



**MOTOROLA
INTEGRATED CIRCUITS**

930 Series
830 Series

These DTL integrated circuits provide an excellent balance of speed, power dissipation and noise immunity for general purpose digital applications. The line includes many multifunction types. Additional logic power is provided by the "wired OR" capability of the basic DTL gate.

**FUNCTIONS AND
CHARACTERISTICS**

FUNCTION	TYPE/PKG	LOADING FACTOR EACH OUTPUT	PROPAGATION DELAY ns typ	POWER DISSIPATION mW typ/pkg
Expandable Dual 4-Input NAND Gate	930/C,A	8	30	22
Expandable Dual 3-2 Input NAND Gate	930/I	8	30	22
Clocked Flip-Flop	931/C,A,I	7	40	55
Expandable Dual 4-Input Buffer	932/C,A	25	35	85
Expandable 3-2 Input Buffer	932/I	25	35	85
Dual 4-Input Expander	933/C,A	—	—	—
Dual 4-3 Input Expander	933/I	—	—	—
Hex Inverter	934/C,A	8	30	66
Hex Inverter (w/o output resistors)	935/C,A	8	30	42
Hex Inverter	936/C,A	8	30	66
Hex Inverter	937/C,A	7	25	90
Decade Counter	938/C,A	8	30 MHz	150
Divide-by-Sixteen Counter	939/C,A	8	30 MHz	150
Hex Inverter (w/o input diodes)	940/C,A	8	30	66
Hex Inverter (w/o output resistors & input diodes)	941/C,A	8	30	42
4-Input AND Driver w/NOR Strobe	943/I	—	—	—
Expandable Dual 4-Input Power Gate	944/C,A	27	30	65
Expandable Dual 3-2 Input Power Gate	944/I	27	30	65
Clocked Flip-Flop	945/C,A,I	12/10	40	60
Quad 2-Input NAND Gate	946/C,A	8	30	44
Quad Inverter	946/I	8	30	44
Quad 2-Input Gate Expander	947/C,A	—	—	—

MAXIMUM RATINGS

Rating	Value	Unit
Supply Operating Voltage Range - V_{CC}	4.5 to 5.5	Vdc
Positive Voltage - V_{in}	+5.5	Vdc
Negative Voltage - V_{out}	-1.5	Vdc
Operating Temperature Range	-55 to +125	°C

PACKAGING AVAILABLE

(See page 56):

C -14-LEAD DUAL INLINE A -14-LEAD FLAT PACK
E -16-LEAD DUAL INLINE I -10-LEAD CAN

DTL FUNCTIONS AND CHARACTERISTICS (continued)

FUNCTION	TYPE/PKG	LOADING FACTOR EACH OUTPUT	PROPAGATION DELAY ns typ	POWER DISSIPATION mW typ/pkg
Clocked Flip-Flop	948/C,A,I	11/9	40	70
Quad 2-Input NAND Gate (2K pullup resistor)	949/C,A	7	25	66
Quad Inverter (2K pullup resistor)	949/I	7	25	60
Pulse Triggered Binary	950/C,A,I	10/8	15	50
Monostable Multivibrator	951/C,A,I	10	40	30
Dual J-K Flip-Flop (Common clock & C _D)	952/C,A	12/10	40	120
Dual J-K Flip-Flop (Separate clock & S _D , no C _D)	953/C,A	12/10	40	120
Dual J-K Flip-Flop (2K pullup resistor)	955/C,A	11/9	40	140
Dual J-K Flip-Flop (2K pullup resistor)	956/C,A	11/9	40	140
Quad 2-Input Buffer	957/C,A	25	35	170
Quad 2-Input NAND Power Gate	958/C,A	27	30	130
Expandable Dual 4-Input NAND Gate	961/C,A	7	25	33
Expandable Dual 3-2 Input NAND Gate	961/I	7	25	33
Triple 3-Input NAND Gate	962/C,A	8	30	33
Dual 2-Input NAND Gate plus Inverter	962/I	8	30	30
Triple 3-Input NAND Gate	963/C,A	7	25	50
Dual 2-Input NAND Gate plus Inverter	963/I	7	25	45
Dual 5-Input NAND Gate (6K pullup resistor)	1900/C,A	8	30	22
Dual 5-Input NAND Gate (2K pullup resistor)	1901/C,A	7	25	33
Expandable 8-Input NAND Gate	1902/C,A	8	30	11
Expandable 8-Input NAND Gate (2K pullup resistor)	1903/C,A	7	25	16.5
10-Input NAND Gate	1904/C,A	8	30	11
10-Input NAND Gate (2K pullup resistor)	1905/C,A	7	25	16.5
Quad 2-Input AND Gate	1906/C,A	8	35	72
Quad 2-Input AND Gate (2K pullup resistor)	1907/C,A	7	30	85
Quad 2-Input OR Gate	1908/C,A	8	35	97
Quad 2-Input OR Gate (2K pullup resistor)	1909/C,A	7	30	115
Quad 2-Input NOR Gate	1910/C,A	8	30	60
Quad 2-Input NOR Gate (2K pullup resistor)	1911/C,A	7	25	72
Quad 2-Input Exclusive OR Gate	1912/C,A	8	40	120
Quad Latch	1913/E	7	35	220
Quad Latch	1914/C,A	7	35	220
Parallel Gated Clocked Flip-Flop	1915/C,A	12/10	40	65
Parallel Gated Clocked Flip-Flop	1916/C,A	11/9	40	75
Quad 2-Input NAND Gate (w/o output resistor)	1918/C,A	8	30	32

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