CC4082

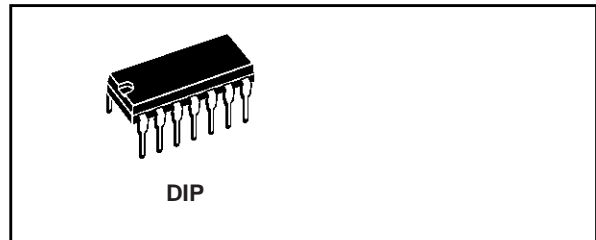## DUAL 4 INPUT AND GATE

- MEDIUM SPEED OPERATION :
  t_{PD} = 60ns (Typ.) at 10V
- QUIESCENT CURRENT SPECIFIED UP TO 20V
- 5V, 10V AND 15V PARAMETRIC RATINGS
- INPUT LEAKAGE CURRENT
  I_I = 100nA (MAX) AT V_{DD} = 18V T_A = 25°C
- 100% TESTED FOR QUIESCENT CURRENT
- MEETS ALL REQUIREMENTS OF JEDEC JESD13B " STANDARD SPECIFICATIONS FOR DESCRIPTION OF B SERIES CMOS DEVICES"

DIP

DESCRIPTION

The CC4082 is a monolithic integrated circuit fabricated in Metal Oxide Semiconductor technology available in DIP and SOP packages. The CC4082 DUAL 4 INPUT AND GAT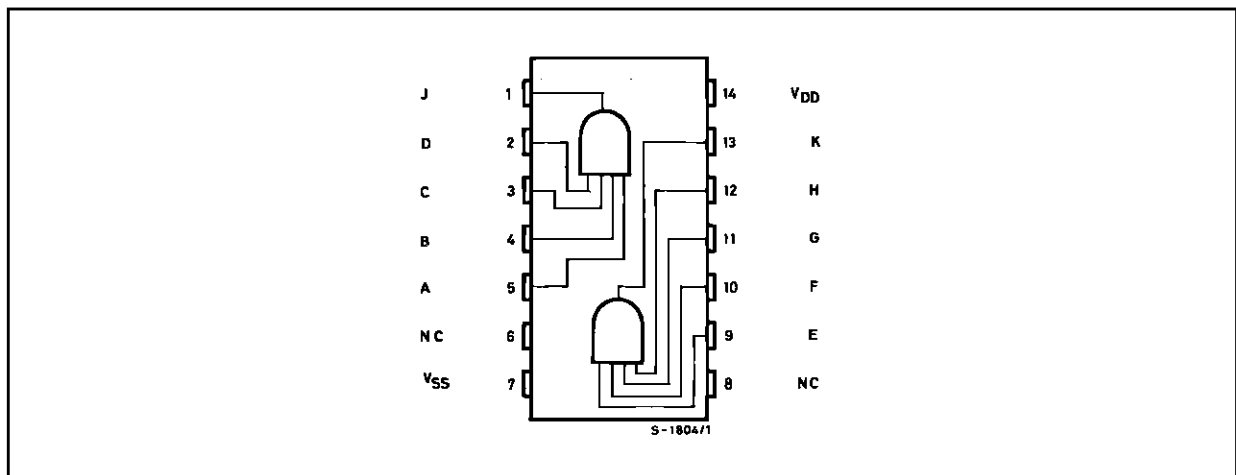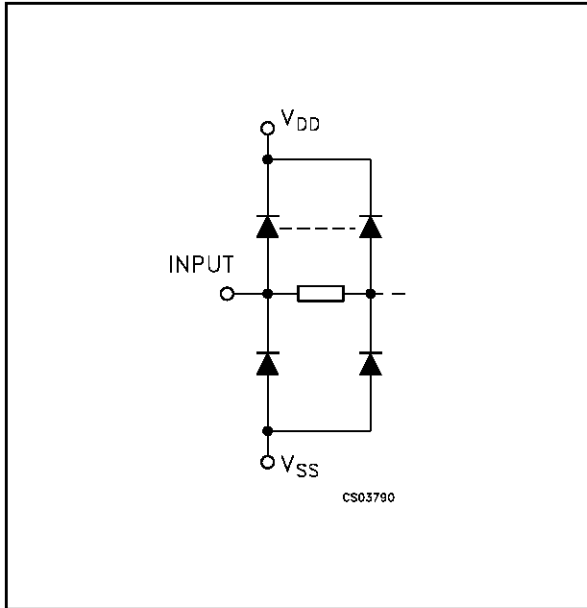E provides the system designer with direct implementation of the AND function and supplement the existing family of CMOS gates.

ORDER CODES

PACKAGE	TUBE	T & R
DIP	CC4082	

PIN CONNECTION

CC4082

INPUT EQUIVALENT CIRCUIT

PIN DESCRIPTION

PIN No	SYMBOL	NAME AND FUNCTION
5, 4, 3, 2	A, B, C, D	Data Inputs
9, 10, 11, 12	E, F, G, H	Data Inputs
1, 13	J, K	Data Outputs
6, 8	NC	Not Connected
7	V_{SS}	Negative Supply Voltage
14	V_{DD}	Positive Supply Voltage

TRUTH TABLE

INPUTS				OUTPUTS
D, E	C, F	B, G	A, H	J, K
L	X	X	X	L
X	L	X	X	L
X	X	L	X	L
X	X	X	L	L
H	H	H	H	H

X : Don't Care

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{DD}	Supply Voltage	-0.5 to +20	V
V_I	DC Input Voltage	-0.5 to V_{DD} + 0.5	V
I_I	DC Input Current	± 10	mA
P_D	Power Dissipation per Package	200	mW
	Power Dissipation per Output Transistor	100	mW
T_{op}	Operating Temperature	-55 to +125	°C
T_{stg}	Storage Temperature	-65 to +150	°C

Absolute Maximum Ratings are those values beyond which damage to the device may occur. Functional operation under these conditions is not implied.
All voltage values are referred to V_{SS} pin voltage.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Value	Unit
V_{DD}	Supply Voltage	3 to 1 8	V
V_I	Input Voltage	0 to V_{DD}	V
T_{op}	Operating Temperature	-55 to 125	°C

DC SPECIFICATIONS

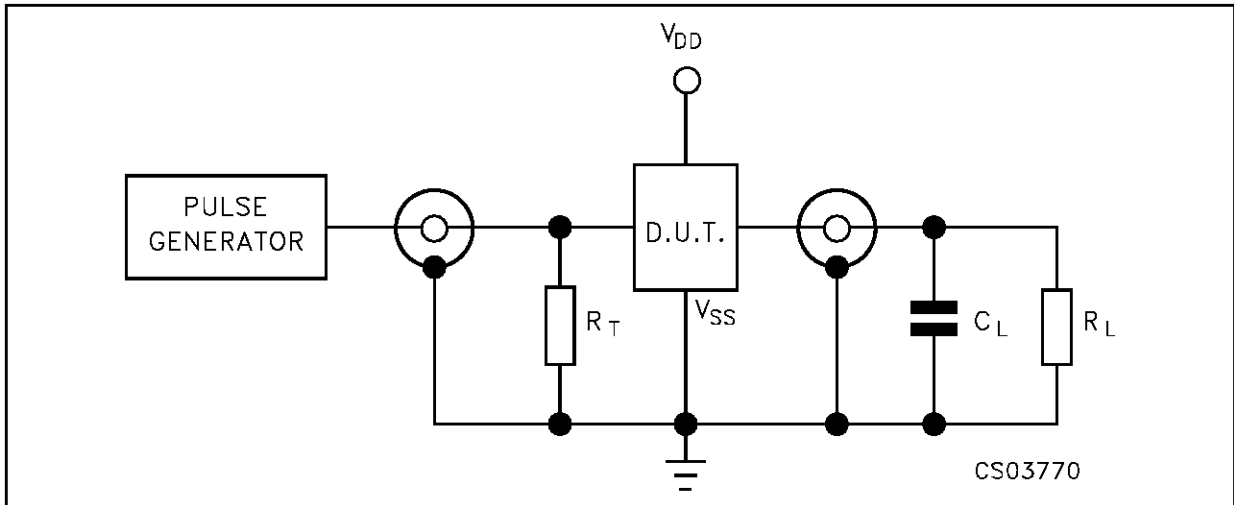| Symbol	Parameter	V_I (V)	V_O (V)	$|I_O|$ (µA)	V_{DD} (V)	T_A = 25°C Min.	Typ.	Max.	-40 to 85°C Min.	Max.	-55 to 125°C Min.	Max.	Unit
I_L	Quiescent Current	0/5			5		0.01	0.25		7.5		7.5	µA
		0/10			10		0.01	0.5		15		15	
		0/15			15		0.01	1		30		30	
		0/18			18		0.02	5		150		150	
V_{OH}	High Level Output Voltage	0/5		<1	5	4.95			4.95		4.95		V
		0/10		<1	10	9.95			9.95		9.95		
		0/15		<1	15	14.95			14.95		14.95		
V_{OL}	Low Level Output Voltage	5/0		<1	5		0.05			0.05		0.05	V
		10/0		<1	10		0.05			0.05		0.05	
		15/0		<1	15		0.05			0.05		0.05	
V_{IH}	High Level Input Voltage		0.5/4.5	<1	5	3.5			3.5		3.5		V
			1/9	<1	10	7			7		7		
			1.5/13.5	<1	15	11			11		11		
V_{IL}	Low Level Input Voltage		4.5/0.5	<1	5			1.5		1.5		1.5	V
			9/1	<1	10			3		3		3	
			13.5/1.5	<1	15			4		4		4	
I_{OH}	Output Drive Current	0/5	2.5	<1	5	-1.36	-3.2		-1.15		-1.1		mA
		0/5	4.6	<1	5	-0.44	-1		-0.36		-0.36		
		0/10	9.5	<1	10	-1.1	-2.6		-0.9		-0.9		
		0/15	13.5	<1	15	-3.0	-6.8		-2.4		-2.4		
I_{OL}	Output Sink Current	0/5	0.4	<1	5	0.44	1		0.36		0.36		mA
		0/10	0.5	<1	10	1.1	2.6		0.9		0.9		
		0/15	1.5	<1	15	3.0	6.8		2.4		2.4		
I_I	Input Leakage Current	0/18	Any Input		18		$\pm10^{-5}$	±0.1		±1		±1	µA
C_I	Input Capacitance		Any Input				5	7.5					pF

The Noise Margin for both "1" and "0" level is: 1V min. with V_{DD}=5V, 2V min. with V_{DD}=10V, 2.5V min. with V_{DD}=15V

DYNAMIC ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C, C_L = 50pF, R_L = 200KΩ, t_r = t_f = 20 ns)

Symbol	Parameter	Test Condition V_{DD} (V)		Value (*) Min.	Typ.	Max.	Unit
t_{PLH} t_{PHL}	Propagation Delay Time	5			125	250	ns
		10			60	125	
		15			45	90	
t_{TLH} t_{THL}	Output Transition Time	5			100	200	ns
		10			60	100	
		15			40	80	

(*) Typical temperature coefficient for all V_{DD} value is 0.3 %/°C.

TEST CIRCUIT

C_L = 50pF or equivalent (includes jig and probe capacitance)
R_L = 200KΩ
R_T = Z_{OUT} of pulse generator (typically 50Ω)

WAVEFORM : PROPAGATION DELAY TIMES (f=1MHz; 50% duty cycle)