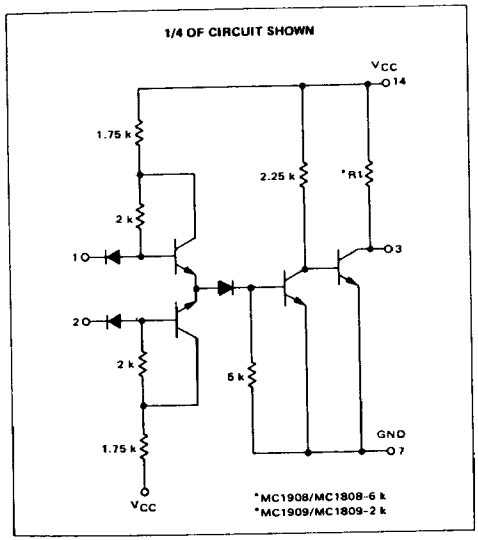
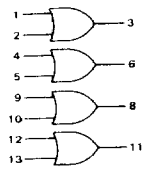
MC1908F • MC1808F,P
MC1909F • MC1809F,P

This device consists of four 2-input gates, each performing the logical OR function. Added logic flexibility provided by this device helps to optimize system designs.





Positive Logic: 3 = 1 + 2
Negative Logic: 3 = 1 • 2

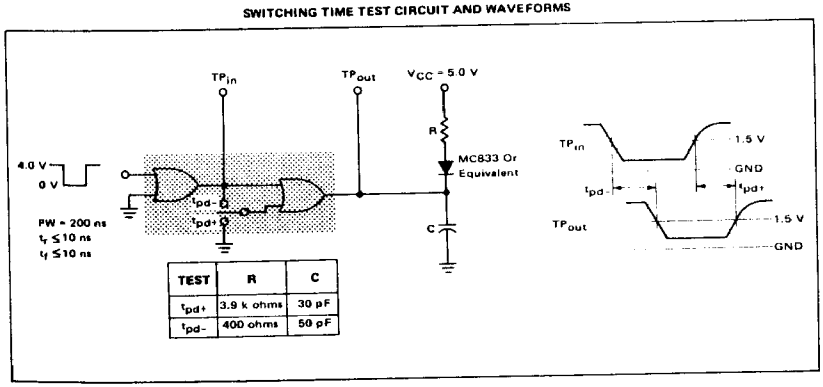
Input Loading Factor = 1
Output Loading Factor
MC1908, MC1808 = 8
MC1909, MC1809 = 7

Total Power Dissipation

	MC1908 MC1808	MC1909 MC1809
Inputs Low	95 mW	130 mW
Inputs High	100 mW	100 mW
50% Duty Cycle	97 mW	115 mW

Propagation Delay Time
MC1908/MC1808 = 35 ns typ
MC1909/MC1809 = 30 ns typ

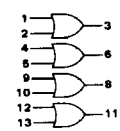
SWITCHING TIME TEST CIRCUIT AND WAVEFORMS



TEST	R	C
t_{pd+}	3.9 k ohms	30 pF
t_{pd-}	400 ohms	50 pF

ELECTRICAL CHARACTERISTICS

Test procedures are shown for only one gate. The other gates are tested in the same manner.



	@ Test Temperature	TEST VOLTAGE/CURRENT VALUES														
		mA				Volts										
		I_{OL}		I_{OH}		V_{IL}	V_{IH}	V_F	V_R	V_{CEX}	V_{CC}	V_{CCL}	V_{CCH}	V_{PD}	V_{max}
		MC1908	MC1909	MC1908	MC1909										
MC1908, MC1909	−55°C	11.4	10.4	-0.12	-0.5	1.40	2.10	0	4.00	-	-	4.50	5.50	-	-
	+25°C	12.0	11.0	-0.12	-0.5	1.10	2.00	0	4.00	4.50	5.00	4.50	5.50	5.00	8.00
	+125°C	10.8	9.8	-0.12	-0.5	0.80	2.00	0	4.00	-	-	4.50	5.50	-	-
		MC1808	MC1809	MC1808	MC1809										
MC1808, MC1809	0°C	12.0	11.0	-0.12	-0.5	1.20	2.00	0.45	4.00	-	-	5.00	5.00	-	-
	+25°C	12.0	11.0	-0.12	-0.5	1.10	1.90	0.45	4.00	5.00	5.00	5.00	5.00	5.00	8.00
	+75°C	11.4	10.4	-0.12	-0.5	0.95	1.80	0.50	4.00	-	-	5.00	5.00	-	-

Characteristic	Symbol	Pin Under Test	MC1908, MC1909 Test Limits −55°C Min	−55°C Max	+25°C Min	+25°C Max	+125°C Min	+125°C Max	Unit	MC1808, MC1809 Test Limits 0°C Min	0°C Max	+25°C Min	+25°C Max	+75°C Min	+75°C Max	Unit	TEST CURRENT / VOLTAGE APPLIED TO PINS LISTED BELOW: I_{OL}	I_{OH}	V_{IL}	V_{IH}	V_F	V_R	V_{CEX}	V_{CC}	V_{CCL}	V_{CCH}	V_{PD}	V_{max}	Gnd
Output Voltage	V_{OL}	3	-	0.40	-	0.40	-	0.45	Vdc	-	0.45	-	0.45	-	0.50	Vdc	3	-	1,2	-	-	-	-	-	14	-	-	-	7
	V_{OH}	3	2.50	-	2.60	-	2.50	-	↓	2.60	-	2.60	-	2.50	-	↓	-	3	-	1	-	-	-	-	↓	-	-	-	2,7
		3	2.50	-	2.60	-	2.50	-		2.60	-	2.60	-	2.50	-		-	3	-	2	-	-	-	-		-	-	-	1,7
Short-Circuit Current MC1908/MC1808	I_{SC}	3	-	-1.34	-	-1.34	-	-1.80	mAdc	-	-1.80	-	-1.30	-	-1.25	mAdc	-	-	-	-	-	-	-	-	-	14	-	-	1,3,7
MC1909/MC1809		3	-	-4.00	-	-4.00	-	-3.90	mAdc	-	-3.90	-	-3.90	-	-3.75	mAdc	-	-	-	-	-	-	-	-	-	14	-	-	1,3,7
Reverse Current	I_R	1	-	2.0	-	2.0	-	5.0	μAdc	-	5.0	-	5.0	-	10	μAdc	-	-	-	-	-	1	-	-	-	14	-	-	7
		2	-	2.0	-	2.0	-	5.0	μAdc	-	5.0	-	5.0	-	10	μAdc	-	-	-	-	-	2	-	-	-	14	-	-	7
Output Leakage Current	I_{CEX}	3	-	-	-	50	-	-	μAdc	-	-	-	100	-	-	μAdc	-	-	-	-	-	-	3,14	-	-	-	-	-	1,7
Forward Current	I_F	1	-	-1.60	-	-1.60	-	-1.50	mAdc	-	-1.40	-	-1.40	-	-1.33	mAdc	-	-	-	-	-	1	-	-	-	14	-	-	7
		2	-	-1.60	-	-1.60	-	-1.50	mAdc	-	-1.40	-	-1.40	-	-1.33	mAdc	-	-	-	-	-	2	-	-	-	14	-	-	7
Power Drain Current (Total Device) MC1908/MC1808	I_{PDL}	14	-	-	-	25	-	-	mAdc	-	-	-	29	-	-	mAdc	-	-	-	-	-	-	-	-	-	-	14	-	1,2,4,5,7,9,10,12,13
MC1909/MC1809	I_{PDL}	14	-	-	-	33.5	-	-	↓	-	-	-	37.5	-	-	↓	-	-	-	-	-	-	-	-	-	-	14	-	1,2,4,5,7,9,10,12,13
All Types	I_{max}	14	-	-	-	50	-	-		-	-	-	57	-	-		-	-	-	-	-	-	-	-	-	-	-	14	
Switching Times																	Pulse In	Pulse Out											
MC1908/MC1808	t_{pd+}	1,3	-	-	25	90	-	-	ns	-	-	25	90	-	-	ns	1	3	-	-	-	-	-	14	-	-	-	-	2,7
	t_{pd-}	1,3	-	-	15	65	-	-	↓	-	-	15	65	-	-	↓	1,2	↓	-	-	-	-	-	↓	-	-	-	-	7
MC1909/MC1809	t_{pd+}	1,3	-	-	15	75	-	-		-	-	15	75	-	-		1		-	-	-	-	-		-	-	-	-	2,7
	t_{pd-}	1,3	-	-	15	65	-	-		-	-	15	65	-	-		1,2		-	-	-	-	-		-	-	-	-	7

Pins not listed are left open.

PRODUCT DOCUMENTATION

The three documents listed in the following table are required for a complete description of the DSP56301 and are necessary to design properly with the part. Documentation is available from one of the following locations (see back cover for detailed information):

- A local Motorola distributor
- A Motorola semiconductor sales office
- A Motorola Literature Distribution Center
- The World Wide Web (WWW)

See the **Additional Support** section of the *DSP56300 Family Manual* for detailed information on the multiple support options available to you.

Table 1 DSP56301 Documentation

Name	Description	Order Number
DSP56300 Family Manual	Detailed description of the DSP56300 family processor core and instruction set	DSP56300FM/AD
DSP56301 User's Manual	Detailed functional description of the DSP56301 memory configuration, operation, and register programming	DSP56301UM/AD
DSP56301 Technical Data	DSP56301 features list and physical, electrical, timing, and package specifications	DSP56301/D