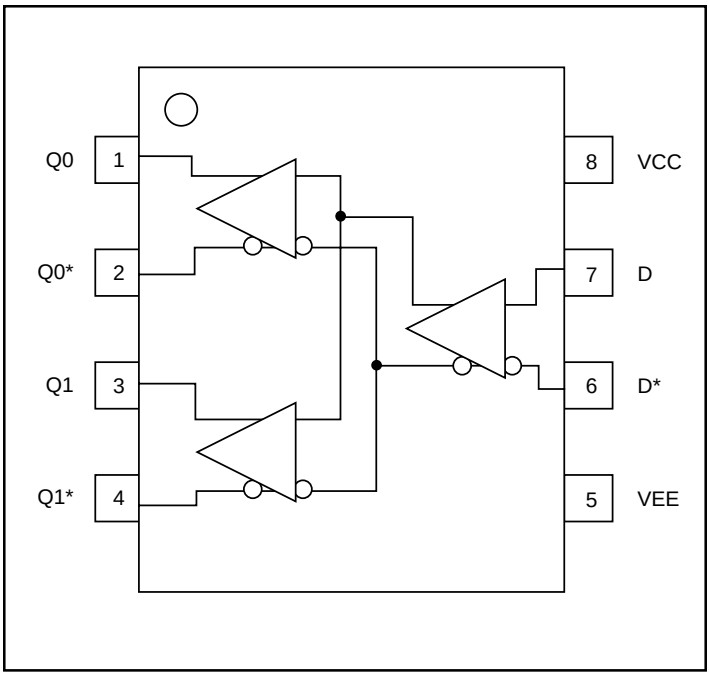
Description

The SK10EL89 is a differential fanout gate specifically designed to drive coaxial cables. This device is fully compatible with MC10EL89. The SK10EL89 is especially useful in digital video broadcasting. For this application, since the system is polarity free, each output can be used as an independent driver. The driver is capable of outputting 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 swing allows for termination of both ends of the cable while maintaining the required 800 mV swing at the receiving end of the cable.

Because of the larger output swings, the device cannot be terminated into a standard VCC – 2.0V. All of the DC parameters are tested with a 50Ω to VCC – 3.0V load. The driver accepts a standard differential ECL input and can run off a digital video broadcast standard –5.0V supply.

Functional Block Diagram



Features

- 375 ps Propagation Delay
- 1.6V Output Swings
- 75 KΩ Internal Input Pulldown Resistors
- ESD Protection OF >4000V
- Fully Compatible with MC10EL89
- Internal Input Resistors: Pulldown on D, Pulldown and Pullup on D*
- Industrial Temperature Range: –40°C to 85°C
- Operating Supply Range: 4.75V to 5.5V
- Outputs are terminated with 50Ω to VCC – 3.0V
- Available in 8-pin SOIC (150 mils) Package

Pin Descriptions

Pin Name	Function
D, D*	Data Inputs
Q0, Q0*, Q1, Q1*	Data Outputs

Application Information

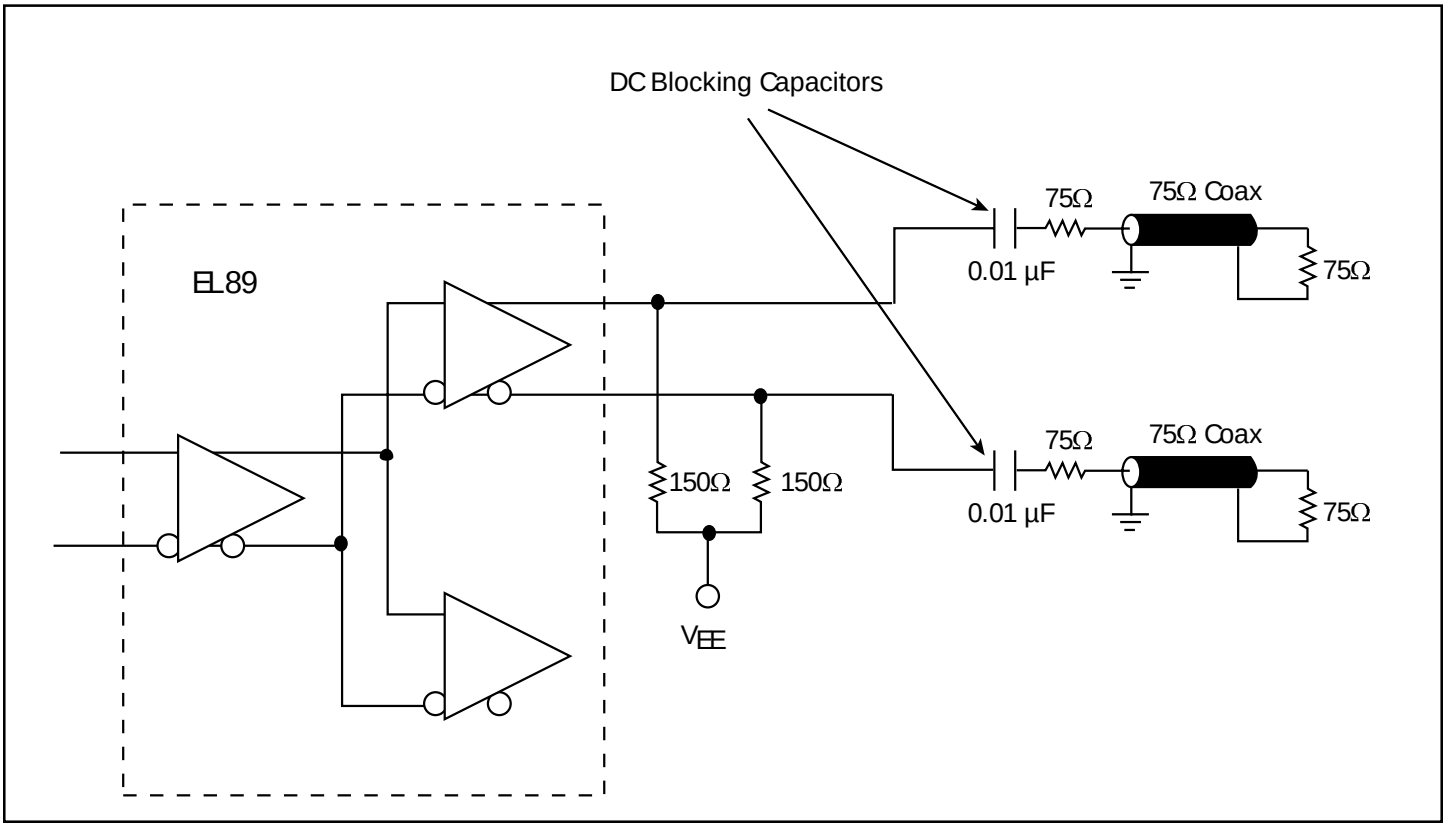
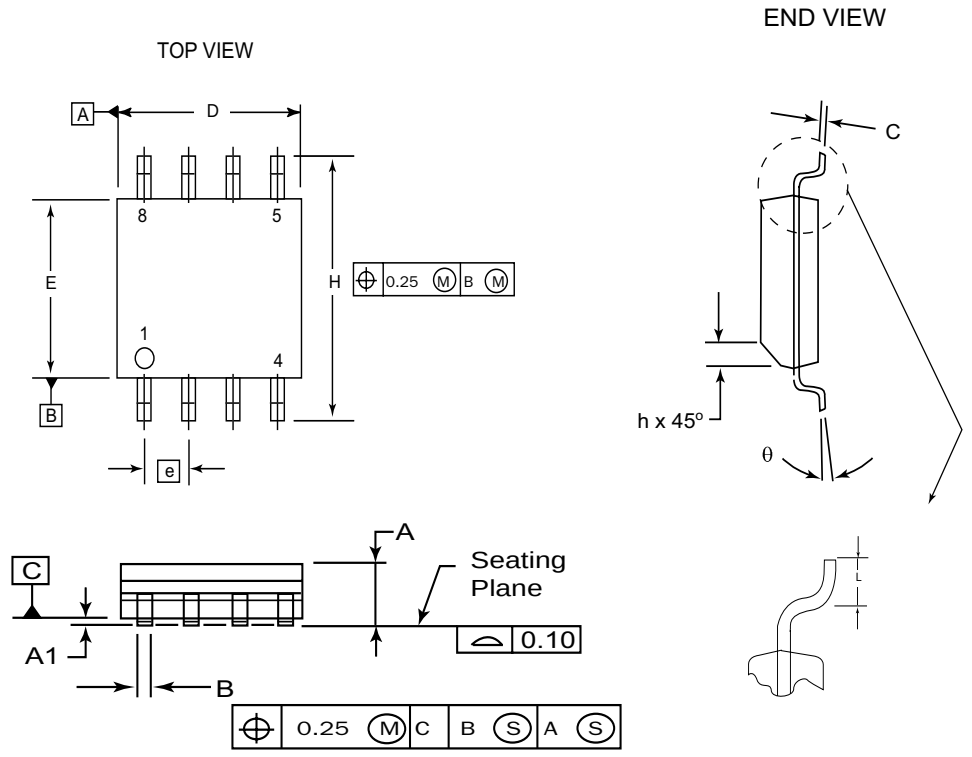


Figure 1. EL89 Termination Configuration

Package Information

8 Pin SOIC Package



DIM	MILLIMETERS	
	MIN	MAX
A	1.35	1.75
A1	0.10	0.25
B	0.33	0.51
C	0.19	0.25
D	4.80	5.00
E	3.80	4.00
e	1.27 BSC	
H	5.80	6.20
h	0.25	0.50
L	0.40	1.27
θ	0°	8°

NOTES:
1. Dimensions are in millimeters.
2. Dimensions D and E do no include mold protrusion.
3. Maximum mold protrusion 0.15 per side.
4. Dimension B does not include Dambar protrusion. Allowable Dambar protrusion shall be 0.127 total in excess of the B dimension at maximum material condition.

DC Characteristics

SK10EL89 DC Electrical Characteristics *(Note 4)*

(V_{CC} – V_{EE} = 4.75V to 5.5V; VOUT Loaded 50Ω to VCC – 3.0V)

Symbol	Characteristic	TA = –40°C			TA = 0°C			TA = +25°C			TA = +85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
I_{EE}	Power Supply Current	16	22	31	16	22	31	16	22	31	16	22	31	mA
V_{OH}	Output High Voltage[3]	-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 LowVoltage[3]	-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
I_{IN}	Input Current	-150		150	-150		150	-150		150	-150		150	µA

AC Characteristics

SK10EL89 AC Electrical Characteristics

(V_{CC} – V_{EE} = 4.75V to 5.5V; VOUT Loaded 50Ω to VCC – 3.0V)

Symbol	Characteristic	TA = –40°C			TA = 0°C			TA = +25°C			TA = +85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
t_{PLH} t_{PHL}	Propagation Delay to Output	360	400	440	375	410	460	380	420	470	405	430	490	ps
t_{SKEW}	Within-Device Skew		5	20		5	20		5	20		5	20	ps
V_{PP}	Minimum Input Swing[1]	150		1000	150		1000	150		1000	150		1000	mV
V_{CMR}	Common Mode Range[2]	VEE + 2.2		VCC	VEE + 2.2		VCC	VEE + 2.2		VCC	VEE + 2.2		VCC	V
t_r, t_f	Output Rise/Fall Times (20% - 80%)	230	295	370	240	300	375	240	310	380	240	320	395	ps

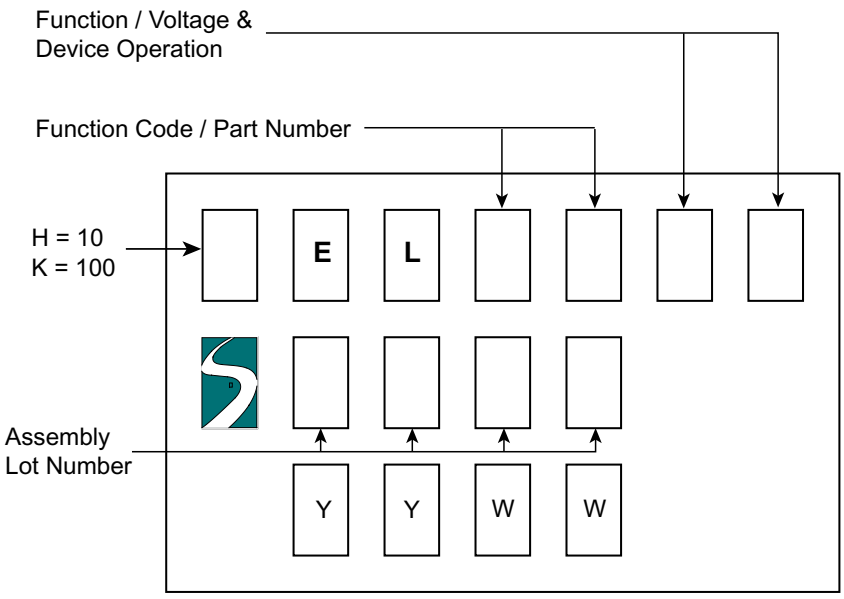
Notes:
1. Minimum input swing for which AC parameters are guaranteed. The device has a DC gain of ≅ 40 .
2. CMR range is referenced to the most positive side of the differential input signal. Normal operation is obtained if the high level falls within the specified range and the peak-to-peak voltage lies between $VPP_{(min)}$ and 1V. The lower end of the CMR range varies 1:1 with VEE and is equal to VEE + 2.2V.
3. Voltages referenced to VCC = 0V.
4. For standard ECL DC specifications, refer to the ECL Logic Family Standard DC Specifications Data Sheet.
5. For part ordering description, see HPP Part Ordering Information Data Sheet.

Ordering Information

Ordering Code	Package ID	Temperature Range
SK10EL89D	8-SOIC	Industrial
SK10EL89DT	8-SOIC	Industrial
SK10EL89U	Die	

Marking Information

8 PIN SOIC PACKAGE



YY: Last two digits of the Year
WW: Working Week

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