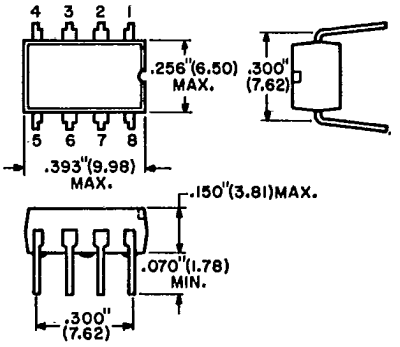
ECG® Semiconductors

ECG1209

4-Bit Binary Counter

ECG1209 is a bipolar digital integrated circuit designed for use as a 4-bit binary counter.

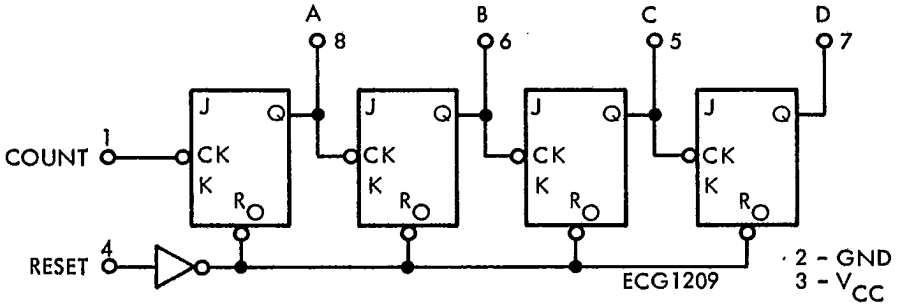


Recommended Operating Conditions

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Supply Voltage	V_{CC}		4.5	5.0	5.5	V
Current Output High	I_{OH}		--	--	-400	µA
Current Output Low	I_{OL}		--	--	16	mA
Clock Frequency	f_{clock}	V_{CC} = 5.0 V	--	--	20	MHz
Pulse Width	t_W	V_{CC} = 5.0 V	25	--	--	ns
Operating Temperature	T_{opg}		-30	--	+75	°C

Switching Characteristics (V_{CC} = 5.0 V, T_A = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Max Frequency	f_{max}	R_L = 400	20	30	--	MHz
Transition Time Low to High	t_{pLH}	C_L = 15 pF	--	65	100	ns
Transition Time High to Low	t_{pHL}		--	65	100	ns



Electrical Characteristics: Typical Values are at V_{CC} = 5.0 V, T_A = 25°C

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
High Level Input Voltage	V_{IH}		2.0	--	--	V
Low Level Input Voltage	V_{IL}		--	--	0.8	V
High Level Reset Input Current	I_{IH}	V_{CC} = 5.5 V, V_{IN} = 2.4 V	--	--	40	µA
High Level Count Input Current	I_{IH}	V_{CC} = 5.5 V, V_{IN} = 2.4 V	--	--	80	µA
Low Level Reset Input Current	I_{IL}	V_{CC} = 5.5 V, V_{IN} = 0.4 V	--	--	−1.6	mA
Low Level Count Input Current	I_{IL}	V_{CC} = 5.5 V, V_{IN} = 0.4 V	--	--	−3.2	mA
High Level Output Voltage	V_{OH}	V_{CC} = 4.5 V, I_{OH} = 400 µA, V_{IH} = 2.0 V, V_{IL} = 0.8 V	2.4	3.4	--	V
Low Level Output Voltage	V_{OL}	V_{CC} = 4.5 V, I_{OL} = 16 mA, V_{IH} = 2.0 V, V_{IL} = 0.8 V	--	0.2	0.4	V
Short Circuit Output Current	I_{OS}	V_{CC} = 5.5 V V_{OUT} = 0 V	−18	--	−57	mA
Supply Current	I_{CC}	V_{CC} = 5.5 V, Output Open	--	32	53	mA

Function Table

Count Sequence

Count	Output			
	A	B	C	D
0	L	L	L	L
1	H	L	L	L
2	L	H	L	L
3	H	H	L	L
4	L	L	H	L
5	H	L	H	L
6	L	H	H	L
7	H	H	H	L
8	L	L	L	H
9	H	L	L	H
10	L	H	L	H
11	H	H	L	H
12	L	L	H	H
13	H	L	H	H
14	L	H	H	H
15	H	H	H	H

Reset - Count

Reset	Output			
	A	B	C	D
H	L	L	L	L
L	Count