Cmos And Gate High-Voltage Types

Features

CD4073B and CD4082B AND Gates.provide the system ed Inner with direct implementation of the AND function and supplement the existing family of CMOS gates.

- Medium-Speed Operation -T_{PLH}, T_{PHL}=60ns（tsp.）at VDD = 10 V
- 100% tested for quiescent current at 20V Maximum input current of 1μA at 18 V over full pack-temperature range，100 nA at 18 V and 25ºC
- Noise margin （full package-temperature range）
  1V at VDD=5V
  2V at VDD=10V
  2.5V at VDD=15V
- Standardized,symmetrical ou taut characteristics
- 5V、10Vand 15V parametric ratings
- Meets all requirements of JEDEC Tentative Tankard No.13B,Standard Specifications

DIP-14

SOP-14

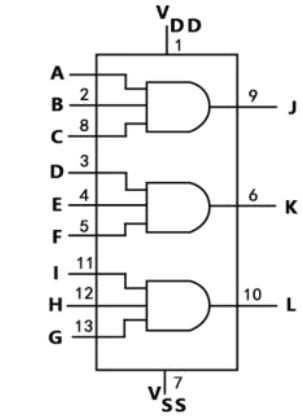

TSSOP-14


QFN-16 3*3

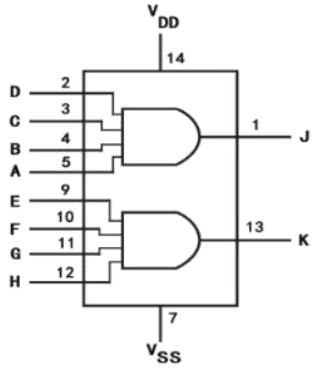
Ordering Information

DEVICE	Package Type	MARKING	Packing	Packing Qty
CD4073BE/ CD4073BN	DIP-14	CD4073B	TUBE	1000pcs/box
CD4073BM/TR	SOP-14	CD4073B	REEL	2500pcs/reel
CD4073BMT/TR	TSSOP-14	CD4073B	REEL	2500pcs/reel
CD4073BLQ/TR	QFN-16 3*3	4073B	REEL	5000pcs/reel
CD4082BE/ CD4082BN	DIP-14	CD4082B	TUBE	1000pcs/box
CD4082BM/TR	SOP-14	CD4082B	REEL	2500pcs/reel
CD4082BMT/TR	TSSOP-14	CD4082B	REEL	2500pcs/reel
CD4082BLQ/TR	QFN-16 3*3	4082B	REEL	5000pcs/reel

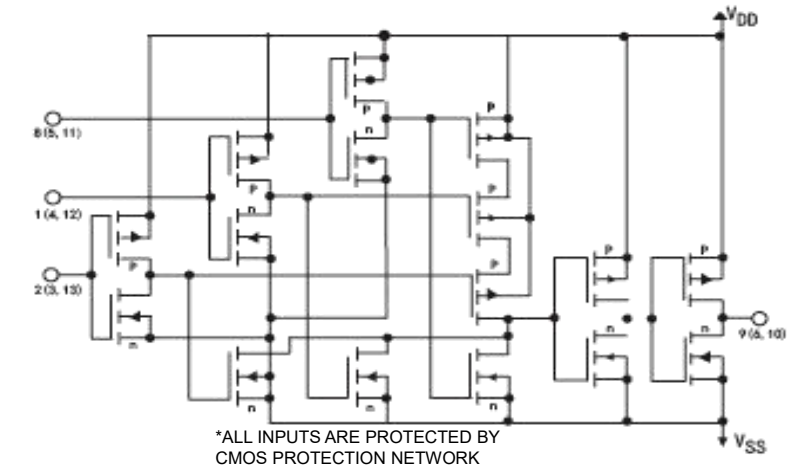
Logic Diagram



CD4073B
FUNCTIONAL DIAGRAM



CD4082B
FUNCTIONAL DIAGRAM



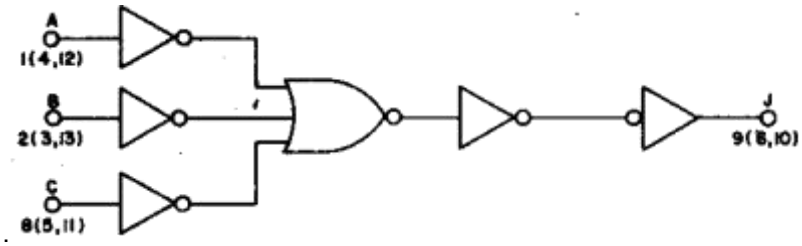


Fig.1 - Logic diagram for CD4073B(1 of 3 identical Gates).

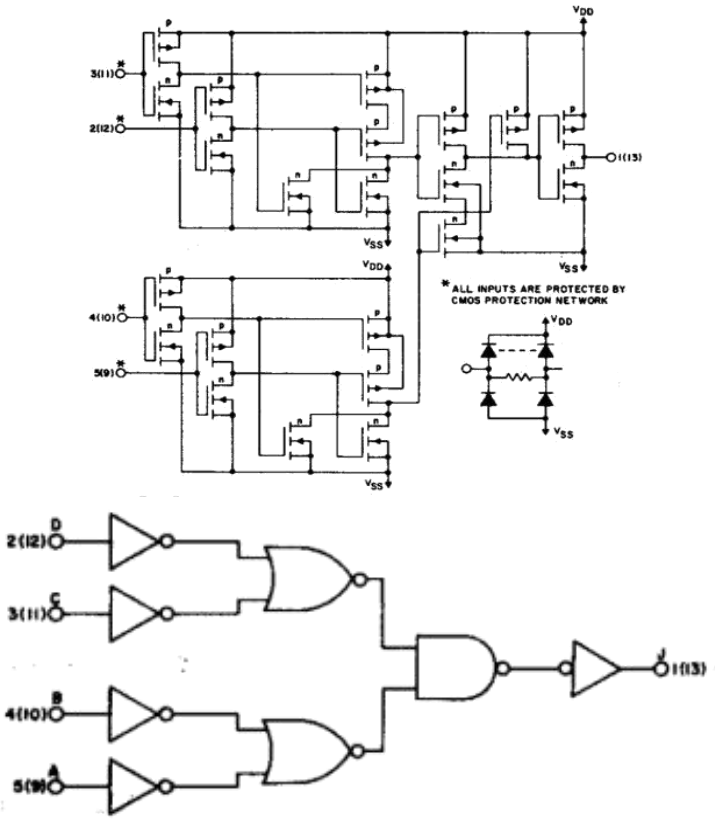
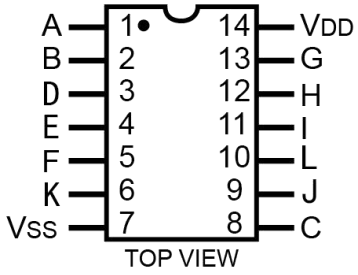


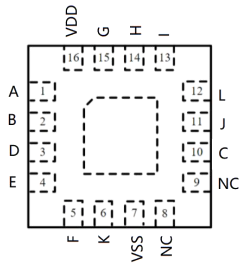
Fig.2 - Logic diagram for CD4082B (1 of 2 identical gates).

Pin Configuration

CD4073B

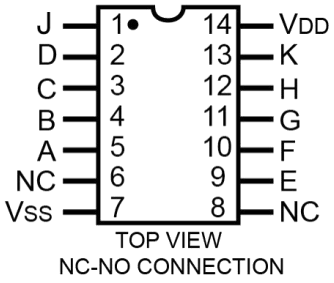


DIP/SOP/TSSOP

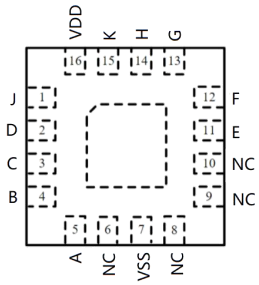


QFN-16

CD4082B



DIP/SOP/TSSOP



QFN-16

Maximum Ratings,Absolute-Maximum Values:

Condition	Min	Max	Units
DC SUPPLY-VOLTAGE RANGE,(VDD):			
Voltages reference to VSS Terminal)	-0.5	+20	V
INPUT VOLTAGE RANGE,ALLINPUTS	-0.5	+0.5	V
DC INPUT CURRENTANY ONE INPUT	-	+10	mA
POWER DISSIPATION PER PACKAG-(PD):			
For TA=55℃ to +100℃	-	500	mA
For TA=+100℃ to +125℃ (Derate Lineaitry at)	12	200	mW
DEVICE DISSIPATION PER OUTPUT TRANSISTOR:			
FOR TA-FULL PACKAGE=TEMPERATURE RANGE(Al Pakage Types)	-	100	mW
OPERATING-TEMPERATURE RANGE(TA)	-40	+85	℃
STORAGE TEMPERATURE RANGE(stag)	-65	+150	℃
At distance 1/16±1/32inch(1.59+0.79mm)from case for 10s max	-	+260	℃

Absolute Maximum Ratings indicate limits beyond which damage to the device may occur. Operating Ratings indicate conditions for which the device is intended to be functional, but specific performance is not ensured.

Recommended operating conditions

For maximum reliability. nominal operating conditions should be selected so that operation is always within the following ranges:

CHARACTERISTIC	LIMITS		UNITS
	MIN.	MAX.	
Supply-Voltage Range (for T=Full Package Temperature Range)	5	15	V

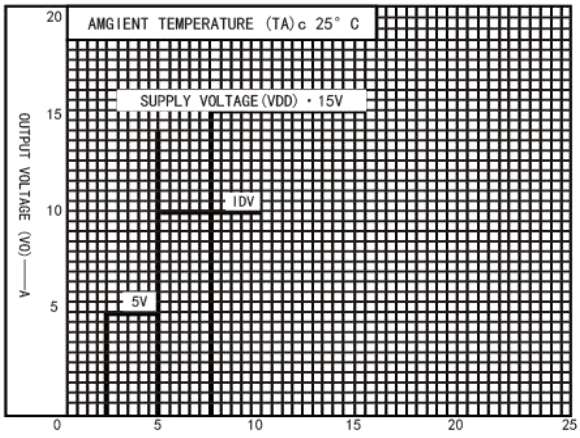
Dynaic Electrical Charactetistics

at TA=25ºC，Input tr，ft=20ns，and CL=50 pf，RL=200KΩ

CHARACTERISTIC	TEST CONDITIOS		ALL TYPES LIMITS		UNITS
		VDD Volts	TYP.	MAX.	
Propagation Delay Time,TPHL,TPLH		5 10 15	125 60 40	250 120 90	NS
Transition Time, TPHL,TPLH		5 10 15	100 50 40	200 100 80	NS
Input Capacitance,CIN	Any Input	-	5	7.5	Pf

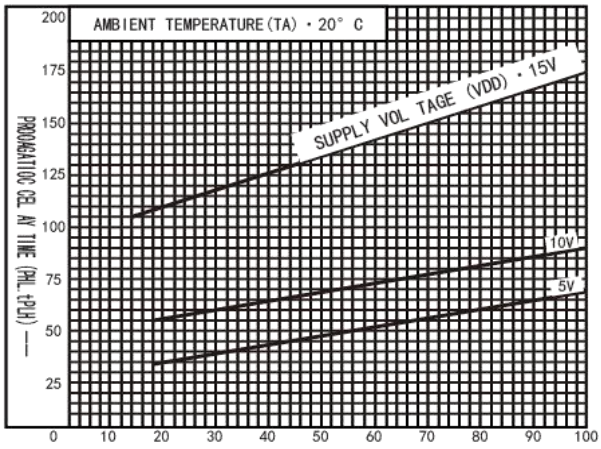
Static Electrical Characteristics

CHARACTER. ISTIC	CONDITIONS			LIMITS AT INDICATED TEMPERATURES(℃)					UNITS
	VO (V)	VIN (V)	VDD (V)				+25		
				-40	+85	Min	TYP	MAX	
Quiescent Device Current,IDD Max.	-	0.5	5	0.25	7.5	-	0.01	0.25	μA
	-	0.10	10	0.5	15	-	0.01	0.5	
	-	0.15	15	1	30	-	0.01	1	
	-	0.20	20	5	150	-	0.02	5	
Output Low (Sink)Current IOL Min.	0.4	0.5	5	0.61	0.42	0.51	1	-	mA
	0.5	0.10	10	1.5	1.1	1.3	2.6	-	
	1.5	0.15	15	4	2.8	3.4	6.8	-	
Output High (Source) Current, IOH Min.	4.6	0.5	5	-0.61	-0.42	-0.51	-1	-	
	2.5	0.5	5	-1.8	-1.3	-1.6	-3.2	-	
	9.5	0.10	10	-1.5	-1.1	-1.3	-2.6	-	
	13.5	0.15	10	-4	-2.8	-3.4	-6.8	-	
Output Voltage Low-Level, VOL Max.	-	0.5	5	0.05		-	0	0.05	V
	-	0.10	10	0.05		-	0	0.05	
	-	0.15	15	0.05		-	0	0.05	
Output Voltage High-Level, VOH Min.	-	0.5	5	1.95		4.95	5	-	
	-	0.10	10	9.95		9.95	10	-	
	-	0.15	15	14.95		14.95	15	-	
Input Low Voltage, VIL Max.	0.5	-	5	1.5		-	-	1.5	V
	1	-	10	3		-	-	3	
	1.5	-	15	4		-	-	4	
Input High Voltage, VIH Min.	0.5.4.5	-	5	3.5		3.5	-	-	
	1.9	-	10	7		7	-	-	
	1.5.13.5	-	15	11		11	-	-	
Input Current VIN Max.		0.18	18	±0.1	±1	-	$\pm10^{-5}$	±0.1	μA



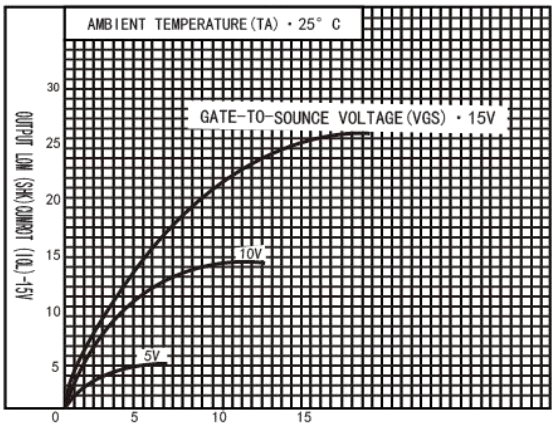
INPUT VOLTAGE(VIN)-V

Fig.3-Typocalvoltagetransfercharacteristic.



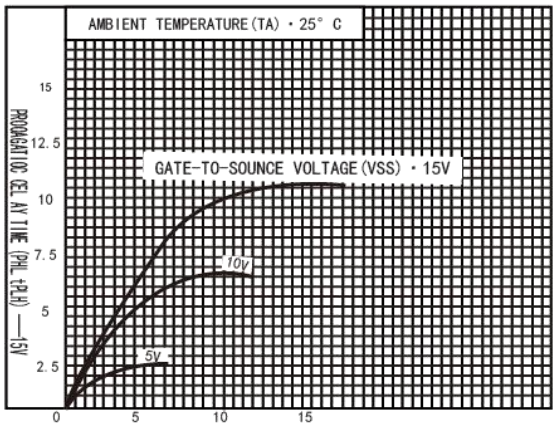
LOAD CAPACITANCE(CL)--pf

Fig.4 - Typical propagation delay time as a function of load capacitance.



DRAIN-TO-SOURCE VOKTAGE(VDS)-V

Fig.5 - Typical output low （sink）
Current characteristics.



DRAIN-TO-SOURCE VOLTAGE(VDS)-V

Fig.6 - Minimum output low (sink)
Current characteristics.

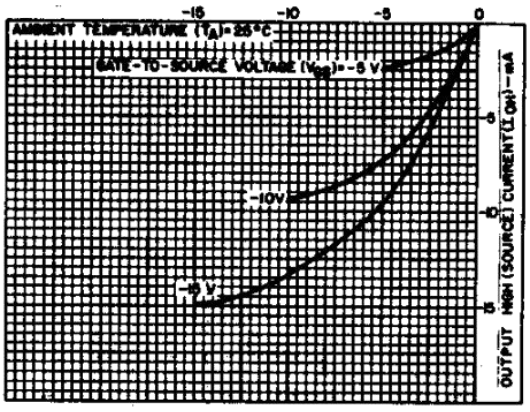
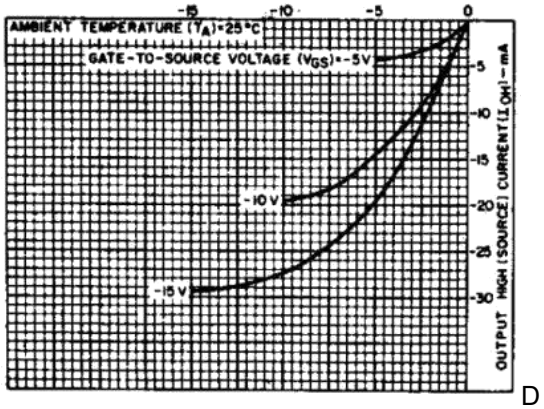


Fig.7 -Minimum output high （source）current characteristics



D

Fig.8 - Typical output high (source) current characteristics.

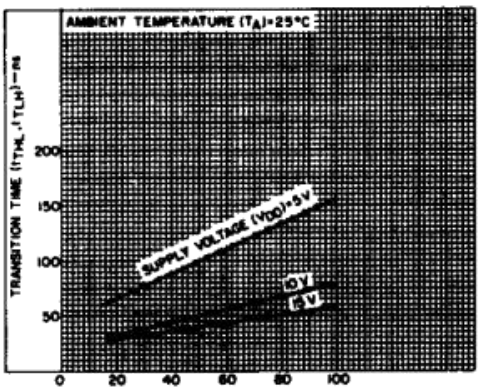


Fig.9 -Typical transition time as a function of load capacitance

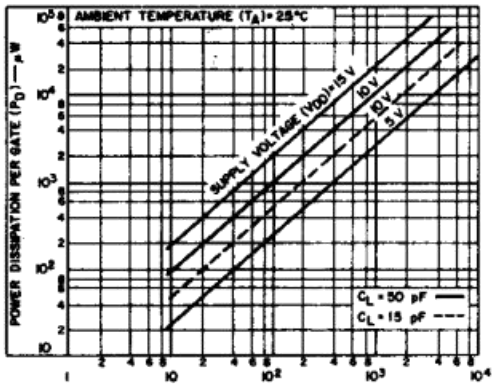


Fig.10 -Typical dynamic power diss i- Ration per gate as a function

Terminal Assignments

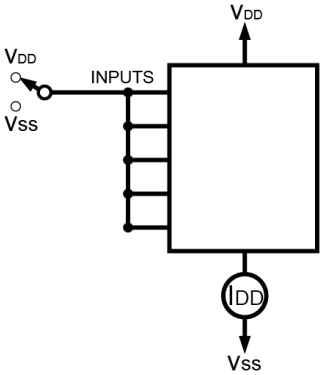


Fig.11 - Quiescent device current test circuit.

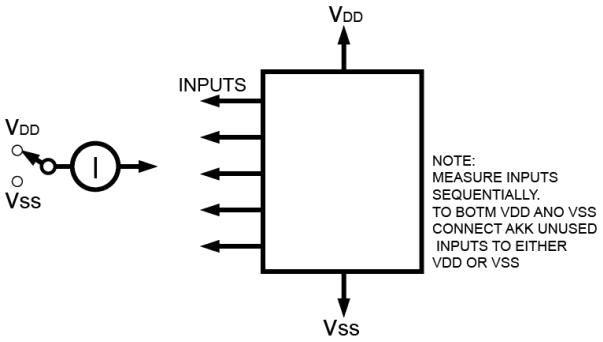


Fig.12 - Input current test circuit.

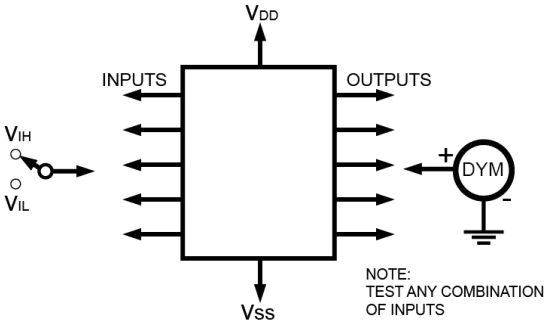
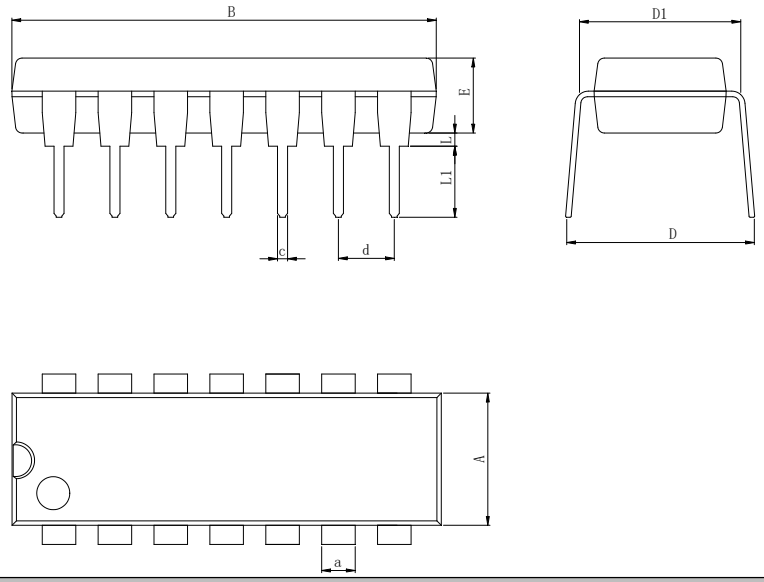


Fig.13 - Input-voltage test circuit.

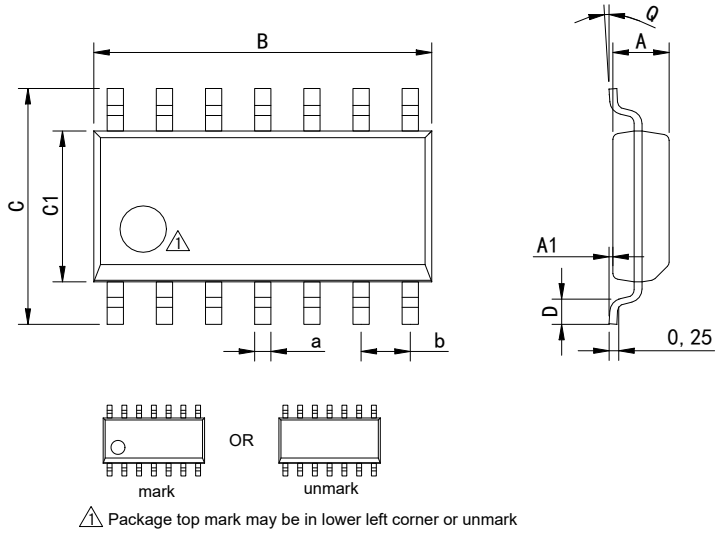
Physical Dimensions

DIP-14



Dimensions In Millimeters(DIP-14)										
Symbol:	A	B	D	D1	E	L	L1	a	c	d
Min:	6.10	18.94	8.10	7.42	3.10	0.50	3.00	1.50	0.40	2.54 BSC
Max:	6.68	19.56	10.9	7.82	3.55	0.70	3.60	1.55	0.50	

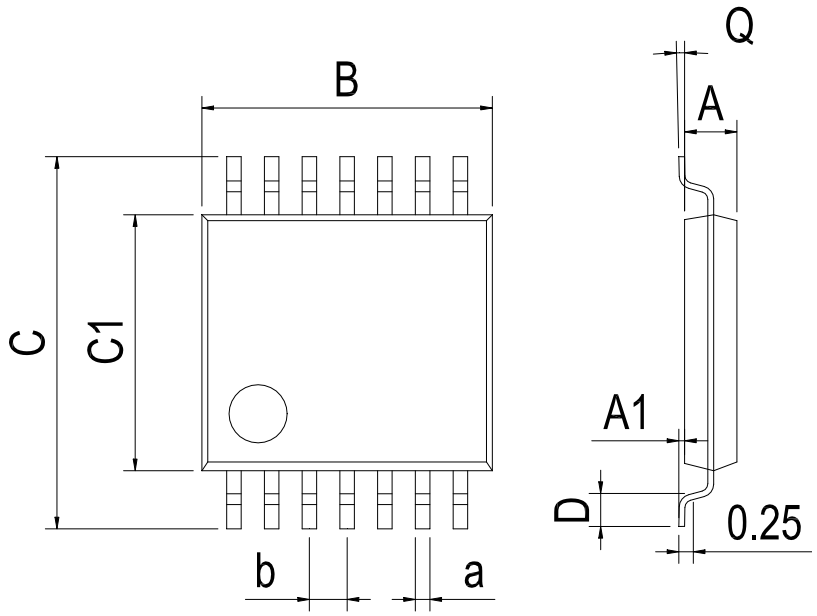
SOP-14



Dimensions In Millimeters(SOP-14)									
Symbol:	**A**	**A1**	**B**	**C**	**C1**	**D**	**Q**	**a**	**b**
Min:	1.35	0.05	8.55	5.80	3.80	0.40	0°	0.35	1.27 BSC
Max:	1.55	0.20	8.75	6.20	4.00	0.80	8°	0.45	

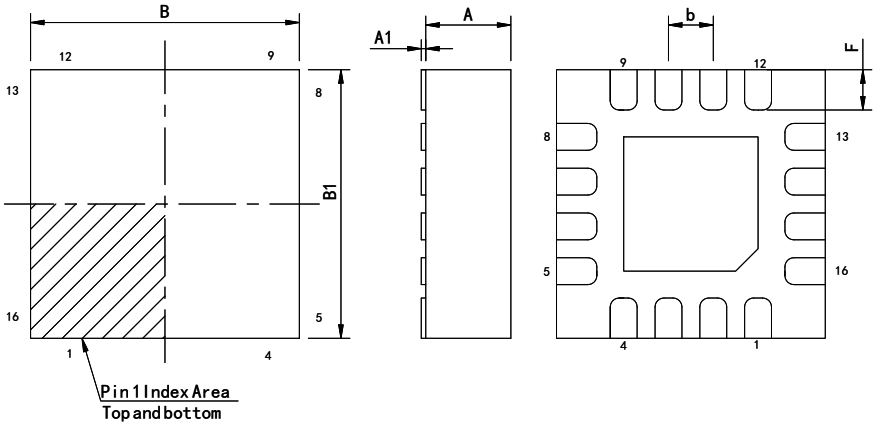
Physical Dimensions

TSSOP-14



Dimensions In Millimeters(TSSOP-14)									
Symbol:	A	A1	B	C	C1	D	Q	a	b
Min:	0.85	0.05	4.90	6.20	4.30	0.40	0°	0.20	0.65 BSC
Max:	0.95	0.20	5.10	6.60	4.50	0.80	8°	0.25	

QFN-16 3*3



Dimensions In Millimeters(QFN-16 3*3)								
Symbol:	A	A1	B	B1	E	F	a	b
Min:	0.85	0	2.90	2.90	0.15	0.25	0.18	0.50TYP
Max:	0.95	0.05	3.10	3.10	0.25	0.45	0.30	

Revision History

REVISION NUMBER	DATE	REVISION	PAGE
V1.0	2019-12	New	1-11
V1.1	2022-1	Updated DIP-14 dimension、Add annotation for Maximum Ratings	4、8
V1.2	2023-8	Update encapsulation type、Update DIP Package New Model	1
V1.3	2024-11	Add the QFN-16 package device、Update Lead Temperature	1、4
V1.4	2025-11	Update important statements、Update SOP-14 Dimension drawing	8、11

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