MOTOROLA

MC54/74F367
MC54/74F368

HEX BUFFER/DRIVER 4-BIT PLUS 2-BIT, NONINVERTING AND INVERTING, 3-STATE

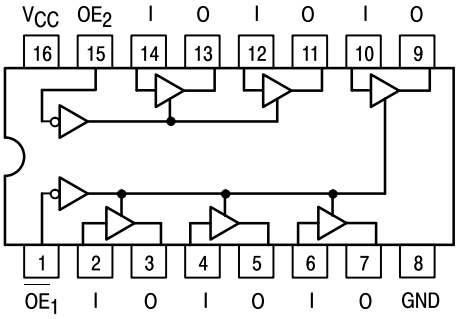
F367
HEX BUFFER/DRIVER
4-BIT PLUS 2-BIT,
NONINVERTING 3-STATE

F368
HEX BUFFER/DRIVER
4-BIT PLUS 2-BIT,
INVERTING 3-STATE

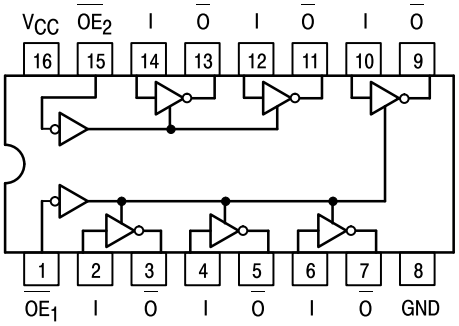
FAST™ SCHOTTKY TTL

CONNECTION DIAGRAMS

MC54/74F367



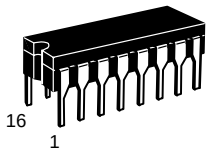
MC54/74F368



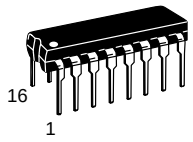
FUNCTION TABLE

Inputs		Outputs	
$\overline{OE}$	I	O	$\overline{O}$
L	L	L	H
L	H	H	L
H	X	Z	Z

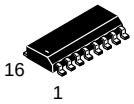
H = HIGH Voltage Level
L = LOW Voltage Level
X = Don't Care
Z = High Impedance



J SUFFIX
CERAMIC
CASE 620-09



N SUFFIX
PLASTIC
CASE 648-08



D SUFFIX
SOIC
CASE 751B-03

ORDERING INFORMATION

MC54FXXXJ	Ceramic
MC74FXXXN	Plastic
MC74FXXXD	SOIC

GUARANTEED OPERATING RANGES

Symbol	Parameter		Min	Typ	Max	Unit
V_{CC}	Supply Voltage	54, 74	4.5	5.0	5.5	V
T_A	Operating Ambient Temperature Range	54	–55	25	125	°C
		74	0	25	70	
I_{OH}	Output Current — High	54			–12	mA
		74			–15	
I_{OL}	Output Current — Low	54			48	mA
		74			64	

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

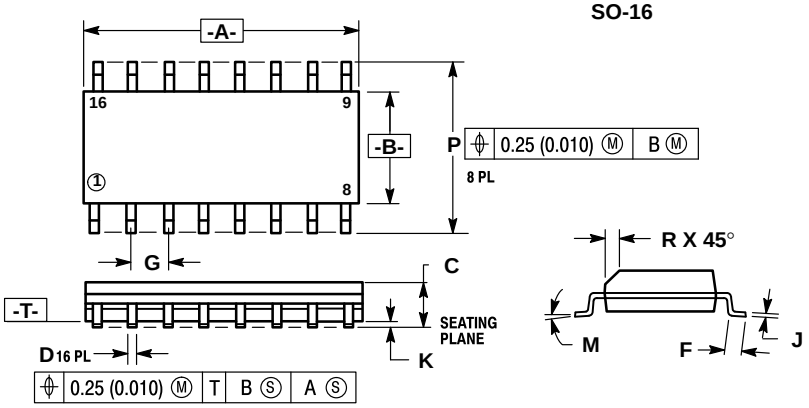
Symbol	Parameter		Limits Min	Typ	Max	Unit	Test Conditions	
V_{IH}	Input HIGH Voltage		2.0			V	Guaranteed Input HIGH Voltage	
V_{IL}	Input LOW Voltage				0.8	V	Guaranteed Input LOW Voltage	
V_{IK}	Input Clamp Diode Voltage				–1.2	V	I_{IN} = –18 mA	V_{CC} = MIN
V_{OH}	Output HIGH Voltage	54, 74	2.4	3.4		V	I_{OH} = –3.0 mA	V_{CC} = 4.5 V
		74	2.7	3.4		V	I_{OH} = –3.0 mA	V_{CC} = 4.75 V
		54	2.0			V	I_{OH} = –12 mA	V_{CC} = 4.5 V
		74	2.0			V	I_{OH} = –15 mA	V_{CC} = 4.5 V
V_{OL}	Output LOW Voltage	54		0.35	0.55	V	I_{OL} = 48 mA	V_{CC} = MAX
		74		0.4	0.55	V	I_{OL} = 64 mA	
I_{OZH}	Output Off Current HIGH				50	µA	V_{OUT} = 2.7 V	V_{CC} = MAX
I_{OZL}	Output Off Current LOW				–50	µA	V_{OUT} = 0.5 V	V_{CC} = MAX
I_{IH}	Input HIGH Current				20	µA	V_{IN} = 2.7 V	V_{CC} = MAX
					100		V_{IN} = 7.0 V	V_{CC} = 0 V
I_{IL}	Input LOW Current				–20	µA	V_{IN} = 0.5 V	V_{CC} = MAX
I_{OS}	Output Short Circuit Current (Note 2)		–100		–225	mA	V_{OUT} = GND	V_{CC} = MAX
I_{CC}	F367	I_{CCH}			35	mA	V_{CC} = MAX	
		I_{CCL}			62			
		I_{CCZ}			48			
	F368	I_{CCH}			25			
		I_{CCL}			62			
		I_{CCZ}			48			

NOTES:
1. For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable device type.
2. Not more than one output should be shorted at a time, nor for more than 1 second.

AC CHARACTERISTICS

Symbol	Parameter		54/74F T_A = +25°C, V_{CC} = +5.0 V, C_L = 50 pF Min	Typ	Max	54F T_A = –55°C to +125°C, V_{CC} = 5.0 V ± 10%, C_L = 50 pF Min	Max	74F T_A = 0°C to +70°C, V_{CC} = 5.0 V ± 10%, C_L = 50 pF Min	Max	Unit
t_{PLH}	Propagation Delay	F367	2.0	4.5	6.5	2.0	8.0	2.0	7.0	ns
t_{PHL}	I_n to O_n		3.0	5.5	7.0	3.0	8.5	3.0	7.5	
t_{PLH}	Propagation Delay	F368	2.0	5.0	6.5	2.0	8.5	2.0	7.5	ns
t_{PHL}	I_n to $\overline{O}_n$		1.0	3.0	5.0	1.0	6.5	1.0	5.5	
t_{PZH}	Output Enable Time		2.5	5.5	7.5	2.5	9.5	2.5	8.5	ns
t_{PZL}	to HIGH and LOW Level		3.0	6.5	8.5	3.0	10	3.0	9.0	
t_{PHZ}	Output Disable Time		2.5	4.5	6.5	2.5	8.0	2.5	7.0	ns
t_{PLZ}	from HIGH and LOW Level		1.5	4.0	6.0	1.5	7.5	1.5	6.5	

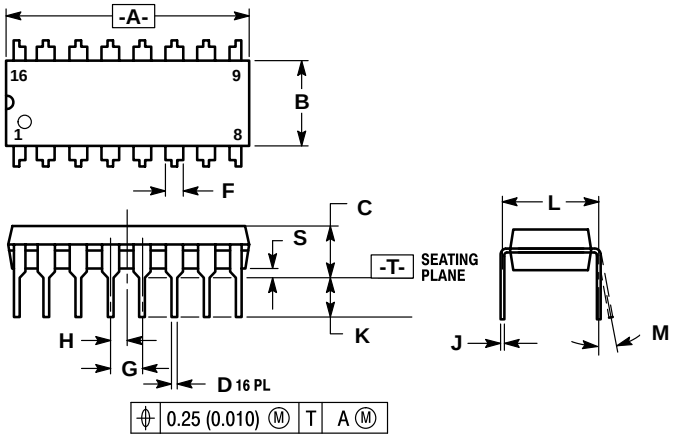
Case 751B-03 D Suffix
16-Pin Plastic
SO-16



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
5. 751B-01 IS OBSOLETE, NEW STANDARD 751B-03.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	9.80	10.00	0.386	0.393
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.050 BSC	
J	0.19	0.25	0.008	0.009
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

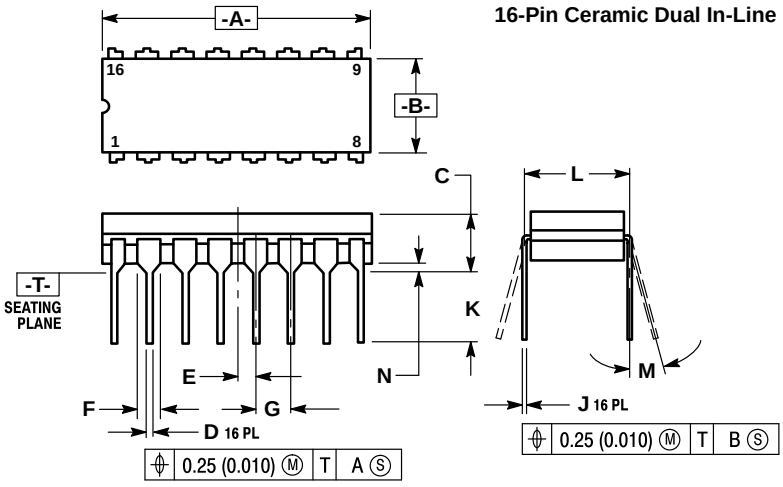
Case 648-08 N Suffix
16-Pin Plastic



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION "L" TO CENTER OF LEADS WHEN FORMED PARALLEL.
4. DIMENSION "B" DOES NOT INCLUDE MOLD FLASH.
5. ROUNDED CORNERS OPTIONAL.
6. 648-01 THRU -07 OBSOLETE, NEW STANDARD 648-08.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	18.80	19.55	0.740	0.770
B	6.35	6.85	0.250	0.270
C	3.69	4.44	0.145	0.175
D	0.39	0.53	0.015	0.021
F	1.02	1.77	0.040	0.070
G	2.54 BSC		0.100 BSC	
H	1.27 BSC		0.050 BSC	
J	0.21	0.38	0.008	0.015
K	2.80	3.30	0.110	0.130
L	7.50	7.74	0.295	0.305
M	0°	10°	0°	10°
S	0.51	1.01	0.020	0.040

Case 620-09 J Suffix
16-Pin Ceramic Dual In-Line



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION L TO CENTER OF LEAD WHEN FORMED PARALLEL.
4. DIM F MAY NARROW TO 0.76 (0.030) WHERE THE LEAD ENTERS THE CERAMIC BODY.
5. 620-01 THRU -08 OBSOLETE, NEW STANDARD 620-09.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	19.05	19.55	0.750	0.770
B	6.10	7.36	0.240	0.290
C	—	4.19	—	0.165
D	0.39	0.53	0.015	0.021
E	1.27 BSC		0.050 BSC	
F	1.40	1.77	0.055	0.070
G	2.54 BSC		0.100 BSC	
J	0.23	0.27	0.009	0.011
K	—	5.08	—	0.200
L	7.62 BSC		0.300 BSC	
M	0°	15°	0°	15°
N	0.39	0.88	0.015	0.035

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