

FEATURES

- Up to 1.25Gbps operation
- 25mA peak drive current
- Adjustable output current
- Separate output enable
- Differential inputs for data
- 75K Ω input pulldown resistor
- Single power supply
- Available in a tiny 10-pin (3mm) MSOP

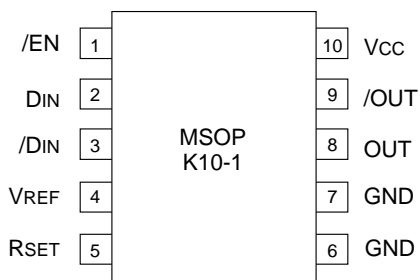
DESCRIPTION

The SY100ELT982 is a high speed PECL-to-CML translator. The output current is DC current controlled by I_{RSET} , current through the resistor R_{SET} . The output OUT is LOW when output enable is HIGH.

The device incorporates complementary open collector outputs with a capability of driving peak current of 25mA.

The SY100ELT982 utilizes the high performance bipolar ASSET™ technology.

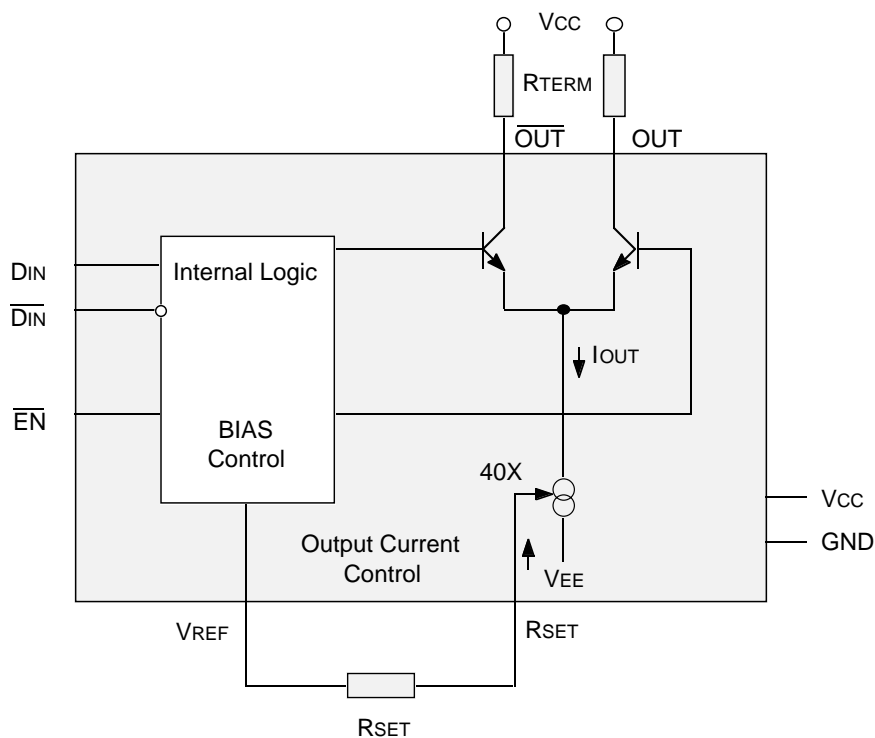
PIN CONFIGURATIONS



APPLICATIONS

- Telecommunications
- CML Output Oscillator
- GaAS Interface

BLOCK DIAGRAM



PIN NAMES

Pin	Function
VCC	Most positive power supply input, +5V for PECL operation.
GND	Ground
DIN, /DIN	Differential PECL 100K compatible inputs.
/EN	This PECL 100K compatible input enables data translation. When Enable asserted HIGH, OUT = IOUT, /OUT = 0mA.
OUT, /OUT	Open collector outputs from the output buffer drive these differential current outputs.
VREF	Voltage reference for use with RSET.
RSET	External resistor to adjust output current.

TRUTH TABLE⁽¹⁾

D	/D	/EN	OUT (2)	/OUT ⁽³⁾
L	H	L	L	H
H	L	L	H	L
X	X	H	L	H

NOTE:

1. L = LOW, H = HIGH, X = don't care
2. H = IOUT = 0mA
3. H = /IOUT = 0mA

ABSOLUTE MAXIMUM RATINGS⁽¹⁾

Symbol	Rating	Value	Unit
VCC	Power Supply Voltage	0 to +7.0	V
VI	Input Voltage	0 to +6.0	V
IO	Output Current	25	mA
TA	Operating Temperature Range	0°C to +85°C	°C
Tstore	Storage Temperature Range	-55°C to +125°C	°C
Ptot	Power Dissipation	250	mW

NOTE:

1. Permanent device damage may occur if ABSOLUTE MAXIMUM RATINGS are exceeded. This is a stress rating only and functional operation is not implied at conditions other than those detailed in the operational sections of this data sheet. Exposure to ABSOLUTE MAXIMUM RATING conditions for extended periods may affect device reliability.

OPERATING CONDITIONS⁽¹⁾

Symbol	Rating	Value	Unit
VCC	Power Supply Voltage	+4.5 to +5.5	V
RTERM	Resistor to Terminate Outputs	10 to 50	Ω
RSET	Resistor to Adjust Current	1500 to 50,000	Ω
ΘJA	Thermal Resistance of Package to Ambient ⁽²⁾	206	°C/W
COUT	Capacitance on OUT + /OUT	2.5 typical	pf

NOTES:

1. The voltage drop across RTERM should not be greater than 2V.
2. Still air without heatsink.

DC ELECTRICAL CHARACTERISTICSGND = 0V; VCC = +5.0V $\pm 10\%$; TA = 0°C to + 85°C

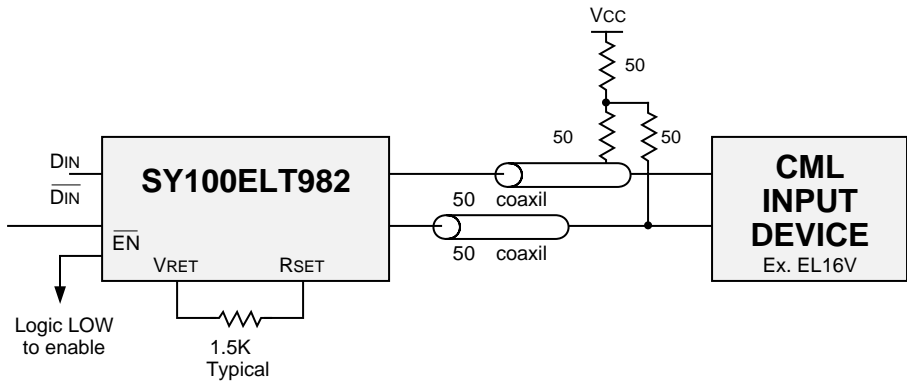
Symbol	Parameter	TA = 0°C			TA = +25°C			TA = +85°C			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
V _{IH}	Input HIGH Voltage (Din, /Din, /EN)	VCC -1165	—	VCC -880	VCC -1165	—	VCC -880	VCC -1165	—	VCC -880	mV
V _{IL}	Input LOW Voltage (Din, /Din, /EN)	VCC -1810	—	VCC -1475	VCC -1810	—	VCC -1475	VCC -1810	—	VCC -1475	mV
V _{REF}	Reference Voltage	—	3.12	—	—	3.00	—	—	2.80	—	V
I _{IL}	Input LOW Current ⁽¹⁾ (Din, /Din, /EN)	0.5	—	—	0.5	—	—	0.5	—	—	uA
I _{IH}	Input HIGH Current (Din, /Din, /EN)	—	—	100	—	—	100	—	—	100	uA
I _{CC}	Supply Current ⁽²⁾	—	16	25	—	16	25	—	16	25	mA
I _{OL}	Output LOW Current (/EN = HIGH)	—	—	500	—	—	500	—	—	500	uA
I _{OR}	Output Current Ringing ⁽²⁾	—	—	10	—	—	10	—	—	10	%
I _{GAIN}	I _{OUT} /I _{RSET}	30	38	44	30	38	44	30	38	44	—

NOTES:1. V_I = V_{IL}(Min.)2. I_{OH} = 25mA.**AC ELECTRICAL CHARACTERISTICS⁽¹⁾**I_{OH} = 10mA; GND = 0V; VCC = +5V $\pm 10\%$; TA = 0°C to + 85°C

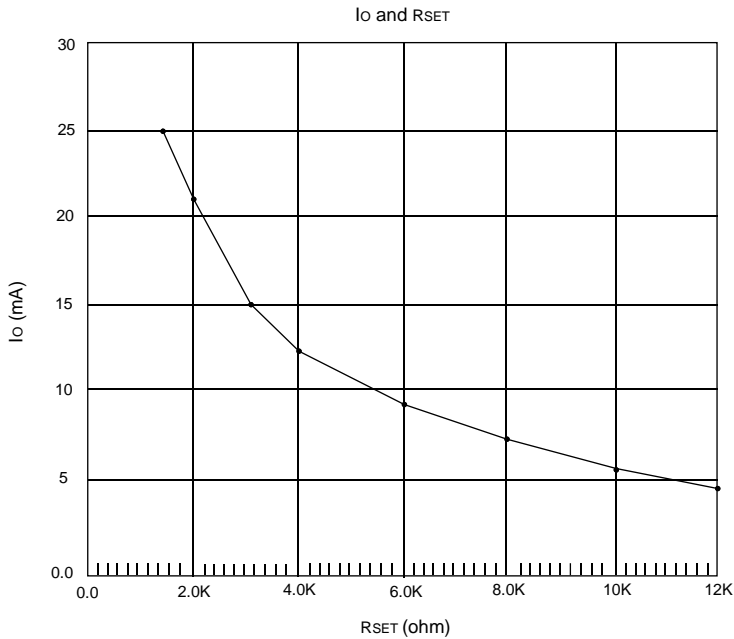
Symbol	Parameter	TA = 0°C			TA = +25°C			TA = +85°C			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
t _{pd} D	Propagation Delay Din - OUT	—	480	1000	—	480	1000	—	480	1000	ps	
t _{pd} EN	Propagation Delay /EN - OUT	—	450	1000	—	450	1000	—	450	1000	ps	
t _r t _f	Rise/Fall Time (20% to 80%)	—	200	—	—	200	—	—	200	—	ps	
I _{OUT}	Output Current	5	15	25	5	15	25	5	15	25	mA	
I _{RSET}	Output Current Control	0.125	—	0.625	0.125	—	0.625	0.125	—	0.625	mA	
I _{OR}	Output Current Ringing ⁽²⁾	—	—	10	—	—	10	—	—	10	%	

NOTES:1. R_{TERM} = 50Ω $\pm 1\%$ 2. I_{OH} = 5 to 25mA

APPLICATION EXAMPLE

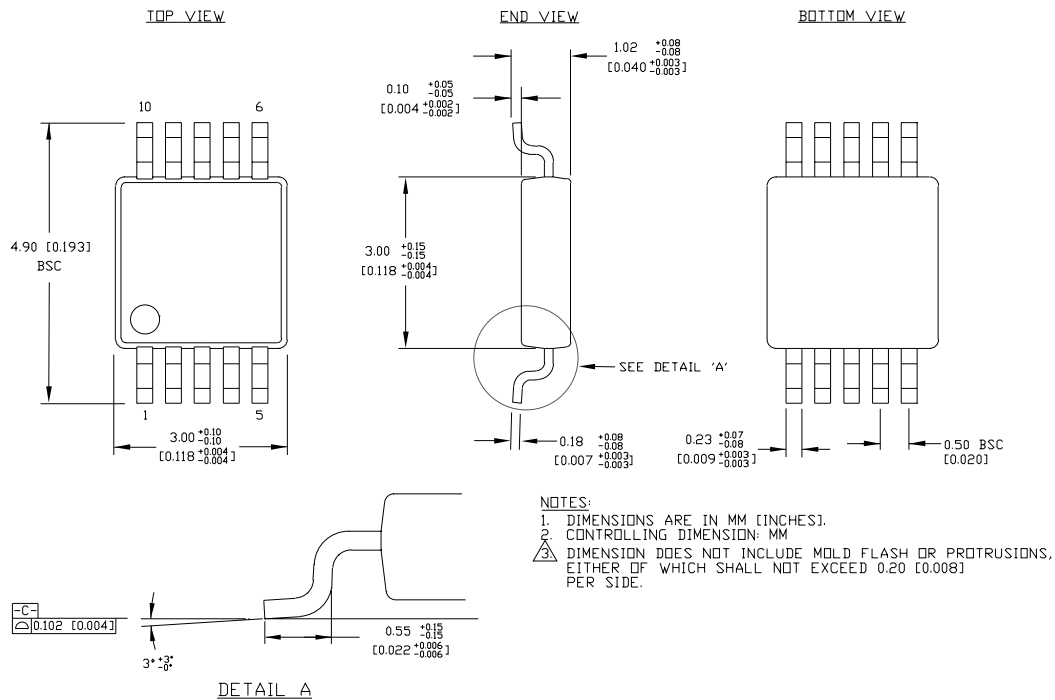


PERFORMANCE CURVES



PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range
SY100ELT982KC	K10-1	Commercial

10 LEAD MSOP (K10-1)

Rev. 00

MICREL-SYNERGY 3250 SCOTT BOULEVARD SANTA CLARA CA 95054 USATEL + 1 (408) 980-9191 FAX + 1 (408) 914-7878 WEB <http://www.micrel.com>

This information is believed to be accurate and reliable, however no responsibility is assumed by Micrel for its use nor for any infringement of patents or other rights of third parties resulting from its use. No license is granted by implication or otherwise under any patent or patent right of Micrel Inc.

© 2000 Micrel Incorporated