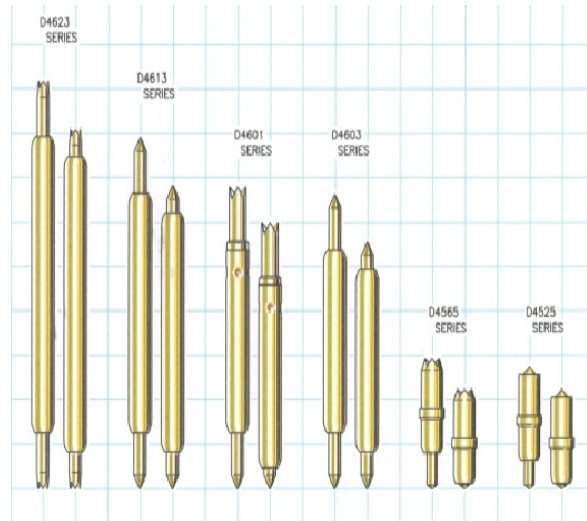


**FEATURES**

- **<-1db insertion loss to 8.2GHz**
- **<2:1VSWR to 23.7GHz**
- **34g operating spring force**
- **Z0 = 33.9Ω**
- **<37.5ps risetime**
- **60milliOhms contact resistance**
- **5.4Amp max. drive current**


**GENERAL DESCRIPTION**

The D4623 series spring probes from Signal Integrity Inc. are designed to meet the rigorous test probe bandwidth of the wireless and RF test markets as well as very fast rise times in test applications for telecommunication and broadband data communications system-on-a-chip devices. The risetime requirements for these devices are usually well below 150 picoseconds. Along with speed and accuracy, these probes are designed for testing very fine pitch to 0.8mm, well suited to the packaging constraints driven by the consumer wireless market.

The high bandwidth of these probes provides very low insertion loss up to 8.2GHz. These probes will provide transparent operation on Bluetooth, 802.11b and 3G wireless protocol devices as well as exceed the test probe demands of proprietary microwave communications devices and systems.

With an impulse risetime of less than 37.5ps and a propagation delay of 36ps, the AC performance of the D4623 probe is transparent for test applications and interconnections solutions that operate in high speed CMOS, SiGe and GaAs technologies.

**D4623 ORDERING INFORMATION**

D Series 0.8mm (.0315) Pitch				
Model	Length Operating/Initial inch [mm]	DUT Plunger and Plating	Spring	Operating Spring Force
D4623-D4	.253 [6.43] / .289 [7.33]	Crown - Gold	Stainless Steel	34 Grams

**FUNCTIONAL SPECIFICATIONS**

Model	D4623-D4			
Time Domain	Min.	Typ.	Max.	Units
TDT Risettime into 50Ω			37.5	ps
TDR Risettime open circuit			58.5	ps
TDR Risettime short circuit			73.5	ps
Signal Delay into 50Ω		36.0		ps
Frequency Domain				
Insertion Loss <-1db	8.2			GHz
<-3db	27.3			GHz
Return Loss, S11 <-10db	6.0			GHz
<-20db	2.0			GHz
VSWR <2:1	23.7			GHz
Equivalent Circuit Parameters				
Pin Inductance		1.55		nH
Pin Capacitance to ground		0.46		pF
Mutual Inductance		0.24		nH
Mutual Capacitance		0.06		pF
Transmission Line Zo		33.9		Ω
Tl		36.0		ps
DC Parameters				
Contact Resistance		60		mΩ
Maximum Rating				
Drive Current		5.4		A

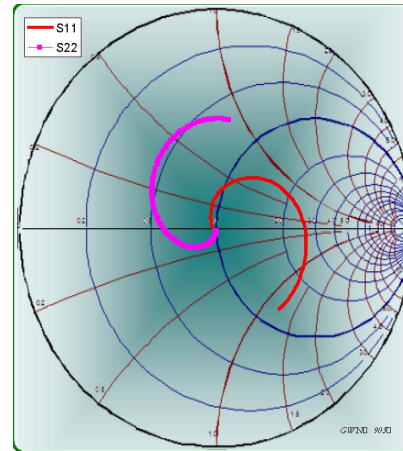


Figure 2: Measurement into 50Ω, D4623-D4

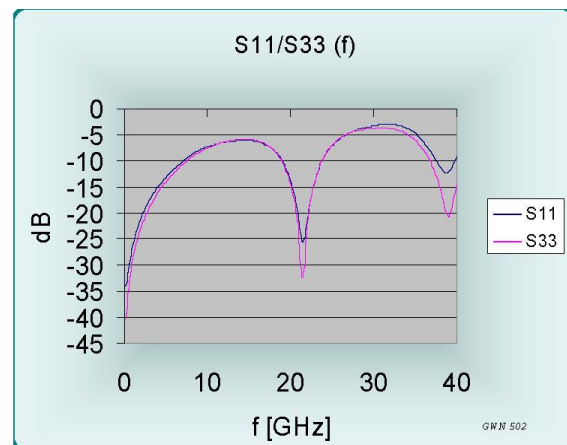


Figure 3: Return Loss, S11, D4623-D4

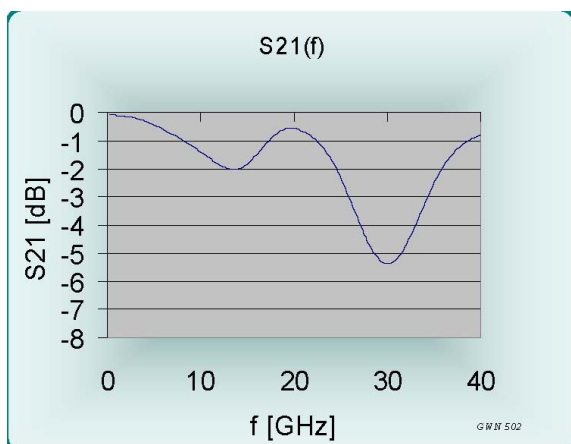


Figure 1: Insertion Loss, S21, D4623-D4

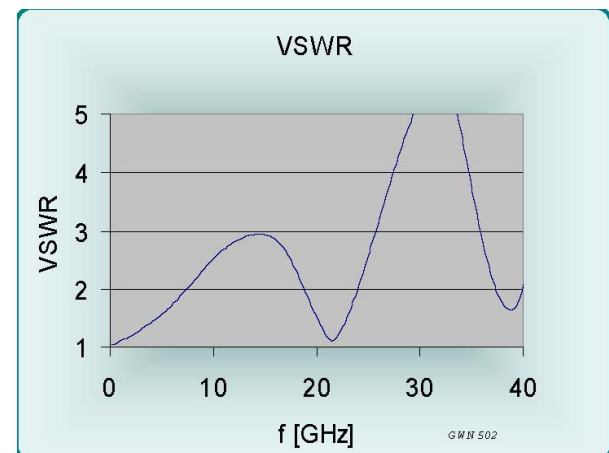


Figure 4: VSWR, D4623-D4

**EQUIVALENT CIRCUITS / SPICE MODELS**

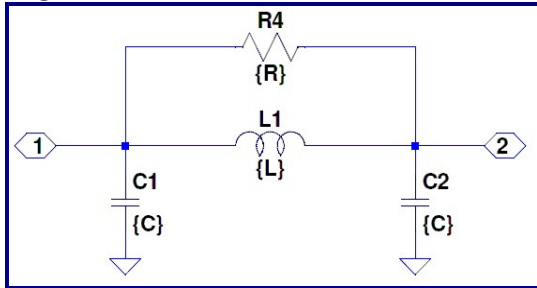


Figure 5: Pi Equivalent, Valid to <6GHz

C1, C2	0.455	pF
L1	1.55	nH
R4	1500	Ohms

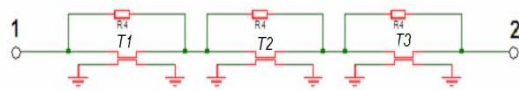


Figure 6: Distributed, Valid to >40GHz

ZO 1,3	60.0	Ohms
L 1,3	9.0	ps
R4	1500	Ohms
ZO 2	34.0	Ohms
L 2	19.0	ps

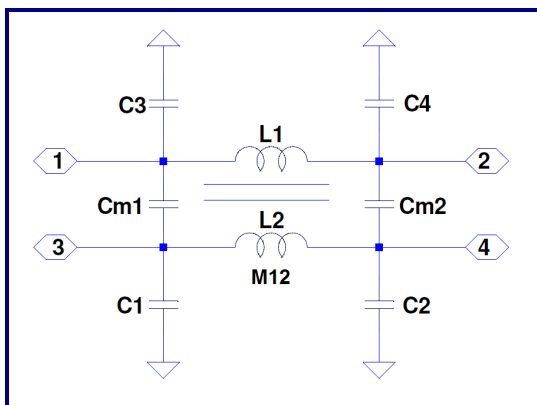


Figure 7: Lumped, Mutual Elements

C1,2,3,4	0.455	pF
Cm1, Cm2	0.060	pF
L1, L2	1.55	nH
M12	0.071	nH

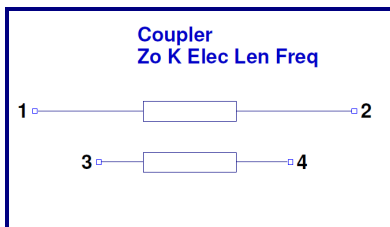


Figure 8: Transmission Line Equivalent for Crosstalk

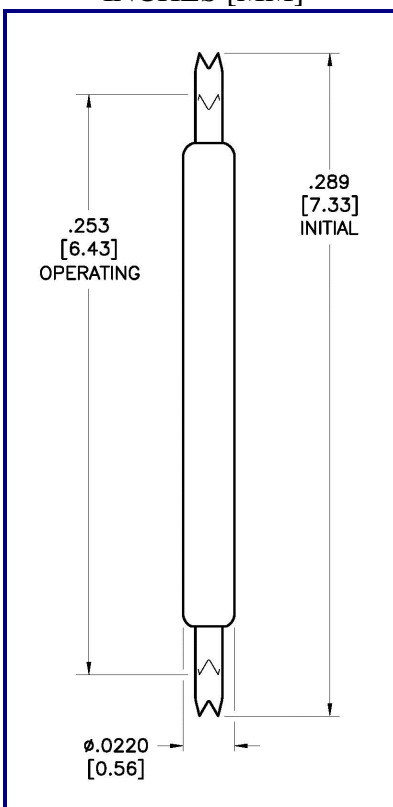
Z0	33.9	Ohms
Tl	36.0	ps

**D SERIES MODELS**

D Series 0.8mm (.0315) pitch									
Probe Series	Initial Length		Operating Position		Spring Force	Self Inductance	Insertion Loss < -1db to	Typical Contact Resistance	Maximum Current
	inch/mm		inch/mm						
<a href="#">D4525</a>	.087"	2.21	.071"	1.80	30 g	0.5 nH	17.0 GHz	20 mOhms	6.0 A
D4565	.092"	2.33	.071"	1.80	30 g	0.5 nH	17.0 GHz	25 mOhms	6.0 A
<a href="#">D4595</a>	.154"	3.91	.128"	3.25	38 g	0.82 nH	19.5 GHz	30 mOhms	3.0 A
<a href="#">D4601</a>	.214"	5.43	.186"	4.72	24-34 g	1.0 nH	12.8 GHz	50 mOhms	6.0 A
<a href="#">D4603</a>	.209"	5.30	.181"	4.59	24 g	1.16 nH	12.4 GHz	70 mOhms	4.0 A
<a href="#">D4613</a>	.249"	6.32	.213-.216"	5.49	24-34 g	1.25 nH	14.3 GHz	40 mOhms	2.15 A
<a href="#">D4623</a>	.289"	7.33	.253"	6.43	34 g	1.55 nH	8.2 GHz	60 mOhms	5.4 A
D4823	.289"	7.33	.253"	6.43	28 g	-	-	-	-
<a href="#">D4693</a>	.185"	4.71	.157"	4.00	24-34 g	0.92 nH	18.3 GHz	40 mOhms	3.0 A
<a href="#">D4694</a>	.185"	4.71	.157"	4.00	23-36 g	0.80 nH	7.8 GHz	40 mOhms	3.0 A
<a href="#">D4697</a>	.339"	8.61	.295"	7.50	32 g	2.01 nH	8.6 GHz	45 mOhms	2.6 A

**MECHANICAL DIMENSIONS**

INCHES [MM]



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