

HIGH-PERFORMANCE PRODUCTS
Description

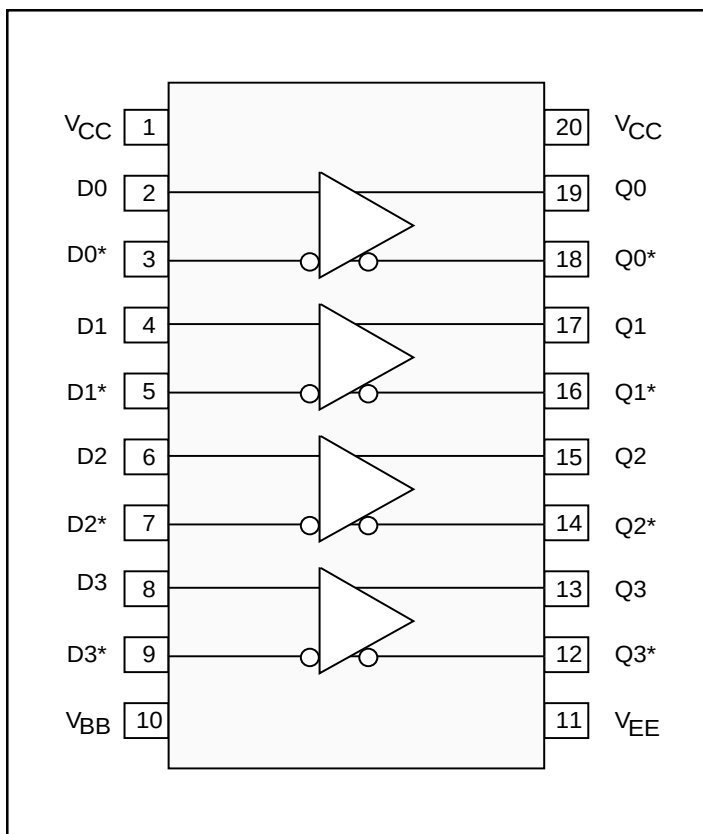
The SK10/100EL17W is a quad differential receiver. The device is fully compatible with MC100EL17 and MC100LVEL17.

The SK10/100EL17W provides a VBB output for single-ended use or DC bias for AC coupling to the device. VBB is an output pin and should be used as a bias for the EL17W as its current sink/source capability is limited. Whenever used, the VBB output should be bypassed to VCC via a 0.01 μ F capacitor.

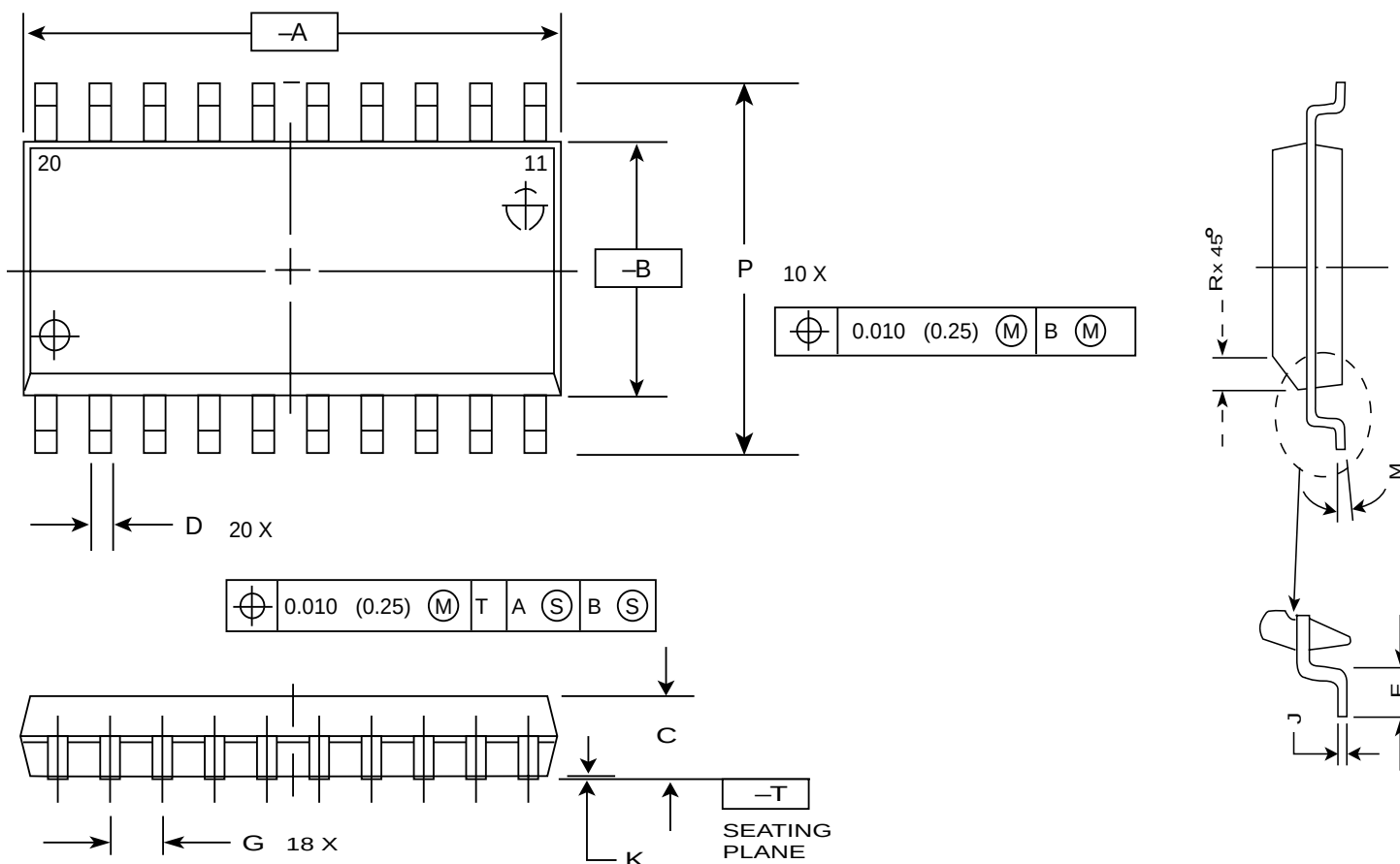
Under open input conditions, the D* input will be biased at VCC/2, and the D input will be pulled down to VEE. This operation will force the Qn outputs low and insure stability.

Features

- Extended Supply Voltage Range: (VEE = -5.5V to -3.0V, VCC = 0V) or (VCC = +3.0V to +5.5V, VEE = 0V)
- 325 ps Typical Propagation Delay
- 75K Ω Internal Input Pulldown Resistors
- Fully Compatible with MC100EL17 and MC100LVEL17
- ESD Protection of >4000 V
- Industrial Temperature Range: -40°C to +85°C
- Available in 20 Pin SOIC Package

Functional Block Diagram

PIN Description
Pin Names

Pin	Function
Dn, Dn*	Differential Data Inputs
Qn, Qn*	Differential Data Outputs
VBB	Reference Output Voltage

HIGH-PERFORMANCE PRODUCTS
Package Information
20 Pin SOIC Package


DIM	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	12.65	12.95	0.499	0.510
B	7.40	7.60	0.292	0.299
C	2.35	2.65	0.093	0.104
D	0.35	0.49	0.014	0.019
F	0.50	0.90	0.020	0.035
G	1.27	BSC	0.050	BSC
J	0.23	0.32	0.010	0.012
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	10.05	10.55	0.395	0.415
R	0.25	0.75	0.010	0.029

NOTES:

1. Dimensions and tolerancing per ANSI Y14.5M, 1982.
2. Controlling dimension: millimeter.
3. Dimensions A and B do not include mold protrusion.
4. Maximum mold protrusion 0.150 (0.006) per side.
5. Dimension D does not include Dambar protrusion. Allowable Dambar protrusion shall be 0.13 (0.005) total in excess of d dimension at maximum material condition.

HIGH-PERFORMANCE PRODUCTS
DC Characteristics
SK10/100EL17W DC Electrical Characteristics (Notes 1, 2)
 $(V_{CC} - V_{EE} = 3.0V \text{ to } 5.5V; V_{OUT} \text{ Loaded } 50\Omega \text{ to } V_{CC} - 2.0V)$

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 _{IN}	Input Current (Diff)	- 300		150	- 300		150	- 300		150	- 300		150	μA
I _{EE}	Power Supply Current													
	10EL	17		30	18		31	19		32	20		34	mA
V _{BB}	100EL	17		30	18		32	19		33	21		37	mA
	Output Reference Voltage ⁷													
V _{BB}	10EL	-1.43		-1.30	-1.38		-1.27	-1.35		-1.25	-1.31		-1.19	V
	100EL	-1.38		-1.26	-1.38		-1.26	-1.38		-1.26	-1.38		-1.26	V
V _{CC} - V _{EE}	Power Supply Voltage	3.0		5.5	3.0		5.5	3.0		5.5	3.0		5.5	V

AC Characteristics
SK10/100EL17W AC Electrical Characteristics
 $(V_{CC} - V_{EE} = 3.0V \text{ to } 5.5V; V_{OUT} \text{ Loaded } 50\Omega \text{ to } V_{CC} - 2.0V)$

Symbol	Characteristic	TA = -40°C		TA = 0°C		TA = +25°C		TA = +85°C		Unit
		Min	Max	Min	Max	Min	Max	Min	Max	
t _{PLH} t _{PHL}	Propagation Delay D to Q (Diff) D to Q (SEL)	370 350	445 455	390 360	475 530	400 375	490 550	435 410	550 610	ps ps
t _{SKEW}	Skew Output-to-Output ³		75		75		75		75	ps
	Part-to-Part (Diff) ³		200		200		200		200	ps
	Duty Cycle (Diff) ⁴		25		25		25		25	ps
V _{PP}	Minimum Input Swing ⁵	150	1000	150	1000	150	1000	150	1000	mV
V _{CMR}	Common Mode Range ⁶									
	V _{PP} < 500 mV V _{PP} ≥ 500 mV	V _{EE} + 1.3 V _{EE} + 1.5	V _{CC} - 0.4 V _{CC} - 0.4	V _{EE} + 1.3 V _{EE} + 1.5	V _{CC} - 0.4 V _{CC} - 0.4	V _{EE} + 1.3 V _{EE} + 1.5	V _{CC} - 0.4 V _{CC} - 0.4	V _{EE} + 1.3 V _{EE} + 1.5	V _{CC} - 0.4 V _{CC} - 0.4	V V
t _r , t _f	Output Rise/Fall Times (20% to 80%) Q, Q*	205	335	220	355	230	370	265	420	ps

HIGH-PERFORMANCE PRODUCTS**AC Characteristics (continued)****Notes:**

1. 10EL circuits are designed to meet the DC specifications shown in the table after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse airflow greater than 500 lfpm is maintained. Outputs are terminated through a 50 Ω resistor to VCC -2.0V.
2. 100K circuits are designed to meet the DC specification shown in the table where transverse airflow greater than 500 lfpm is maintained.
3. Skews are valid across specified voltage range. Part-to-part skew is for a given temperature.
4. Duty cycle skew is the difference between T_{PLH} and T_{PHL} propagation delay through a device.
5. Minimum input swing for which AC parameters guaranteed.
6. 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_{PP(min)} and 1V. The lower end of the CMR range varies 1:1 with VEE and is equal to VEE + 1.3V at V_{PP} < 500 mV, and VEE + 1.5 at V_{PP} =>500 mV.
7. Voltages referenced to VCC = 0V.
8. For standard ECL DC specifications, refer to the ECL Logic Family Standard DC Specifications Data Sheet.
9. For part ordering description, see HPP Part Ordering Information Data Sheet.

Ordering Information

Ordering Code	Package ID	Temperature Range
SK10EL17WD	20-SOIC	Industrial
SK10EL17WDT	20-SOIC	Industrial
SK100EL17WD	20-SOIC	Industrial
SK100EL17WDT	20-SOIC	Industrial
SK10EL17WU	Die	
SK100EL17WU	Die	

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