WITH OUTPUT ENABLE

Up to 1.25Gbps operation

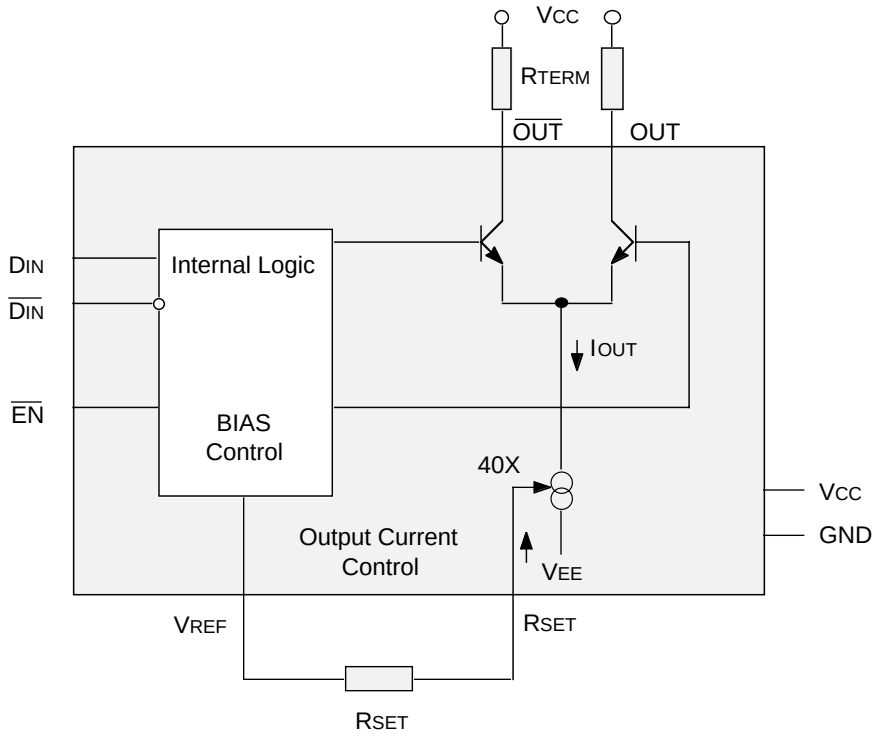
- **25mA peak drive current**
- **Adjustable output current**
- **Separate output enable**
- **Differential inputs for data**
- **75KΩ input pull-down resistor**
- **Single power supply**
- **Available in a tiny 10-pin MSOP**

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

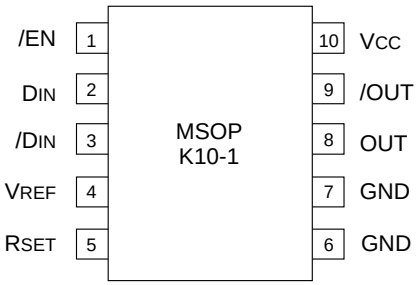
The device incorporates complementary open collector outputs with a capability of driving peak current of 25mA.

The SY100ELT982 utilizes the high performance bipolar ASSET™ technology.

- **Telecommunications**
- **CML output oscillator**
- **GaAS interface**



ASSET technology is a trademark of Micrel, Inc.



10-Pin MSOP (K10-1)

(1)

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY100ELT982KC	K10-1	Commercial	XEL982	Sn-Pb
SY100ELT982KCTR(2)	K10-1	Commercial	XEL982	Sn-Pb
SY100ELT982KI	K10-1	Industrial	XEL982	Sn-Pb
SY100ELT982KITR(2)	K10-1	Industrial	XEL982	Sn-Pb
SY100ELT982KG(3)	K10-1	Industrial	XEL982 with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100ELT982KGTR(2, 3)	K10-1	Industrial	XEL982 with with Pb-Free bar-line indicator	Pb-Free NiPdAu

Notes:

1. Contact factory for die availability. Dice are guaranteed at T_A = 25°C, DC Electricals only.
2. Tape and Reel.
3. Pb-Free package is recommended for new designs.

Pin	Function
V_{CC}	Most positive power supply input, +5V for PECL operation.
GND	Ground
D_{IN}, /D_{IN}	Differential PECL 100K compatible inputs.
/EN	This PECL 100K compatible input enables data translation. When Enable asserted HIGH, OUT = I_{OUT}, /OUT = 0mA.
OUT, /OUT	Open collector outputs from the output buffer drive these differential current outputs.
V_{REF}	Voltage reference for use with R_{SET}.
R_{SET}	External resistor to adjust output current.

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 = I_{OUT} = 0mA
3. H = /I_{OUT} = 0mA

V_{CC}	Power Supply Voltage	0 to +7.0	V
V_I	Input Voltage	0 to +6.0	V
I_O	Output Current	25	mA
T_{LEAD}	Lead Temperature (soldering, 20sec.)	+260	°C
T_A	Operating Temperature Range	0˚C to +85˚C	˚C
T_{store}	Storage Temperature Range	–55˚C to +125˚C	˚C
P_{tot}	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 ratlng conditions for extended periods may affect device reliability.

V_{CC}	Power Supply Voltage	+4.5 to +5.5	V
R_{TERM}	Resistor to Terminate Outputs	10 to 50	Ω
R_{SET}	Resistor to Adjust Current	1500 to 50,000	Ω
θ_{JA}	Thermal Resistance of Package to Ambient(2)	206	˚C/W
C_{OUT}	Capacitance on OUT + /OUT	2.5 typical	pf

1. The voltage drop across R_{TERM} should not be greater than 2V.
2. Still air without heatsink.

V_{CC} = +5.0V ±10%; T_A = 0°C to + 85°C

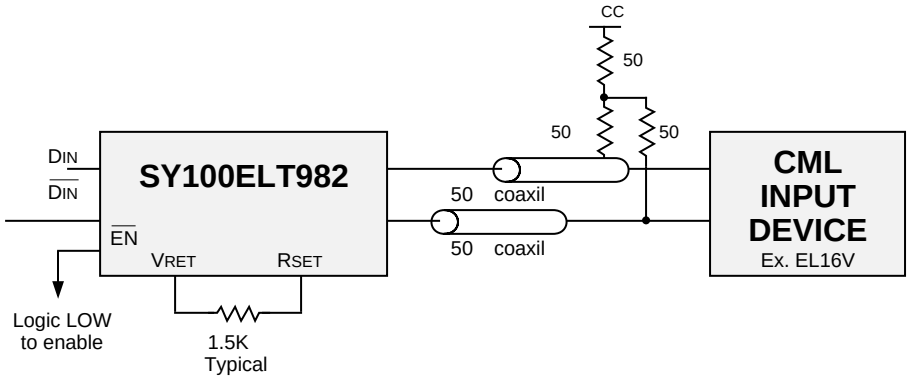
Symbol	Parameter	T_A = 0°C			T_A = +25°C			T_A = +85°C			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
V_{IH}	Input HIGH Voltage (Din, /Din, /EN)	V_{CC} -1165	—	V_{CC} -880	V_{CC} -1165	—	V_{CC} -880	V_{CC} -1165	—	V_{CC} -880	mV
V_{IL}	Input LOW Voltage (Din, /Din, /EN)	V_{CC} -1810	—	V_{CC} -1475	V_{CC} -1810	—	V_{CC} -1475	V_{CC} -1810	—	V_{CC} -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	—

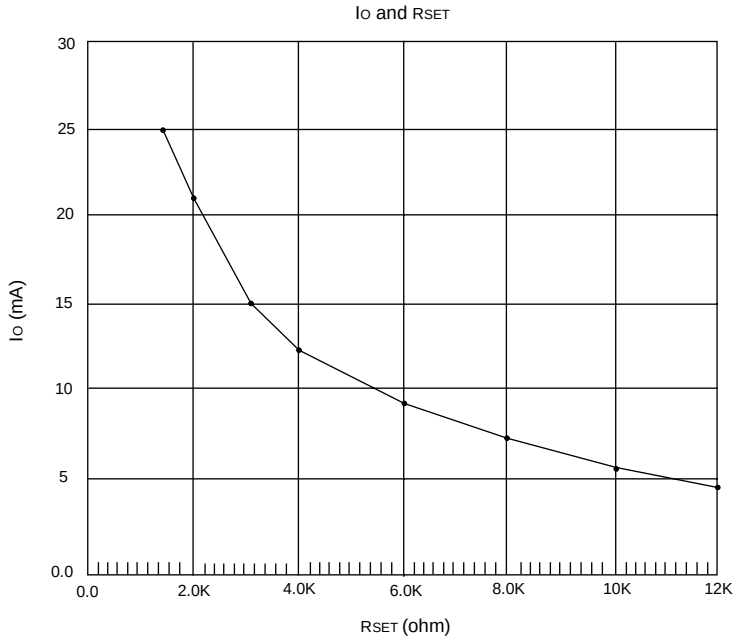
Notes:
1. $V_I = V_{IL}$(Min.)
2. I_{OH} = 25mA.

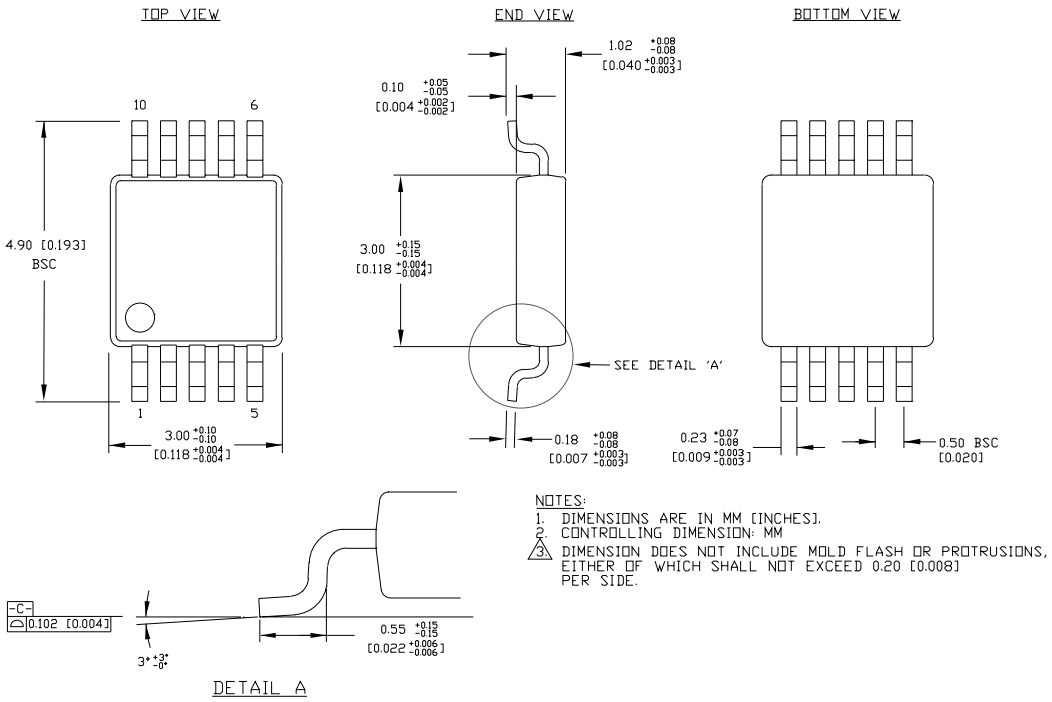
I_{OH} =10mA; GND = 0V; V_{CC} = +5V ±10%; T_A = 0°C to + 85°C

Symbol	Parameter	T_A = 0°C			T_A = +25°C			T_A = +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. RTERM = 50Ω ±1%
2. I_{OH} = 5 to 25mA


CC
50
50
50
DIN
DIN
SY100ELT982
50 coaxil
50 coaxil
CML
INPUT
DEVICE
Ex. EL16V
EN
VRET
RSET
Logic LOW
to enable
1.5K
Typical


IO and RSET
30
25
20
15
10
5
0.0
IO (mA)
0.0
2.0K
4.0K
6.0K
8.0K
10K
12K
RSET (ohm)



Rev. 00

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