

INV-0040

BROADBAND PULSE INVERTER (1 MHz to 40 GHz)

DEVICE OVERVIEW

General Description

The INV-0040 is a broadband pulse inverter that operates over a 1 MHz to 40 GHz bandwidth. This inverter features fast rise and fall times and low insertion loss. Inverters use both magnetic and capacitive coupling to create an inverted version of a voltage signal. In the frequency domain, inverters introduce a broadband 180° phase shift relative to the input signal, while maintaining a flat group delay to ensure signal integrity.



[Download s-parameters here](#)

Features

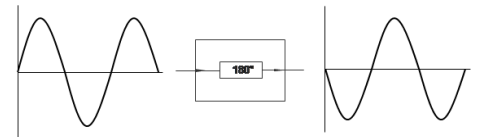
- 1 MHz to 40 GHz Pulse Inverter
- Fastest Rise and Fall Time
- Low Insertion Loss
- Matched 50 Ohm Impedance on Input and Output Ports

Applications

N/A

Functional Block

Diagram



Part Ordering Options

| Part Number | Description | Connectors | Green Status | Product Lifecycle | Export Classification |
|-------------|--|-----------------|--------------|-------------------|-----------------------|
| INV-0040 | BROADBAND PULSE INVERTER (1 MHz to 40 GHz) | <u>Standard</u> | Non-RoHS | Released | EAR99 |

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Table Of Contents

■ Device Overview

- General Description
- Features
- Applications
- Functional Block Diagram

■ Revision History

■ Specifications

- Package Information
- Electrical Specifications
- Typical Performance
- Time Domain Performance Plots

■ Mechanical Data

- Outline Drawing

Revision History

| Revision Code | Revision Date | Comment |
|---------------|---------------|---|
| - | 2011-08-01 | Datasheet initial Release |
| A | 2019-04-01 | Added Low Frequency insertion loss plot |



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Specifications

Package Information

| Parameter | Details | Rating |
|------------|---------|-----------------|
| Weight | - | 43g |
| Dimensions | - | 43.18 x 18.8 mm |

Electrical Specifications

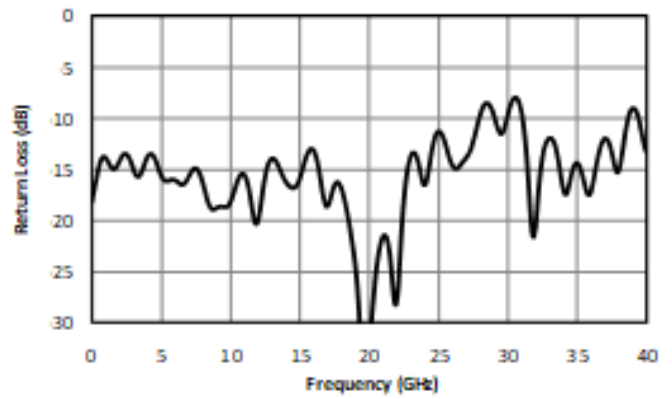
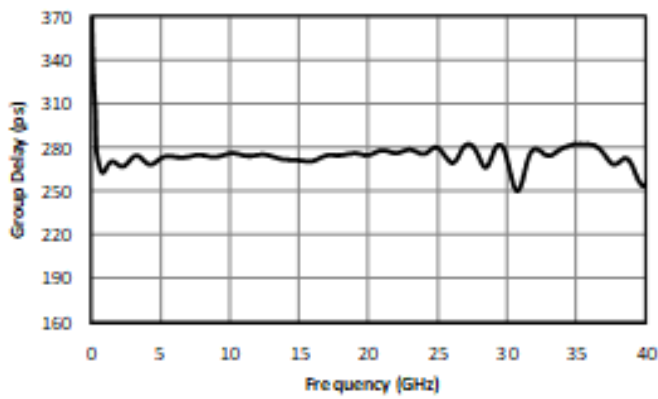
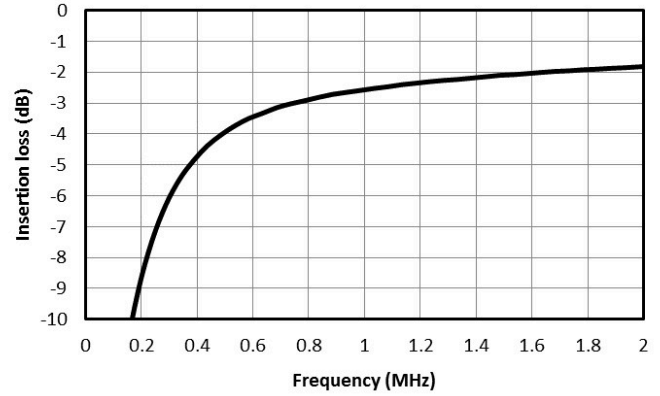
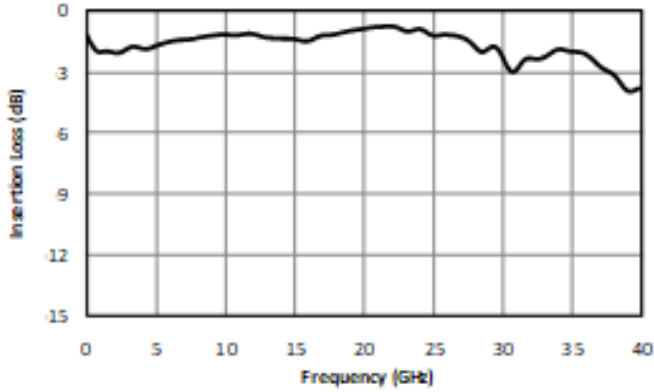
Specifications guaranteed from -55 to +100°C, measured in a 50Ω system.

| Parameter | Test Conditions | Minimum Frequency (GHz) | Maximum Frequency (GHz) | Min | Typ | Max | Unit |
|----------------------------------|-----------------|-------------------------|-------------------------|-----|------|-----|------|
| Nominal Phase Shift ¹ | - | - | - | - | 180 | - | ° |
| Insertion Loss | - | 0.001 | 7 | - | 2 | 3 | dB |
| Insertion Loss | - | 7 | 26 | - | 1.2 | 2 | dB |
| Insertion Loss | - | 26 | 40 | - | 2.5 | 5 | dB |
| VSWR | - | 0.001 | 24 | - | 1.5 | - | - |
| VSWR | - | 24 | 40 | - | 1.85 | - | - |
| Risetime/Falltime ² | - | - | - | - | 13 | - | ps |
| Delay | - | - | - | - | 280 | - | ps |
| Weight | - | - | - | - | 43 | - | g |

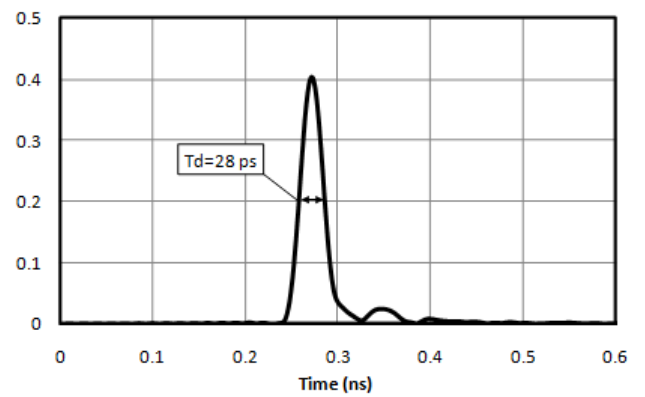
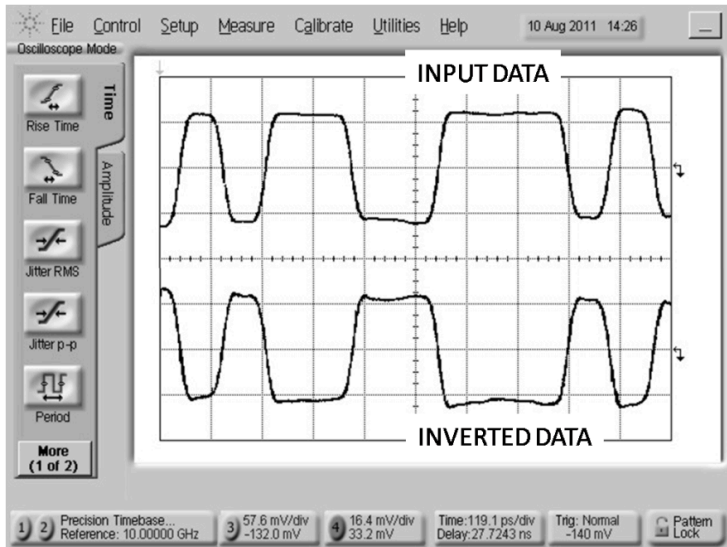
^[1] Relative to the phase of a transmission line with same group delay

^[2] Specified as 90%/10%. Calculated from $\tau_{inv2} = (\tau_{out2} - \tau_{in2})$

Typical Performance



Time Domain Performance Plots



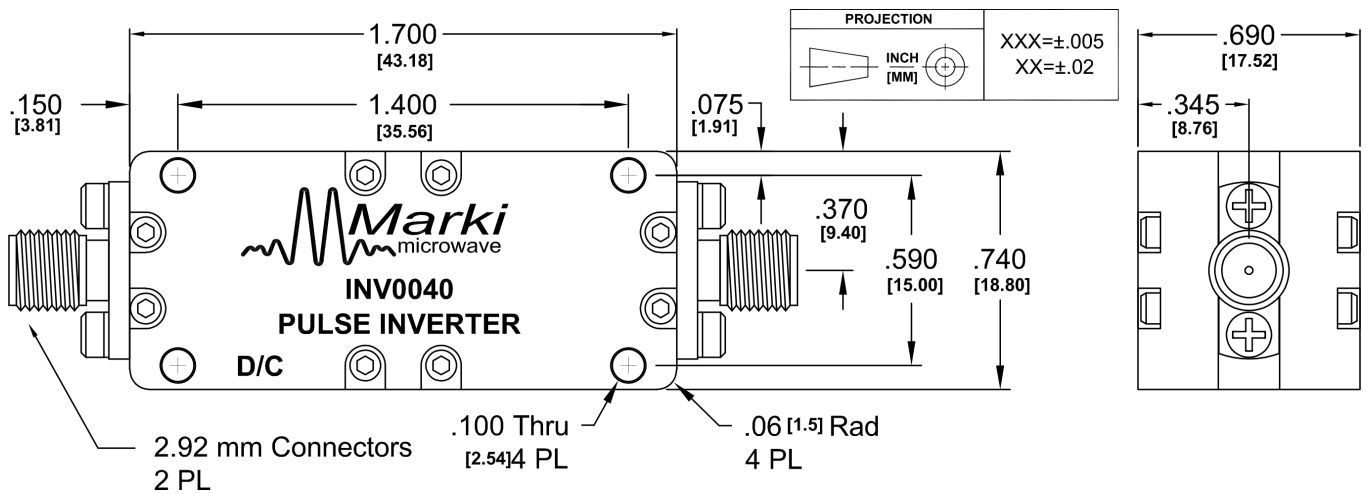
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Mechanical Data

Outline Drawing

Download : [Outline 2D Drawing](#) | [Outline 3D Drawing](#) | [Outline 3D STP](#)



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