

DELAY LINES

T-47-29

DELAY LINES (DC-8C SERIES)

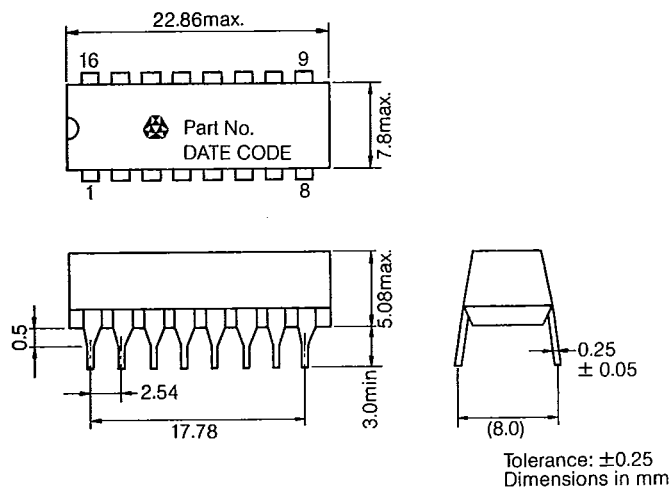
TDK DC-8C series delay lines are used for a cascade connection of DCE series models.

Features

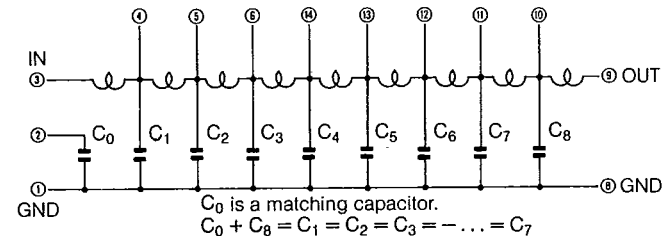
- Delay lines can be connected in series without buffers.
- Small, 16-pins DUAL-IN-LINE packaging.
- Inductance with good frequency and temperature characteristics for extremely stable propagation and temperature characteristics.
- Operating temperature range from -10°C to $+85^{\circ}\text{C}$.

Common specification

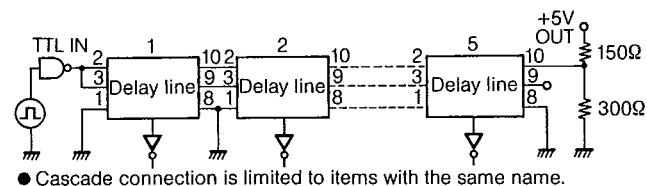
- Operating temperature range: -10 to $+85^{\circ}\text{C}$
- Storage temperature range: -55 to $+100^{\circ}\text{C}$
- Insulation resistance: $100\text{ M}\Omega$ min. (50 Vdc)
- Withstand voltage: 50 Vdc
- Delay time temperature coefficient: $\pm 150\text{ ppm}/^{\circ}\text{C}$
- Distortion rate: 15% max.
- Maximum rated current: 50 mA



Connections

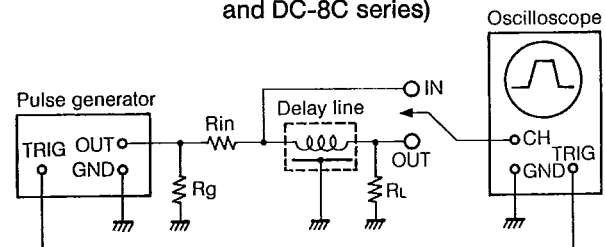


Cascade connections example

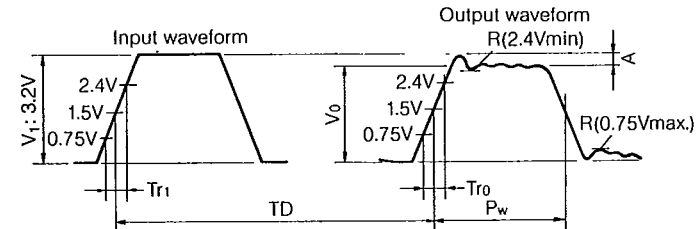


Part No.	Total delay time (ns)	Characteristic impedance (Ω) $\pm 10\%$	Delay time between taps (ns)		Rise time (ns) max.	Attenuation (%) max.
			3-4, 11-10	Others		
DC01-10-8C	$10 \pm 10\%$	100	1 ± 0.2	1.25 ± 0.3	5	6
DC02-10-8C	$20 \pm 10\%$	100	2 ± 0.5	2.5 ± 0.6	6	6
DC04-10-8C	$40 \pm 5\%$	100	4 ± 1.0	5.0 ± 0.7	6.5	6
DC08-10-8C	$80 \pm 5\%$	100	9 ± 1.0	10.0 ± 1.3	17	6
DC10-10-8C	$100 \pm 5\%$	100	11 ± 1.5	12.5 ± 1.6	20	6
DC20-10-8C	$200 \pm 5\%$	100	22.5 ± 2.5	25.0 ± 3.0	40	6

Measuring circuit (Applicable to each DCE, DCS, DCZ and DC-8C series)



- Rg: Pulse generator terminal resistance
- Rin: Input matching resistance
- Rl: Terminal resistance
- Input pulse conditions
- Voltage: 3.2V
- Width: 3TD (3 times the total delay time)
- Repetition cycle: 10PW (10% duty)
- Rise time: 5 nsec max.
- Fall time: 5 nsec max.



- V₁: Input voltage
- V₀: Output voltage
- TD: Total delay time
- Pw: Pulse width
- A: Attenuation;
- Attenuation rate = $\frac{V_1 - V_0}{V_1} \times 100(\%)$
- Tr₁: Input rise time
- Tro: Output rise time
- Delay line rise time = $\sqrt{(Tro)^2 - (Tr1)^2}$
- R: Ringing