



BROADBAND PULSE INVERTER (1 MHz to 40 GHz)

INV-0040

Features

- 1 MHz to 40 GHz Pulse Inverter
- Fastest Rise and Fall Time
- Low Insertion Loss
- Matched 50 Ohm Impedance on Input and Output Ports
- [INV-0040.S2P](#)

Electrical Specifications - Specifications guaranteed from -55 to +100°C, measured in a 50Ω system.

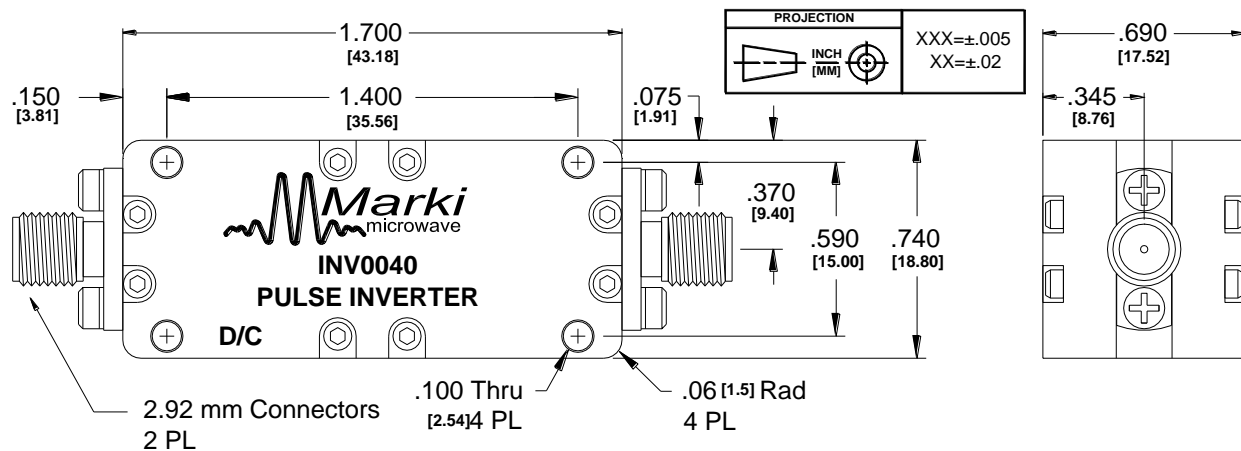
Parameter	Frequency Range	Min	Typ	Max
Nominal Phase Shift (Degrees) ¹			180	
Insertion Loss (dB)	1 MHz to 7 GHz		2	3
	7 to 26 GHz		1.2	2
	26 to 40 GHz		2.5	5
VSWR	1 MHz to 24 GHz		1.5	
	24 to 40 GHz		1.85	
Risetime/Falltime (ps) ²			13	
Delay (ps)			280	
Weight (g)			43	

¹Relative to the phase of a transmission line with same group delay

²Specified as 90%/10%. Calculated from $\tau_{inv}^2 = (\tau_{out}^2 - \tau_{in}^2)$

Model Number	Description
INV-0040	1 MHz to 40 GHz Pulse Inverter with 2.92 mm connectors ¹

¹Default is 2.92 mm female connectors. Consult factory for other connector options.

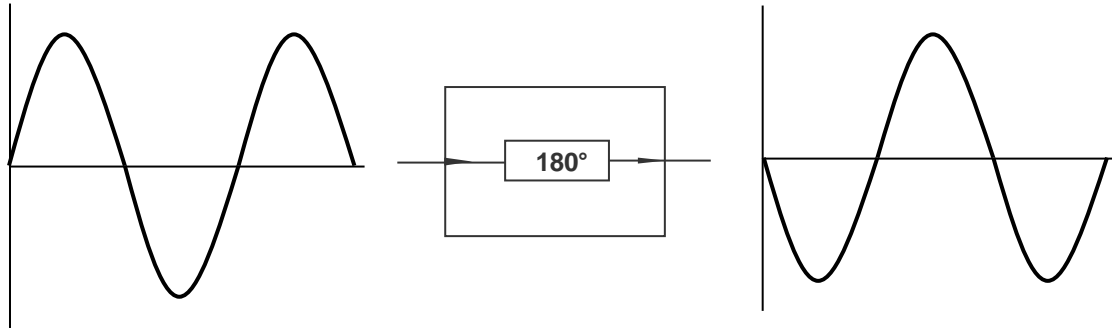


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Block Diagram



Typical Performance

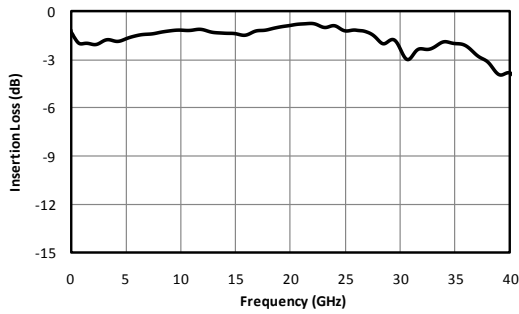


Fig. 1. Insertion loss.

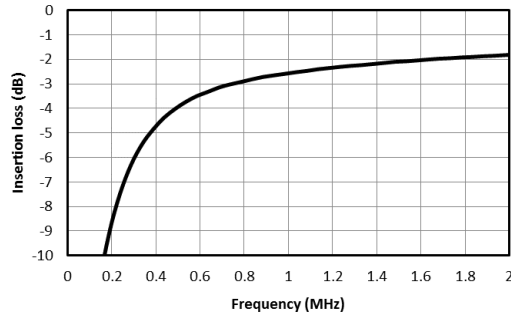


Fig 2. Low frequency Insertion Loss

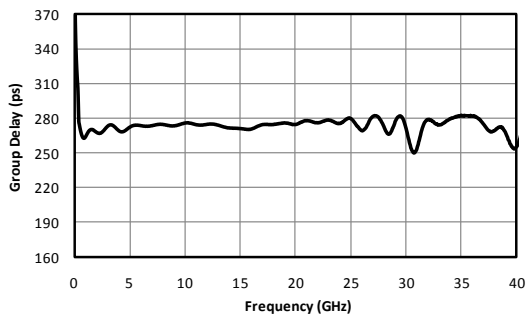


Fig. 3. Group Delay

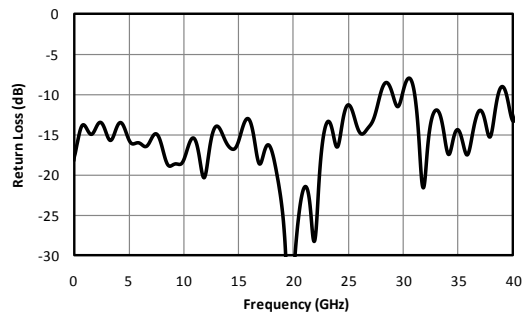


Fig. 4. Return Loss

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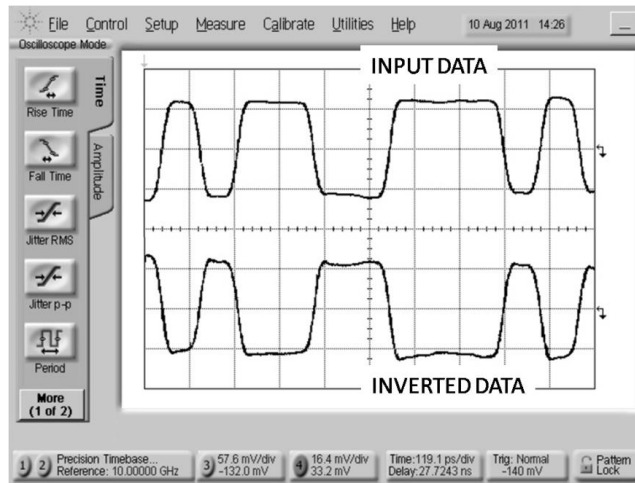


Fig. 4. Oscilloscope measurements of the INV-0040 with a 10 Gb/s PRBS pattern. Bit pattern is measured with a 2^7-1 PRBS input demonstrating extremely good pulse fidelity for the inverted output.

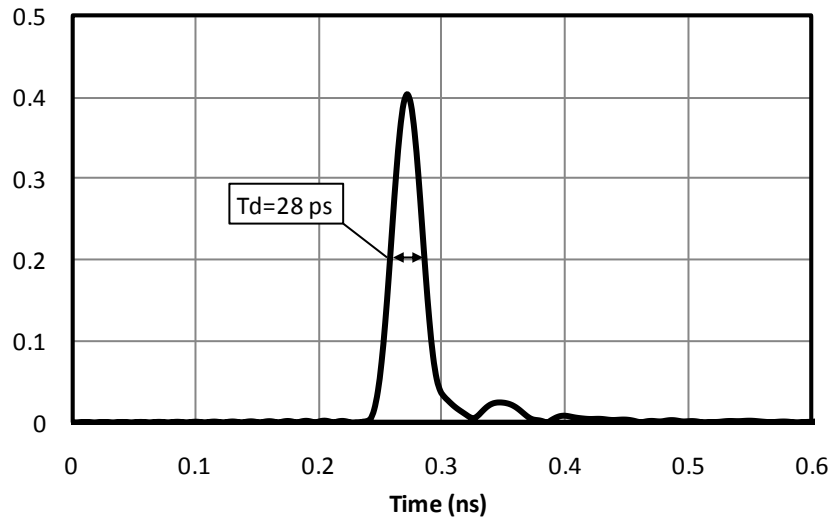


Fig. 5. Impulse response generated through TDR measurement in AWR Microwave Office® 2010, calculated using measured S-parameter data.

Revision History

Revision code	Revision Date	Comment
-	August 2011	Datasheet initial Release
A	April 2019	Added Low Frequency insertion loss plot

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