

MOTOROLA
SEMICONDUCTOR TECHNICAL DATA

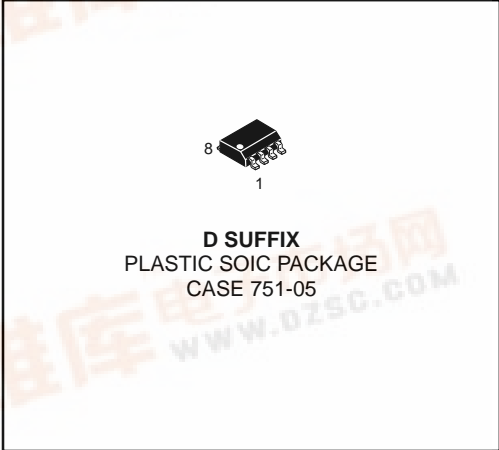
Low Voltage 1:2 Differential Fanout Buffer



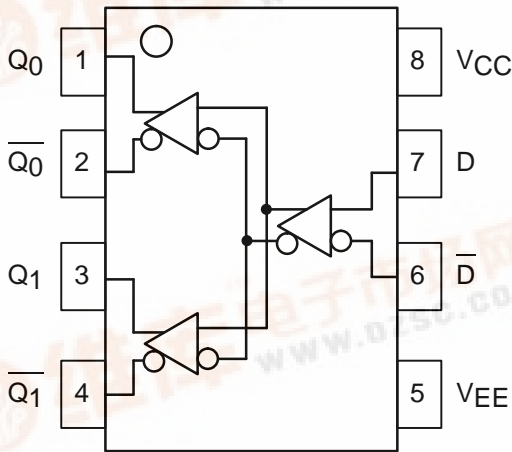
The MC100LVEL11 is a differential 1:2 fanout buffer. The device is functionally similar to the E111 device but with higher performance capabilities. Having within-device skews and output transition times significantly improved over the E111, the LVEL11 is ideally suited for those applications which require the ultimate in AC performance.

The differential inputs of the LVEL11 employ clamping circuitry to maintain stability under open input conditions. If the inputs are left open (pulled to V_{EE}) the Q outputs will go LOW.

- 330ps Propagation Delay
- 5ps Skew Between Outputs
- High Bandwidth Output Transitions
- 75kΩ Internal Input Pulldown Resistors
- >2000V ESD Protection



LOGIC DIAGRAM AND PINOUT ASSIGNMENT



PIN DESCRIPTION

PIN	FUNCTION
D Q0, Q1	Data Inputs Data Outputs

DC CHARACTERISTICS (V_{EE} = V_{EE}(min) to V_{EE}(max); V_{CC} = GND)

Symbol	Characteristic	-40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
I _{EE}	Power Supply Current		24	28		24	28		24	28		25	30	mA
V _{EE}	Power Supply Voltage	-3.0	-3.3	-3.8	-3.0	-3.3	-3.8	-3.0	-3.3	-3.8	-3.0	-3.3	-3.8	V
I _{IH}	Input HIGH Current			150			150			150			150	μA
I _{IL}	Input LOW Current	Dn Dn	0.5 -600		0.5 -600			0.5 -600			0.5 -600			μA



MC100LVEL11

AC CHARACTERISTICS ($V_{EE} = V_{EE}(\min)$ to $V_{EE}(\max)$; $V_{CC} = GND$)

Symbol	Characteristic	-40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
t_{PLH} t_{PHL}	Propagation Delay to Output	235		385	245		395	255	330	405	285		435	ps
t_{SKEW}	Within-Device Skew ¹ Duty Cycle Skew ²		5 5	20 20		5 5	20 20		5 5	20 20		5 5	20 20	ps
V_{PP}	Minimum Input Swing ³	200			200			200			200			mV
V_{CMR}	Common Mode Range ⁴ $V_{PP} < 500mV$ $V_{PP} \geq 500mV$	-2.1 -1.9		-0.2 -0.2	-2.2 -2.0		-0.2 -0.2	-2.2 -2.0		-0.2 -0.2	-2.2 -2.0		-0.2 -0.2	V
t_r t_f	Output Rise/Fall Times Q (20% – 80%)	120		320	120		320	120	220	320	120		320	ps

1. Within-device skew defined as identical transitions on similar paths through a device.
2. Duty cycle skew is the difference between a TPLH and TPHL propagation delay through a device.
3. Minimum input swing for which AC parameters guaranteed. The device will function properly with input swings below 200mV, however, AC delays may move outside of the specified range. The device has a DC gain of ≈ 40 .
4. The CMR range is referenced to the most positive side of the differential input signal. Normal operation is obtained if the HIGH level falls within the specified range and the peak-to-peak voltage lies between V_{ppmin} and 1V. The lower end of the CMR range varies 1:1 with V_{EE} . The number in the spec table assumes a nominal $V_{EE} = -3.3V$. Note for PECL operation, the $V_{CMR}(\min)$ will be fixed at $3.3V - |V_{CMR}(\min)|$.

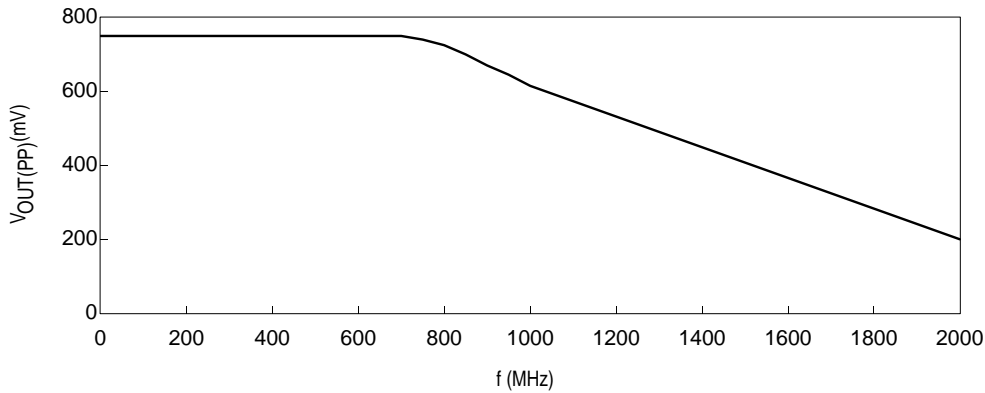
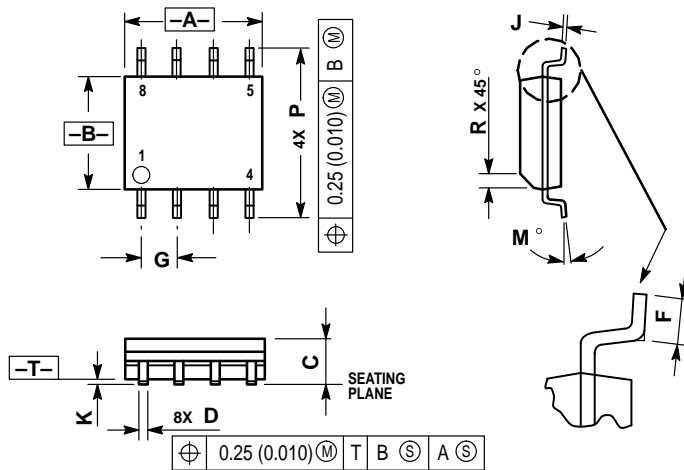


Figure 1. Output Swing versus Frequency

OUTLINE DIMENSIONS

D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05
ISSUE P



NOTES:

1. DIMENSIONS A AND B ARE DATUMS AND T IS A DATUM SURFACE.
2. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
3. DIMENSIONS ARE IN MILLIMETER.
4. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
5. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.
6. DIMENSION D DOES NOT INCLUDE MOLD PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS	
	MIN	MAX
A	4.80	5.00
B	3.80	4.00
C	1.35	1.75
D	0.35	0.49
F	0.40	1.25
G	1.27 BSC	
J	0.18	0.25
K	0.10	0.25
M	0°	7°
P	5.80	6.20
R	0.25	0.50

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How to reach us:

USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 20912; Phoenix, Arizona 85036. 1-800-441-2447 or 602-303-5454

JAPAN: Nippon Motorola Ltd.; Tatsumi-SPD-JLDC, 6F Seibu-Butsuryu-Center,
3-14-2 Tatsumi Koto-Ku, Tokyo 135, Japan. 03-81-3521-8315

MFAX: RMFAX0@email.sps.mot.com - TOUCHTONE 602-244-6609
INTERNET: http://Design-NET.com

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298