

Indoor RF passives

## 3D-LINE SPLITTER AND TAPS

The 3D-Line consists of splitters and taps that are DOCSIS® 3.1-compliant with frequency range up to 1218 MHz. Thanks to the superior housing design, the products are fast and easy to instal. Optional BarrLER® technology allows ingress/egress protection.

### 3D-Line features

- Frequency range up to 1218 MHz, Docsis 3.1 compliant
- Electromagnetic compatibility exceeds Class A+ (= Class A +10 dB)
- Very good intermodulation performance
- Superior housing design ensures fast and easy installation
- Optional BarrLER® technology for ingress/egress protection

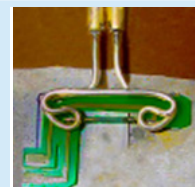
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## INDOOR RF PASSIVES / 3D-LINE

ELECTRICAL SPECIFICATIONS - SPLITTERS							
Frequency range (MHz)	2-way 3DSS2 3DSS2-B 3DSE2 3DSV2	3-way 3DSS3 3DSS3-B 3DSE3	3-way 3DSV3	3-way unbalanced 3DSS3U 3DSS3U-B 3DSE3U 3DSV3U	4-way 3DSS4 3DSS4-B 3DSE4 3DSV4	6-way 3DSV6	8-way 3DSV8
<b>Port loss (dB, Max.) - In to Port</b>							
5 - 10	3.5	6.0	6.0	3.8 7.2	7.3	9.2	10.8
10 - 65	3.7	6.0	6.0	3.8 7.0	7.3	9.0	10.8
65 - 470	3.8	6.1	6.5	3.8 7.0	7.3	9.3	10.8
470 - 862	4.1	6.1	6.5	4.0 7.5	7.5	10.4	11.4
862 - 1006	4.3	6.5	6.8	4.2 8.0	8.0	10.6	12.0
1006 - 1218	4.6	7.0	7.3	4.5 8.5	8.5	11.5	13.0
<b>Return loss (dB, Min.) - All ports</b>							
5 - 1218	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>
<b>Isolation (dB, Min.) - Out to Out</b>							
5 - 10	30.0	28.0	28.0	30.0	30.0	28.0	28.0
10 - 65	35.0	32.0	32.0	35.0	35.0	32.0	32.0
65 - 470	26.0	28.0	28.0	30.0	30.0	28.0	28.0
470 - 862	26.0	26.0	26.0	26.0	26.0	25.0	25.0
862 - 1006	25.0	24.0	24.0	25.0	25.0	24.0	24.0
1006 - 1218	21.0	21.0	21.0	21.0	21.0	21.0	21.0
<b>ELECTRICAL SPECIFICATIONS - 1-WAY TAPS</b>							
Frequency range (MHz)	6 dB 3DTS106	8 dB 3DTS108	10 dB 3DTE110 3DTS110	12 dB 3DTE112 3DTS112	16 dB 3DTE116 3DTS116	20 dB 3DTE120 3DTS120	24 dB 3DTS124
<b>Insertion loss (dB, Max.) - In to Out</b>							
5 - 10	2.3	1.6	1.2	0.9	0.8	0.8	0.8
10 - 65	2.3	1.6	1.2	0.9	0.8	0.8	0.8
65 - 470	2.3	1.6	1.2	0.9	0.8	0.8	0.8
470 - 862	2.8	1.8	1.6	1.4	1.0	0.9	0.9
862 - 1006	2.9	2.0	1.8	1.6	1.4	1.2	1.2
1006 - 1218	3.3	2.5	2.3	2.1	1.7	1.5	1.5
<b>Tap loss (dB, Min.) - In to Tap</b>							
5 - 65	6.5 ± 1.5	8.5 ± 1.5	10.5 ± 1.5	12.5 ± 1.5	16.0 ± 1.0	20.0 ± 1.0	24.0 ± 1.0
65 - 1006	6.5 ± 1.0	8.5 ± 1.0	10.5 ± 1.0	12.5 ± 1.0	16.0 ± 1.0	20.0 ± 1.0	24.0 ± 1.0
1006 - 1218	6.5 ± 1.5	8.5 ± 1.5	10.5 ± 1.5	12.5 ± 1.5	16.0 ± 2.0	20.0 ± 2.0	24.0 ± 2.0
<b>Return loss (dB, Min.) - All ports</b>							
5 - 1218	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>
<b>Isolation (dB, Min.) - Out to Tap</b>							
5 - 10	20.0	22.0	25.0	25.0	32.0	35.0	38.0
10 - 65	25.0	28.0	30.0	30.0	35.0	38.0	42.0
65 - 470	23.0	25.0	27.0	30.0	32.0	35.0	38.0
470 - 862	20.0	20.0	22.0	25.0	30.0	32.0	35.0
862 - 1006	20.0	20.0	21.0	22.0	28.0	30.0	32.0
1006 - 1218	18.0	18.0	20.0	20.0	25.0	26.0	28.0

### HIGH TEMPERATURE CAN DAMAGE SOLDERED COMPONENTS ...

We use automated induction soldering meaning shorter exposure for high temperatures. This soldering technology guarantees higher product quality and leads to many benefits such as a better EMC performance.



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ELECTRICAL SPECIFICATIONS - 2-WAY TAPS								
Frequency range (MHz)	8 dB 3DTE208 3DTS208	10 dB 3DTE210 3DTS210	12 dB 3DTE212 3DTS212	16 dB 3DTE216 3DTS216	20 dB 3DTE220 3DTS220			
<b>Insertion loss (dB, Max.) - In to Out</b>								
5 - 10	4.4	2.7	1.9	1.7	1.3			
10 - 65	4.4	2.7	1.6	1.6	1.3			
65 - 470	4.3	3.0	1.7	1.6	1.3			
470 - 862	4.3	3.4	1.9	1.8	1.6			
862 - 1006	4.6	3.6	2.4	2.2	2.0			
1006 - 1218	5.4	4.5	3.5	2.7	2.5			
<b>Tap loss (dB, Min.) - In to Tap</b>								
5 - 65	8.5 ± 1.5	10.0 ± 1.5	12.0 ± 1.5	16.0 ± 1.5	20.0 ± 1.5			
65 - 1006	8.5 ± 1.5	10.0 ± 1.5	12.0 ± 1.5	16.0 ± 1.5	20.0 ± 1.5			
1006 - 1218	8.5 ± 2.0	10.0 ± 2.0	12.0 ± 2.0	16.0 ± 2.0	20.0 ± 2.0			
<b>Return loss (dB, Min.) - All ports</b>								
5 - 10	18.0	22.0	22.0	22.0	22.0			
10 - 1218	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>			
<b>Isolation (dB, Min.) - Out to Tap</b>								
5 - 10	25.0	28.0	26.0	32.0	35.0			
10 - 65	27.0	29.0	30.0	35.0	39.0			
65 - 470	24.0	26.0	28.0	32.0	36.0			
470 - 862	22.0	24.0	26.0	30.0	34.0			
862 - 1006	20.0	22.0	24.0	28.0	32.0			
1006 - 1218	20.0	20.0	22.0	26.0	28.0			
<b>Isolation (dB, Min.) - Tap to Tap</b>								
5 - 10	36.0	36.0	36.0	36.0	36.0			
10 - 65	40.0	40.0	40.0	40.0	40.0			
65 - 470	34.0	36.0	36.0	36.0	36.0			
470 - 862	30.0	32.0	32.0	32.0	32.0			
862 - 1006	28.0	30.0	30.0	30.0	30.0			
1006 - 1218	28.0	30.0	30.0	30.0	30.0			
ELECTRICAL SPECIFICATIONS - 4/8-WAY TAPS								
Frequency range (MHz)	10 dB 3DTV410	12 dB 3DTE412T	12 dB 3DTV412	16 dB 3DTV416	20 dB 3DTV420	14 dB 3DTV814	16 dB 3DTV816	20 dB 3DTV420
<b>Insertion loss (dB, Max.) - In to Out</b>								
5 - 10	4.3	12.5 ± 1.5	3.5	1.6	0.9	4.3	3.0	2.0
10 - 65	4.1	12.5 ± 1.0	3.5	1.6	0.9	4.3	3.0	2.0
65 - 470	4.5	12.5 ± 1.0	3.6	1.6	0.9	4.3	3.3	2.6
470 - 862	4.6	12.5 ± 1.0	3.8	1.8	1.4	4.8	3.6	2.8
862 - 1006	4.6	12.5 ± 1.0	4.0	2.0	1.6	4.8	3.6	2.8
1006 - 1218	4.9	12.5 ± 1.5	4.3	2.5	2.1	5.1	3.9	3.1
<b>Tap loss (dB, Min.) - In to Tap</b>								
5 - 10	10.0 ± 1.5	-	12.5 ± 1.5	16.0 ± 1.5	20.5 ± 1.5	14.0 ± 1.0	16.0 ± 1.5	19.5 ± 1.5
10 - 65	10.0 ± 1.0	-	12.5 ± 1.0	16.0 ± 1.0	20.0 ± 1.0	14.0 ± 1.0	16.0 ± 1.0	19.5 ± 1.5
65 - 470	10.5 ± 1.0	-	12.5 ± 1.0	16.0 ± 1.0	20.0 ± 1.0	14.0 ± 1.0	16.0 ± 1.0	20.0 ± 1.5
470 - 862	11.0 ± 1.0	-	12.5 ± 1.0	16.0 ± 1.0	20.0 ± 1.0	14.0 ± 1.5	16.0 ± 1.0	20.0 ± 1.5
862 - 1006	11.0 ± 1.0	-	12.5 ± 1.0	16.0 ± 1.0	20.0 ± 1.0	14.5 ± 1.5	16.0 ± 1.5	20.0 ± 1.5
1006 - 1218	11.0 ± 1.5	-	12.5 ± 1.5	16.5 ± 1.5	20.5 ± 2.0	15.5 ± 2.0	17.0 ± 1.5	20.0 ± 2.0
<b>Return loss (dB, Min.) - All ports</b>								
5 - 1218	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>	22.0 <sup>(1)</sup>



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## INDOOR RF PASSIVES / 3D-LINE




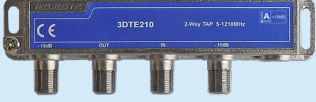



ELECTRICAL SPECIFICATIONS - 4/8-WAY TAPS								
Frequency range (MHz)	10 dB 3DTV410	12 dB 3DTE412T	12 dB 3DTV412	16 dB 3DTV416	20 dB 3DTV420	14 dB 3DTV814	16 dB 3DTV816	20 dB 3DTV420
<b>Isolation (dB, Min.) - Out to Tap</b>								
5 - 10	30.0	-	32.0	32.0	34.0	27.0	27.0	30.0
10 - 65	30.0	-	32.0	34.0	36.0	30.0	30.0	33.0
65 - 470	28.0	-	32.0	32.0	34.0	28.0	28.0	34.0
470 - 862	24.0	-	27.0	28.0	32.0	23.0	23.0	30.0
862 - 1006	24.0	-	24.0	28.0	30.0	22.0	22.0	28.0
1006 - 1218	22.0	-	22.0	25.0	28.0	21.0	21.0	26.0
<b>Isolation (dB, Min.) - Tap to Tap</b>								
5 - 10	22.0	20.0	20.0	22.0	22.0	24.0	24.0	22.0
10 - 47	30.0	20.0	28.0	32.0	32.0	32.0	32.0	32.0
47 - 65	30.0	28.0	28.0	32.0	32.0	32.0	32.0	32.0
65 - 470	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
470 - 862	25.0	25.0	25.0	25.0	25.0	23.0	23.0	23.0
862 - 950	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
950 - 1006	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
1006 - 1218	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
ELECTRICAL SPECIFICATIONS - MULTITAPS								
Frequency range (MHz)	4-way 3DMV4		5-way 3DMV5T		6-way 3DMV6		8-way 3DMV8	
<b>Insertion loss (dB, Max.) - In to Out</b>								
5 - 10	3.8		-		5.8		8.5	
10 - 65	3.6		-		5.7		8.2	
65 - 470	3.6		-		5.8		8.5	
470 - 862	4.3		-		6.0		8.9	
862 - 1006	4.7		-		7.5		9.2	
1006 - 1218	5.2		-		8.2		10.0	
<b>Tap loss (dB, Min.) - In to Tap</b>								
5 - 65 ± 1.5 65 - 862 ± 1.3 862 - 1218 ± 1.5	Port1	12.5		12.5		12.5		12.5
	Port2	13.5		12.5		13.5		13.5
	Port3	14.5		12.5		14.5		14.5
	Port4	15.5		12.5		15.5		15.5
	Port5	-		12.5		16.5		16.5
	Port6	-		-		17.5		17.5
	Port7	-		-		-		18.5
	Port8	-		-		-		19.5
<b>Return loss (dB, Min.) - All ports</b>								
5 - 1218	22.0 <sup>(1)</sup>		22.0 <sup>(1)</sup>		22.0 <sup>(1)</sup>		22.0 <sup>(1)</sup>	
<b>Isolation (dB, Min.) - Out to Tap</b>								
5 - 10	26.0		-		26.0		26.0	
10 - 65	26.0		-		26.0		26.0	
65 - 470	28.0		-		28.0		28.0	
470 - 862	24.0		-		24.0		24.0	
862 - 1006	22.0		-		22.0		22.0	
1006 - 1218	22.0		-		22.0		22.0	
<b>Isolation (dB, Min.) - Tap to Tap</b>								
5 - 10	36.0		36.0		36.0		36.0	
10 - 65	26.0		40.0		40.0		40.0	
65 - 470	28.0		32.0		32.0		32.0	
470 - 1006	24.0		30.0		30.0		30.0	
1006 - 1218	22.0		25.0		25.0		25.0	
GENERAL SPECIFICATIONS								
Frequency range	5 - 1218 MHz		Impedance			75 Ohm		
Operating temperature range	-25...+70 °C		Electromagnetic comp. <sup>(2)</sup> (dB, Min.)			5 - 300 300 - 470 470 - 950 950 - 1218		95.0 90.0 85.0 75.0

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GENERAL SPECIFICATIONS			
Surge immunity <sup>(3)</sup>	1 kV	Intermodulation <sup>(4)</sup> (2f1, f1+f2, 2f2)	-122.0 dBc <sup>(a)</sup> -115.0 dBc <sup>(b)</sup>
Weight  1-way tap 2-way tap and splitter 3-way splitter 4-way tap and splitter 6-way tap and splitter 8-way tap and splitter	0.052 kg between 0.051 and 0.069 kg between 0.068 and 0.088 kg between 0.074 and 0.095 kg 0.139 kg 0.146 kg	Dimensions  1-way tap + 2/3-way splitter 3DSS 2-way splitter 3DSE 2/3-way splitter 3DSV 2-way tap + 4-way splitter 3DSS 3/4-way splitter 3DSE 4-way tap and splitter 3DSV 6/8-way tap and splitter	58 x 52 x 19 mm 78 x 38.5 x 19 mm 60.5 x 42 x 34 mm 78 x 52 x 19 mm 123 x 38.5 x 19 mm 80.5 x 42 x 34 mm 125.5 x 46 x 35 mm
MECHANICAL SPECIFICATIONS			
Housing	Zinc die cast, NiSn plating	Back cover	Construction: machine soldered Material: Brass, Nickel plating
F-spring	Material: Phosphor Bronze Plating: Silver Test pin acceptance: 0.51-1.3mm Insertion force: ≤ 25N Withdrawal force: ≥ 0.3N	Connectors	Material: Zinc die cast Port spacing: 22mm Protection cap: yes Physical dimensions: ANSI/SCTE 01 2006
Grounding block	Yes	Protection	IP67, IEC60529:1989
Salt mist cyclic test	672 Hrs Number of Cycles: 4 Severity: 5 IEC60068-8-52:1996	Vibration	Frequency range: 10-55 Hz Sweep rate: 1 oct./p/m, Sweep cycles: 10 Displacement ampl.: 0.75mm Axis: 3 IEC60068-2-6:1995
HOUSING STYLE DESCRIPTION			
			
			<b>NOTE:</b> The width of the housing varies depending on the number of ways/connectors
NOTES			
<p>(1) At F ≥ 40 MHz -1.5 dB/oct.                  (2) Exceeding Class A (+10 dB), according to IEC60728-2-2010 (new 2012), EMC                  (3) 1 kV, 1.2/50µs Surge voltage according to IEC61000-4-5, EMC (class 2, level2) applied between the inner and outer conductor of each port                  (4) Two carriers (60 &amp; 65 MHz), applied to each output port, @ 120 dBµV                  a. No surge                  b. Measured after 10 pulses 25 VDC (1.2/500 µS) have been applied to each port</p> <p><b>Additional notes:</b>                  * Between 5 and 10 MHz, the above specifications are typical values and not min. or max. values                  * The 3D models with “-B” behind the product name features the Barrier® Lite Technology                  * CableLabs is owner of the trademark DOCSIS®</p> <p><i>The performance of 3D-Line series will be upgraded as running change late 2020 / first half of 2021. Exact timing varies by product.                  The attached datasheet presents the new upgraded version.</i></p>			
DETAILS MATTER ...			
<p>Our product dimensions are thought out carefully. For example, in some countries like in Germany, Passives can be installed to an existing backplane. Our Passives fit to this grid seamlessly.</p>			

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