

**MOTOROLA INTEGRATED CIRCUITS**  
**TTL III 3000 - 3100 Series**

<b>Rating</b>	<b>Value</b>	<b>Unit</b>
Supply Operating Voltage Range - $V_{CC}$	4.5 to 5.5	Vdc
Input Voltage - $V_{in}$	+5.5	Vdc
Output Voltage - $V_{out}$	+5.5	Vdc
Operating Temperature Range	-55 to +125	°C

<b>Function</b>	<b>Type/Pkg</b>	<b>Output Loading Factor</b>	<b>Propagation Delay <math>t_{pd}</math> ns typ</b>	<b>Power Dissipation mW typ/pkg</b>
Quad 2-Input NAND Gate	3100/C,A	10	6.0	88
Quad 2-Input AND Gate	3101/C,A	10	9.0	112
Quad 2-Input NOR Gate	3102/C,A	10	6.0	122
Quad 2-Input OR Gate	3103/C,A	10	9.0	150
Quad 2-Input NAND Gate (O. C.)	3104/C,A	10	8.0	88
Triple 3-Input NAND Gate	3105/C,A	10	6.0	66
Triple 3-Input AND Gate	3106/C,A	10	9.0	84
Triple 3-Input NAND Gate (O. C.)	3107/C,A	10	8.0	66
Hex Inverter	3108/C,A	10	6.0	140
Hex Inverter	3109/C,A	10	8.0	90
Dual 4-Input NAND Gate	3110/C,A	10	6.0	44
Dual 4-Input AND Gate	3111/C,A	10	9.0	56
Dual 4-Input NAND Gate (O. C.)	3112/C,A	10	8.0	44
8-Input NAND Gate	3115/C,A	10	8.0	22
8-Input NAND Gate	3116/C,A	10	8.0	22
4-Wide 3-2-2-3 Input Expander for A.O.I. Gates	3118/C,A	-	-	40
Triple 3-Input Expander for AND-OR Gates	3119/C,A	-	-	25
Expandable Dual 2-Wide 2-Input A.O.I. Gate	3120/C,A	10	6.0	62.5
Quad 2-Input Exclusive OR Gate	3121/C,A	8	14.0	100
Quad 2-Input Exclusive NOR Gate	3122/C,A	8	14.0	85
Dual 2-Wide 2-Input				

Function	Type/Pkg	Output Loading Factor	Propagation Delay $t_{pd}$ ns typ	Power Dissipation mW typ/pkg
AND-OR-INVERT Gate	3123/C,A	10	6.0	62.5
Dual 4-Input NAND Buffer Gate	3124/C,A	30	6.0	90
Dual 4-Input NAND Power Gate	3125/C,A	20	6.0	70
Dual 4-Input AND Power Gate	3126/C,A	20	9.0	90
Dual 3-Input 3-Output AND Series Terminated Line Driver	3128/C,A	*	9.0	56
Dual 3-Input 3-Output NAND Series Terminated Line Driver	3129/C,A	*	6.0	44
Dual 4-Input Expander for AND-OR-INVERT Gates	3130/C,A	10	1.0	15
Expandable 4-Wide 2-2-2-3 Input A.O.I. Gate	3131/C,A	10	10.0	87.5
Expandable 4-Wide 2-2-2-3 Input A.O.I. Gate	3132/C,A	10	7.0	40
4-Wide 2-2-2-3 Input AND-OR-INVERT Gate	3133/C,A	10	7.0	40
Expandable 2-Wide 4-Input AND-OR-INVERT Gate	3134/C,A	10	7.0	30
AND J-K Flip-Flop	3150/C,A	10	f = 40 MHz <sup>1</sup>	50
AND J-K Flip-Flop	3151/C,A	10	f = 50 MHz <sup>1</sup>	50
AND Input JJ-KK Flip-Flop	3152/C,A	10	f = 40 MHz <sup>1</sup>	75
Double Edge-Triggered Master-Slave Type D Flip-Flop	3153/C,A	10	-	100
OR Input J-K Flip-Flop	3154/C,A	10	20	95
AND Input J-K Flip-Flop	3155/C,A	10	10	80
Dual Type D Flip-Flop	3160/C,A	10	f = 30 MHz <sup>1</sup>	120
Dual J-K Flip-Flop	3161/C,A	10	f = 50 MHz <sup>1</sup>	100
Dual J-K Flip-Flop	3162/C,A	10	f = 50 MHz <sup>1</sup>	100
Dual J-K Flip-Flop	3163/C,A	10	10	176
Dual Type D Edge-Triggered Flip-Flop	3164/C,A	-	-	-

\* Direct Output = 10 minus the number of resistor-terminated outputs being used.

<sup>1</sup> Toggle Frequency in MHZ