



**10G012B**  
**10G013**

**Dual Complementary Driver/Comparators**  
**1.75 GHz / 500 ps Delay**  
**10G PicoLogic™ Family**

**DISTINCTIVE CAPABILITIES**

- High gain comparator input
- Fixed 50% output duty cycle (10G012B)
- Adjustable output overlap (10G013)
- <50 ps skew between complementary outputs
- >70 mA output drive capability
- 150 ps output rise & fall times
- On-chip -1.3V GaAs/ECL threshold reference voltage generator (VBBS)
- Temperature and voltage compensated
- Available in 40 I/O C-leaded and leadless chip carriers, 36 I/O flatpack or chip carrier or in die form
- Packages contain internal decoupling capacitors for optimum high frequency performance

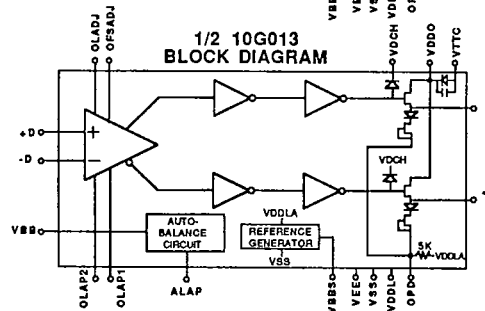
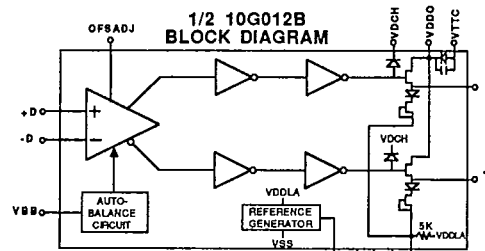
**APPLICATIONS**

- Differential Line Driver
- 2 - phase clock generator
- High Speed Comparator
- Differential Line Receiver
- Laser Diode Driver
- Capacitive Load Driver

**FUNCTIONAL DESCRIPTION**

The 10G012B and 10G013 are versatile high speed dual drivers/comparators with differential outputs. The 10G013 provides controls to adjust the output overlap (time during which both outputs are simultaneously high or low). The 10G012B hard wires these controls internally so that the outputs exhibit a fixed 50% duty cycle with no overlap between them. Both devices feature 375 ps typical propagation delay with greater than 70 mA of output current drive capability. 150 ps output transition times and <50 ps output delay skew makes them ideally suited for driving a variety of capacitive loads with precision timing and high signal quality. The high gain differential input provides sensitivity to low level analog signals as well as ECL and GaAs levels. A convenient on-chip -1.3V supply (VBBS) can be strapped to either input when the device is driven single-ended from ECL or GaAs logic. The 10G012B/10G013 can be driven with up to 1.75 GHz input signals. Operation to >2.5 GHz is permissible but will result in less than 1Vp-p output signal swing. Small signal unity gain is approximately 2.0 GHz.

The 10G012B/10G013 are members of GigaBit's family of PicoLogic GaAs digital ICs and are fabricated using GigaBit's high volume GaAs MESFET process technology.



**10G012B/10G013 ORDERING INFORMATION**

Pkg. Type	SPEED (min. 0°C to 85°C)			
	10G012B		10G013	
	1.75 GHz	1.5 GHz	1.75 GHz	1.5 GHz
C	10G012B-C	10G012B-3C	10G013-C	10G013-3C
L	10G012B-L	10G012B-3L	10G013-L	10G013-3L
L36*	10G012B-L36	10G012B-3L36	10G013-L36	10G013-3L36
F*	10G012B-F	10G012B-3F	10G013-F	10G013-3F
X		10G012B-3X		10G013-3X

\*Not recommended for new designs.