



**MOTOROLA
INTEGRATED CIRCUITS**
2100 Series
2000 Series

TTL II integrated circuits comprise a family of transistor-transistor logic designed for general purpose digital applications. The family has a high operating speed (30-50 MHz clock rate), good external noise immunity, high fan out, and the capability of driving capacitive loads to 600 pF.

MAXIMUM RATINGS

Rating	Value	Unit
Supply Voltage - Continuous	+8.0	Vdc
Supply Operating Voltage Range	4.5 to 6.0	Vdc
Input Voltage - V_{in}	+5.5	Vdc
Output Voltage - V_{out}	+5.5	Vdc
Operating Temperature Range	-55 to +125	°C
Storage Temperature Range	-65 to +150	°C
Maximum Junction Temperature	+175	°C
Thermal Resistance - Junction to Case (q_{JC})	0.09	°C/mW
Thermal Resistance - Junction to Ambient (q_{JA})	0.26	°C/mW

TTL II

PACKAGING AVAILABLE
(See page 88):
C - 14-LEAD DUAL INLINE A - 14-LEAD FLAT PACK

**FUNCTIONS AND
CHARACTERISTICS**

FUNCTION	TYPE/PKG	LOADING FACTOR / EACH OUTPUT	PROPAGATION DELAY ns typ	POWER DISSIPATION mW typ/pkg
Expandable 2-wide 4-Input AND-OR-INVERT Gate	2100/C,A 2150/C,A	11 6	7.0	27
Quad 2-Input NAND Gate	2101/C,A 2151/C,A	11 6	6.0	88
4-Wide 3-2-2-3 Input Expander for AND-OR-INVERT Gates	2102/C,A 2152/C,A	11 6	—	28
Dual 4-Input NAND Gate	2103/C,A 2153/C,A	11 6	6.0	44
Expandable 4-Wide 2-2-2-3 Input AND-OR-INVERT Gate	2104/C,A 2154/C,A	11 6	7.0	36
8-Input NAND Gate	2105/C,A 2155/C,A	11 6	8.0	22
Dual 4-Input Expander for AND-OR-INVERT Gates	2106/C,A 2156/C,A	11 6	—	14
Triple 3-Input NAND Gate	2107/C,A 2157/C,A	11 6	6.0	66

TTL II FUNCTIONS AND CHARACTERISTICS (continued)

FUNCTION	TYPE/PKG	LOADING FACTOR EACH OUTPUT	PROPAGATION DELAY ns typ	POWER DISSIPATION mW typ/pkg
AND J-K Flip-Flop	2109/C,A 2159/C,A	11 6	—	—
Expandable 8-Input NAND Gate	2111/C,A 2161/C,A	11 6	11	22
Expandable 3-Wide 3-Input AND-OR-INVERT Gate	2112/C,A 2162/C,A	11 6	6.0	39
Expandable Dual 2-Wide 2-Input AND-OR-INVERT Gate	2113/C,A 2163/C,A	11 6	7.0	58
Quad 2-Input Lamp/Line Driver	— 2165/C,A	— 30	20	105
Hex Inverter	2116/C,A 2166/C,A	9 9	6.0	132
Quad 2-Input Lamp/Line Driver	2118/C,A 2168/C,A	40 MA 20 MA	10.0	90
Dual J-K Flip-Flop (separate clock)	2123/C,A 2173/C,A	11 6	f = 70 MHz	110
Dual J-K Flip-Flop (common clock)	2124/C,A 2174/C,A	11 6	f = 70 MHz	110
AND J-K Flip-Flop	2125/C,A 2175/C,A	11 6	f = 50 MHz	50
OR J-K Flip-Flop	2126/C,A 2176/C,A	11 6	f = 50 MHz	60
OR J-K Flip-Flop	2128/C,A 2178/C,A	11 6	f = 35 MHz	60

PACKAGING INFORMATION

Per MIL-M-38510 Package Case Outline

All of Lansdale's products come in one of the following configurations. On each of the product pages in the catalog, there is a package box. The letters in that box correspond to one of the letters below. This is a guide to how the product is available.

LETTER	DESIGNATION	DESCRIPTION
A	F-1	14-LEAD FP (1/4" X 1/4")
B	F-3	14-LEAD FP (3/16" X 1/4")
C*	D-1	14-LEAD DIP (1/4" X 3/4")
D*	F-2	14-LEAD FP (1/4" X 3/8")
E*	D-2	16-LEAD DIP (1/4" X 7/8")
F*	F-5	16-LEAD FP (1/4" X 3/8")
G	A-1	8-LEAD CAN
H*	F-4	10-LEAD FP (1/4" X 1/4")
I*	A-2	10-LEAD CAN
J*	D-3	24-LEAD DIP (1/2" X 1 1/4")
K*	F-6	24-LEAD FP (3/8" X 5/8")
L	D-9	24-LEAD DIP (1/4" X 1 1/4")
M	A-3	12-LEAD CAN
P	D-4	8-LEAD DIP (1/4" X 3/8")
Q	D-5	40-LEAD DIP (9/16" X 2 1/16")
R	D-8	20-LEAD DIP (1/4" X 1 1/16")
S	F-9	20-LEAD FP (1/4" X 1/2")
V	D-6	18-LEAD DIP (1/4" X 15/16")
W	D-7	22-LEAD DIP (3/8" X 1 1/8")

FP (flat pack)
DIP (dual inline)
CAN (metal can)

* **LANSDALE STANDARD PACKAGES**

CONTACT FACTORY FOR OTHER PACKAGE QUOTES