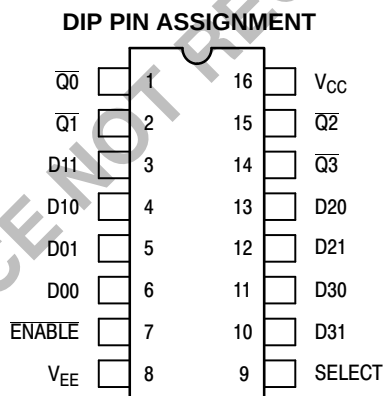
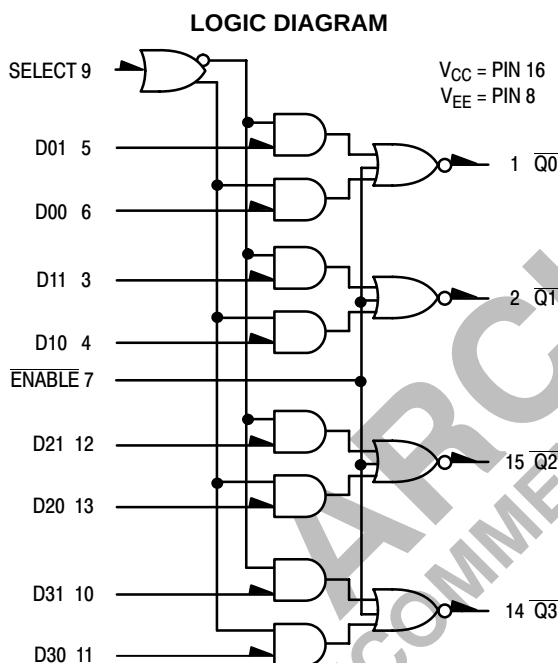


MC10159

Quad 2-Input Multiplexer (Inverting)

The MC10159 is a quad two channel multiplexer with enable. It incorporates common enable and common data select inputs. The select input determines which data inputs are enabled. A high (H) level enables data inputs D00, D10, D20, and D30. A low (L) level enables data inputs D01, D11, D21, and D31. Any change on the data inputs will be reflected at the outputs while the enable is low. Input levels are inverted at the output.

- $P_D=218$ mW typ/pkg (No Load)
- $t_{pd}=2.5$ ns typ (Data to Q)
- 3.2 ns typ (Select to Q)
- $t_r, t_f=2.5$ ns typ (20%–80%)



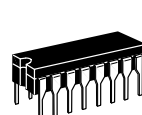
Pin assignment is for Dual-in-Line Package.
For PLCC pin assignment, see the Pin Conversion Tables on page 18 of the ON Semiconductor MECL Data Book (DL122/D).



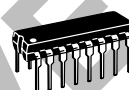
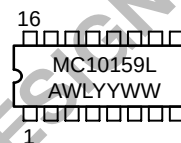
ON Semiconductor

<http://onsemi.com>

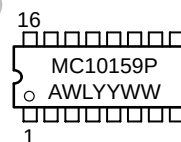
MARKING DIAGRAMS



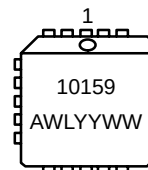
CDIP-16
L SUFFIX
CASE 620



PDIP-16
P SUFFIX
CASE 648



PLCC-20
FN SUFFIX
CASE 775



A = Assembly Location
WL = Wafer Lot
YY = Year
WW = Work Week

TRUTH TABLE

Enable	Select	D0	D1	$\bar{Q}$
L	L	X	L	H
L	L	X	H	L
L	H	L	X	H
L	H	H	X	L
H	X	X	X	L

ORDERING INFORMATION

Device	Package	Shipping
MC10159L	CDIP-16	25 Units / Rail
MC10159P	PDIP-16	25 Units / Rail
MC10159FN	PLCC-20	46 Units / Rail

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Pin Under Test	Test Limits							Unit
			−30°C		+25°C			+85°C		
			Min	Max	Min	Typ	Max	Min	Max	
Power Supply Drain Current	I _E	8		58		42	53		58	mAdc
Input Current	I _{inH}	9 5		360 400			225 250		225 250	μAdc
	I _{inL}	5	0.5		0.5			0.3		μAdc
Output Voltage Logic 1	V _{OH}	1	−1.060	−0.890	−0.960		−0.810	−0.890	−0.700	Vdc
Output Voltage Logic 0	V _{OL}	1	−1.890	−1.675	−1.850		−1.650	−1.825	−1.615	Vdc
Threshold Voltage Logic 1	V _{OHA}	1	−1.080		−0.980			−0.910		Vdc
Threshold Voltage Logic 0	V _{OLA}	1		−1.655			−1.630		−1.595	Vdc
Switching Times (50Ω Load)										ns
Propagation Data Input	t _{5+1−}	1	1.1	3.8	1.2	2.5	3.3	1.1	3.8	
Delay Select Input	t _{9+1−}	1	1.5	5.3	1.5	3.2	5.0	1.5	5.3	
Enable Input	t _{7+1−}	1	1.4	5.3	1.5	2.5	5.0	1.4	5.3	
Rise Time (20 to 80%)	t ₁₊	1	1.0	3.7	1.1	2.5	3.5	1.0	3.7	
Fall Time (20 to 80%)	t _{1−}	1	1.0	3.7	1.1	2.5	3.5	1.0	3.7	

ELECTRICAL CHARACTERISTICS (continued)

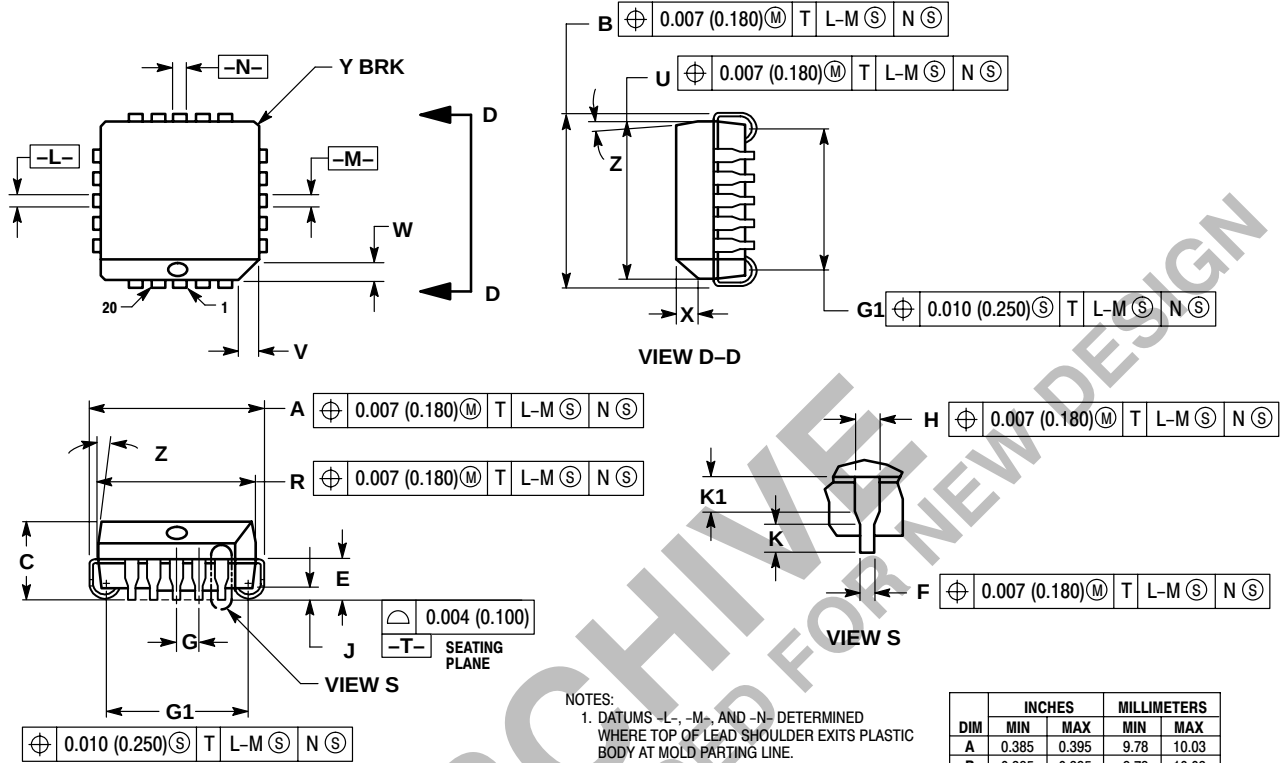
@ Test Temperature			TEST VOLTAGE VALUES (Volts)					(V _{CC}) Gnd
			V_{IHmax}	V_{ILmin}	V_{IHmin}	V_{ILmax}	V_{EE}	
			-30°C	-0.890	-1.890	-1.205	-1.500	-5.2
			+25°C	-0.810	-1.850	-1.105	-1.475	-5.2
			+85°C	-0.700	-1.825	-1.035	-1.440	-5.2
Characteristic	Symbol	Pin Under Test	TEST VOLTAGE APPLIED TO PINS LISTED BELOW					(V _{CC}) Gnd
			V_{IHmax}	V_{ILmin}	V_{IHmin}	V_{ILmax}	V_{EE}	
Power Supply Drain Current	I_E	8					8	16
Input Current	I_{inH}	9 5	9 5				8 8	16 16
	I_{inL}	5		5			8	16
Output Voltage Logic 1	V_{OH}	1					8	16
Output Voltage Logic 0	V_{OL}	1	5				8	16
Threshold Voltage Logic 1	V_{OHA}	1	9			6	8	16
Threshold Voltage Logic 0	V_{OLA}	1	9		6		8	16
Switching Times (50 Ω Load)			+1.11V	+0.31V	Pulse In	Pulse Out	-3.2 V	+2.0 V
Propagation Delay Data Input	t_{5+1-}	1			5	1	8	16
Propagation Delay Select Input	t_{9+1-}	1	6		9	1	8	16
Propagation Delay Enable Input	t_{7+1-}	1	3, 12		7	1		
Rise Time (20 to 80%)	t_{1+}	1	9		5	1	8	16
Fall Time (20 to 80%)	t_{1-}	1	9		5	1	8	16

Each MECL 10,000 series circuit has been designed to meet the dc specifications shown in the test table, after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse air flow greater than 500 linear fpm is maintained. Outputs are terminated through a 50-ohm resistor to -2.0 volts. Test procedures are shown for only one gate. The other gates are tested in the same manner.

MC10159

PACKAGE DIMENSIONS

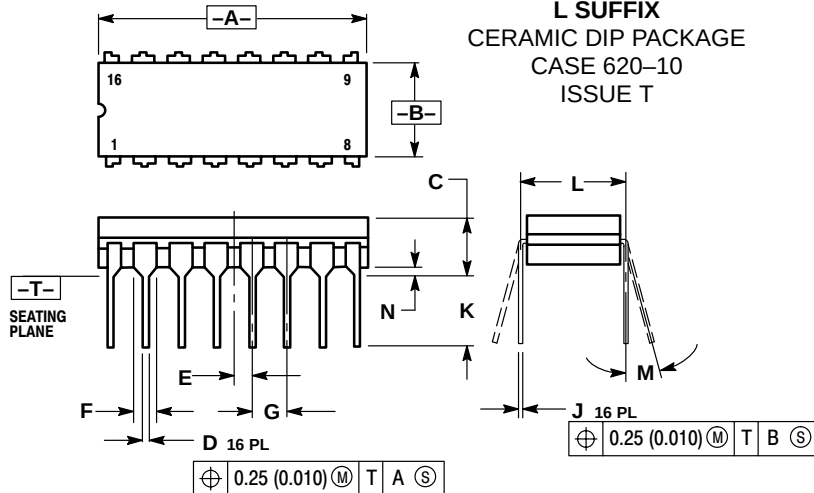
PLCC-20
FN SUFFIX
PLASTIC PLCC PACKAGE
CASE 775-02
ISSUE C



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.385	0.395	9.78	10.03
B	0.385	0.395	9.78	10.03
C	0.165	0.180	4.20	4.57
E	0.090	0.110	2.29	2.79
F	0.013	0.019	0.33	0.48
G	0.050 BSC		1.27 BSC	
H	0.026	0.032	0.66	0.81
J	0.020	---	0.51	---
K	0.025	---	0.64	---
R	0.350	0.356	8.89	9.04
U	0.350	0.356	8.89	9.04
V	0.042	0.048	1.07	1.21
W	0.042	0.048	1.07	1.21
X	0.042	0.056	1.07	1.42
Y	---	0.020	---	0.50
Z	2 °	10 °	2 °	10 °
G1	0.310	0.330	7.88	8.38
K1	0.040	---	1.02	---

MC10159

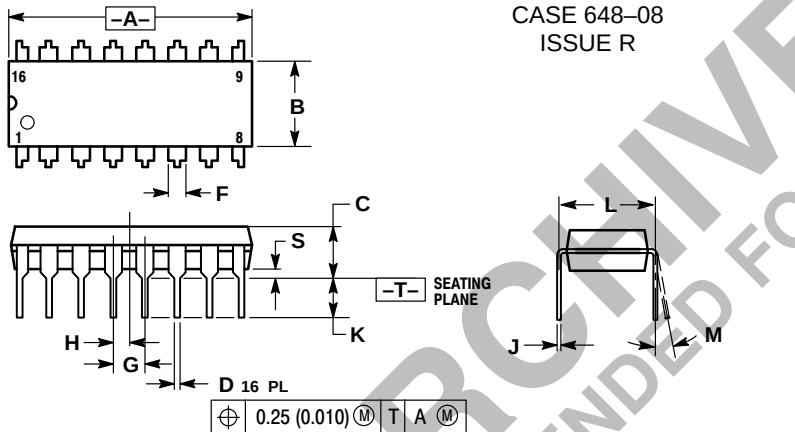
CDIP-16 L SUFFIX CERAMIC DIP PACKAGE CASE 620-10 ISSUE T



- 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. DIMENSION F MAY NARROW TO 0.76 (0.030) WHERE THE LEAD ENTERS THE CERAMIC BODY.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.750	0.785	19.05	19.93
B	0.240	0.295	6.10	7.49
C	---	0.200	---	5.08
D	0.015	0.020	0.39	0.50
E	0.050 BSC		1.27 BSC	
F	0.055	0.065	1.40	1.65
G	0.100 BSC		2.54 BSC	
H	0.008	0.015	0.21	0.38
K	0.125	0.170	3.18	4.31
L	0.300 BSC		7.62 BSC	
M	0°	15°	0°	15°
N	0.020	0.040	0.51	1.01

PDIP-16 P SUFFIX PLASTIC DIP PACKAGE CASE 648-08 ISSUE R



- 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.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.740	0.770	18.80	19.55
B	0.250	0.270	6.35	6.85
C	0.145	0.175	3.69	4.44
D	0.015	0.021	0.39	0.53
F	0.040	0.70	1.02	1.77
G	0.100 BSC		2.54 BSC	
H	0.050 BSC		1.27 BSC	
J	0.008	0.015	0.21	0.38
K	0.110	0.130	2.80	3.30
L	0.295	0.305	7.50	7.74
M	0°	10°	0°	10°
S	0.020	0.040	0.51	1.01

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