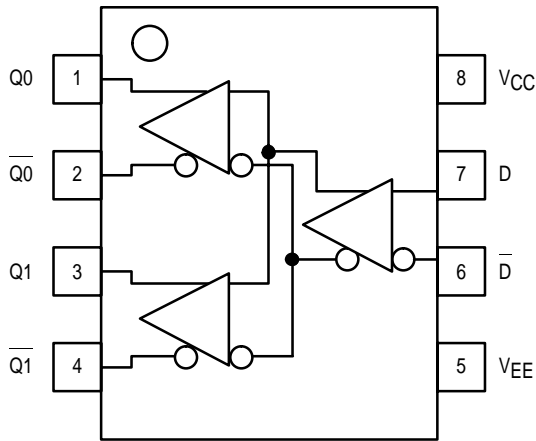


Coaxial Cable Driver

The MC10EL/100EL89 is a differential fanout gate specifically designed to drive coaxial cables. The device is especially useful in Digital Video Broadcasting applications; for this application, since the system is polarity free, each output can be used as an independent driver. The driver boasts a gain of approximately 40 and produces output swings twice as large as a standard ECL output. When driving a coaxial cable, proper termination is required at both ends of the line to minimize signal loss. The 1.6V output swings allow for termination at both ends of the cable, while maintaining the required 800mV swing at the receiving end of the cable. Because of the larger output swings, the device cannot be terminated into the standard $-2.0V$. All of the DC parameters are tested with a 50Ω to $-3.0V$ load. The driver accepts a standard differential ECL input and can run off of the Digital Video Broadcast standard $-5.0V$ supply.

- 375ps Propagation Delay
- 1.6V Output Swings
- $75k\Omega$ Internal Input Pulldown Resistors
- $>1000V$ ESD Protection

LOGIC DIAGRAM AND PINOUT ASSIGNMENT



MC10EL89



D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05

PIN DESCRIPTION

PIN	FUNCTION
D Q0, Q1	Data Inputs Data Outputs



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

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		23	28		23	28		23	28		23	28	mA
V_{OH}	Output HIGH Voltage ¹	-1.23	-1.10	-0.98	-1.17	-1.05	-0.93	-1.13	-1.02	-0.90	-1.06	-0.96	-0.81	V
V_{OL}	Output LOW Voltage ¹	-2.90	-2.72	-2.58	-3.00	-2.70	-2.56	-3.00	-2.70	-2.56	-3.05	-2.67	-2.51	V
V_{EE}	Power Supply Voltage	-4.75		-5.5	-4.75		-5.5	-4.75		-5.5	-4.75		-5.5	V
I_{IH}	Input HIGH Current			150			150			150			150	μA

1. V_{OH} and V_{OL} specified for 50Ω to -3.0V load.

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

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	200	340	480	250	340	430	260	350	440	310	400	490	ps
t_{SKEW}	Within-Device Skew		5	20		5	20		5	20		5	20	
V_{PP}	Minimum Input Swing ¹	150			150			150			150			mV
V_{CMR}	Common Mode Range ²	-0.4		See ²	-0.4		See ²	-0.4		See ²	-0.4		See ²	V
t_r t_f	Output Rise/Fall Times Q (20% - 80%)	205	330	455	205	330	455	205	330	455	205	330	455	ps

1. Minimum input swing for which AC parameters are guaranteed. The device has a DC gain of ≈40.
2. 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 is dependent on V_{EE} and is equal to $V_{EE} + 2.5V$.

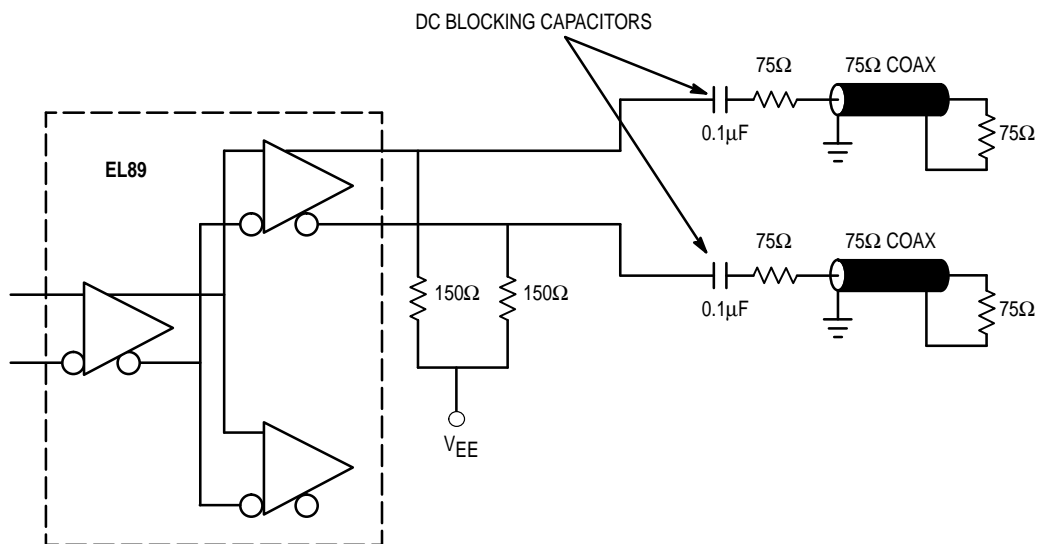
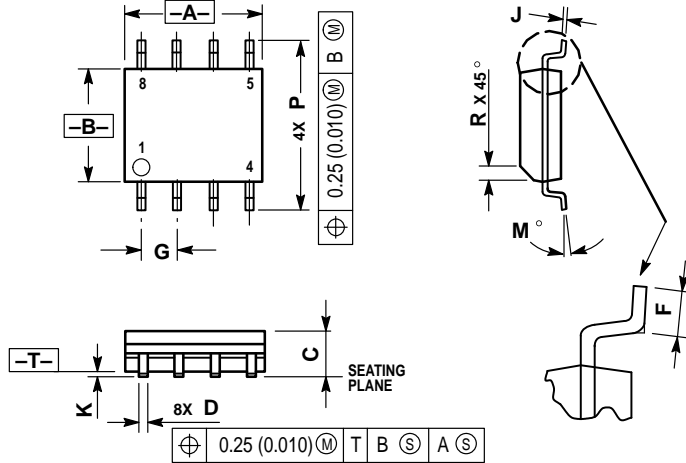


Figure 1. EL89 Termination Configuration

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

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Motorola data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

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

