

# Xinger®

## Delay Line



### Description

The XDL09-9-204 is a surface mount delay line that uses a slow wave coupling structure that maximizes the amount of delay per unit area over other distributed delay structures. The XDL09-9-204 can be used in amplifier linearization applications from 869 – 894 MHz. The XDL09-9-204 is ideal for the delay element required in the main loop of feed forward amplifiers. The Xinger® delay lines are a low cost, high quality alternative to the traditional coaxial and filter solutions presently available. Parts have been subjected to rigorous qualification testing and units are 100% tested. Produced with 5 of 6 tin lead.

### Features:

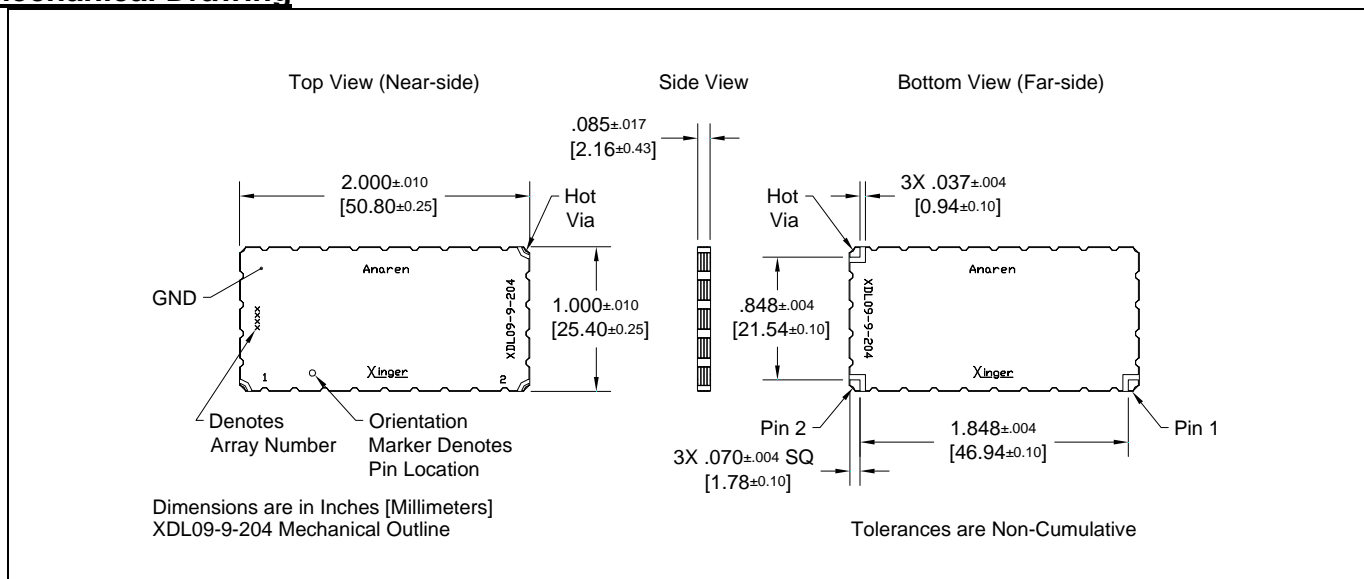
- Production Friendly
- Consistent Delay
- Stable over Temperature
- Surface Mountable
- Available in Tape & Reel
- Non-Lead Solder Paste Compatible
- 100% Tested

### ELECTRICAL SPECIFICATIONS

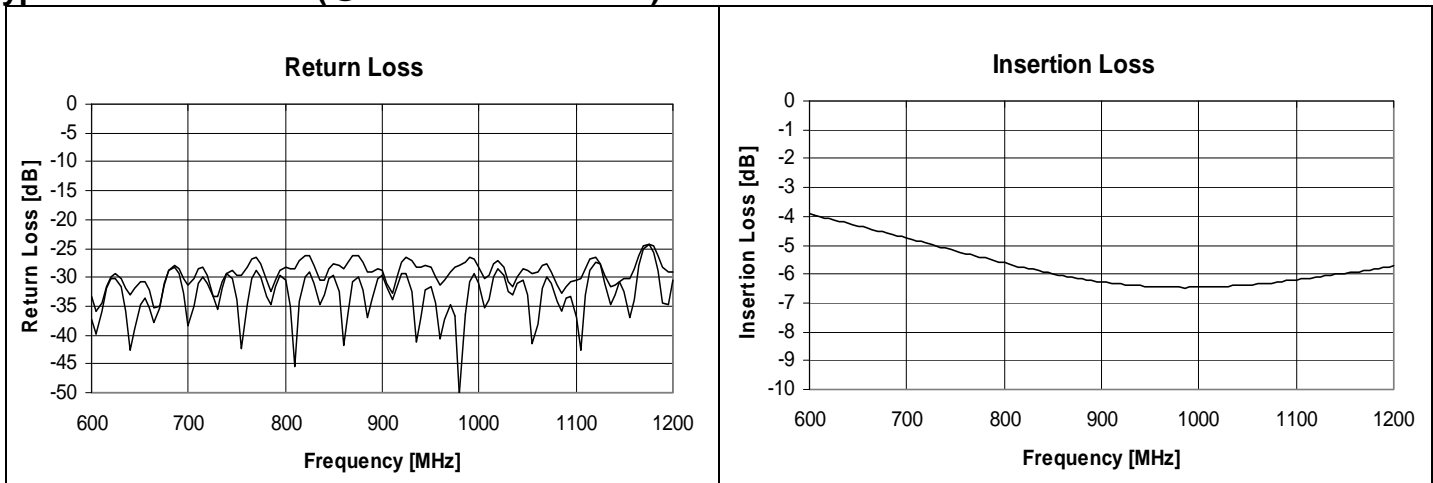
Frequency (MHz.)	869-894 AMPS Band
Mean Delay (nS)	20.25 ± 0.40
Deviation from Linear Phase (Degrees Max)	± 1.00
Amplitude Flatness (dB p-p)	0.20
Return Loss (dB min)	20
Insertion Loss (dB/nS)	0.35
Power Handling (Watts)	1
ΘJC (°C/watts)	1.58
Operating Temp. (°C)	-55 to +85

Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

### Mechanical Drawing



### Typical Performance: (@ 25°C on test board)



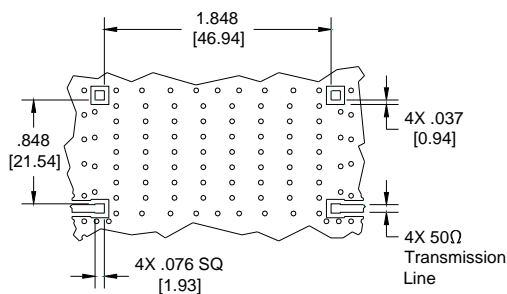
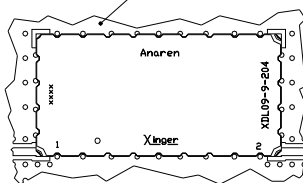
### AVERAGE DELAY

The average delay is defined as the group delay of the input signal through the delay line. The lot-to-lot variation is reflected in the plus/minus tolerance given in specifications.

Refer to Anaren Application Note AAN-232 for further information on Xinger delay lines.

### Mounting Guidelines:

To insure proper electrical and thermal performance there must be a ground plane with 100% solder connection underneath the part



Dimensions are in Inches [Millimeters]  
XDL09-9-204 Mounting Footprint

In order for Xinger surface mount delay lines to work optimally, there must be 50Ω transmission lines leading to and from all of the RF ports. Also, there must be a very good ground plane under the part with a number of plated thru holes to ensure proper electrical performance. If any of these conditions are not satisfied, insertion loss, average delay and VSWR may not meet published specifications.

When a surface mount delay line is mounted to a printed circuit board (PCB), the primary concerns are; insuring the RF pads of the device are in contact with the circuit trace of the PCB and the ground plane of neither the component nor the PCB are in contact with the RF signal. An example of how the PCB footprint could look is shown below. In particular designs, the 50Ω lines need to be adjusted to the unique dielectric coefficients and thicknesses as well as varying pick and place equipment tolerances.

USA/Canada: (315) 432-8909  
Toll Free: (800) 544-2414  
Europe: +44 2392-232392

Available on Tape and Reel For Pick and Place Manufacturing.



### Packaging and Ordering Information

Parts are available in both reel and tube. Packaging follows EIA 481-2. Parts are oriented in tape and reel as shown below. Minimum order quantities are 300 per reel and 11 per tube.

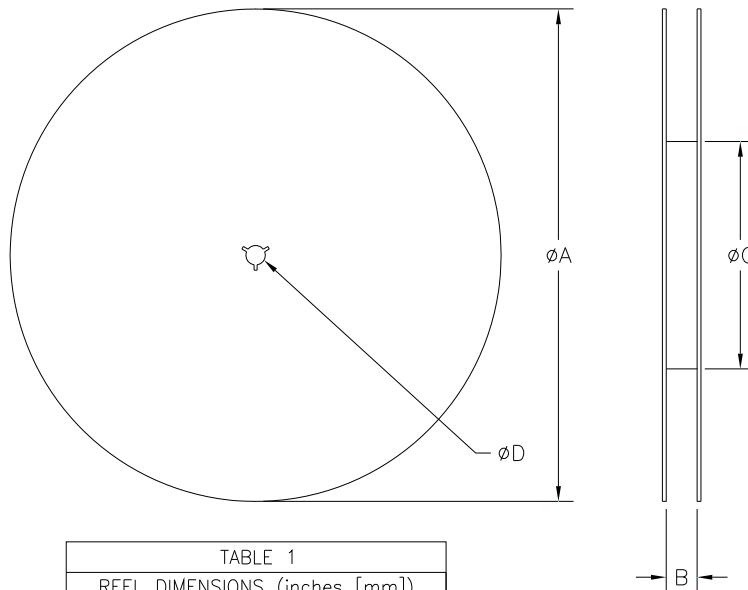
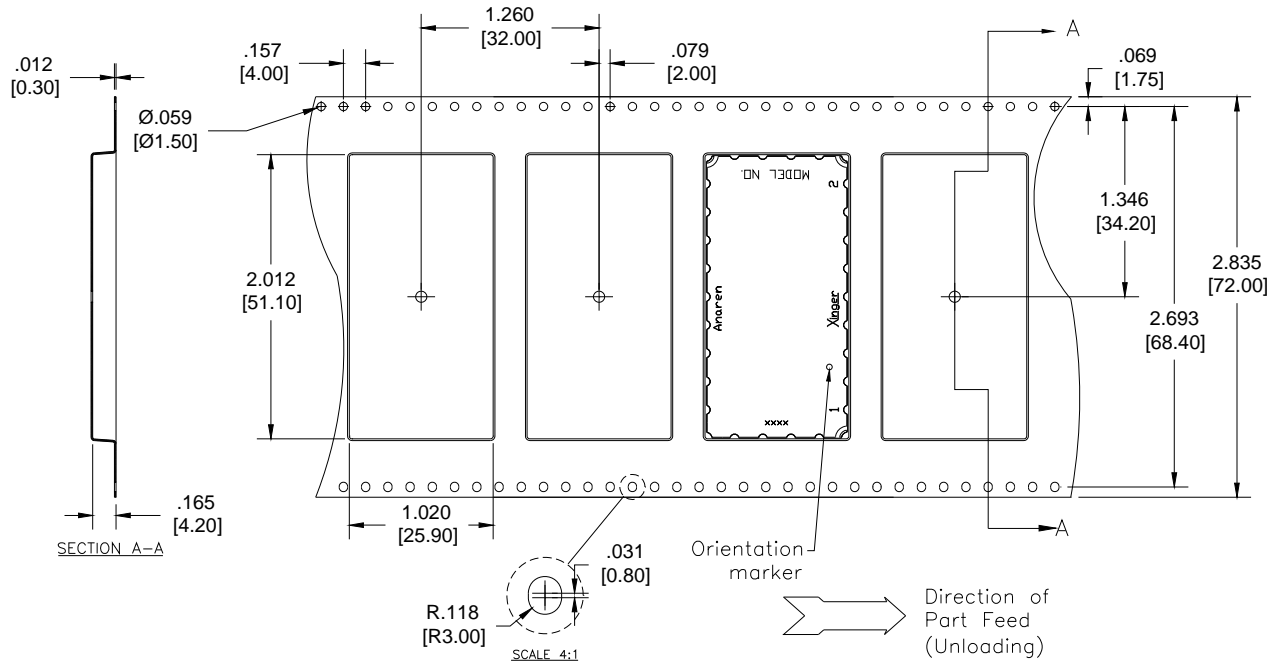


TABLE 1	
REEL DIMENSIONS (inches [mm])	
$\phi A$	13.3 [333.0]
B	2.835 [72.0]
$\phi C$	6.00 [152.4]
$\phi D$	0.512 [13.0]

