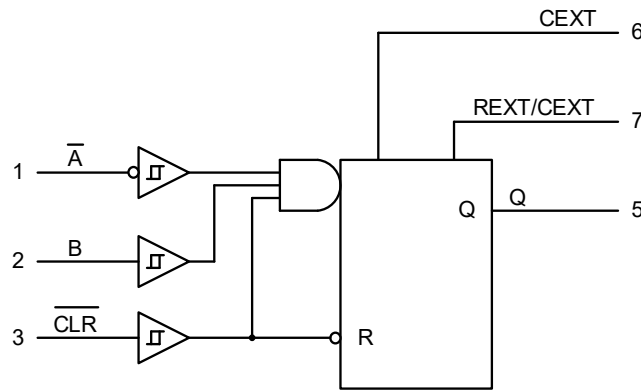


Figure 8-1 Logic symbol

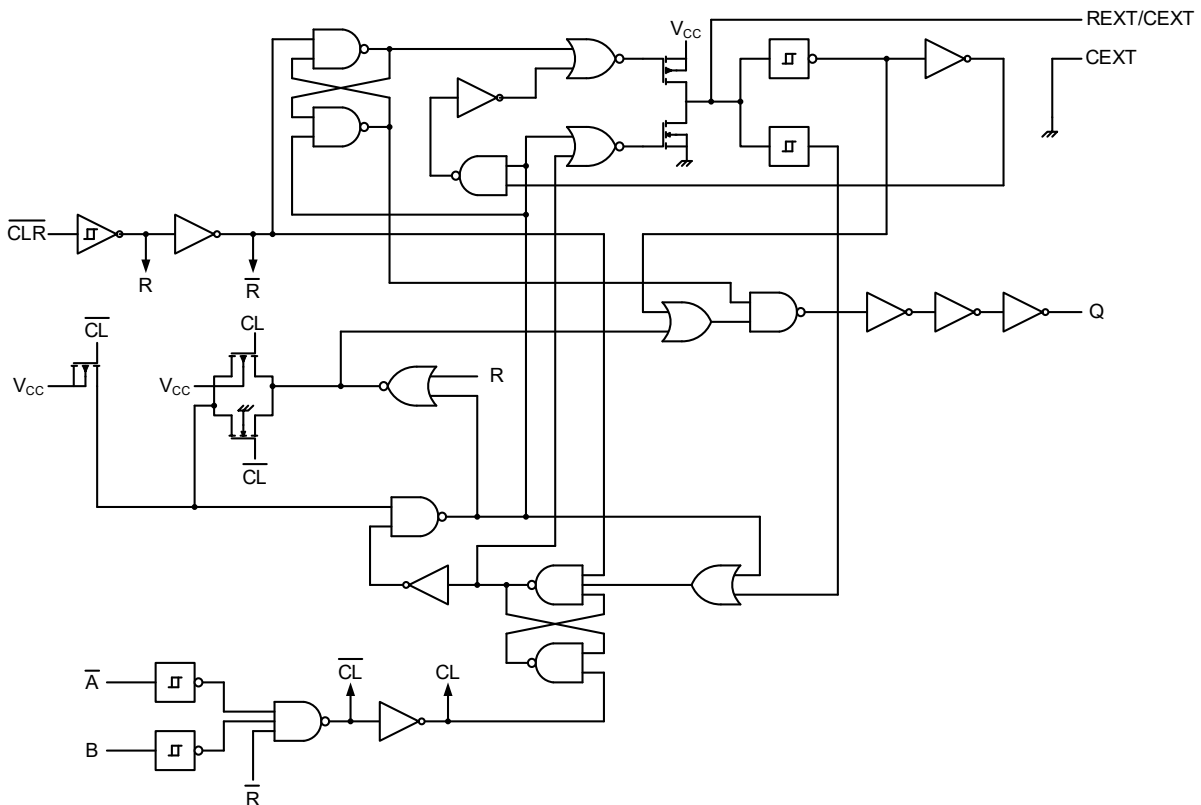






Figure 8-2 Logic diagram

8.3 Function Table⁽¹⁾

INPUT			OUTPUT
$\overline{\text{CLR}}$	$\overline{\text{A}}$	B	Q
L	X	X	L
X	H	X	L ⁽²⁾
X	X	L	L ⁽²⁾
H	L	↑	
H	↓	H	
↑	L	H	

(1) H=HIGH voltage level; L=LOW voltage level; X=don't care; ↑ =LOW-to-HIGH transition; ↓ =HIGH-to-LOW transition;  =one HIGH level output pulse.

(2) If the monostable was triggered before this condition was established, the pulse continues as programmed.

8.4 Testing Circuit

8.4.1 AC Testing Circuit

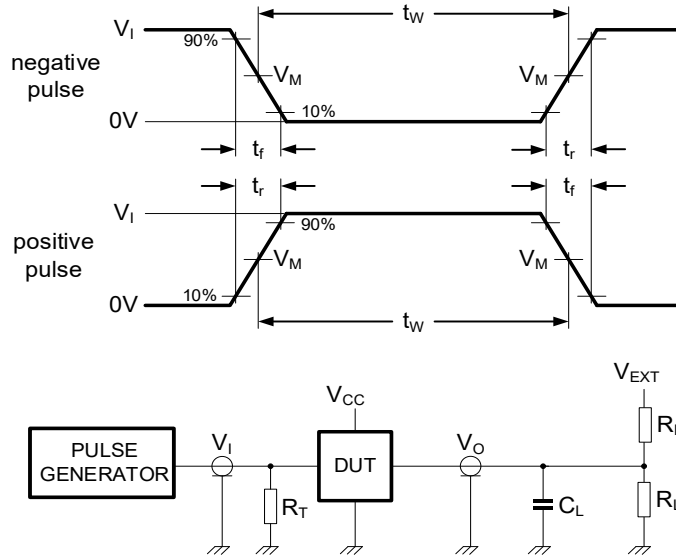


Figure 8-3 Test circuit for measuring switching times

Definitions for test circuit:

R_L =Load resistance.

C_L =Load capacitance including jig and probe capacitance.

R_T =Termination resistance should be equal to output impedance Z_o of the pulse generator.

V_{EXT} =Test voltage for switching times.

8.4.2 AC Testing Waveforms

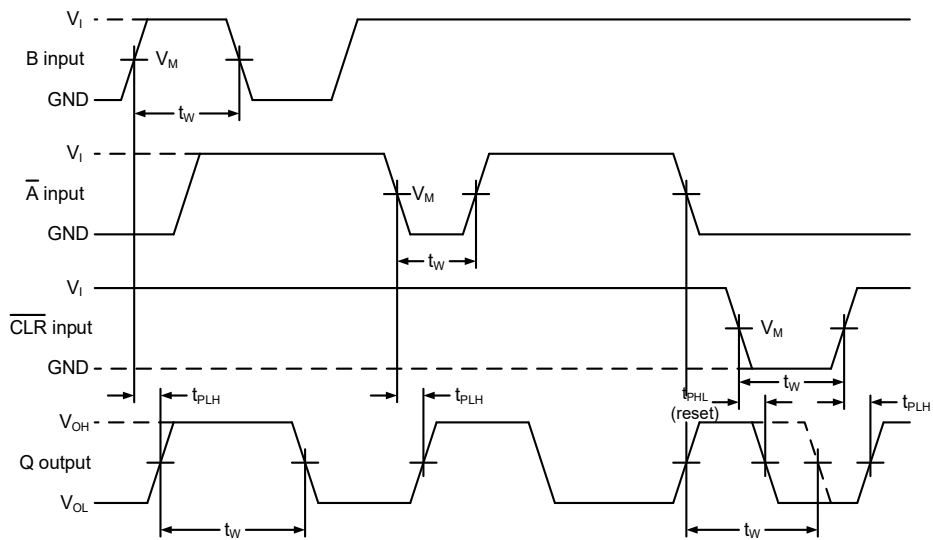


Figure 8-4 Propagation delays from inputs (A, B, CLR) to output (Q)

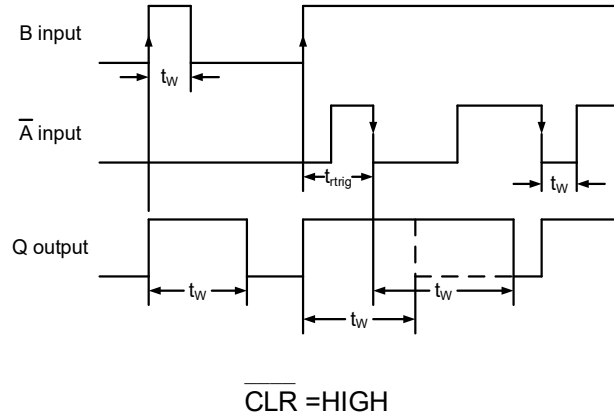


Figure 8-5 Output pulse control using retrigger pulse

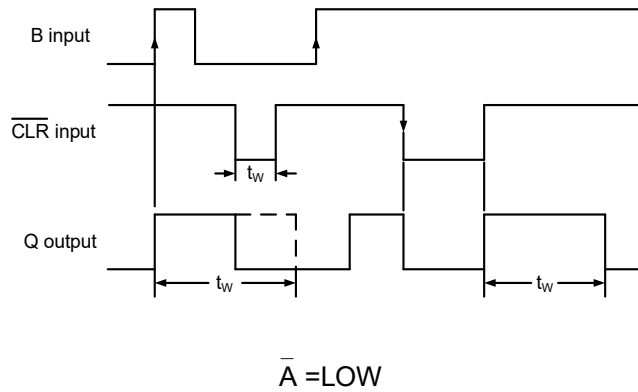


Figure 8-6 Output pulse control using reset input $\overline{\text{CLR}}$

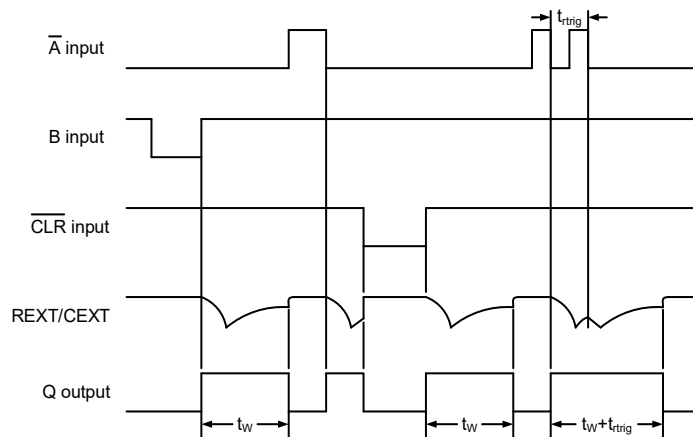


Figure 8-7 Input and output timing

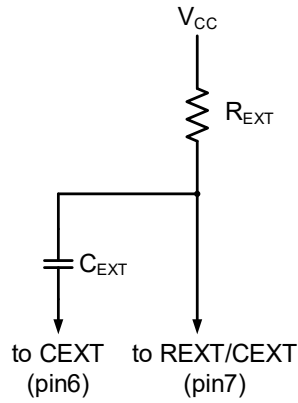


Figure 8-8 Timing component connections

8.4.3 Measurement Points

SUPPLY VOLTAGE	INPUT	OUTPUT
V_{CC}	V_M	V_M
1.65V to 1.95V	$0.5V_{CC}$	$0.5V_{CC}$
2.3V to 2.7V	$0.5V_{CC}$	$0.5V_{CC}$
2.7V	1.5V	1.5V
3.0V to 3.6V	1.5V	1.5V
4.5V to 5.5V	$0.5V_{CC}$	$0.5V_{CC}$

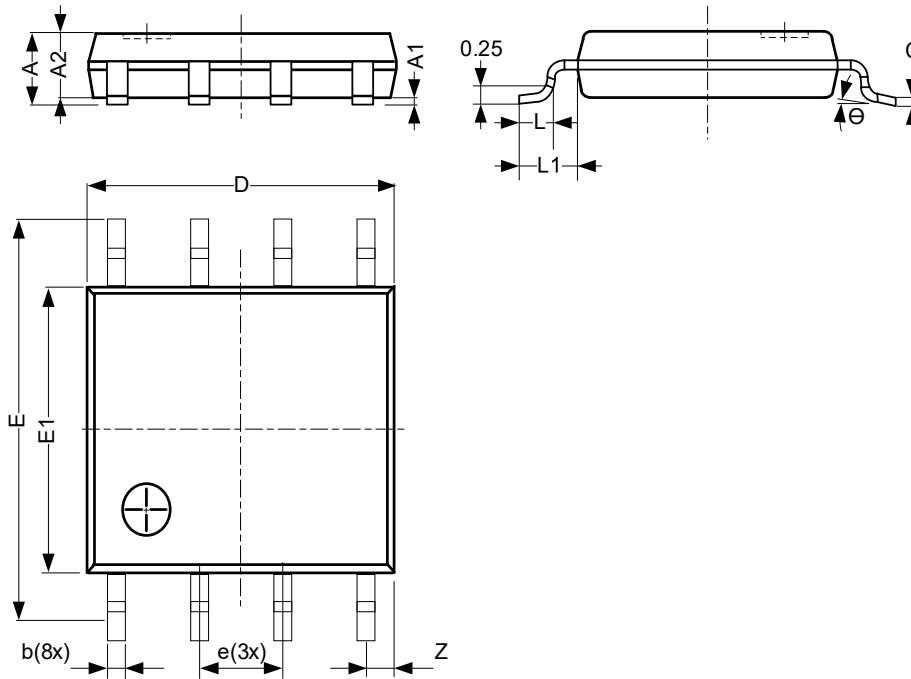
8.4.4 Test Data

SUPPLY VOLTAGE	INPUT		LOAD		V_{EXT}
	V_I	$t_r=t_f$	C_L	R_L	t_{PLH}, t_{PHL}
1.65V to 1.95V	V_{CC}	$\leq 3.0ns$	15pF	1M Ω	Open
2.3V to 2.7V	V_{CC}	$\leq 3.0ns$	15pF	1M Ω	Open
2.7V	2.7V	$\leq 3.0ns$	15pF	1M Ω	Open
3.0V to 3.6V	2.7V	$\leq 3.0ns$	15pF	1M Ω	Open
4.5V to 5.5V	V_{CC}	$\leq 3.0ns$	15pF	1M Ω	Open
1.65V to 1.95V	V_{CC}	$\leq 3.0ns$	30pF	1k Ω	Open
2.3V to 2.7V	V_{CC}	$\leq 3.0ns$	30pF	500 Ω	Open
2.7V	2.7V	$\leq 3.0ns$	50pF	500 Ω	Open
3.0V to 3.6V	2.7V	$\leq 3.0ns$	50pF	500 Ω	Open
4.5V to 5.5V	V_{CC}	$\leq 3.0ns$	50pF	500 Ω	Open

9 Mechanical Information

9.1 TSSOP8 Mechanical Information

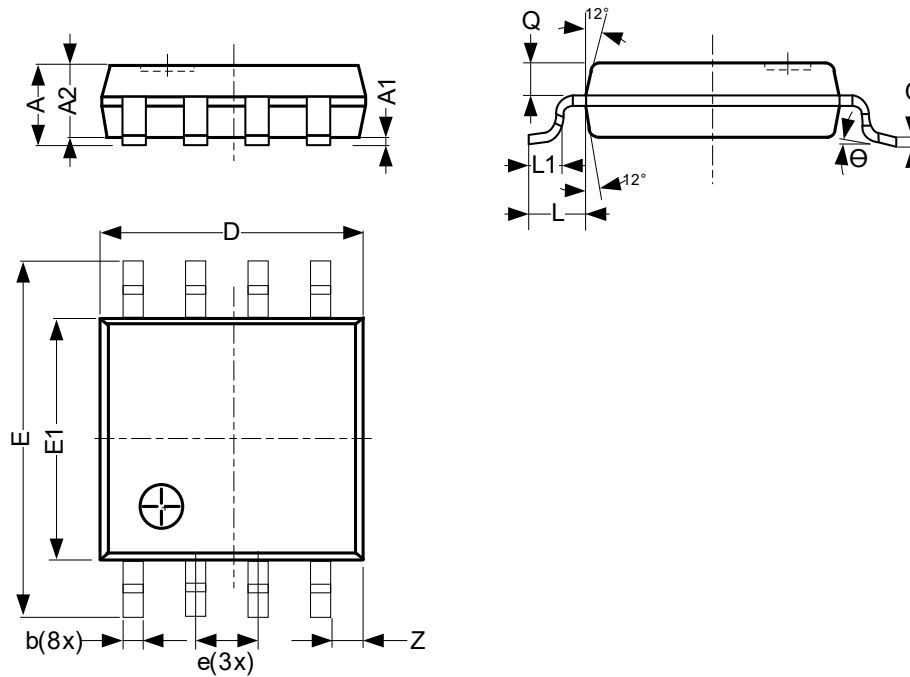
9.1.1 TSSOP8 Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	-	-	1.10
A1	0	-	0.15
A2	0.75	-	0.95
b	0.22	-	0.38
c	0.08	-	0.18
D	2.90	-	3.10
E	3.90	-	4.10
E1	2.90	-	3.10
e	0.65 BSC		
L	0.33	-	0.47
L1	-	0.50	-
Z	0.35	-	0.70
Θ	0°	-	8°
Unit: mm			

9.2 VSSOP8 Mechanical Information

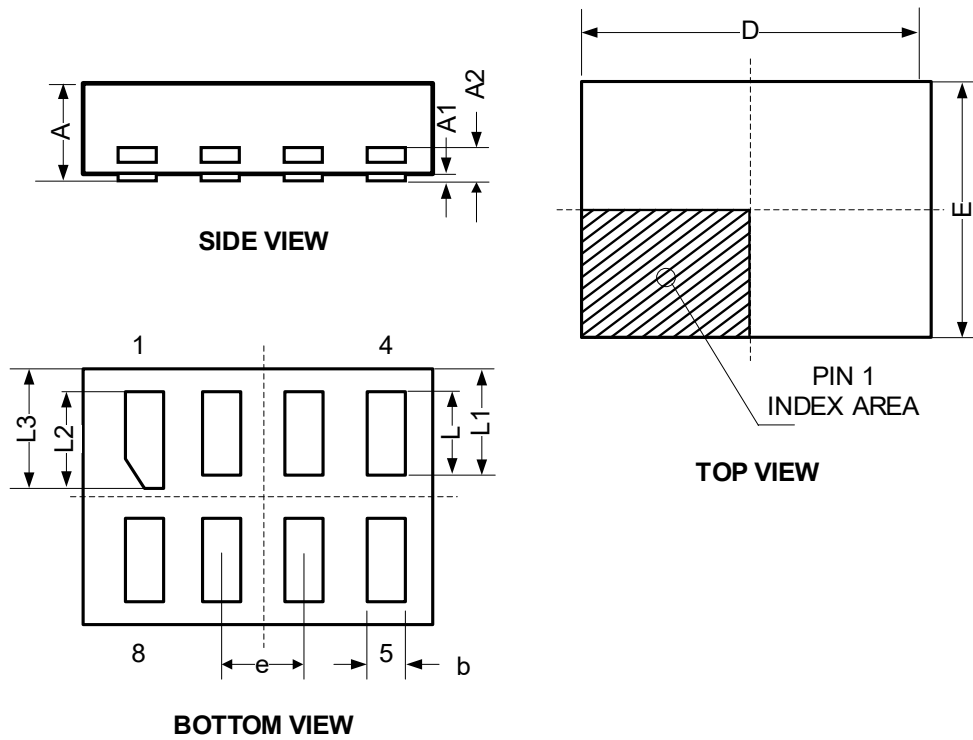
9.2.1 VSSOP8 Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	-	-	1.00
A1	0	-	0.15
A2	0.60	-	0.85
Q	0.19	-	0.21
b	0.17	-	0.27
c	0.08	-	0.23
D	1.90	-	2.10
E	3.00	-	3.20
E1	2.20	-	2.40
e	0.50 BSC		
L	-	0.40	-
L1	0.15	-	0.40
Z	0.10	-	0.40
Θ	0°	-	8°
Unit: mm			

9.3 DFN1.95x1-8L Mechanical Information

9.3.1 DFN1.95x1-8L Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.45	-	0.55
A1	0.00	-	0.05
A2	0.127		
b	0.15	-	0.25
D	-	1.95	-
E	-	1.00	-
e	0.50 BSC		
L	0.25	-	0.35
L1	0.25	-	0.45
L2	0.30	-	0.40
L3	0.30	-	0.50
Unit: mm			

10 Notes and Revision History

10.1 Associated Product Family and Others

To view other products of the same type or IC products of other types, click the official website of JSCJ -- <https://www.jscj-elec.com> for more details.

10.2 Notes

Electrostatic Discharge Caution



This IC may be damaged by ESD. Relevant personnel shall comply with correct installation and use specifications to avoid ESD damage to the IC. If appropriate measures are not taken to prevent ESD damage, the hazards caused by ESD include but are not limited to degradation of integrated circuit performance or complete damage of integrated circuit. For some precision integrated circuits, a very small parameter change may cause the whole device to be inconsistent with its published specifications.

DISCLAIMER

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