

TZA Series High Performance Passive 5-Tap Delay Modules

- Fast Rise Time, Low DCR
- High Bandwidth $\approx 0.35/t_r$
- Low Distortion LC Network
- 5 Equal Delay Taps
- Standard Impedances: 50 - 75 - 100 - 200 Ω
- Stable Delay vs. Temperature: 100 ppm/ $^{\circ}C$
- Operating Temperature Range -55 $^{\circ}C$ to +125 $^{\circ}C$

Part Number Description

8-Pin 5-Tap Delay Line

Pin Out (Z, Y)

Family Code No. (See Table for Delay)

Line Impedance, Z_0 (Ohms, $\pm 5\%$)

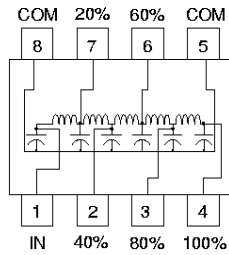
5 = 50 Ω , 7 = 75 Ω , 10 = 100 Ω , 20 = 200 Ω

Examples: TZA11-5 = Z Style 75ns (15ns per tap) 50 Ω

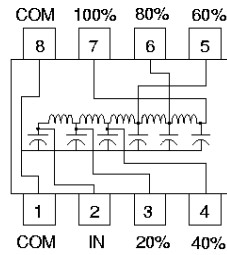
TYA4-10 = Y Style 20ns (4ns per tap) 100 Ω

T X A XX - XX

TZA Style Schematic
Most Popular Footprint



TYA Style Schematic
Substitute TYA for TZA in P/N



Electrical Specifications at 25 $^{\circ}C$

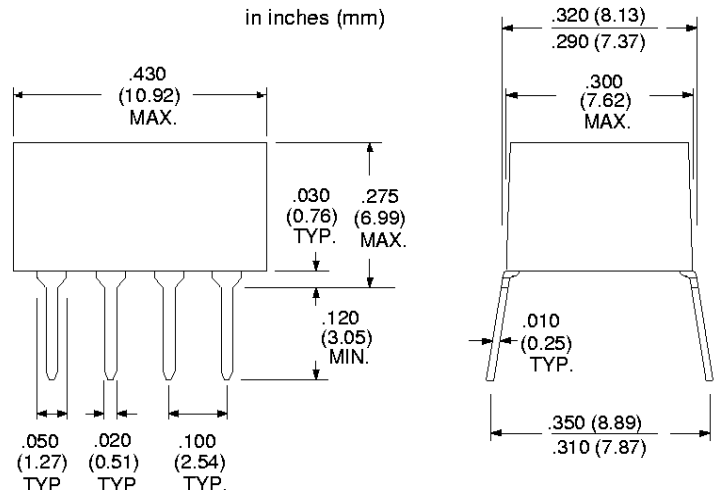
Delay Tolerances		50 Ohm Part Number	Rise Time (ns)	DCR max. (Ohms)	75 Ohm Part Number	Rise Time (ns)	DCR max. (Ohms)	100 Ohm Part Number	Rise Time (ns)	DCR max. (Ohms)	200 Ohm Part Number	Rise Time (ns)	DCR max. (Ohms)
Total (ns)	Tap-to-Tap (ns)												
5 \pm 0.5	1.0 \pm 0.4	TZA1-5	2.0	0.7	TZA1-7	2.7	0.8	TZA1-10	3.0	0.8	TZA1-20	3.0	0.9
10 \pm 1.0	2.0 \pm 0.5	TZA2-5	4.0	0.7	TZA2-7	4.4	1.3	TZA2-10	4.6	1.3	TZA2-20	6.3	1.5
15 \pm 1.0	3.0 \pm 0.6	TZA3-5	5.5	1.0	TZA3-7	5.8	1.6	TZA3-10	5.8	1.6	TZA3-20	7.7	2.0
20 \pm 1.0	4.0 \pm 0.8	TZA4-5	6.4	1.2	TZA4-7	7.3	1.7	TZA4-10	7.5	1.7	TZA4-20	9.8	2.2
25 \pm 1.25	5.0 \pm 1.0	TZA5-5	8.0	1.3	TZA5-7	8.0	1.9	TZA5-10	8.0	1.9	TZA5-20	15.5	2.4
30 \pm 1.5	6.0 \pm 1.2	TZA6-5	9.0	1.6	TZA6-7	8.5	2.2	TZA6-10	8.5	2.2	TZA6-20	16.0	2.8
35 \pm 1.75	7.0 \pm 1.5	TZA7-5	10.0	1.7	TZA7-7	12.3	2.5	TZA7-10	12.7	2.5	TZA7-20	17.0	3.1
40 \pm 2.0	8.0 \pm 2.0	TZA8-5	11.0	1.9	TZA8-7	15.5	2.8	TZA8-10	15.5	2.8	TZA8-20	17.0	3.4
45 \pm 2.25	9.0 \pm 2.0	TZA9-5	12.0	2.0	TZA9-7	16.2	3.0	TZA9-10	16.5	3.0	TZA9-20	18.0	3.7
50 \pm 2.5	10.0 \pm 2.0	TZA10-5	14.0	2.1	TZA10-7	17.8	3.1	TZA10-10	18.0	3.1	TZA10-20	19.0	4.0
75 \pm 3.75	15.0 \pm 3.5	TZA11-5	23.0	2.2	TZA11-7	25.7	3.4	TZA11-10	26.0	3.4	-	-	-
100 \pm 5.0	20.0 \pm 4.0	TZA12-5	33.0	2.4	TZA12-7	34.0	3.7	TZA12-10	34.0	3.7	-	-	-
125 \pm 6.25	25.0 \pm 5.0	TZA13-5	35.0	2.6	TZA13-7	41.5	4.0	TZA13-10	42.0	4.0	-	-	-

1. Rise Times are measured from 10% to 90% points.
2. Delay Times measured at 50% points of leading edge.
3. Output (100% Tap) terminated to ground through $R_L = Z_0$

OPERATING SPECIFICATIONS - Passive Delays

Pulse Overshoot (Pos) 5% to 10%, typical
 Pulse Distortion (S) 3% typical
 Working Voltage 25 VDC maximum
 Dielectric Strength 100VDC minimum
 Insulation Resistance 1,000 Megohms min. @ 100VDC
 Temperature Coefficient 100 ppm/ $^{\circ}C$, typical
 Band Width (f_c) 35/tr approx.
 Operating Temperature Range -55 $^{\circ}$ to +125 $^{\circ}C$
 Storage Temperature Range -65 $^{\circ}$ to +150 $^{\circ}C$

Dimensions
in inches (mm)



TZB Series High Performance Passive 10-Tap Delay Modules

Performance Passive 10-Tap Delay Modules

Part Number Description

Pin Out (Z, Y, U)

Family Code No. (See Table for Delay)

Line Impedance, Zo (Ohms, ± 5%)

5 = 50 Ω, 7 = 75 Ω, 10 = 100 Ω, 20 = 200 Ω

Examples: TZB72-5 = Z Style 150ns (15ns per tap) 50 Ω
TUB18-10 = U Style 25ns (2.5ns per tap) 100 Ω

Fast Rise Time, Low DCR

- High Bandwidth $\approx 0.35 / t_r$
- Low Distortion LC Network
- 10 Equal Delay Taps
- Standard Impedances: 50 - 75 - 100 - 200 Ω
- Stable Delay vs. Temperature: 100 ppm/°C
- Operating Temperature Range -55°C to +125°C

Part Number Description

14-Pin 10-Tap Delay Line

Pin Out (Z, Y, U)

Family Code No. (See Table for Delay)

Line Impedance, Zo (Ohms, ± 5%)

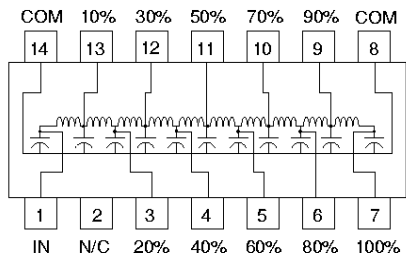
5 = 50 Ω, 7 = 75 Ω, 10 = 100 Ω, 20 = 200 Ω

Examples: TZB72-5 = Z Style 150ns (15ns per tap) 50 Ω

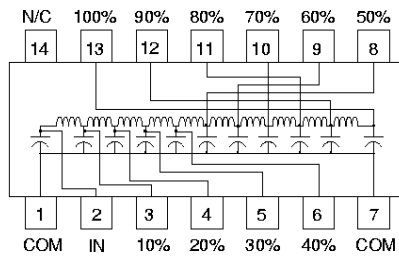
TUB18-10 = U Style 25ns (2.5ns per tap) 100 Ω

T X B XX - XX

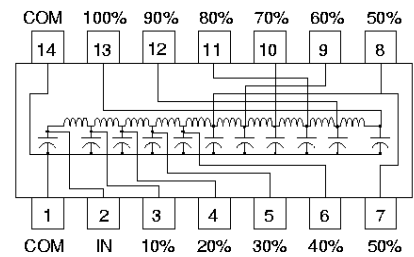
TZB Style Schematic
Most Popular Footprint



TYB Style Schematic
Substitute TYB for TZB in P/N



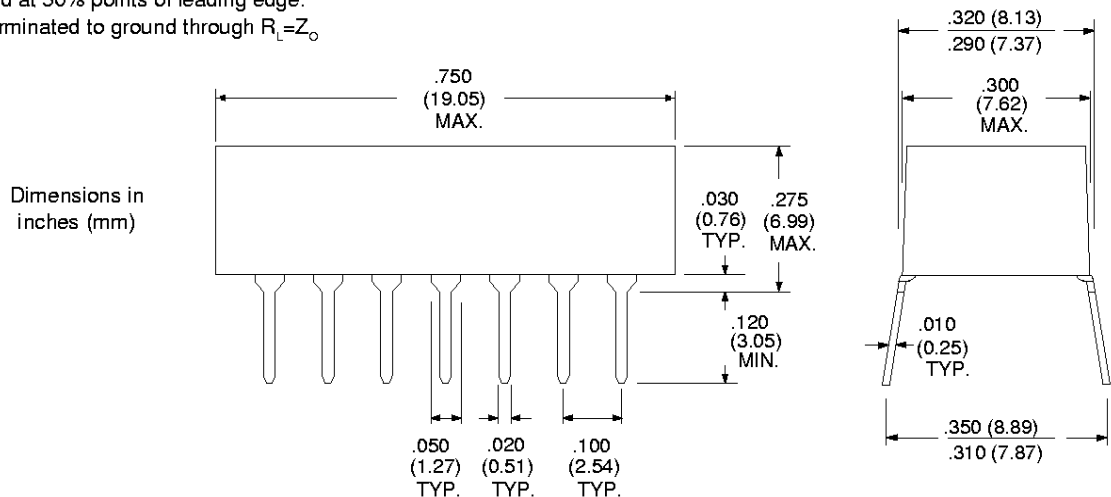
TUB Style Schematic
Substitute TUB for TZB in P/N



Electrical Specifications at 25°C

Delay Tolerances		50 Ohm Part Number	Rise Time (ns)	DCR max. (Ohms)	75 Ohm Part Number	Rise Time (ns)	DCR max. (Ohms)	100 Ohm Part Number	Rise Time (ns)	DCR max. (Ohms)	200 Ohm Part Number	Rise Time (ns)	DCR max. (Ohms)
Total (ns)	Tap-to-Tap (ns)												
5 ± 0.5	0.5 ± 0.2	TZB1-5	2.0	0.7	TZB1-7	2.1	0.8	TZB1-10	2.2	0.8	TZB1-20	2.4	0.9
10 ± 0.7	1.0 ± 0.4	TZB6-5	3.2	0.7	TZB6-7	3.6	0.8	TZB6-10	3.8	0.8	TZB6-20	5.5	1.0
20 ± 1.0	2.0 ± 0.5	TZB12-5	4.0	0.7	TZB12-7	4.4	1.3	TZB12-10	4.6	1.5	TZB12-20	8.5	1.5
25 ± 1.25	2.5 ± 0.5	TZB18-5	4.5	0.9	TZB18-7	5.3	1.5	TZB18-10	5.5	1.7	TZB18-20	9.0	1.8
30 ± 1.5	3.0 ± 0.5	TZB24-5	5.5	1.0	TZB24-7	5.8	1.7	TZB24-10	5.8	2.0	TZB24-20	10.0	2.0
40 ± 2.0	4.0 ± 1.0	TZB30-5	7.0	1.2	TZB30-7	7.5	2.0	TZB30-10	7.5	2.2	TZB30-20	13.0	2.2
50 ± 2.5	5.0 ± 1.0	TZB36-5	8.5	1.3	TZB36-7	8.5	2.1	TZB36-10	8.5	2.3	TZB36-20	15.5	2.4
60 ± 3.0	6.0 ± 1.5	TZB42-5	10.5	1.6	TZB42-7	11.4	2.3	TZB42-10	11.5	2.5	TZB42-20	16.0	2.5
70 ± 3.5	7.0 ± 1.5	TZB48-5	11.0	1.7	TZB48-7	13.0	2.5	TZB48-10	13.0	2.8	TZB48-20	17.0	2.5
80 ± 4.0	8.0 ± 1.8	TZB54-5	12.0	1.9	TZB54-7	15.3	3.8	TZB54-10	15.5	3.0	TZB54-20	19.0	2.5
90 ± 4.5	9.0 ± 2.0	TZB60-5	14.0	2.0	TZB60-7	17.3	3.0	TZB60-10	17.5	3.1	TZB60-20	20.0	2.5
100 ± 5.0	10.0 ± 2.0	TZB66-5	18.0	2.1	TZB66-7	19.5	3.1	TZB66-10	20.0	3.2	TZB66-20	24.0	2.5
150 ± 7.50	15.0 ± 3.0	TZB72-5	24.0	2.2	TZB72-7	26.0	3.3	TZB72-10	26.0	3.5	TZB72-20	35.0	3.6
200 ± 10.0	20.0 ± 3.0	TZB78-5	34.0	2.4	TZB78-7	38.0	3.4	TZB78-10	39.0	3.5	TZB78-20	44.0	4.8
250 ± 12.5	25.0 ± 3.0	TZB84-5	41.0	2.4	TZB84-7	45.0	3.5	TZB84-10	46.0	4.0	TZB84-20	56.0	5.2
300 ± 15.0	30.0 ± 3.0	TZB90-5	48.0	2.5	TZB90-7	53.0	3.5	TZB90-10	54.0	4.2	TZB90-20	68.0	5.8
400 ± 20.0	40.0 ± 5.0	TZB94-5	65.0	2.8	TZB94-7	66.0	3.6	TZB94-10	67.0	4.5	---	---	---
500 ± 25.0	50.0 ± 5.0	TZB98-5	75.0	3.3	TZB98-7	84.0	3.7	TZB98-10	86.0	5.0	---	---	---

1. Rise Times are measured from 10% to 90% points.
2. Delay Times measured at 50% points of leading edge.
3. Output (100% Tap) terminated to ground through $R_L = Z_o$



Specifications subject to change without notice.

For other values & Custom Designs, contact factory.

TZB_TZA 5/98