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TDC1750B10

Directional Coupler

Rev A1.0

The TDC1750B10 is a low profile, high performance 10dB directional coupler. It is designed for DCS & PCS applications. This component is suitable for feed-forward amplifier and signal sampling circuits where low insertion loss, high directivity is required. It can be used in power applications up to 100 Watts.

Parts have been subjected to rigorous qualification testing and they are using materials with coefficients fo thermal expansion (CTE)compatible with common substrates such as FR4, G-10, RF-35, RO4350B and polyimide.

Features:

- .500-3000 MHz
- .DCS & PCS
- .Low Insertion Loss
- .High Directivity
- .Low VSWR
- .Good Repeatability
- .CTE compatible with FR4, G-10, RF-35, RO4350B and polyimide
- .Immersion gold, prevent surface oxidation & scratch
- .RoHS Compliant
- .Tape & Reel Package available

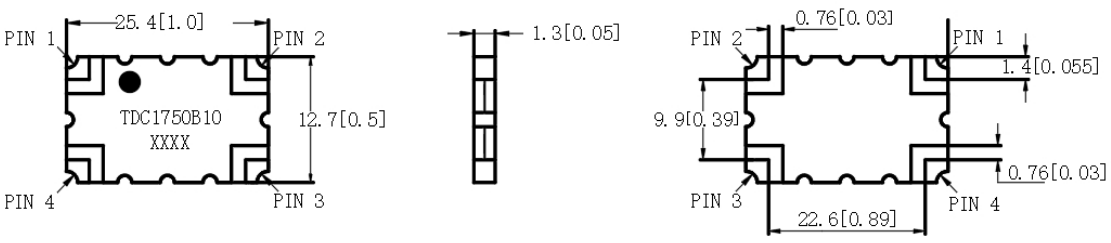
Electrical Specifications

Frequency	Forward Coupled	Insertion Loss	VSWR	Directivity
MHz	dB	dB Max	Max:1	dB Min
500-3000	10.5±1.0	0.35	1.25	20.0

Power	Size	Thickness	Operating Temp.
Avg.CW.Watts	mm	mm	℃
100	25.4*12.7	1.3	-55 to+105

Mechanical Outline

TOP VIEW SIDE VIEW BOTTOM VIEW



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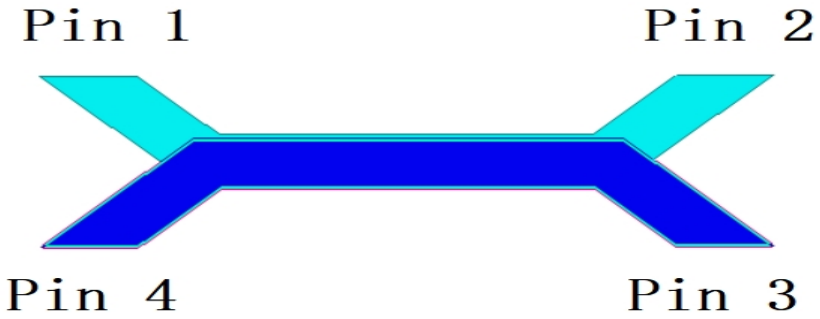
Hybrid Coupler Pin Configuration

The TDC1750B10 has an orientation marker to denote Pin 1. Once port one has been identified the other ports are known automatically. Please see the chart below for clarification:

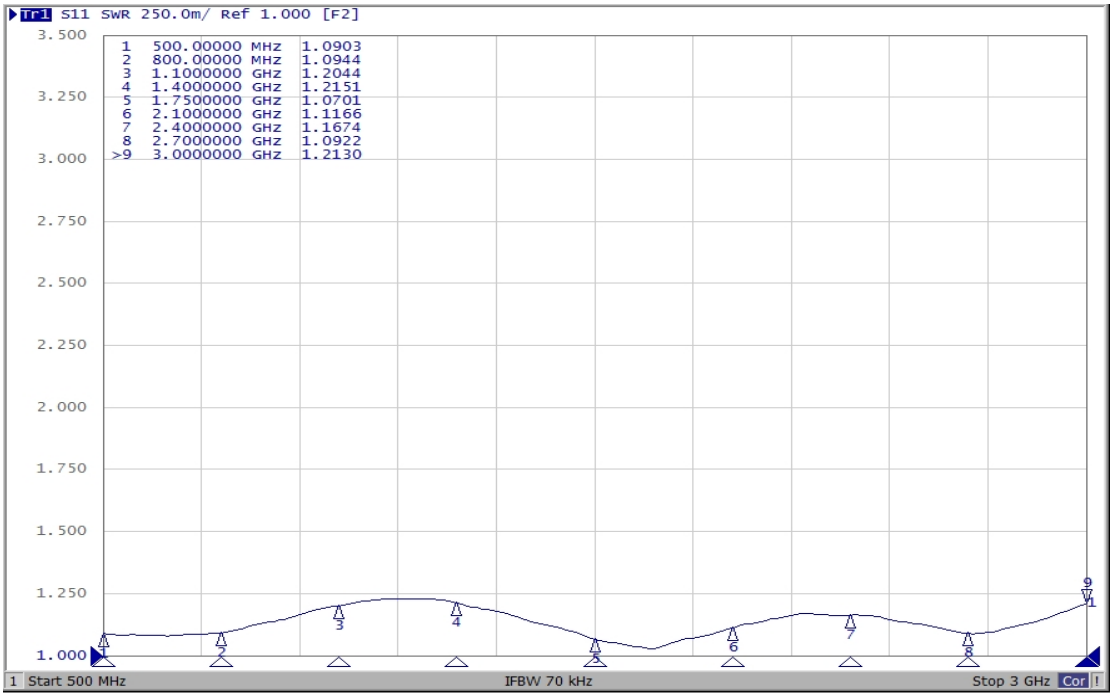


Pin 1	Pin 2	Pin 3	Pin 4
Input	Direct	Isolated	Coupled
Direct	Input	Coupled	Isolated
Isolated	Coupled	Input	Direct
Coupled	Isolated	Direct	Input

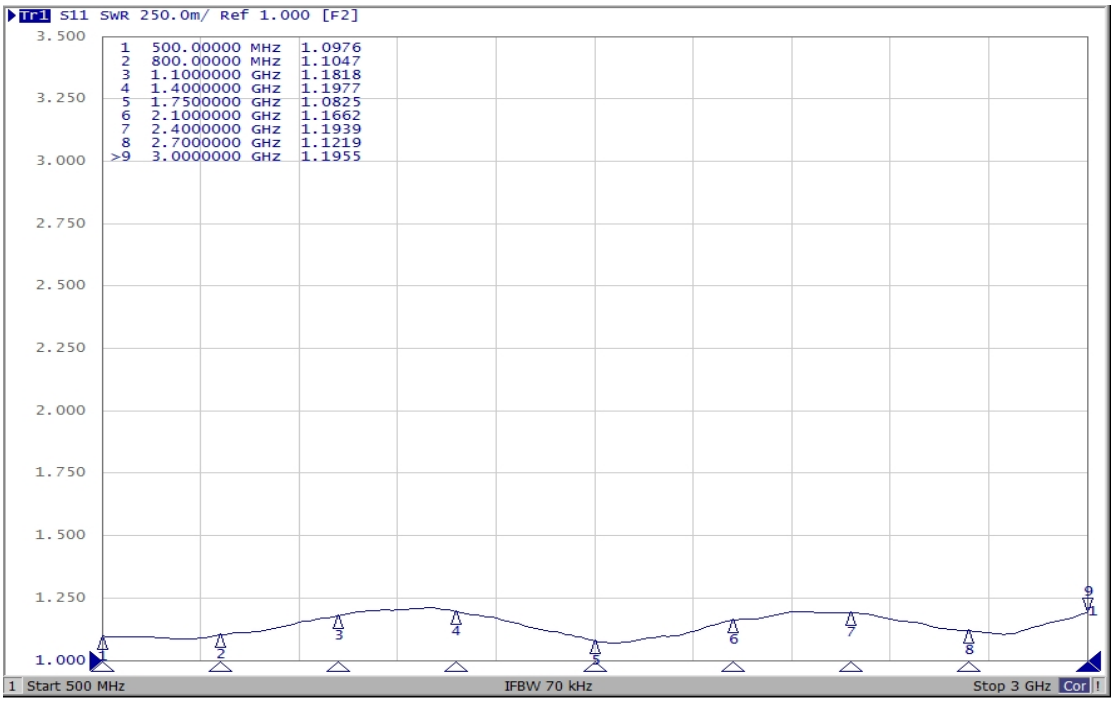
Typical Performance Data

Frequency		MHz	500	800	1100	1400	1750	2100	2400	2700	3000
Coupling		dB	-11.02	-9.96	-10.82	-10.98	-9.95	-10.31	-11.08	-10.39	-10.29
Transmission		dB	-0.45	-0.59	-0.57	-0.65	-0.72	-0.67	-0.70	-0.76	-0.77
Insertion Loss		dB	-0.09	-0.13	-0.15	-0.25	-0.26	-0.25	-0.33	-0.32	-0.32
Directivity		dB	-23.66	-32.73	-26.04	-20.81	-23.93	-34.38	-32.65	-41.02	-27.40
VSWR	1	/	1.09	1.09	1.20	1.22	1.07	1.12	1.17	1.09	1.21
	2	/	1.10	1.10	1.18	1.20	1.08	1.17	1.19	1.12	1.20
	3	/	1.10	1.11	1.17	1.20	1.10	1.13	1.17	1.09	1.08
	4	/	1.09	1.11	1.20	1.21	1.10	1.08	1.13	1.04	1.09

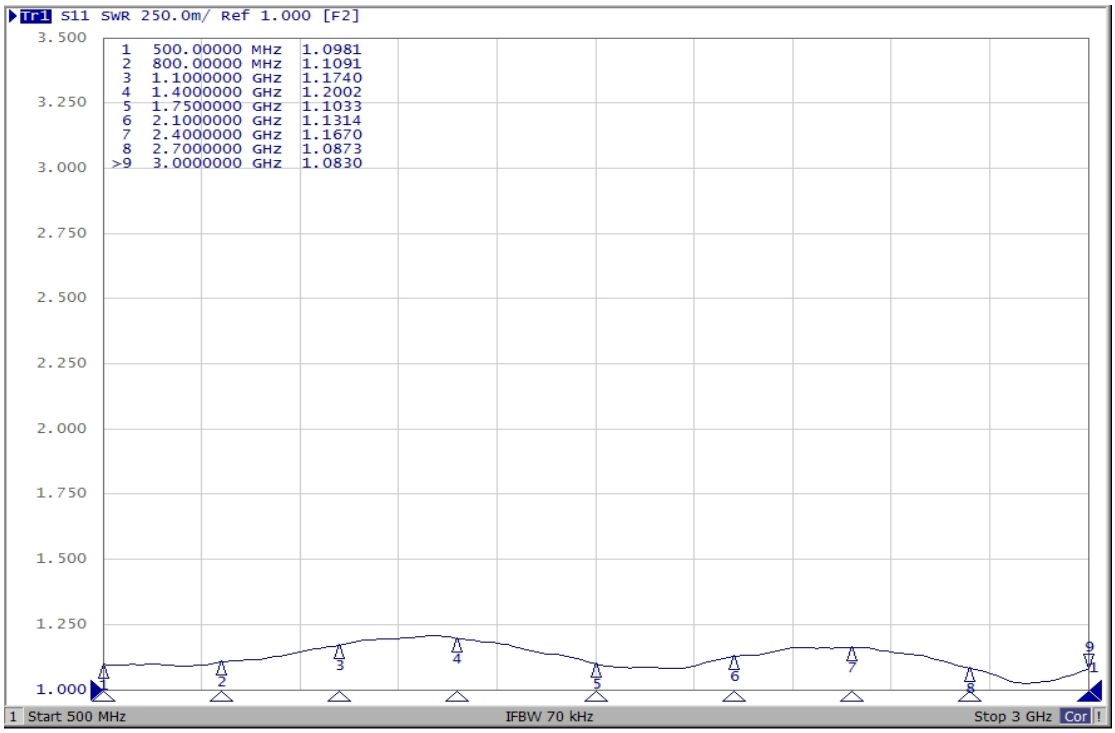
VSWR 1：


Tr1 S11 SWR 250.0m/ Ref 1.000 [F2]
1 500.00000 MHz 1.0903
2 800.00000 MHz 1.0944
3 1.1000000 GHz 1.2044
4 1.4000000 GHz 1.2151
5 1.7500000 GHz 1.0701
6 2.1000000 GHz 1.1166
7 2.4000000 GHz 1.1674
8 2.7000000 GHz 1.0922
>9 3.0000000 GHz 1.2130
3.500
3.250
3.000
2.750
2.500
2.250
2.000
1.750
1.500
1.250
1.000
1 Start 500 MHz
IFBW 70 kHz
Stop 3 GHz
Cor

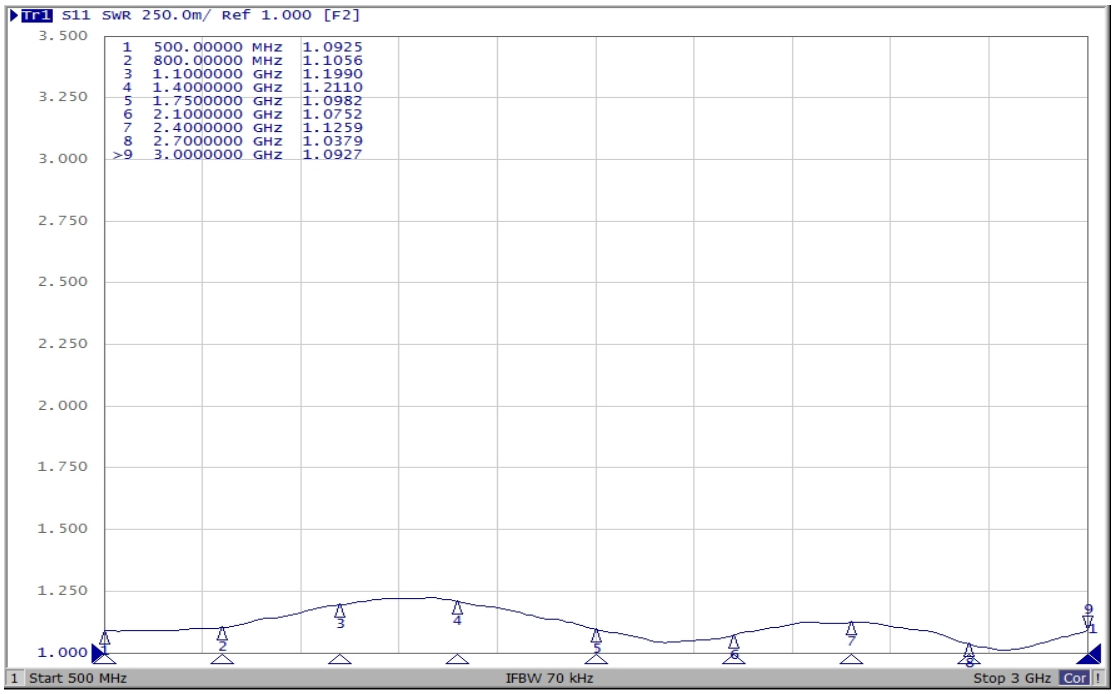
VSWR 2：


Tr1 S11 SWR 250.0m/ Ref 1.000 [F2]
1 500.00000 MHz 1.0976
2 800.00000 MHz 1.1047
3 1.1000000 GHz 1.1818
4 1.4000000 GHz 1.1977
5 1.7500000 GHz 1.0825
6 2.1000000 GHz 1.1662
7 2.4000000 GHz 1.1939
8 2.7000000 GHz 1.1219
>9 3.0000000 GHz 1.1955
3.500
3.250
3.000
2.750
2.500
2.250
2.000
1.750
1.500
1.250
1.000
1 Start 500 MHz
IFBW 70 kHz
Stop 3 GHz
Cor

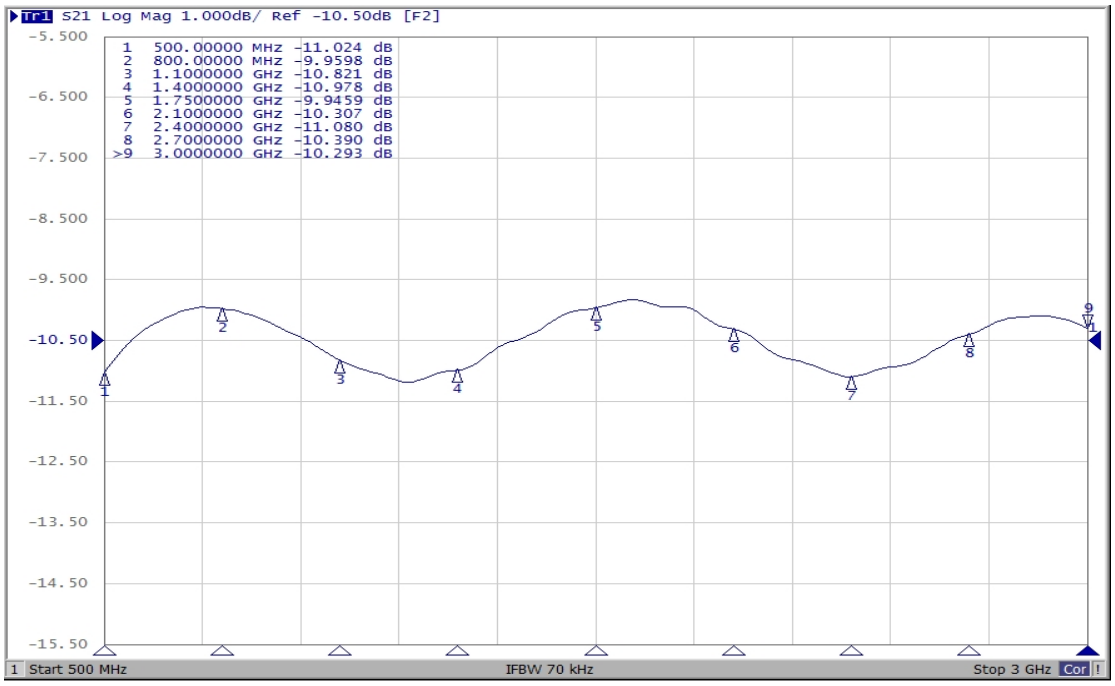
VSWR 3：


Tr1 S11 SWR 250.0m/ Ref 1.000 [F2]
1 500.00000 MHz 1.0981
2 800.00000 MHz 1.1091
3 1.1000000 GHz 1.1740
4 1.4000000 GHz 1.2002
5 1.7500000 GHz 1.1033
6 2.1000000 GHz 1.1314
7 2.4000000 GHz 1.1670
8 2.7000000 GHz 1.0873
>9 3.0000000 GHz 1.0830
3.500
3.250
3.000
2.750
2.500
2.250
2.000
1.750
1.500
1.250
1.000
1 Start 500 MHz
IFBW 70 kHz
Stop 3 GHz
Cor

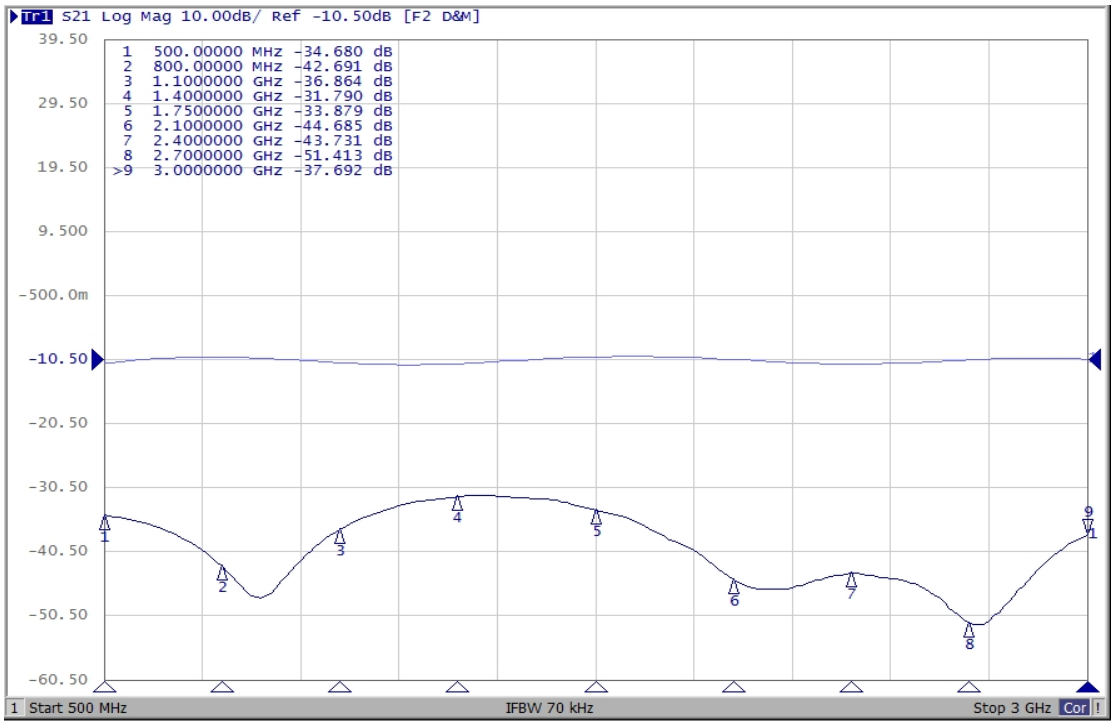
VSWR 4：


Tr1 S11 SWR 250.0m/ Ref 1.000 [F2]
1 500.00000 MHz 1.0925
2 800.00000 MHz 1.1056
3 1.1000000 GHz 1.1990
4 1.4000000 GHz 1.2110
5 1.7500000 GHz 1.0982
6 2.1000000 GHz 1.0752
7 2.4000000 GHz 1.1259
8 2.7000000 GHz 1.0379
>9 3.0000000 GHz 1.0927
3.500
3.250
3.000
2.750
2.500
2.250
2.000
1.750
1.500
1.250
1.000
1 Start 500 MHz
IFBW 70 kHz
Stop 3 GHz
Cor

Coupling:



Isolation:



Insertion Loss: