

# FIXED SIP DELAY LINE

## $T_R < 1ns$

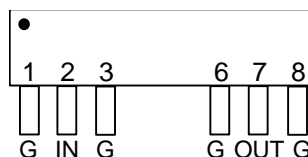
### (SERIES 2020 & 2021)



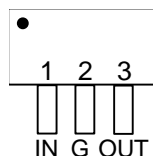
#### FEATURES

- Microstrip Technology
- Fast rise time for high frequency applications
- Delay available from 100ps to 2500ps
- Very narrow device (SIP package)
- Stackable for PC board economy
- Epoxy encapsulated
- Meets or exceeds MIL-D-23859C

#### PACKAGES



2020-xx  
xx = Delay ( $T_D$ )



2021-xx  
xx = Delay ( $T_D$ )

#### FUNCTIONAL DESCRIPTION

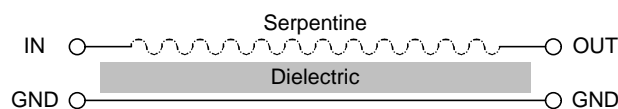
The 2020- and 2021-series devices are fixed, single-input, single-output, passive delay lines. The signal input (IN) is reproduced at the output (OUT), shifted by a time ( $T_D$ ) given by the device dash number. The characteristic impedance of the lines is nominally 50 ohms. The rise time ( $T_R$ ) of the lines is no more than 1ns, resulting in a 3dB bandwidth of at least 350MHz.

#### PIN DESCRIPTIONS

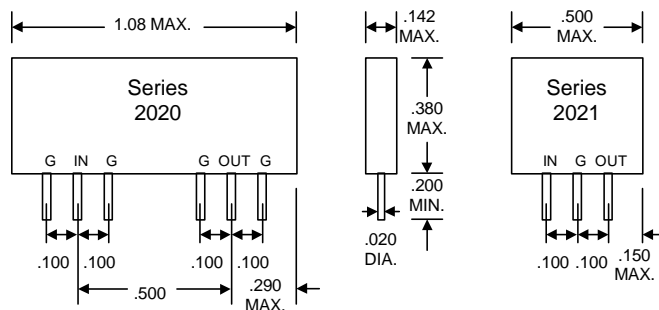
IN Signal Input  
OUT Signal Output  
G Ground

#### SERIES SPECIFICATIONS

- **Tolerance:** 2% or 10ps
- **Bandwidth:** >350MHz
- **Ripple in pass-band:** Approx. 0.2dB
- **Dielectric breakdown:** >500 Vdc
- **Operating temperature:** -65°C to +125°C
- **Temperature coefficient:** <100 PPM/°C



Functional Diagram



Package Dimensions

#### DASH NUMBER SPECIFICATIONS

| Part Number | Part Number | Delay (ps)    | Imped. ( $\Omega$ ) |
|-------------|-------------|---------------|---------------------|
| 2021-100    | 2020-100    | 100 $\pm$ 10  | 50                  |
| 2021-150    | 2020-150    | 150 $\pm$ 10  | 50                  |
| 2021-200    | 2020-200    | 200 $\pm$ 10  | 50                  |
| 2021-250    | 2020-250    | 250 $\pm$ 10  | 50                  |
| 2021-300    | 2020-300    | 300 $\pm$ 10  | 50                  |
| 2021-350    | 2020-350    | 350 $\pm$ 10  | 50                  |
| 2021-400    | 2020-400    | 400 $\pm$ 10  | 50                  |
| 2021-500    | 2020-500    | 500 $\pm$ 10  | 50                  |
| 2021-600    | 2020-600    | 600 $\pm$ 12  | 50                  |
| 2021-700    | 2020-700    | 700 $\pm$ 14  | 50                  |
|             | 2020-800    | 800 $\pm$ 16  | 50                  |
|             | 2020-900    | 900 $\pm$ 18  | 50                  |
|             | 2020-1000   | 1000 $\pm$ 20 | 50                  |
|             | 2020-1100   | 1100 $\pm$ 22 | 50                  |
|             | 2020-1200   | 1200 $\pm$ 24 | 50                  |
|             | 2020-1300   | 1300 $\pm$ 26 | 50                  |
|             | 2020-1400   | 1400 $\pm$ 28 | 50                  |
|             | 2020-1500   | 1500 $\pm$ 30 | 50                  |
|             | 2020-1600   | 1600 $\pm$ 32 | 50                  |
|             | 2020-1750   | 1750 $\pm$ 35 | 50                  |

## PASSIVE DELAY LINE TEST SPECIFICATIONS

### TEST CONDITIONS

**INPUT:**

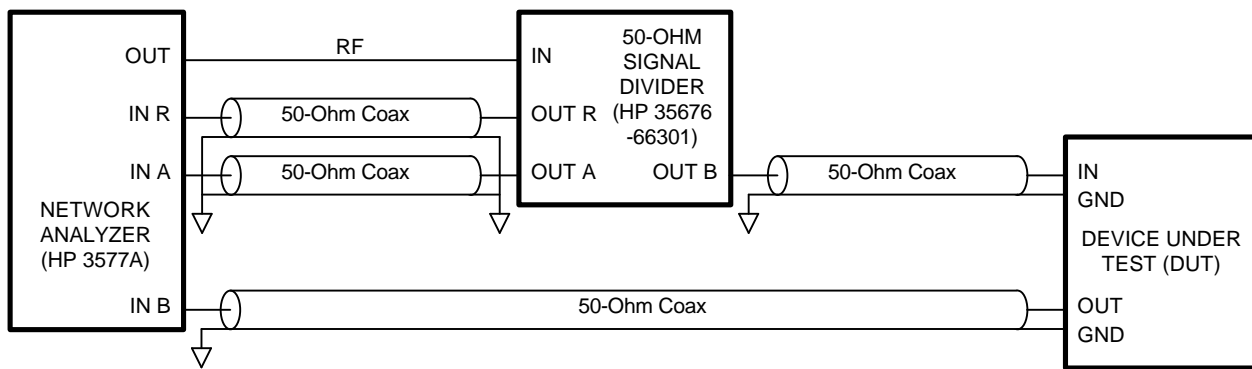
**Ambient Temperature:** 25°C ± 3°C  
**Source Amplitude:** 0dBm typical  
**Source Impedance:** 50Ω nominal  
**Input Frequency:** 27.777778MHz

**OUTPUT:**

**Z<sub>load</sub>:** 50Ω nominal

Network analyzer is used in phase measurement mode, normalized with a wire jumper between input and output of DUT test socket. Delay is related to phase lag with proportionality constant of 100ps/deg.

**NOTE:** The above conditions are for test only and do not in any way restrict the operation of the device.



**Test Setup**