

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
- ESD protection of 2000V
- Available in a tiny 10-pin TSSOP package

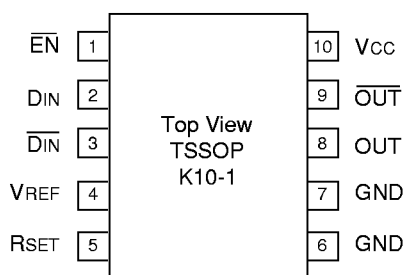
DESCRIPTION

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 $\overline{OUT}$ 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.

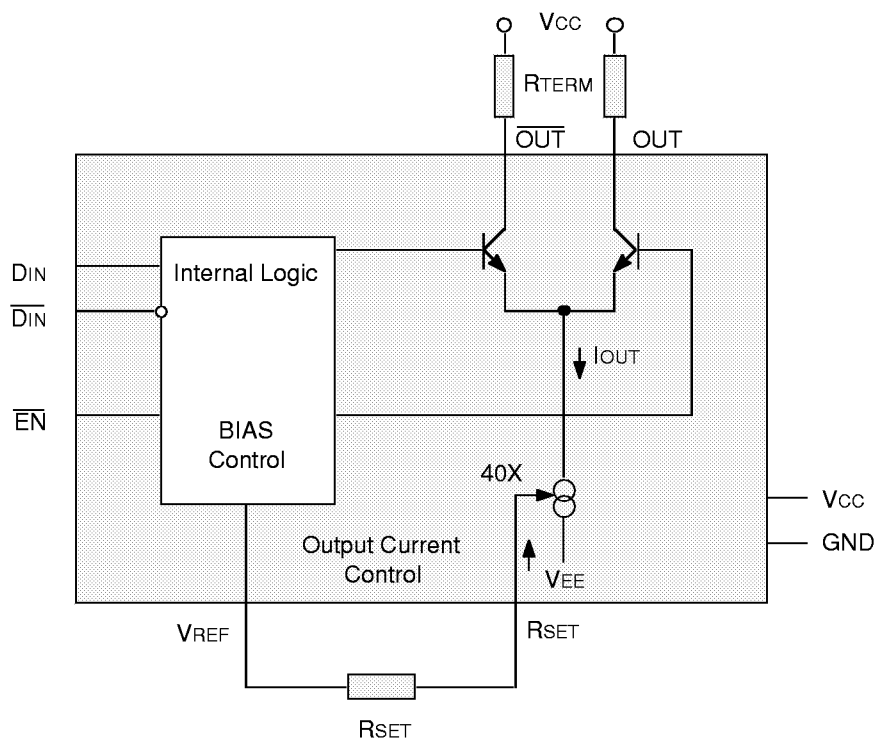
PIN CONFIGURATIONS



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, $\overline{\text{DIN}}$	Differential PECL 100K compatible inputs.
$\overline{\text{EN}}$	This PECL 100K compatible input enables data translation. When Enable asserted HIGH, $\text{OUT} = \text{IOUT}$, $\overline{\text{OUT}} = 0\text{mA}$.
OUT, $\overline{\text{OUT}}$	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	$\overline{\text{D}}$	$\overline{\text{EN}}$	OUT ⁽²⁾	$\overline{\text{OUT}}$ ⁽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 = $\text{IOUT} = 0\text{mA}$
3. H = $\overline{\text{IOUT}} = 0\text{mA}$

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.

OPERATIONING 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
Θ_{JA}	Thermal Resistance of Package to Ambient ⁽²⁾	206	°C/W
COU	Capacitance on OUT + $\overline{\text{OUT}}$	2.5 typical	pf

NOTE:

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

DC ELECTRICAL CHARACTERISTICS

GND = 0V; VCC = +5.0V ±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.	
VIH	Input HIGH Voltage (Din, $\overline{\text{Din}}$, $\overline{\text{EN}}$)	VCC -1165	—	VCC -880	VCC -1165	—	VCC -880	VCC -1165	—	VCC -880	mV
VIL	Input LOW Voltage (Din, $\overline{\text{Din}}$, $\overline{\text{EN}}$)	VCC -1810	—	VCC -1475	VCC -1810	—	VCC -1475	VCC -1810	—	VCC -1475	mV
VREF	Reference Voltage	—	3.12	—	—	3.00	—	—	2.80	—	V
IIL	Input LOW Current ⁽¹⁾ (Din, $\overline{\text{Din}}$, $\overline{\text{EN}}$)	0.5	—	—	0.5	—	—	0.5	—	—	µA
IIH	Input HIGH Current (Din, $\overline{\text{Din}}$, $\overline{\text{EN}}$)	—	—	100	—	—	100	—	—	100	µA
ICC	Supply Current ⁽²⁾	—	16	25	—	16	25	—	16	25	mA
IOL	Output LOW Current ($\overline{\text{EN}}$ = HIGH)	—	—	500	—	—	500	—	—	500	µA
IOR	Output Current Ringing ⁽²⁾	—	—	10	—	—	10	—	—	10	%
IGAIN	IOUT/IRSET	30	38	44	30	38	44	30	38	44	—

NOTES:

1. VI = VIL(Min.)
2. IOH = 25mA.

AC ELECTRICAL CHARACTERISTICS⁽¹⁾

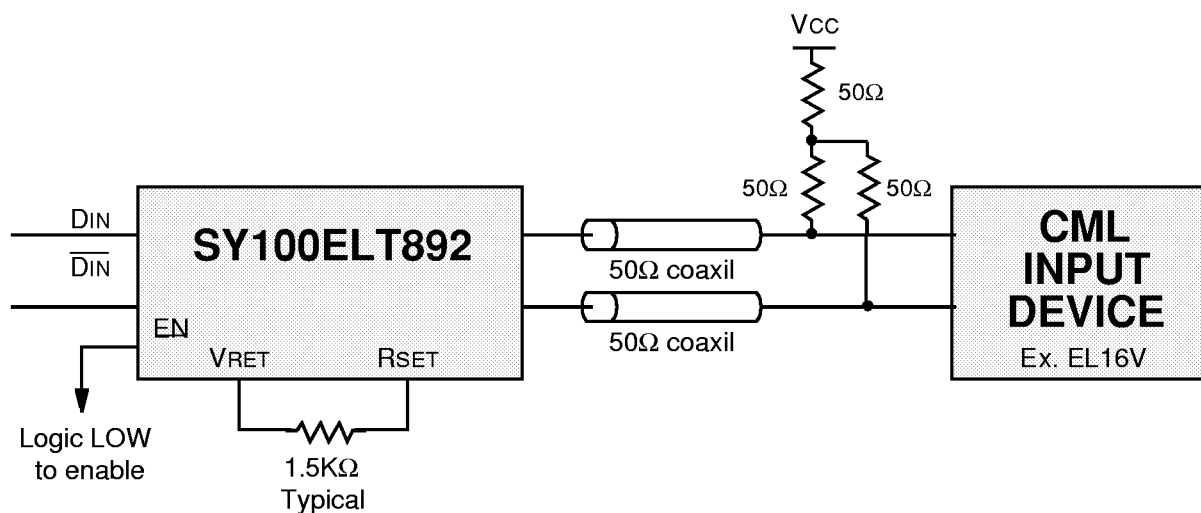
IOH = 10mA; GND = 0V; VCC = +5V ±10%; TA = 0°C to +85°C

Symbol	Parameter	TA = 0°C			TA = +25°C			TA = +85°C			Unit	Conditions
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
tpd D	Propagation Delay Din - OUT	—	480	1000	—	480	1000	—	480	1000	ps	
tpd EN	Propagation Delay $\overline{\text{EN}}$ - OUT	—	450	1000	—	450	1000	—	450	1000	ps	
tr tf	Rise/Fall Time (20% to 80%)	—	200	—	—	200	—	—	200	—	ps	
IOUT	Output Current	5	15	25	5	15	25	5	15	25	mA	
IRSET	Output Current Control	0.125	—	0.625	0.125	—	0.625	0.125	—	0.625	mA	
IOR	Output Current Ringing ⁽²⁾	—	—	10	—	—	10	—	—	10	%	

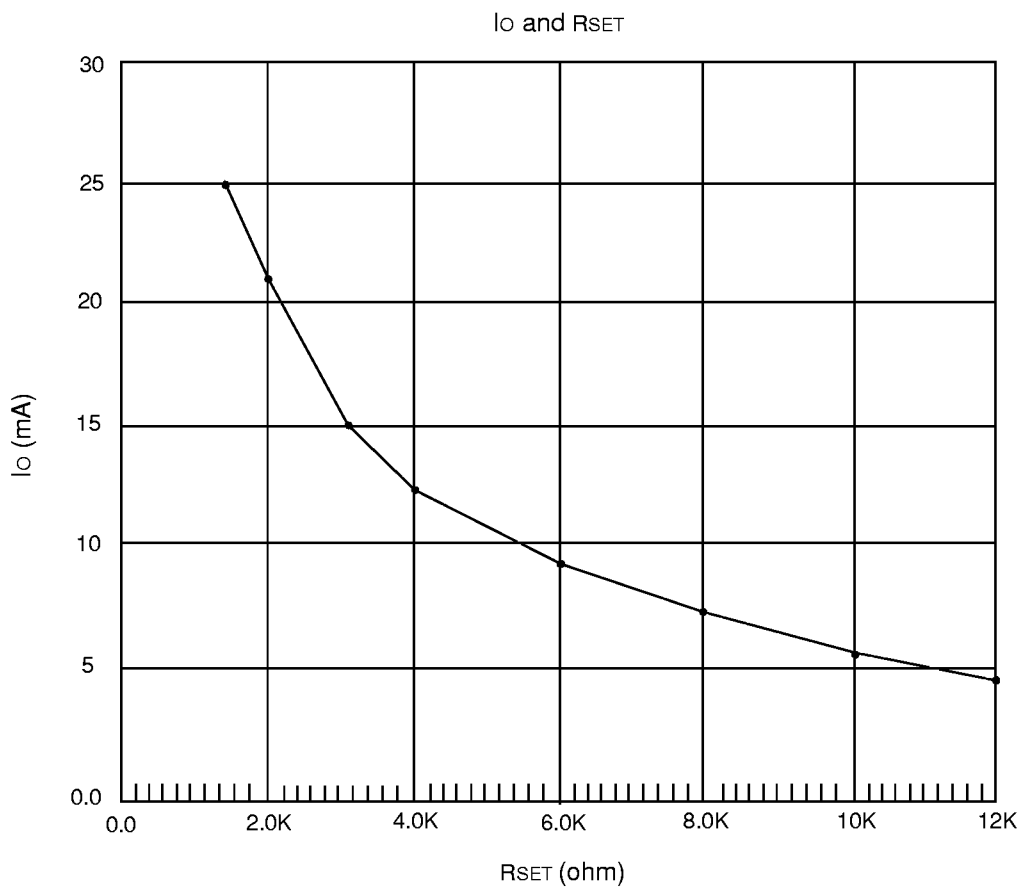
NOTES:

1. RTERM = 50Ω ±1%
2. IOH = 5 to 25mA

APPLICATION EXAMPLE



PERFORMANCE CURVES



PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range
SY100ELT892KC	K10-1	Commercial

10 LEAD TSSOP (K10-1)

FILE/REV #: PD056A00

PD/0056/ASCORP

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