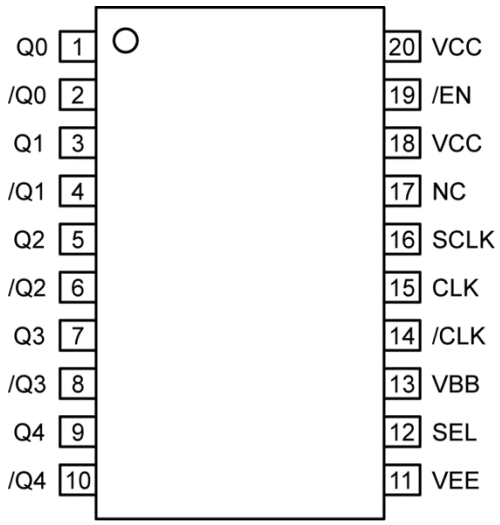
Ordering Information[1]

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY100EL14VZG	Z20-1	Industrial	SY100EL14VZG with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100EL14VZG TR[2]	Z20-1	Industrial	SY100EL14VZG with Pb-Free bar-line indicator	Pb-Free NiPdAu

Note:

1. Contact factory for die availability. Dice are guaranteed at T_A = 25°C, DC electricals only.
2. Tape and Reel.

Pin Configuration



20-Pin Narrow SOIC
(Top View)

Pin Description

Pin	Function
CLK	Differential clock inputs
SCLK	Scan clock input
/EN	Synchronous enable
SEL	Clock select input
VBB	Reference output
Q0 – Q4	Differential clock outputs

Truth Table

CLK	SCLK	SEL	/EN	Q
L	X	L	L	L
H	X	L	L	H
X	L	H	L	L
X	H	H	L	H
X	X	X	H	L[3]

Note:

3. On next negative transition of CLK or SCLK

Absolute Maximum Ratings[4]

Input Voltage (V_{IN})[6]
(V_{CC} = 0V, V_{IN} not more positive than V_{CC}) .. –6V to +0V
(V_{EE} = 0V, V_{IN} not more positive than V_{CC})... +0V to +6V
Operating Range (V_{EE})[7] ..... –5.7V to –3.0V
Output Current (I_{OUT}) Continuous.....50mA
Surge.....100mA
Lead Temperature (soldering, 20s)..... 260°C
Storage Temperature (T_s) .....–65 to +150°C
ESD Rating[8].....>1.5kV

Operating Ratings[5]

Supply Voltage (V_{CC}) PECL Operation ..... 3.0V to 5.5V
(V_{EE}) ECL Operation ..... –3.0V to –5.5V
Ambient Temperature (T_A) .....–40°C to +85°C
Junction Thermal Resistance
SOIC (θ_{JA}) .....58°C/W

DC Electrical Characteristics[9]

V_{EE} = V_{EE} (min) to V_{EE} (max); V_{CC} = GND, T_A = –40°C to +85°C, unless otherwise stated.
Outputs are terminated through a 50Ω resistor to V_{CC}–2.0V.

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
V_{OH}	Output High Voltage[10]	T_A = –40°C	V_{CC} – 1.085	V_{CC} – 1.005	V_{CC} – 0.880	V
		T_A = 0°C to +85°C	V_{CC} – 1.025	V_{CC} – 0.955	V_{CC} – 0.880	V
V_{OL}	Output Low Voltage[10]	T_A = –40°C	V_{CC} – 1.830	V_{CC} – 1.695	V_{CC} – 1.555	V
		T_A = 0°C to +85°C	V_{CC} – 1.810	V_{CC} – 1.705	V_{CC} – 1.620	V
V_{OHA}	Output High Voltage[10]	T_A = –40°C	V_{CC} – 1.095			V
		T_A = 0°C to +85°C	V_{CC} – 1.035			V
V_{OLA}	Output Low Voltage[10]	T_A = –40°C			V_{CC} – 1.555	V
		T_A = 0°C to +85°C			V_{CC} – 1.610	V
V_{IH}	Input High Voltage		V_{CC} – 1.165		V_{CC} – 0.880	V
V_{IL}	Input Low Voltage		V_{CC} – 1.810		V_{CC} – 1.475	V
I_{IL}	Input Low Current[11]	Input LOW Current /CLK	0.5 –300			µA
I_{IH}	Input High Current				150	µA
I_{EE}	Power Supply Current	T_A = –40°C to +25°C		32	40	mA
		T_A = +85°C		34	42	
V_{BB}	Output Reference Voltage		V_{CC} – 1.380		V_{CC} – 1.260	V

Notes:

4. Exceeding the absolute maximum ratings may damage the device.
5. The device is not guaranteed to function outside its operating ratings.
6. In PECL mode operation, V_{IN}(max) = V_{CC}.
7. Parametric values specified at 100EL14V series: –3.0V to –5.5V.
8. Devices are ESD sensitive. Handling precautions are recommended. Human body model, 1.5kΩ in series with 100pF.
9. Specification for packaged product only
10. V_{IN} = V_{IH}(max) or V_{IL}(min).
11. V_{IN} = V_{IL}(max).

AC Electrical Characteristics

V_{EE} = V_{EE} (min) to V_{EE} (max); V_{CC} = GND, T_A = –40°C to +85°C, unless otherwise stated.

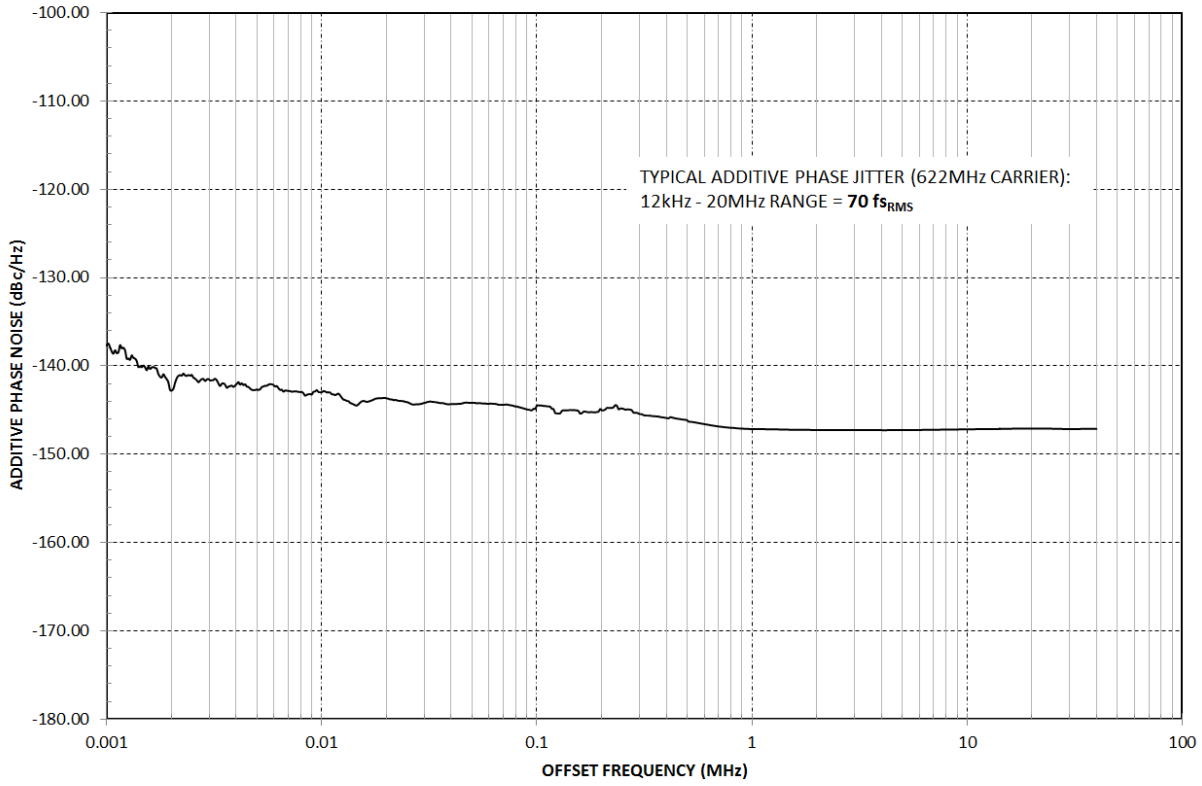
Symbol	Parameter	Condition		Min.	Typ.	Max.	Units
t_{PLH} t_{PHL}	Propagation Delay CLK to Q (Diff)	T_A = –40°C		520		720	ps
		T_A = 0°C		550		750	ps
		T_A = +25°C		580	680	780	ps
		T_A = +85°C		630		830	ps
	Propagation Delay CLK to Q (SE)	T_A = –40°C		470		770	ps
		T_A = 0°C		500		800	ps
		T_A = +25°C		530	680	830	ps
		T_A = +85°C		580		880	ps
	Propagation Delay SCLK to Q	T_A = –40°C		470		770	ps
		T_A = 0°C		500		800	ps
		T_A = +25°C		530	680	830	ps
		T_A = +85°C		580		880	ps
t_{skew}	Part-to-Part Skew[12]					200	ps
	Within-Device Skew					50	ps
t_S	Setup Time /EN			150			ps
t_H	Hold Time /EN			200			ps
V_{PP}	Minimum Input Swing, CLK			150			mV
V_{CMR}	Common Mode Range[13]	V_{PP} < 500mV	T_A = –40°C	V_{CC} – 2.000		V_{CC} – 0.400	V
			T_A = 0°C to +85°C	V_{CC} – 2.100		V_{CC} – 0.400	
		V_{PP} ≥ 500mV	T_A = –40°C	V_{CC} – 1.800		V_{CC} – 0.400	V
			T_A = 0°C to +85°C	V_{CC} – 1.900		V_{CC} – 0.400	
t_r/t_f	Output Rise/Fall Time Q (20% - 80%)	T_A = –40°C to +85°C Typical value at T_A = +25°C		230	360	500	ps
t_{JITTER}	Additive Jitter	Carrier = 622MHz Integration Range: 12kHz to 20MHz			70		fs_{RMS}
		Carrier = 156.25MHz Integration Range: 12kHz to 20MHz			155		

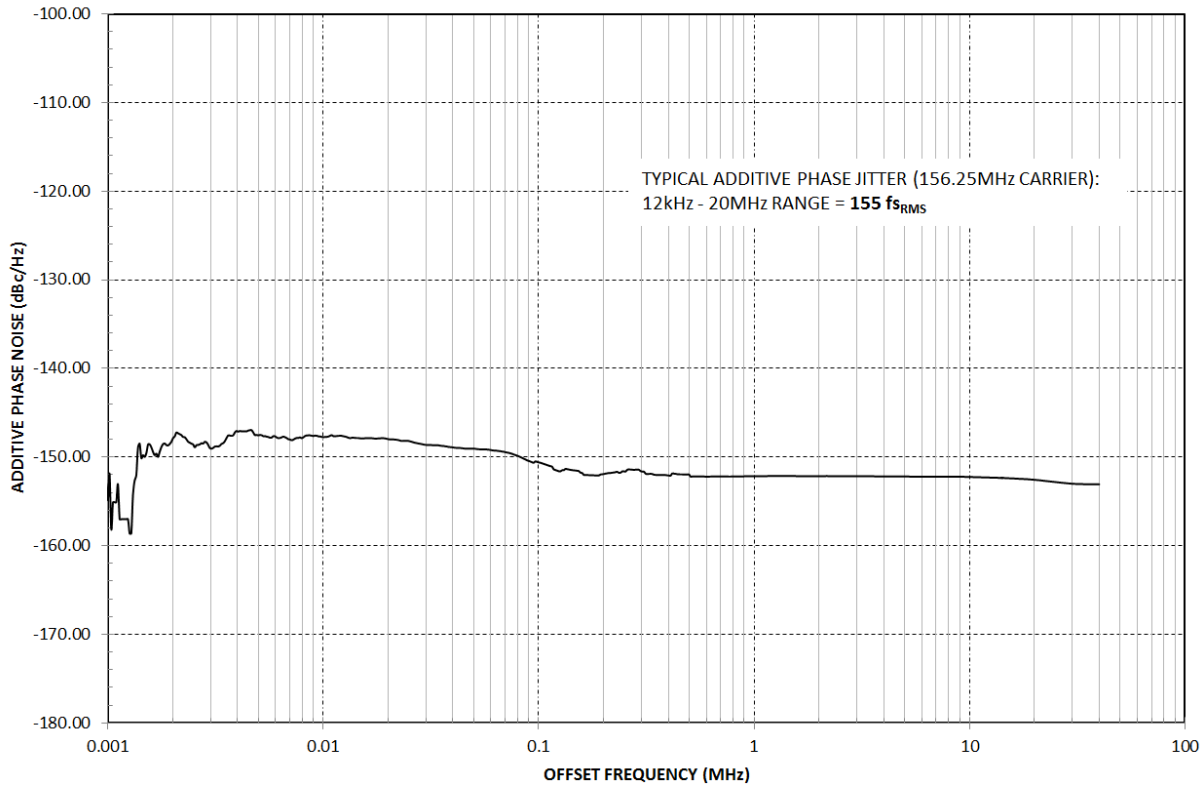
Notes:

12. Skews are specified for identical LOW-to-HIGH or HIGH-to-LOW transitions.
13. The V_{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 V_{CMR} range varies 1:1 with V_{EE}. The numbers in the specification table assume a nominal V_{EE} of 3.3V. For PECL operation, the V_{CMR}(min) will be fixed at 3.3V – |V_{CMR}(min)|.

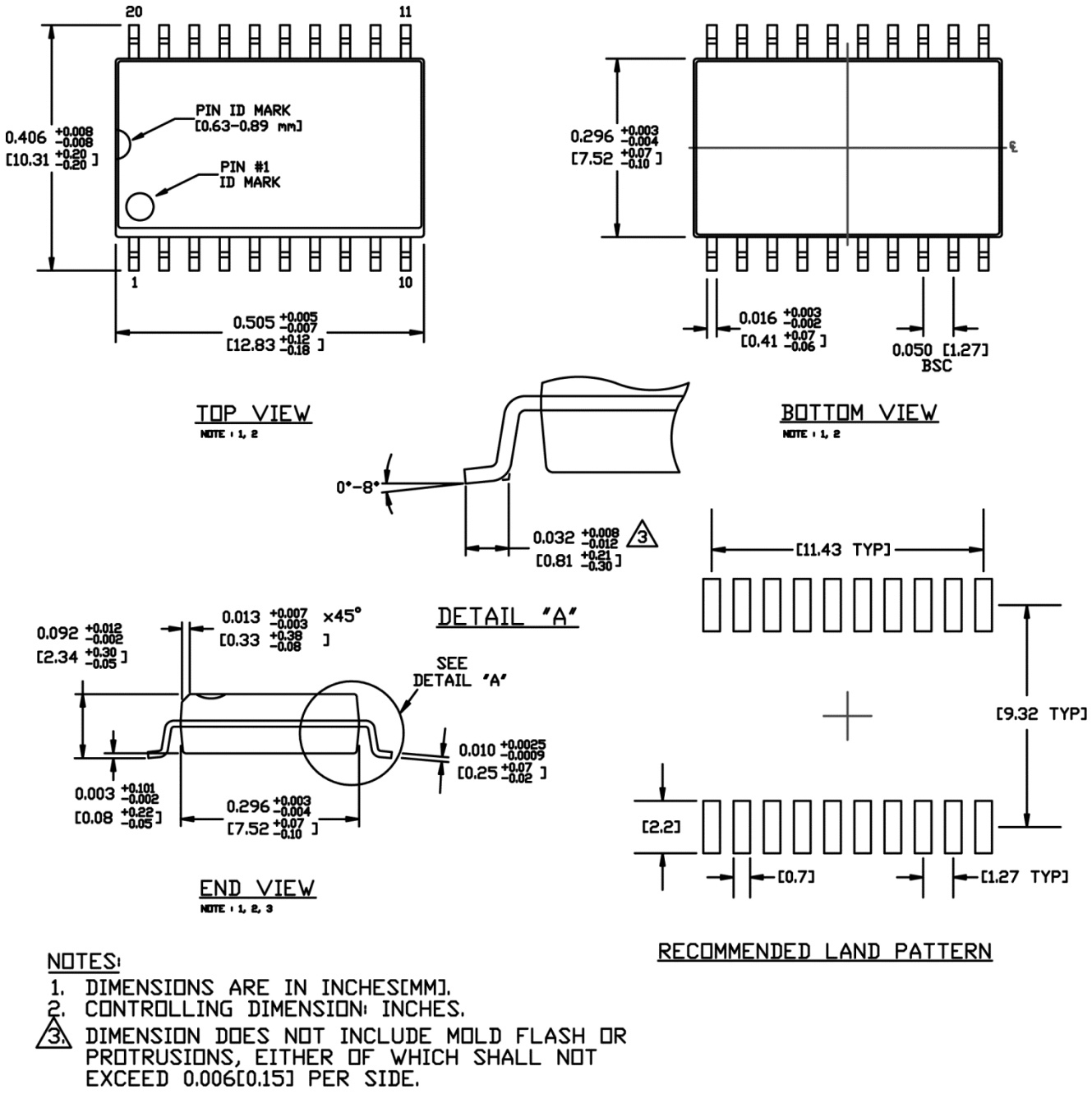
Additive Phase Noise

V_{CC} = +5V, T_A = 25°.





Package Information[14]



20-Pin Narrow SOIC (Z20-1)

Note:

14. Package information is correct as of the publication date. For updates and most current information, go to www.micrel.com.

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