

20-TAP DIP DELAY LINE

$T_D/T_R = 10$

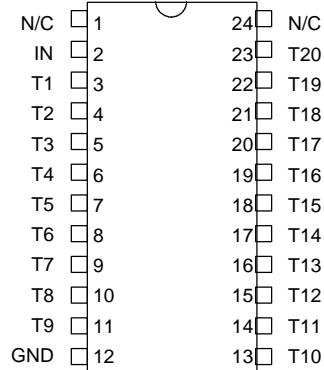
(SERIES 2214)



FEATURES

- 20 taps of equal delay increment
- High bandwidth ($T_D/T_R = 10$)
- Low profile
- Epoxy encapsulated
- Meets or exceeds MIL-D-23859C

PACKAGES



- 2214-xxz (DIP)
2214-xxzC4 (Gull-Wing)
xx = Delay (T_D)
z = Impedance Code

PIN DESCRIPTIONS

- IN Signal Input
T1-T20 Tap Outputs
GND Ground

FUNCTIONAL DESCRIPTION

The 2214-series device is a fixed, single-input, twenty-output, passive delay line. The signal input (IN) is reproduced at the outputs (T1-T20) in equal increments. The delay from IN to T20 (T_D) is given by the device dash number. The characteristic impedance of the line is given by the letter code that follows the dash number (See Table). The rise time (T_R) of the line is 10% of T_D , and the 3dB bandwidth is given by $3.5 / T_D$.

SERIES SPECIFICATIONS

- Dielectric breakdown: 50 Vdc
- Distortion @ output: 10% max.
- Operating temperature: -55°C to $+125^\circ\text{C}$
- Storage temperature: -55°C to $+125^\circ\text{C}$
- Temperature coefficient: 100 PPM/ $^\circ\text{C}$

DASH NUMBER SPECIFICATIONS

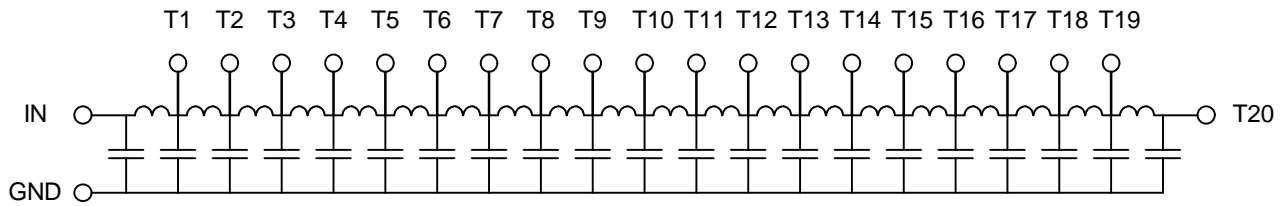
Part Number	T_D (ns)	Delay per Tap (ns)	T_R (ns)	Imped. (Ω)	R_{DC} (Ω)
2214-40C	40.0 \pm 2.0	2.0 \pm 1.0	4.0	200	7.0
2214-80C	80.0 \pm 4.0	4.0 \pm 1.0	8.0	200	8.0
2214-120C	120 \pm 6.0	6.0 \pm 1.0	12.0	200	10.0
2214-200C	200 \pm 10.0	10.0 \pm 1.0	20.0	200	13.0
2214-300C	300 \pm 15.0	15.0 \pm 1.0	30.0	200	12.0
2214-400C	400 \pm 20.0	20.0 \pm 1.0	40.0	200	15.0
2214-500C	500 \pm 25.0	25.0 \pm 1.3	50.0	200	17.0
2214-600C	600 \pm 30.0	30.0 \pm 1.5	60.0	200	23.0
2214-800C	800 \pm 40.0	40.0 \pm 2.0	80.0	200	38.0
2214-50D	50.0 \pm 2.5	2.5 \pm 1.0	5.0	250	7.0
2214-100D	100 \pm 5.0	5.0 \pm 1.0	10.0	250	10.0
2214-150D	150 \pm 7.5	7.5 \pm 1.0	15.0	250	12.0
2214-200D	200 \pm 10.0	10.0 \pm 1.0	20.0	250	22.0
2214-250D	250 \pm 12.5	12.5 \pm 1.0	25.0	250	21.0
2214-300D	300 \pm 15.0	15.0 \pm 1.0	30.0	250	23.0
2214-400D	400 \pm 20.0	20.0 \pm 1.0	40.0	250	26.0
2214-500D	500 \pm 25.0	25.0 \pm 1.3	50.0	250	30.0
2214-600D	600 \pm 30.0	30.0 \pm 1.5	60.0	250	37.0
2214-800D	800 \pm 40.0	40.0 \pm 2.0	80.0	250	41.0
2214-1000D	1000 \pm 50.0	50.0 \pm 2.5	100	250	47.0
2214-200G	200 \pm 10.0	10.0 \pm 1.0	20.0	500	20.0
2214-300G	300 \pm 15.0	15.0 \pm 1.0	30.0	500	37.0
2214-400G	400 \pm 20.0	20.0 \pm 1.0	40.0	500	40.0
2214-500G	500 \pm 25.0	25.0 \pm 1.3	50.0	500	45.0
2214-600G	600 \pm 30.0	30.0 \pm 1.5	60.0	500	52.0
2214-800G	800 \pm 40.0	40.0 \pm 2.0	80.0	500	80.0
2214-1000G	1000 \pm 50.0	50.0 \pm 2.5	100	500	100
2214-1200G	1200 \pm 60.0	60.0 \pm 3.0	120	500	110
2214-1500G	1500 \pm 75.0	75.0 \pm 3.8	150	500	130
2214-2000G	2000 \pm 100	100.0 \pm 5.0	200	500	156

DASH NUMBER SPECIFICATIONS

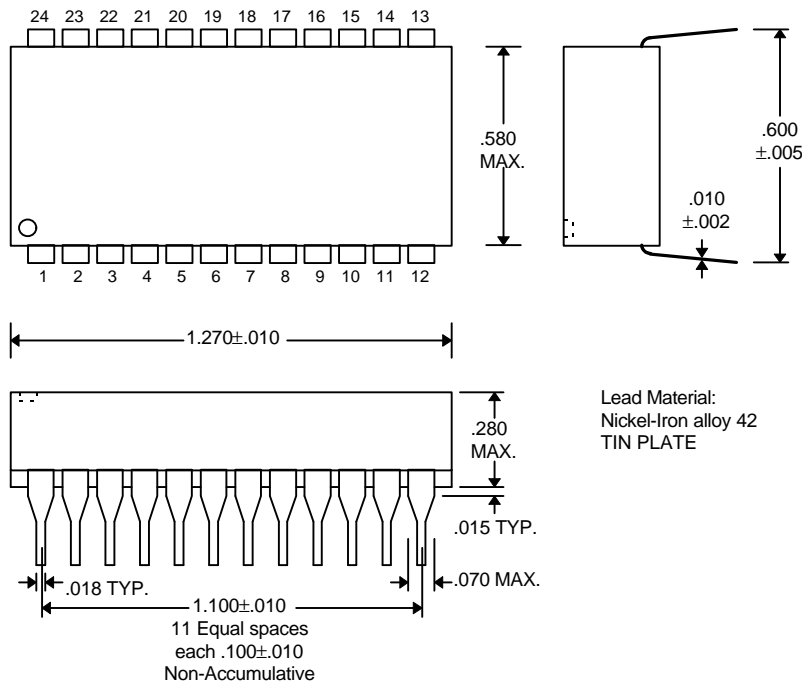
Part Number	T_D (ns)	Delay per Tap (ns)	T_R (ns)	Imped. (Ω)	R_{DC} (Ω)
2214-50A	50.0 \pm 2.5	2.5 \pm 1.0	5.0	50	3.2
2214-60A	60.0 \pm 3.0	3.0 \pm 1.0	6.0	50	3.6
2214-80A	80.0 \pm 4.0	4.0 \pm 1.0	8.0	50	5.0
2214-100A	100 \pm 5.0	5.0 \pm 1.0	10.0	50	6.0
2214-150A	150 \pm 7.5	7.5 \pm 1.0	15.0	50	6.0
2214-200A	200 \pm 10.0	10.0 \pm 1.0	20.0	50	7.0
2214-50B	50.0 \pm 2.5	2.5 \pm 1.0	5.0	100	6.0
2214-60B	60.0 \pm 3.0	3.0 \pm 1.0	6.0	100	6.0
2214-80B	80.0 \pm 4.0	4.0 \pm 1.0	8.0	100	6.5
2214-100B	100 \pm 5.0	5.0 \pm 1.0	10.0	100	7.0
2214-150B	150 \pm 7.5	7.5 \pm 1.0	15.0	100	8.0
2214-200B	200 \pm 10.0	10.0 \pm 1.0	20.0	100	8.5
2214-300B	300 \pm 15.0	15.0 \pm 1.0	30.0	100	11.0
2214-400B	400 \pm 20.0	20.0 \pm 1.0	40.0	100	12.0

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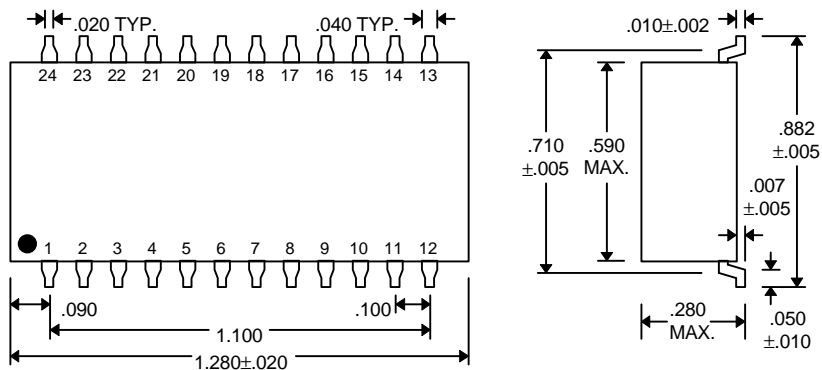
FUNCTIONAL DIAGRAM



PACKAGE DIMENSIONS



DIP (2214-xxz)



Gull-Wing (2214-xxzC4)

PASSIVE DELAY LINE TEST SPECIFICATIONS

TEST CONDITIONS

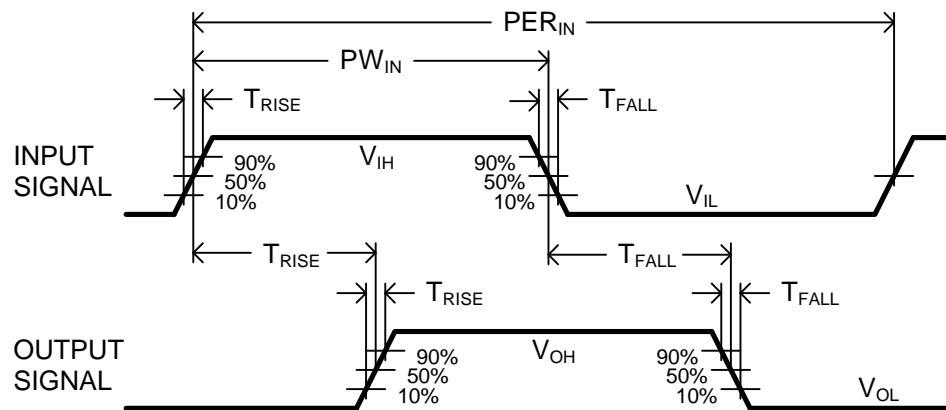
INPUT:

Ambient Temperature: $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$
Input Pulse: High = 3.0V typical
 Low = 0.0V typical
Source Impedance: 50Ω Max.
Rise/Fall Time: 3.0 ns Max. (measured at 10% and 90% levels)
Pulse Width ($T_D \leq 75\text{ns}$): $PW_{IN} = 100\text{ns}$
Period ($T_D \leq 75\text{ns}$): $PER_{IN} = 1000\text{ns}$
Pulse Width ($T_D > 75\text{ns}$): $PW_{IN} = 2 \times T_D$
Period ($T_D > 75\text{ns}$): $PER_{IN} = 10 \times T_D$

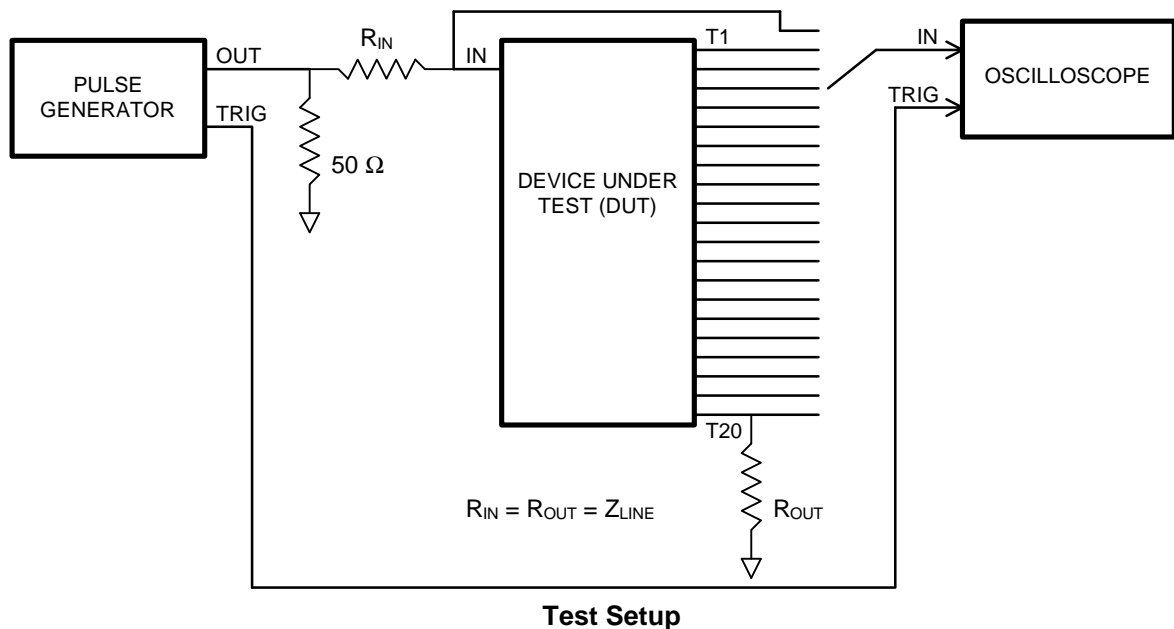
OUTPUT:

R_{load} : 10M Ω
 C_{load} : 10pf
Threshold: 50% (Rising & Falling)

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



Timing Diagram For Testing



Test Setup

SUNSTAR 商斯达实业集团是集研发、生产、工程、销售、代理经销、技术咨询、信息服务等为一体的高科技企业，是专业高科技电子产品生产厂家，是具有 10 多年历史的专业电子元器件供应商，是中国最早和最大的仓储式连锁规模经营大型综合电子零部件代理分销商之一，是一家专业代理和分销世界各大品牌 IC 芯片和电子元器件的连锁经营综合性国际公司，专业经营进口、国产名厂名牌电子元件，型号、种类齐全。在香港、北京、深圳、上海、西安、成都等全国主要电子市场设有直属分公司和产品展示展销窗口门市部专卖店及代理分销商，已在全国范围内建成强大统一的供货和代理分销网络。我们专业代理经销、开发生产电子元器件、集成电路、传感器、微波光电元器件、工控机/DOC/DOM 电子盘、专用电路、单片机开发、MCU/DSP/ARM/FPGA 软件硬件、二极管、三极管、模块等，是您可靠的一站式现货配套供应商、方案提供商、部件功能模块开发配套商。商斯达实业公司拥有庞大的资料库，有数位毕业于著名高校——有中国电子工业摇篮之称的西安电子科技大学（西军电）并长期从事国防尖端科技研究的高级工程师为您精挑细选、量身订做各种高科技电子元器件，并解决各种技术问题。

微波光电部专业代理经销高频、微波、光纤、光电元器件、组件、部件、模块、整机；电磁兼容元器件、材料、设备；微波 CAD、EDA 软件、开发测试仿真工具；微波、光纤仪器仪表。欢迎国外高科技微波、光纤厂商将优秀产品介绍到中国、共同开拓市场。长期大量现货专业批发高频、微波、卫星、光纤、电视、CATV 器件：晶振、VCO、连接器、PIN 开关、变容二极管、开关二极管、低噪晶体管、功率电阻及电容、放大器、功率管、MMIC、混频器、耦合器、功分器、振荡器、合成器、衰减器、滤波器、隔离器、环行器、移相器、调制解调器；光电子元件和组件：红外发射管、红外接收管、光电开关、光敏管、发光二极管和发光二极管组件、半导体激光二极管和激光器组件、光电探测器和光接收组件、光发射接收模块、光纤激光器和光放大器、光调制器、光开关、DWDM 用光发射和接收器件、用户接入系统光收发器件与模块、光纤连接器、光纤跳线/尾纤、光衰减器、光纤适配器、光隔离器、光耦合器、光环行器、光复用器/转换器；无线收发芯片和模组、蓝牙芯片和模组。

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